# Solicitation 12621-923

# Hendricks Isle Seawall Replacement

# **Bid Designation: Public**



**City of Fort Lauderdale** 

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# Bid 12621-923 Hendricks Isle Seawall Replacement

Bid Number	12621-923
Bid Title	Hendricks Isle Seawall Replacement
Bid Start Date	Dec 28, 2021 2:04:21 PM EST
Bid End Date	Feb 1, 2022 2:00:00 PM EST
Question & Answer End Date	Jan 24, 2022 5:00:00 PM EST
Bid Contact	Paulette R Hemmings Turner
	Procurement Specialist
	Finance
	954-828-5139
	pturner@fortlauderdale.gov
Contract Duration	One Time Purchase
Contract Renewal	Not Applicable
Prices Good for	120 days
Bid Comments	The City of Fort Lauderdale, Florida (City) is seeking bids from qualified bidders, hereinafter referred to as the Contractor, to provide seawall construction services for the City's Public Works Department, in accordance with the terms, conditions, and specifications contained in this Invitation To Bid (ITB). This project is located at the Southeast Isles, in the City of Fort Lauderdale. The work to be accomplished under this contract includes, but is not limited to, approximately 330 total linear feet of cantilevered steel sheet pile seawall with a concrete cap in two locations on the north side of Hendricks Isle.
	Sealed bids will be received electronically until 2:00 p.m. , local time, on February 1, 2022 , and opened online immediately thereafter.
	All openings will be held on the BIDSYNC.COM platform. Once the Procurement Specialist opens the solicitation, the bid tabulations may be viewed immediately on a computer, laptop, cell phone, or any other device with WiFi access. The opening may also be viewed in real time through a "Microsoft Teams meeting" or similar type platform by using the following information:
	Microsoft Teams meeting Join on your computer or mobile app Click here to join the meeting Or call in (audio only) +1 954-686-7296,,205256446# United States, Fort Lauderdale Phone Conference ID: 205 256 446# Find a local number   Reset PIN
	This meeting is facilitated by the City of Fort Lauderdale. Meeting content may be subject to Florida Statute Chapter 119 concerning public records and subject to disclosure. anyone requesting assistance or having further inquiry in this matter must contact the Procurement Specialist indicated on the solicitation, via the Question and Answer (Q&A) platform on Bidsync.com before the Last Day for Questions indicated in the Solicitation.
	Drawing Plans: This Project consists of Drawing File No., 4-143-00, 31 sheets. Drawing plans may be obtained free of charge at BIDSYNC.COM.
	Licensing Requirements : General Contractor License required or Certified Marine Specialty Contractor License.

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### NOTE: Payment on this contract will be made by Visa or MasterCard

### Pre-Bid Meeting/Site visit:

There will not be a pre-bid meeting /or site visit for this Invitation to Bid.

However, it will be the sole responsibility of the bidder to inspect the City's location(s)/facilities and become familiar with the scope of the City's requirements and systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the proposer has familiarized himself with the nature and extent of the work, equipment, materials, and labor required.

<u>Bid Security</u> : A certified check, cashier's check, bank officer's check or bid bond for <u>FIVE</u> percent (5%) of the bid amount, made payable to the City of Fort Lauderdale, Florida, shall accompany each offer.

### **Item Response Form**

ltem	12621-92301-01 - Base Bid: Mobilization and Demobilizati	on (7.5 Percent)
Lot Description	Base Bid	
Quantity	1 lump sum	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 1	

### Description

The lump sum price for this item shall be full compensation for mobilization and demobilization activities. This includes Performance and Payment Guarantee Insurance, scheduling, project coordination, labor associated with permit acquisition, temporary facilities, audio-visual preconstruction record, project signs, door hangers, property owner notification, preparatory work and operations necessary for the movement of personnel and setting up of all equipment, instruments, and incidentals to the project site, finish grading, site cleanup, and all other activities necessary to prepare and complete the contract work. The payment for mobilization and demobilization shall not exceed 7.5 percent of the contract price for Bid Items 5 through 20. Partial payments for mobilization and demobilization shall be made in accordance with Specifications Section 01025.

ltem	12621-92301-02 - Base Bid: Maintenance of Traffic	
Lot Description	Base Bid	
Quantity	1 lump sum	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 1	
Description		

The lump sum price for this item shall be full compensation for all labor, equipment, material, and work required for maintenance of traffic in accordance with FDOT Standards and/or Broward County and/or the City of Fort Lauderdale. This item includes preparing maintenance of traffic plans (MOTs) to appropriate agencies for approval, providing personnel as required to direct traffic (flaggers, crossing guards, local police, etc.), all temporary signage and striping, barricades, temporary barrier walls, drums, cones, installing temporary fencing and walkways as required to maintain pedestrian traffic, installing temporary steel plates for vehicular traffic and all other work incidental to the maintenance of traffic as required by FDOT Standards and/or Broward County and/or the requirements of the City of Fort Lauderdale and the Contract

Documents. Payment for Maintenance of Traffic shall not exceed 3 percent of the sum of Bid Items 5 through 20 and will be made in equal monthly amounts during the duration of the Contract Time.

ltem	12621-92301-03 - Base Bid: Project Record Documents
Lot Description	Base Bid
Quantity	1 lump sum
Unit Price	
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	<b>Qty</b> 1

### Description

The lump sum price for this item shall be full compensation for the cost of preparing and submitting approved record drawings and geodatabase data as outlined in the Contract Documents. This item include preparing record drawings in AutoCAD and AutoCAD Civil 3D format; providing elevations and GPS coordinates for the regraded Rights-of-Way, asphalt (if changed), new storm drains, stormwater structures, outfalls, new seawalls, tie-ins to existing storm drains, deflections, and conflict separations; and other data as may be required in the Contract Documents. Initiation for payment of this bid item will not occur until all items in the list of submittals are approved and accepted by the City. Final payment for this item will not be made until final record drawings (signed and sealed by a Florida registered surveyor) have been received and accepted by the City. Payments for Record Drawings/Geodatabase Data will be made in accordance with Specifications Section 01025.

ltem	12621-92301-04 - Base Bid: Prevention, Control, and Abatement of Erosion and Water Pollution
Lot Description	Base Bid
Quantity	1 lump sum
Unit Price	
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	<b>Qty</b> 1

#### Description

The lump sum price indicated for this bid item shall be full compensation for all labor, equipment, and material necessary for preparation, submittal, approval, and implementation of the NPDES Permit Application (Notice of Intent and Notice of Termination), reporting by a person holding a certification as an FDEP NPDES Construction Site Inspector, preparing a Stormwater Pollution Prevention Plan (SWPPP) and implementation of Best Management Practices (BMP) and environmental pollution protection throughout construction as outlined in the Contract Documents and required by the City. Payment for this item will be made in equal monthly payments throughout the duration of active construction and will not be issued prior to Mobilization.

ltem	12621-92301-05 - Base Bid	Remove and Dispo
Lot Description	Base Bid	
Quantity	4 each	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 4	

### Description

The unit price for this item shall be full compensation for all labor, equipment, and material required to remove and dispose of existing drainage structures on a per unit basis. This item includes locating, verifying, and protecting existing utilities including support of existing utility poles, saw cutting and removing existing paving and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposing

### Bid 12621-923

#### City of Fort Lauderdale

of unsuitable material, removal and disposal of existing drainage and outfall structures, backfilling and compacting fill material, placing structural asphalt, providing temporary and permanent restoration including pavement and temporary asphalt, pavement markings and striping, and all other associated restoration work.

ltem	12621-92301-06 - Base Bid: Remove and Dispose of Existing Drainage Pipe up to 18 Inches D
Lot Description	Base Bid
Quantity	100 linear foot
Unit Price	
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	<b>Qty</b> 100

### Description

The unit price for this item shall be full compensation on a per linear foot basis for all labor, equipment, and material required to remove and dispose of existing storm drain or outfall pipes, including in line check valves. This item includes locating, verifying and protecting existing utilities including support of existing utility poles, saw cutting and removing existing paving and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposing of unsuitable material, removal and disposal of existing piping and inline check valves, abandoning and grouting existing piping, backfilling and compacting fill material, placing structural asphalt, providing temporary and permanent restoration including pavement and temporary asphalt, pavement markings and striping, and all other associated restoration work.

ltem	12621-92301-07 - Base Bid: Furnish and Install Catch Basi
Lot Description	Base Bid
Quantity	4 each
Unit Price	
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	<b>Qty</b> 4

### Description

The unit price for this item shall be full compensation for all labor, equipment, and materials required to furnish and install catch basins with concrete aprons, all in accordance with the Contract Documents on a per unit basis. This item includes locating, verifying, and protecting existing utilities including support of existing utility poles, saw cutting and removing of existing pavement and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposal of unsuitable material, temporary bracing of existing adjacent structures, construction and installation of the reinforced concrete catch basins, plugged openings (bricks and expanding grout as approved by Engineer), backfill and compaction, base pad, mud work, frames, grates, rims, covers, sealing pipe inlets and outlet, concrete top slabs, all appurtenant items, and associated restoration work. This item also includes installation of concrete aprons where shown on drawings, formwork, expansion joint material, concrete, and trimming for concrete aprons.

ltem	12621-92301-08 - Base Bid: Furnish and Install 15 Inch Inline Check Valve
Lot Description	Base Bid
Quantity	2 each
Unit Price	
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	<b>Qty</b> 2

### Description

The unit price for this item shall be full compensation for all labor, equipment, and materials required to furnish and install inline check valves all

City of Fort Lauderdale

in accordance with the Contract Documents. This item includes furnishing and installing anchor bolts, rings, seals, gaskets, valves, grout, testing, and any other items required for a complete and satisfactory installation.

ltem	12621-92301-09 - Base Bid	Installation of 15 In
Lot Description	Base Bid	
Quantity	100 linear foot	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 100	

### Description

The unit price for this item shall be full compensation on a per linear foot basis for all labor, equipment, and material required to furnish, transport, store, and install reinforced concrete pipe all in accordance with the Contract Documents. The item includes locating, verifying, and protecting existing utilities, saw cutting and removing of existing pavement and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, joint material, pipe bedding, backfilling and compacting fill material, concrete encasement if required, providing temporary restorations including pavement and pavement markings and striping, pipe flushing, post-construction testing, all appurtenant items, and associated incidental restoration work. Measurement for payment shall be the linear feet of pipe installed along the horizontal centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.

ltem	12621-92301-10 - Base Bid: Installation of 12 Inch Reinforced Concrete Pipe
Lot Description	Base Bid
Quantity	100 linear foot
Unit Price	
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	<b>Qty</b> 100

### Description

The unit price for this item shall be full compensation on a per linear foot basis for all labor, equipment, and material required to furnish, transport, store, and install reinforced concrete pipe all in accordance with the Contract Documents. The item includes locating, verifying, and protecting existing utilities, saw cutting and removing of existing pavement and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, joint material, pipe bedding, backfilling and compacting fill material, concrete encasement if required, providing temporary restorations including pavement and pavement markings and striping, pipe flushing, post-construction testing, all appurtenant items, and associated incidental restoration work. Measurement for payment shall be the linear feet of pipe installed along the horizontal centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.

ltem	12621-92301-11 - Base Bid: Furnish and Install Pollution Retardant Baffles		
Lot Description	Base Bid		
Quantity	2 each		
Unit Price			
Delivery Location	City of Fort Lauderdale		
	See ITB Specifications		
	See ITB Specifications		
	Fort Lauderdale FL 33301		
	<b>Qty</b> 2		
Decemination			

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#### City of Fort Lauderdale

The unit price for this item shall be full compensation for all labor, equipment, and materials required to furnish and install pollution retardant baffles all in accordance with the Contract Documents. This item includes furnishing and installing anchor bolts, angle brackets, seals, gaskets, pollution retardant baffles, grout, and any other items required for a complete and satisfactory installation.

ltem	12621-92301-12 - Base Bid: Pipe	: Furnish and Constr
Lot Description	Base Bid	
Quantity	1 lump sum	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 1	

### Description

The lump sum price for this item shall be full compensation for the construction of the 8-inch ductile iron water main offset to the existing 8-inch ductile iron water main as well as restraining the existing 8-inch water main at the locations indicated. This item includes locating, verifying, and protecting existing utilities, coordinating with Owner for shut offs, saw cutting and removing existing asphalt pavement or drop curb, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, removal and disposal of the existing 8-inch water main to be demolished, furnishing, storing, installing, and testing of the restrained joint connections, piping, and fittings indicated on the plans, performing field cuts, providing pipe restraints to offset and to the existing pipe, dewatering and disposing of pipe contents of existing line, pipe bedding, backfilling and compacting fill material, swabbing pipe with disinfectant, post construction testing, temporary restorations including pavement and pavement markings and striping, furnishing and installing asphalt for curb restoration, and all other appurtenant and incidental restoration work required for a complete and satisfactory installation.

ltem	12621-92301-13 - Base Bid: Furnish and Install 8 Inch Sanitary Sewer Main and Connect to Existing Pipe
Lot Description	Base Bid
Quantity	1 lump sum
Unit Price	
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	<b>Qty</b> 1

#### Description

The lump sum price for this item shall be full compensation for the construction of the 8-inch PVC sanitary sewer and connection to the existing 8-inch vitrified clay pipe sanitary sewer at the location indicated. This item includes locating, verifying, and protecting existing utilities, coordinating with Owner for shut offs, bypassing the existing sewer, saw cutting and removing existing asphalt pavement or drop curb, removing and disposing of existing vitrified clay pipe to be demolished, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, tracer wire installation, dewatering and disposing of pipe contents of existing line, pipe bedding, backfilling and compacting fill material, temporary restorations including pavement and pavement markings and striping, and all other appurtenant and incidental restoration work required for a complete and satisfactory installation.

ltem	12621-92301-14 - Base Bid: Cantilevered Steel Sheet Pile Wall with Concrete Cap		
Lot Description	Base Bid		
Quantity	360 linear foot		
Unit Price			
Delivery Location	City of Fort Lauderdale		
	See ITB Specifications		
	See ITB Specifications		

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Fort Lauderdale FL 33301 **Qty** 360

### Description

The unit price for this item is the payment, on a linear foot basis, for all materials, labor, equipment, and work necessary and required for the complete installation of a cantilevered steel sheet pile wall with concrete cap. This item includes application of coating to steel sheet pile wall, installation of cantilevered steel sheet pile wall, installation of jet filters, termination details at ends, all required temporary bracing, shoring, demolition, removal and disposal of existing seawall and/or portions of existing seawall deemed necessary by Contractor to install proposed wall. This item also includes all noise, vibration, and settlement mitigation measures required in accordance with the Contract Documents.

ltem	12621-92301-15 - Base Bid: FDOT Number 57 Ston	
Lot Description	Base Bid	
Quantity	200 cubic yard	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 200	

#### Description

The unit price for this item is the payment, on a cubic yard basis, for all labor, equipment, material and work required for furnishing and installing FDOT Number 57 stone as required for a complete installation of the proposed seawall. This item includes the furnishing and placement of FDOT Number 57 stone in void spaces between the existing and proposed seawalls as shown in the Contract Documents. This item excludes all FDOT Number 57 stone used for any other purpose.

ltem	12621-92301-16 - Base Bid: Oເ	utfall Drainage Pipe Penetrations through Proposed Seawa
Lot Description	Base Bid	
Quantity	2 each	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	Qty 2	

### Description

The unit price for this item is the payment, on a unit basis, for all labor, equipment, material, and work necessary and required for constructing 15-inch outfall drain pipe penetrations through the proposed seawall. This item includes excavation, removal of existing wall as required, penetration through proposed wall, installing concrete face, installation of manatee grates, backfilling, grading, site restoration and all other appurtenant work as shown in the Contract Documents associated with the pipe penetration.

ltem	12621-92301-17 - Base Bid: Milling and Res	urfacing
Lot Description	Base Bid	
Quantity	700 square yard	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 700	

#### Description

The unit price for this item is the payment, on a square yard basis, for all labor, equipment, material, and work necessary for milling and

CAM 22-0284

### City of Fort Lauderdale

resurfacing Hendricks Isle in accordance with the Contract Documents. This item includes milling of existing pavement at a maximum thickness of 1 inch up to 2.5 inches, removing and disposing of the existing asphalt, installing SP-9.5 asphalt concrete overlay at an average thickness of 1 inch to provide a uniform surface within the limits of pavement restoration, applying a tack coat, adjusting rim elevations of existing manholes, catch basins, and valve boxes, providing temporary pavement markings, and saw cutting of all pavement. This item also includes permanent thermoplastic pavement markings, raised retro reflective pavement markers, and all other miscellaneous and appurtenant work.

ltem	12621-92301-18 - Base Bid: Remove and Replace Existing Drop	Curb
Lot Description	Base Bid	
Quantity	500 linear foot	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 500	

#### Description

The unit price for this item, on a linear foot basis, for all labor, equipment, material, and work necessary for removing and replacing drop curbs in accordance with the Contract Documents. This item includes removing and disposing of the existing drop curb, installation of 4-inch limerock curb pad, formwork, expansion joint material, concrete, and trimming for new curb.

ltem	12621-92301-19 - Base Bid	Existing Tree Protec
Lot Description	Base Bid	
Quantity	1 lump sum	
Unit Price		
Delivery Location	City of Fort Lauderdale	
	See ITB Specifications	
	See ITB Specifications	
	Fort Lauderdale FL 33301	
	<b>Qty</b> 1	

### Description

The lump sum price for this item shall be full compensation for all labor, equipment, material and work necessary for the protection of existing trees and landscaping to remain in place; including all aspects of protection, trimming, pruning, fertilizing, and watering; demolition, removal, and disposal of existing trees and landscaping to be removed; and removal and relocation of existing trees to locations defined by the City/Engineer; replacement of trees and any landscape and hardscape impacted in any way by the removal and/or relocation of trees as required to accommodate the work. This item includes preparation and submittal of a tree disposition plan as well as the process for submitting and gaining approval of this plan and procuring all permits related to tree removal and/or relocation as required by all regulatory agencies with jurisdiction over this area.

ltem	12621-92301-20 - Base Bid: Miscellaneous Site Restoration		
Lot Description	Base Bid		
Quantity	1 lump sum		
Unit Price			
Delivery Location	City of Fort Lauderdale		
	See ITB Specifications		
	See ITB Specifications		
	Fort Lauderdale FL 33301		
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### Description

The lump sum price for this item shall be full compensation for all labor, equipment, material, and work necessary for the restoration of the right of way along Hendricks Isle not included in other bid items. This item includes replacing asphalt driveways and parking spaces, restoring swales, grading, sodding, landscaping, hardscaping, restoration of existing irrigation, sidewalks, edging and hedges, and all other work

CAM 22-0284

incidental to the restoration of the right of way as required by the Contract Documents. This item also includes all Work not defined in other Bid Items.

# CITY OF FORT LAUDERDALE CONTRACT AND SPECIFICATIONS PACKAGE

# BID NO. 12621-923

# PROJECT NO. 12695

# **PROJECT NAME:** Hendricks Isle Seawall Replacement



FRANCISCO RIOS PROJECT MANAGER II

PAULETTE HEMMINGS TURNER PROCUREMENT SPECIALIST Telephone: (954) 828-5139 E-mail:<u>PTurner@fortlauderdale.gov</u>

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- 01005 Intent of Drawings and Specifications
- 01010 Summary of Work
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- 01070 Abbreviations
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### **Description**

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- 03200 Concrete Reinforcement
- 03290 Joints in Concrete
- 03300 Cast In Place Concrete
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- 03370 Concrete Curing
- 03400 Precast Concrete, General

### **DIVISION 4 – MASONRY (NOT USED)**

## **DIVISION 5 – METALS**

- 05010 Metal Materials
- 05035 Galvanizing
- 05050 Metal Fastening
- 05540 Castings

### **DIVISION 6 – WOOD AND PLASTICS**

### 06100 Rough Carpentry

# **DIVISION 7 – THERMAL AND MOISTURE PROTECTION**

- 07160 Bituminous Dampproofing
- 07920 Sealants and Caulking

### **Description**

**DIVISION 8 – DOORS AND WINDOWS (NOT USED)** 

### **DIVISION 9 – FINISHES**

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**DIVISION 10 – SPECIALTIES (NOT USED)** 

**DIVISION 11 – EQUIPMENT (NOT USED)** 

**DIVISION 12 – FURNISHINGS (NOT USED)** 

**DIVISION 13 – SPECIAL CONSTRUCTION (NOT USED)** 

**DIVISION 14 – CONVEYING SYSTEMS (NOT USED)** 

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15177 Inline Check Valves

15178 Weep Hole Filters

### DIVISION 16 – ELECTRICAL (NOT USED)

### **DIVISION 17 – INSTRUMENTATION (NOT USED)**

### **APPENDIX A**

Hendricks Isle Tidal and Stormwater Improvements Benthic Resource Survey

### **APPENDIX B**

Geotechnical Services Report by RADISE International dated August 1, 2018

# <u>Note:</u> The following documents are available electronically for completion and documents <u>must</u> be returned with your bid along with your bid security, proof of insurance, and proof of required licenses/certifications.

CITB Non-Discrimination Certification Form CITB Non-Collusion Statement CITB Contract Payment Method CITB Specific Reference Form CITB Construction Bid Certification CITB Questionnaire Sheet E-Verify Affirmation Statement Disadvantaged Business Enterprise Preference Certification

# INVITATION TO BID

Sealed bids will be received electronically until 2:00 P.M., local time, on February 1, 2022, and opened online immediately thereafter for BID NO., 12621-923, PROJECT NO.,12695, Hendricks Isle Seawall Replacement.

All openings will be held on the BIDSYNC.COM platform. Once the Procurement Specialist opens the solicitation, the bid tabulations may be viewed immediately on a computer, laptop, cell phone, or any other device with WiFi access. The opening may also be viewed in real time through a "Microsoft Teams Meeting" or similar type platform by using the following information:

# Microsoft Teams meeting

Join on your computer or mobile app <u>Click here to join the meeting</u> Or call in (audio only) +<u>1 954-686-7296,,205256446#</u> United States, Fort Lauderdale Phone Conference ID: 205 256 446# <u>Find a local number | Reset PIN</u>

This meeting is facilitated by the City of Fort Lauderdale. Meeting content may be subject to Florida Statute Chapter 119 concerning public records and subject to disclosure. anyone requesting assistance or having further inquiry in this matter must contact the Procurement Specialist indicated on the solicitation, via the Question and Answer (Q&A) platform on Bidsync.com before the Last Day for Questions indicated in the Solicitation.

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**Drawing Plans:** This Project consists of Drawing File No., 4-143-00, 31 sheets. Drawing plans may be obtained **free of charge** at BIDSYNC.COM.

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However, it will be the sole responsibility of the bidder to inspect the City's location(s)/ facilities and become familiar with the scope of the City's requirements and systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the proposer has familiarized himself with the nature and extent of the work, equipment, materials, and labor required.

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### Bid Bonds:

Bidders can submit bid bonds for projects four different ways.

- 1) BidSync allows bidders to submit bid bonds electronically directly through their system using **Surety 2000**. For more information on this feature and to access it, contact BIDSYNC customer care department.
- Bidders may upload their original executed bid bond on BIDSYNC to accompany their electronic bids and deliver the original, signed and sealed hard copy within five (5) business days after bid opening, with the company name, bid number and title clearly indicated.
- 3) Bidders can hand deliver their bid bond in a sealed envelope to the Finance Department, Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, Florida 33301-1016, before time of bid opening, with the company name, bid number and title clearly indicated on the envelope.
- 4) Bidders can mail their bid bond to the Finance Department, Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, Florida 33301-1016, before time of bid opening, with the company name, bid number and title clearly indicated on the envelope. <u>NOTE: Bond must be received</u> in Procurement and time stamped before bid opening. It will be the sole responsibility of the bidder to ensure that his bid is submitted prior to the bid opening date and time listed. <u>PAPER BID SUBMITTALS WILL NOT BE ACCEPTED. BIDS MUST BE SUBMITTED ELECTRONICALLY VIA BIDSYNC.COM</u>

### Certified Checks, Cashier's Checks and Bank Drafts:

These **CANNOT** be submitted via BIDSYNC, nor are their images allowed to be uploaded and submitted with your electronic bid. These forms of securities, as well as hard copy bid bonds, must be received on or before the Invitation to Bid (ITB) opening date and time, at the Finance Department, Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, Florida 33301-1016, with the bid number and title clearly indicated on the envelope.

It is the bidder's sole responsibility to ensure that his bid bond or other bid security is received by the Procurement Services Division before time of bid opening. Failure to adhere to this requirement may be grounds to consider the bid as non-responsive.

The City of Fort Lauderdale reserves the right to waive any informality in any or all bids and to reject any or all bids.

For information concerning technical specifications, please utilize the Q&A platform provided by BIDSYNC at <u>www.bidsync.com</u>. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures, will only be transmitted by written addendum. (See addendum section of BIDSYNC Site). <u>Bidders</u> <u>please note:</u> No part of your bid can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the bidder has familiarized himself with the nature and extent of the work, equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation.

Information on bid results and projects currently out to bid can be obtained on the City's website – <u>http://www.fortlauderdale.gov/departments/finance/procurement-services</u>. For general inquiries, please call (954) 828-5933.

# **INSTRUCTIONS TO BIDDERS**

The following instructions are given for the purpose of guiding bidders in properly preparing their bids or proposals. These directions have equal force and weight with the specifications, and strict compliance is required with all of these provisions.

<u>QUALIFICATIONS OF BIDDERS</u> – No proposal will be accepted from, nor will any contract be awarded to, any person who is in arrears to the City of Fort Lauderdale, upon any debt or contract, or who has defaulted, as surety or otherwise, upon any obligation to the City, or who is deemed irresponsible or unreliable by the City Commission of Fort Lauderdale.

<u>CONCERNING SUB-CONTRACTORS, SUPPLIERS, AND OTHERS</u> - The amount of work that is sublet by the Bidder shall be limited by the condition that the Bidder shall, with his own organization, perform at least forty percent (40%) of the total dollar amount of the Work to be performed under the Agreement.

<u>PERSONAL INVESTIGATION</u> - Bidders shall satisfy themselves by personal investigation, and by such other means as they may think necessary or desirable, as to the conditions affecting the proposed work and the cost. No information derived from maps, plans, specifications, or from the Engineer, City Manager, or their assistants shall relieve the Contractor from any risk or from fulfilling all terms of the contract.

<u>INCONSISTENCIES</u> – Any seeming inconsistency between different provisions of the plans, specifications, proposal or contract, or any point requiring explanation must be inquired by the bidder, in writing, at least ten (10) days prior to the time set for opening proposals. After proposals are opened, the bidders shall abide by the decision of the Engineer as to such interpretation.

<u>ADDENDA AND INTERPRETATIONS</u> - No interpretations of the meaning of the plans, specifications or other contract documents will be made orally to any bidder. Prospective bidders must request such interpretation in writing as instructed in the bid package. To be considered, such request must be received by the Questions and Answers deadline as indicated in BIDSYNC.COM. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. <u>It</u> is the bidder's responsibility to verify if addenda have been issued in BIDSYNC.COM. Failure of any bidder to receive any such addenda or interpretation shall not relieve any bidder from any obligation under his bid as submitted. All addenda so issued shall become a part of the contract document. <u>Bidder</u> shall verify in BIDSYNC.COM that he has all addenda before submitting a bid.

<u>LEGAL CONDITIONS</u> - Bidders are notified to familiarize themselves with the provisions of the laws of the State of Florida relating to hours of labor on municipal work, and with the provisions of the laws of the State of Florida and the Charter and the ordinances of the City of Fort Lauderdale.

<u>PUBLIC ENTITY CRIMES</u> - A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for Category Two for a period of thirty-six (36) months from the date of being placed on the convicted vendor list.

<u>FORMS OF PROPOSALS</u> - Each proposal and its accompanying statements must be made on the blanks provided. <u>THE FORMS MUST BE SUBMITTED ELECTRONICALLY</u>, IN GOOD ORDER <u>WITH ALL BLANKS COMPLETED</u>, and must show the name of the bidder and a statement as to its contents.

The proposal must be signed by one duly authorized to do so, and in case signed by a deputy or subordinate, the principal's properly written authority to such deputy or subordinate must accompany the proposal. No proposal will be accepted, for any reason whatsoever, which is not submitted to the City as stated above, within the specified time.

<u>INSURANCE</u> - Contractor shall provide and shall require all of its sub-contractors to provide, pay for, and maintain in force at all times during the term of the Agreement, such insurance, including Property Insurance (Builder's Risk), Commercial General Liability Insurance, Business Automobile Liability Insurance, Workers' Compensation Insurance, Employer's Liability Insurance, and Umbrella/Excess Liability, as stated below. Such policy or policies shall be issued by companies authorized to do business in the State of Florida and having agents upon whom service of process may be made in the State of Florida.

<u>BID BOND</u> - A certified check, cashier's check or bank officer's check made payable to the City of Fort Lauderdale, or bid bond, shall accompany each bid as evidence of the good faith and responsibility of the bidder. The check or bond shall be retained by the City as liquidated damages in the event the bidder whose bid is accepted refuses to or fails to enter into a contract for the execution of the work solicited in this Invitation to Bid. Retention of such amount shall not be construed as a penalty or forfeiture.

The above bid bond or check shall be a guarantee that the bidder will, if necessary, promptly execute a satisfactory contract and furnish good and sufficient bonds. If the successful bidder fails to enter into, execute, and deliver such a contract and furnish the required bonds within ten (10) days after receiving notice to provide the executed contract, the bid bond shall immediately become the property of the City of Fort Lauderdale as liquidated damages. Retention of such amount shall not be construed as a penalty or forfeiture.

<u>FILLING IN BIDS</u> - All prices must be electronically submitted in the proposal pages, and all proposals must fully cover all items for which proposals are asked and no other. Where more than one person is interested, it is required that all persons interested or their legal representative make all verification and subscribe to the proposal.

<u>PRICES QUOTED</u>: Deduct any discount offered and quote firm net unit prices. In the case of a discrepancy in computing the amount of the bid, the unit price quoted will govern. All prices quoted shall be F.O.B. destination, freight prepaid (Bidder pays and bears freight charges, Bidder owns goods in transit and files any claims), unless otherwise stated in Special Conditions. Each item must be bid separately. No attempt shall be made to tie any item or items contained in the ITB with any other business with the City.

<u>BIDS FIRM FOR ACCEPTANCE</u>: Bidder warrants, by virtue of bidding, that his bid and the prices quoted in his bid will be firm for acceptance by the City for a period of one hundred and twenty (120) days from the date of bid opening unless otherwise stated in the ITB. The City shall award contract within this time period or shall request to the recommended awarded vendor an extension to hold pricing, until products/services have been awarded.

<u>ADDITIONAL ITEMS OR SERVICES</u>: The City may require additional items or services of a similar nature, but not specifically listed in the contract. The Contractor agrees to provide such items or services, and shall provide the City prices on such additional items or services. If the price(s) offered are not acceptable to the City, and the situation cannot be resolved to the satisfaction of the City, the City reserves the right to procure those items or services from other vendors, or to cancel the contract upon giving the Contractor thirty (30) days written notice.

<u>DELETION OR MODIFICATION OF SERVICES</u>: The City reserves the right to delete any portion of the Contract at any time without cause, and if such right is exercised by the City, the total fee shall be reduced in the same ratio as the estimated cost of the work deleted bears to the estimated cost of the work originally planned. If work has already been accomplished on the portion of the Contract to be deleted, the Contractor shall be paid for the deleted portion on the basis of the estimated percentage of completion of such portion.

If the Contractor and the City agree on modifications or revisions to the task elements, after the City has approved work to begin on a particular task or project, and a budget has been established for that task or project, the Contractor will submit a revised budget to the City for approval prior to proceeding with the work.

<u>CANCELLATION FOR UNAPPROPRIATED FUNDS</u>: The obligation of the City for payment to a Contractor is limited to the availability of funds appropriated in a current fiscal period, and continuation of the contract into a subsequent fiscal period is subject to appropriation of funds, unless otherwise authorized by law.

<u>CAUSES FOR REJECTION</u> - No proposal will be canvassed, considered or accepted which, in the opinion of the City Commission, is informal or unbalanced, or contains inadequate or unreasonable prices for any items; each item must carry its own proportion of the cost as nearly as is practicable. Any alteration, erasure, interlineation, or failure to specify bids for all items called for in the schedule shall render the proposal informal.

<u>REJECTION OF BIDS</u> - The City reserves the right to reject any bid if the evidence submitted by the bidder, or if the investigation of such bidder, fails to satisfy the City that such bidder is properly qualified to carry out the obligations and to complete the work contemplated. Any or all proposals will be rejected, if there is reason to believe that collusion exists among bidders. A proposal will be considered irregular and may be rejected, if it shows serious omissions, alterations in form, additions not called for, conditions or unauthorized alternates, or irregularities of any kind. The City reserves the right to reject any or all proposals and to waive such technical errors as may be deemed best for the interests of the City.

<u>BID PROTEST PROCEDURE:</u> Any proposer or bidder who is not recommended for award of a contract and who alleges a failure by the City to follow the City's procurement ordinance or any applicable law may protest to the Procurement Division – Deputy Director of Finance, by delivering a letter of protest within five (5) days after a Notice of Intent to award is posted on the City's website at the following link: <u>https://www.fortlauderdale.gov/government/departments-a-h/finance/procurement-services/notices-of-intent-to-award</u>

The complete protest ordinance may be found on the City's website at the following link: <u>https://library.municode.com/fl/fort\_lauderdale/codes/code\_of\_ordinances?nodeld=COOR\_CH2AD\_A</u> <u>RTVFI\_DIV2PR\_S2-182DIREPRAWINAW</u>

<u>WITHDRAWALS</u> - Any bidder may, without prejudice to himself, withdraw his proposal at any time prior to the expiration of the time during which proposals may be submitted. Such request for withdrawal must be in writing and signed in the same manner and by the same person who signed the

proposal. After expiration of the period for receiving proposals, no proposal can be withdrawn, modified, or explained.

<u>CONTRACT</u> - The bidder to whom award is made shall execute a written contract to do the work and maintain the same in good repair until final acceptance by the proper authorities, and shall furnish good and sufficient bonds as specified within ten (10) days after receiving such contract for execution. If the bidder to whom the first award is made fails to enter into a contract as provided, the award may be annulled and the contract let to the next lowest bidder who is reliable, responsible, and responsive in the opinion of the City Commission, and that bidder shall fulfill every stipulation and obligation as if such bidder were the original party to whom award was made.

The contract shall provide that the Contractor agrees to correct any defective or faulty work or material, which may appear within one (1) year after completion of the work and receipt of final payment.

<u>ENFORCEMENT OF SPECIFICATIONS</u> - Copies of the specifications will be placed in the hands of all the assistants to the Engineer and Inspectors employed on the Work, who shall enforce each and every requirement of the contract. Such assistants shall have no authority to vary from such requirements.

DRAWING PLANS - Drawing plans may be obtained free of charge at BIDSYNC.COM.

<u>SURETY BOND</u> – The Contractor shall execute and record in the public records of Broward County, Florida, a payment and performance bond in an amount at least equal to the Contract Price with a surety insurer authorized to do business in the State of Florida as surety, ("Bond"), in accordance with Section 255.05, Florida Statutes (2021), as may be amended or revised, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents.

The successful bidder shall furnish a performance and payment bond in compliance with Section 255.05, Florida Statutes (2021), written by a Corporate Surety company, holding a Certificate of Authority from the Secretary of the Treasury of the United States as acceptable sureties on federal bonds, in an amount equal to the total amount payable by the terms of the contract, executed and issued by a Resident Agent licensed by and having an office in the State of Florida, representing such Corporate Surety, conditioned for the due and faithful performance of the work, and providing in addition to all other conditions, that if the Contractor, or his or its subcontractors, fail to duly pay for any labor, materials, or other supplies used or consumed by such Contractor, or his or its subcontractor or subcontractors, in performance of the work contracted to be done, the Surety will pay the same in the amount not exceeding the sum provided in such bonds, together with interest at the rate of fifteen percent (15%) per annum, and that they shall indemnify and hold harmless the City of Fort Lauderdale to the extent of any and all payments in connection with carrying out of the contract, which the City may be required to make under the law.

The Contractor is required at all times to have a valid surety bond in force covering the work being performed. A failure to have such bond in force at any time shall constitute a default on the part of the Contractor. A bond written by a surety, which becomes disqualified to do business in the State of Florida, shall automatically constitute a failure on the part of the Contractor to meet the above requirements.

Such bond shall continue in effect for one (1) year after completion and acceptance of the work with liability equal to at least twenty-five percent (25%) of contract price, or an additional bond shall be conditioned that the Contractor will correct any defective or faulty work or material which appear within one (1) year after completion of the contract, upon notification by the City, except in contracts which are concerned solely with demolition work, in which cases twenty-five percent (25%) liability will not be applicable.

<u>AUDIT OF CONTRACTOR'S RECORDS</u> - Upon execution of the Contract, the City reserves the right to conduct any necessary audit of the Contractor's records. Such an audit, or audits, may be conducted by the City or its representatives at any time prior to final payment, or thereafter, for a period up to three (3) years. The City may also require submittal of the records from either the Contractor, the Subcontractor, or both. For the purpose of this Section, records shall include all books of account, supporting documents and papers deemed necessary by the City to assure compliance with the contract provisions.

Failure of the Contractor or Subcontractor to comply with these requirements may result in disqualification or suspension from bidding for future contracts or disapproval a Subcontractor at the option of the City.

The Contractor shall assure that each of its Subcontractors will provide access to its records pertaining to the project upon request by the City.

<u>PERIODIC ESTIMATE FOR PARTIAL PAYMENT</u> - After the Contractor has submitted a periodic estimate for partial payment, approved and certified by the Public Works Department, the City shall make payment in the manner provided in the Contract Documents and in accordance with Florida's Prompt Payment Act, Section 218, Florida Statutes.

RESERVATION FOR AWARD AND REJECTION OF BIDS - The City reserves the right to accept or reject any or all bids, part of bids, and to waive minor irregularities or variations to specifications contained in bids, and minor irregularities in the bidding process. The City also reserves the right to award the contract on a split order basis, lump sum basis, individual item basis, or such combination as shall best serve the interest of the City. The City reserves the right to make an award to the responsive and responsible bidder whose product or service meets the terms, conditions, and specifications of the ITB and whose bid is considered to best serve the City's interest. In determining the responsiveness of the offer and the responsibility of the Bidder, the following shall be considered when applicable: the ability, capacity and skill of the Bidder to perform as required; whether the Bidder can perform promptly, or within the time specified, without delay or interference; the character, integrity, reputation, judgment, experience and efficiency of the Bidder; the quality of past performance by the Bidder; the previous and existing compliance by the Bidder with related laws and ordinances; the sufficiency of the Bidder's financial resources; the availability, quality and adaptability of the Bidder's supplies or services to the required use; the ability of the Bidder to provide future maintenance, service or parts; the number and scope of conditions attached to the bid.

<u>LOCAL BUSINESS PREFERENCE</u> - Section 2-186, Code of Ordinances of the City of Fort Lauderdale, provides for a local business preference. In order to be considered for a local business preference, a proposer must include the Local Business Preference Certification Statement of this ITB, as applicable to the local business preference class claimed at the time of Proposal submittal:

Upon formal request of the City, based on the application of a Local Business Preference, the Proposer shall, within ten (10) calendar days, submit the following documentation to the Local Business Preference Class claimed:

- a. Copy of City of Fort Lauderdale current year business tax receipt, or Broward County current year business tax receipt, and
- b. List of the names of all employees of the proposer and evidence of employees' residence within the geographic bounds of the City of Fort Lauderdale or Broward County, as the case may be, such as current Florida driver license, residential utility bill (water, electric, telephone, cable television), or other type of similar documentation acceptable to the City.

Failure to comply at time of proposal submittal shall result in the Proposer being found ineligible for the local business preference.

### Definitions:

- a. The term "Class A business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the city, and shall maintain a staffing level for the proposed work of at least fifty percent (50%) who are residents of the City of Fort Lauderdale.
- b. The term "Class B business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of the city, or shall maintain a staffing level for the proposed work of at least fifty percent (50%) who are residents of the City of Fort Lauderdale.
- c. The term "Class C business" shall mean any business that has established and agrees to maintain a permanent place of business located in a non-residential zone, staffed with full-time employees within the limits of Broward County.
- c. The term "Class D business" shall mean any business that does not qualify as a Class A, Class B, or Class C business.

The complete local business preference ordinance may be found on the City's web site at the following link:

https://library.municode.com/fl/fort\_lauderdale/codes/code\_of\_ordinances?nodeId=COOR\_CH2AD\_A RTVFI\_DIV2PR\_S2-186LOBUPR

<u>DISADVANTAGED BUSINESS ENTERPRISE PREFERENCE</u> - Section 2-185, Code of Ordinances of the City of Fort Lauderdale, provides for a disadvantaged business preference. In order to be considered for a disadvantaged business preference, a proposer must include a certification from a government agency, as applicable to the disadvantaged business preference class claimed at the time of Proposal submittal:

Upon formal request of the City, based on the application of a Disadvantaged Business Preference the Proposer shall within ten (10) calendar days submit the following documentation to the Disadvantaged Business Enterprise Preference Class claimed:

- a. Copy of City of Fort Lauderdale current year business tax receipt, or the Tri-County (Broward, Dade, West Palm Beach) current year business tax receipt, or proof of active Sunbiz status and
- b. List of the names of all employees of the proposer and evidence of employees' residence within the geographic bounds of the City of Fort Lauderdale or the Tri-County, as the case may be, such as current Florida driver license, residential utility bill (water, electric, telephone, cable television), or other type of similar documentation acceptable to the City.

Failure to comply at time of proposal submittal shall result in the Proposer being found ineligible for the Disadvantaged Business Enterprise Preference business preference.

The complete Disadvantaged Business Preference ordinance may be found on the City's website at the following link: <u>https://www.fortlauderdale.gov/home/showpublisheddocument?id=56883</u>

<u>DEBARRED OR SUSPENDED BIDDERS OR PROPOSERS</u> - The bidder or proposer certifies, by submission of a response to this solicitation, that neither it nor its principals and subcontractors are presently debarred or suspended by any Federal department or agency.

<u>LOBBYING ACTIVITIES</u> - **ALL CONTRACTORS PLEASE NOTE**: Any contractor submitting a response to this solicitation must comply, if applicable, with City of Fort Lauderdale Ordinance No. C-11-42 & Resolution No. 07-101, Lobbying Activities. Copies of Ordinance No., C-11-42, and Resolution No. 07-101, may be obtained from the City Clerk's Office on the 7th Floor of City Hall, 100 N. Andrews Avenue, Fort Lauderdale, Florida 33301. The Ordinance may also be viewed on the City's website at <u>https://www.fortlauderdale.gov/home/showdocument?id=6036</u>.

# SPECIAL CONDITIONS

### 01. PURPOSE

The City of Fort Lauderdale, Florida (City) is seeking bids from qualified bidders, **for** construction services in accordance with the terms, conditions, and specifications contained in this Invitation To Bid (ITB).

# 02. TRANSACTION FEES

The City uses BidSync (<u>www.bidsync.com</u>) to distribute and receive bids and proposals. There is no charge to vendors/contractors to register and participate in the solicitation process, nor will any fees be charged to the awarded contractor.

### 03. SUBMISSION OF BIDS

It is the sole responsibility of the Contractor to ensure that its bid is submitted electronically through BidSync at <u>www.bidsync.com</u> and that any bid security not submitted via BidSync reaches the City of Fort Lauderdale, Procurement Services Division, 6<sup>th</sup> floor, Room 619, 100 N. Andrews Avenue, Fort Lauderdale, Florida 33301-1016, in a sealed envelope marked on the outside with the ITB solicitation number and Contractor's name, no later than the time and date specified in this solicitation. **PAPER BID SUBMITALS WILL NOT BE ACCEPTED. PLEASE SUBMIT YOUR BID RESPONSE ELECTRONICALLY.** 

# 04. INFORMATION OR CLARIFICATION

For information concerning procedures for responding to this solicitation, contact Paulette Hemmings Turner, **Procurement Specialist**, at (954) 828-5139 or email at <u>PTurner@fortlauderdale.gov</u>. Such contact shall be for clarification purposes only.

For information concerning technical specifications please utilize the Question/Answer platform provided by BidSync at <u>www.bidsync.com</u>. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. (See addendum section of BidSync site). <u>Bidders please note</u>: No part of your bid can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the bidder has familiarized himself with the nature and extent of the work, and the equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation. The questions and answers submitted in BidSync shall become part of any contract that is created from this ITB.

# 05. CONTRACT TIME

- 5.1 The Contractor recognizes that TIME IS OF THE ESSENCE. The Work shall commence within **30** calendar days of the date of the Notice to Proceed.
- 5.2 The Work shall be Substantially Completed within **180** calendar days after the date when the Contract Time commences to run as provided in the Notice to Proceed.

5.3 The Work shall be finally completed on the Final Completion Date and ready for final payment in accordance with this Agreement within **240** calendar days after the date when the Contract Time commences to run as provided in the Notice to Proceed.

### 06. BID SECURITY

A certified check, cashier's check, bank officer's check or bid bond for <u>FIVE</u> percent (5%) of the bid amount, made payable to the City of Fort Lauderdale, shall accompany each offer.

### 07. REQUIRED LICENSES/CERTIFICATIONS

Contractor certified by State of Florida to perform the work specified in the scope. Must possess State of Florida General Contractor's License.

Note: Contractor <u>must</u> have proper licensing and shall submit evidence of same with its bid response.

### 08. SPECIFIC EXPERIENCE REQUIRED

The following expertise is required to be considered for this Contract. Specific references attesting to this expertise must be submitted with the bid response.

The contractor shall have previous construction experience in constructing new seawalls, in the State of Florida within the last ten (10) years. Bidder shall submit proof of construction experience for a minimum of three (3) projects of similar scope and scale (or larger) and shall, for each project listed, identify location; dates of construction; project name and overall scope; scope of work that was self-performed by Contractor; and client's name, address, telephone number and e-mail address.

### NOTE: <u>REFERENCES SHALL NOT INCLUDE ONLY CITY OF FORT LAUDERDALE</u> <u>EMPLOYEES OR WORK PERFORMED FOR THE CITY. THE CITY IS ALSO INTERESTED</u> <u>IN WORK EXPERIENCE AND REFERENCES FROM ENTITIES OTHER THAN THE CITY OF</u> FORT LAUDERDALE.

By signing this bid solicitation, contractor is affirming that this expertise will be provided for this Contract at no additional charge.

# 09. BID ALLOWANCE

10. **Allowance for permits:** Payments will be made to the contractor based on the actual cost of permits upon submission of paid permit receipts. The City shall not pay for other costs related to obtaining or securing permits.

The amount indicated is intended to be sufficient to cover the entire project. If the City's permit fees exceed the allowance indicated, the City will reimburse the contractor the actual amount of the City's permit fees required for project completion.

Allowance	\$
Permits	55,000.00
Undefined Conditions Allowance	75,000.00
Total	130,000.00

### Note: The City will add this allowance to your bid.

# **10. INSURANCE REQUIREMENTS** (See Article 10, Bonds and Insurance, of the Contract for details)

### Insurance

During the term of this Agreement, Contractor at its sole expense, shall provide insurance of such a type and with such terms and limits as noted below. Providing and maintaining adequate insurance coverage is a material obligation of Contractor. Contractor shall provide the City a certificate of insurance evidencing such coverage. Contractor's insurance coverage shall be primary insurance as respects to the City for all applicable policies. The limits of coverage under each policy maintained by Contractor shall not be interpreted as limiting Contractor's liability and obligations under this Agreement. All insurance policies shall be through insurers authorized or eligible to write policies in Florida and possess an A.M. Best rating of A-, VII or better, subject to the approval of the City's Risk Manager.

The coverages, limits and/or endorsements required herein protect the primary interests of the City, and these coverages, limits and/or endorsements shall in no way be required to be relied upon when assessing the extent or determining appropriate types and limits of coverage to protect the Contractor against any loss exposures, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, is not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under this Agreement.

The following insurance policies/coverages are required:

### Commercial General Liability

Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- \$1,000,000 each occurrence and \$2,000,000 project aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- \$1,000,000 each occurrence and \$2,000,000 project aggregate for Products and Completed Operations

Policy must include coverage for Contractual Liability, Independent Contractors, and contain no exclusions for explosion, collapse, or underground.

Contractor must keep Completed Operations insurance in force until the third anniversary of expiration of this Agreement or the third anniversary of acceptance of work by the City.

The City, a political subdivision of the State of Florida, its officials, employees, and volunteers are to be covered as an additional insured with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of the Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City, its officials, employees, or volunteers.

### Watercraft Liability (if applicable)

Coverage must be afforded in an amount not less than \$1,000,000 per occurrence and must cover the utilization of watercraft, including Bodily Injury and Property Damage arising out of ownership, maintenance, or use of any watercraft, including owned, non-owned, and hired.

Coverage may be provided in the form of an endorsement to the Commercial General Liability policy, or in the form of a separate policy covering Watercraft Liability or Protection and Indemnity for Bodily Injury and Property Damage.

### Crane and Rigging Liability (if applicable)

Coverage must be afforded for any crane operations under the Commercial General or Business Automobile Liability policy as necessary, in line with the limits of the associated policy.

### Pollution and Remediation Legal Liability (If any Hazardous Materials)

For the purpose of this section, the term "hazardous materials" includes all materials and substances that are designated or defined as hazardous by Florida or Federal law or by the rules or regulations of Florida or any Federal Agency. If work being performed involves hazardous materials, the Contractor shall procure and maintain any or all of the following coverage, which will be specifically addressed upon review of exposure.

### **Contractors Pollution Liability Coverage**

For sudden and gradual occurrences and in an amount not less than \$1,000,000 per claim arising out of this Agreement, including but not limited to, all hazardous materials identified under the Agreement.

### Asbestos Liability Coverage

For sudden and gradual occurrences and in an amount not less than \$1,000,000 per claim arising out of work performed under this Agreement.

### **Disposal Coverage**

The Contractor shall designate the disposal site and furnish a Certificate of Insurance from the disposal facility for Environmental Impairment Liability Insurance, covering liability for sudden and accidental occurrences in an amount not less than \$1,000,000 per claim and shall include liability for non-sudden occurrences in an amount not less than \$1,000,000 per claim.

### Hazardous Waste Transportation Coverage

The Contractor shall designate the hauler and furnish a Certificate of Insurance from the hauler for Automobile Liability insurance with Endorsement MCS90 for liability arising out of the transportation of hazardous materials in an amount not less than \$1,000,000 per claim limit and provide a valid EPA identification number.

# <u>Professional Liability and/or Errors and Omissions</u> (if architectural or engineering services are provided)

Coverage must be afforded for Wrongful Acts in an amount not less than \$1,000,000 each claim and \$1,000,000 aggregate.

Contractor must keep insurance in force until the third anniversary of expiration of this Agreement or the third anniversary of acceptance of work by the City.

### Business Automobile Liability

Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than \$1,000,000 combined single limit each accident.

If the Contractor does not own vehicles, the Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

### Workers' Compensation and Employer's Liability

Coverage must be afforded per Chapter 440, Florida Statutes. Any firm performing work on behalf of the City must provide Workers' Compensation insurance. Exceptions and exemptions will be allowed by the City's Risk Manager, if they are in accordance with Florida Statute.

The Contractor and its insurance carrier waive all subrogation rights against the City, a political subdivision of the State of Florida, its officials, employees, and volunteers for all losses or damages. The City requires the policy to be endorsed with WC00 03 13 Waiver of our Right to Recover from Others or equivalent.

Contractor must be in compliance with all applicable State and federal workers' compensation laws, including the U.S. Longshore and Harbor Workers' Compensation Act or Jones Act, if applicable.

For any Contractor who has exempt status as an individual, the City requires proof of Workers' Compensation insurance coverage for that Contractor's employees, leased employees, volunteers, and any workers performing work in execution of this Agreement.

If the Contractor has applied for a workers' compensation exemption, the City does not recognize this exemption to extend to the employees of the Contractor. The Contractor is required to provide proof of coverage for their employees, leased employees, volunteers and any workers performing work in execution of this Agreement. This applies to all contractors including but not limited to the construction industry.

### Insurance Certificate Requirements

- a. The Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than thirty (30) days prior to the start of work contemplated in this Agreement.
- b. The Contractor shall provide a Certificate of Insurance to the City with a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.
- c. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of the Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
- d. In the event the Agreement term goes beyond the expiration date of the insurance policy, the Contractor shall provide the City with an updated Certificate of Insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.
- e. The certificate shall indicate if coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the certificate will show a retroactive date, which should be the same date of the initial contract or prior.
- f. The City shall be named as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
- g. The City shall be granted a Waiver of Subrogation on the Contractor's Workers' Compensation insurance policy.
- h. The Agreement, Bid/Contract number, event dates, or other identifying reference must be listed on the certificate.

<u>The Certificate Holder should read as follows:</u> City of Fort Lauderdale

100 N. Andrews Avenue Fort Lauderdale, FL 33301 The Contractor has the sole responsibility for all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, coinsurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for adding the City as an Additional Insured shall be at the Contractor's expense.

If the Contractor's primary insurance policy/policies do not meet the minimum requirements, as set forth in this Agreement, the Contractor may provide an Umbrella/Excess insurance policy to comply with this requirement.

The Contractor's insurance coverage shall be primary insurance as respects to the City, a political subdivision of the State of Florida, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the City, its officials, employees, or volunteers shall be excess of Contractor's insurance and shall be non-contributory.

Any exclusions or provisions in the insurance maintained by the Contractor that excludes coverage for work contemplated in this Agreement shall be deemed unacceptable and shall be considered breach of contract.

All required insurance policies must be maintained until the contract work has been accepted by the City, and/or this Agreement is terminated. Any lapse in coverage shall be considered breach of contract. In addition, Contractor must provide confirmation of coverage renewal via an updated certificate should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.

All notices of any claim/accident (occurrences) associated with this Agreement, shall be provided to the Contractor's insurance company and the City's Risk Management office as soon as practical.

It is the Contractor's responsibility to ensure that all independent and subcontractors comply with these insurance requirements. All coverages for independent and subcontractors shall be subject to all of the requirements stated herein. Any and all deficiencies are the responsibility of the Contractor.

### **Bond Requirements**

This Agreement is required to be bonded pursuant to Section 255.05, Florida Statutes, and the Contractor shall furnish Payment and Performance bonds on the City's standard form covering the full and faithful performance of the Agreement for construction and the payment of obligations arising hereunder.

All bonds must be underwritten by a surety company authorized to issue bonds in the State of Florida. The Contractor shall deliver required bonds to the City no later than thirty (30) days prior to the start of work contemplated in this Agreement.

If the Surety on any bond furnished by the Contractor is declared bankrupt, becomes insolvent, its right to do business is terminated in the State of Florida, or it ceases to meet the requirements of Section 255.05, Florida Statutes, the Contractor shall within five (5) days thereafter substitute Surety, both of which shall be acceptable to the City.

### Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees, and property. The Contractor shall comply with all laws, regulations, or

ordinances relating to safety and health, and shall make special effort to detect hazardous conditions and shall take prompt action where loss control/safety measures should reasonably be expected.

The City may order work to be stopped if conditions exist that present immediate danger to persons or property. The Contractor acknowledges that such stoppage will not shift responsibility for any loss or damages from the Contractor to the City.

# **NOTE:** CITY PROJECT NUMBER, PROJECT NAME AND BID NUMBER MUST APPEAR ON EACH CERTIFICATE, AND THE CITY OF FORT LAUDERDALE MUST BE NAMED ON THE CERTIFICATE AS AN "ADDITIONAL INSURED" ON GENERAL LIABILITY POLICIES.

A <u>Sample Insurance Certificate</u> shall be included with the proposal to demonstrate the firm's ability to comply with insurance requirements. Provide a previous certificate or other evidence listing the insurance companies' names for all required coverage, and the dollar amounts of the coverage.

# 11. PERFORMANCE AND PAYMENT BOND: 100%

# 12. CITY PROJECT MANAGER

The Project Manager is hereby designated by the City as Francisco Rios whose address is 101 NE 3<sup>rd</sup> Avenue Suite #1410, Fort Lauderdale, Florida 33301, telephone number: (954) 828-5807 and e-mail address is <u>frios@fortlauderdale.gov</u>. The Project Manager will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the Contract Documents in connection with completion of the Work in accordance with this Agreement.

13. LIQUIDATED DAMAGES (See Article 16, Liquidated Damages, of the Contract for details) Upon failure of the Contractor to complete the Work within the time specified for completion, the Contractor shall pay to the City the sum of Five Hundred Dollars (\$500.00) for each and every calendar day that the completion of the Work is delayed beyond the time specified in this Agreement for completion, as fixed and agreed liquidated damages and not as a penalty, so long as the delay is caused by the Contractor. (See Article 16, Liquidated Damages Clause, of the Contract)

# **14. PAYMENT** (See Article 7, Payment, of the Contract for other details)

The City shall make payment to the Contractor through utilization of the City's P-Card Program. The City has implemented a Purchasing Card (P-Card) Program utilizing both the VISA and MASTERCARD networks. Purchases from this contract will be made utilizing the City's Purchasing Card. Contractor will receive payment from the purchasing card in the same manner as other credit card purchases. Accordingly, Contractor must presently have the ability to accept these credit cards or take whatever steps necessary to implement the ability before the start of the contract term, or contract award by the City. <u>All costs associated with the Contractor's participation in this purchasing program shall be borne by the Contractor</u>. The City reserves the right to revise this program as necessary.

### Payment Card Industry (PCI) Compliance

Contractor agrees to comply with all applicable state, federal and international laws, as well as industry best practices, governing the collection, access, use, disclosure, safeguarding and destruction of Protected Information.

Contractor and/or any subcontractor that handles credit card data must be, and remain, PCI compliant under the current standards and will provide documentation confirming compliance upon request by the City of Fort Lauderdale, failure to produce documentation could result in termination of the contract.

### 15. WORK SCHEDULE (including overtime hours):

Regular work hours: 8:00 am to 5:00 pm, Monday through Friday. City Inspector Hours: 8:00 am to 4:30 pm, Monday through Friday.

Any inspection requested by the contractor outside those hours will be considered overtime to be paid by the Contractor.

### 16. INSPECTION OVERTIME COST: <u>\$100/hr.</u>

# CITY OF FORT LAUDERDALE CONSTRUCTION AGREEMENT

 THIS Agreement made and entered into this \_\_\_\_\_ day of \_\_\_\_\_,

 2022
 , by and between the City of Fort Lauderdale, a Florida municipal corporation (City) and \_\_\_\_\_\_,

 a
 Florida

 Company/Corporation (Contractor), ("Party" or collectively "Parties");

WHEREAS the City desires to retain a contractor for the Project as expressed in its Invitation to Bid No., 12621-923, Project Number, 12695, which was opened on \_\_\_\_\_; and,

WHEREAS, the Contractor has expressed its willingness and capability to perform the necessary work to accomplish the Project.

NOW, THEREFORE, the City and the Contractor, in consideration of the mutual covenants and conditions contained herein and for other good and valuable consideration, the receipt and sufficiency is hereby acknowledged, agree as follows:

# **ARTICLE 1 – DEFINITIONS**

Whenever used in this Agreement or in other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural forms:

- 1.1 <u>Agreement</u> This written Agreement between the City and the Contractor covering the work to be performed including other Contract Documents that are attached to or incorporated in the Agreement.
- 1.2 <u>Application for Payment</u> The form accepted by the City which is to be used by the Contractor in requesting progress or final payment and which is to include such supporting documentation as is required by the Contract Documents.
- 1.3 <u>Approve</u> The word approve is defined to mean review of the material, equipment or methods for general compliance with design concepts and with the information given in the Contract Documents. It does not imply a responsibility on the part of the City to verify in every detail conformance with plans and specifications.
- 1.4 <u>Bid</u> The offer or Bid of the Contractor submitted on the prescribed form setting forth the total prices for the Work to be performed.
- 1.5 <u>Bid Documents</u> Advertisement for Invitation to Bids, the Instructions to Bidders, the Bid Form (with supplemental affidavits and sample agreements), the Contract Forms, General Conditions, the Supplementary Conditions, the Specifications, and the Plans, which documents all become an integral part of the Contract Documents.
- 1.6 <u>Certificate of Substantial Completion</u> Certificate provided by the City certifying that all Work, excluding the punch list items, has been completed, inspected, and accepted by the City.

- 1.7 <u>Change Order</u> A written document ordering a change in the Contract Price or Contract Time or a material change in the Work.
- 1.8 <u>City</u> The City of Fort Lauderdale, Florida, including but not limited to its employees, agents, officials, representatives, contractors, subcontractors, volunteers, successors and assigns, with whom the Contractor has entered into the Agreement and for whom the Work is to be provided.
- 1.9 <u>Contract Documents</u> The Contract Documents shall consist of this Agreement, Exhibits to this Agreement, Public Construction Bond, Performance Bond, Payment Bond and Certificates of Insurance, Notice of Award and Notice to Proceed, General Conditions, Special Conditions, Technical Specifications, Plans/Drawings, Addenda, Bid Form and supplement Affidavits and Agreements, all applicable provisions of State and Federal Law and any modification, including Change Orders or written amendments duly delivered after execution of Agreement, Invitation to Bid, Instructions to Bidders and Bid Bond, Contractor's response to the City's Invitation to Bid, Schedule of Completion, Schedule of Values, all amendments, modifications and supplements, work directive changes issued on or after the Effective Date of the Agreement, as well as any additional documents that are required to be submitted under the Agreement.

Permits on file with the City and or those permits to be obtained shall be considered directive in nature and will be considered a part of this Agreement. A copy of all permits shall be given to the City for inclusion in the Contract Documents. Terms of permits shall be met prior to acceptance of the Work and release of the final payment.

- 1.10 <u>Contract Price</u> The amount established in the bid submittal and award by the City's City Commission, its successors and assigns, as may be amended by Change Order.
- 1.11 <u>Contract Time</u> The number of calendar days stated in the Agreement for the completion of the Work. The dates on which the work shall be started and shall be completed as stated in the Notice to Proceed.
- 1.12 <u>Contractor</u> The person, firm, company, or corporation with whom the City has entered into the Agreement, including but not limited to its employees, agents, representatives, contractors, subcontractors, their subcontractors and their other successors and assigns.
- 1.13 <u>Day</u> A calendar day of twenty-four (24) hours ending at midnight.
- 1.14 <u>Defective</u> When modifying the word "Work" refers to work that is unsatisfactory, faulty, or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to the Project Manager's recommendation of final payment.
- 1.15 <u>Effective Date of the Agreement</u> The effective date of the Agreement shall be the date the City Commission approves the work.
- 1.16 <u>Final Completion Date</u> The date the Work is completed, including completion of the final punch list, and delivered along with those items specified in the Contract Documents and is accepted by the City.

- 1.17 <u>Hazardous Materials (HAZMAT)</u> Any solid, liquid, or gaseous material that is toxic, flammable, radioactive, corrosive, chemically reactive, or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the environment defined in Section 101(14) of Comprehensive Environmental Response, Compensation and Liability Act of 1980 and in 40 CFR 300.6. Also defined by 49 CFR 171.8 as a substance or material designated by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated.
- 1.18 <u>Hazardous Substance</u> As defined by Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act; any substance designated pursuant to Section 311(b) (2) (A) of the Clean Water Act; any element, compound, mixture, solution or substance designated pursuant to Section 102 identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act {but not including any waste listed under Section 307[a] of the Clean Water Act}; any hazardous air pollutant listed under Section 112 of the Clean Air Act; and any imminently hazardous chemical substance or mixture pursuant to Section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance in the first sentence of this paragraph, and the term does not include natural gas, natural gas and such synthetic gas).
- 1.19 <u>Hazardous Waste</u> Those solid wastes designated by OSHA in accordance with 40 CFR 261 due to the properties of ignitability, corrosivity, reactivity, or toxicity. Any material that is subject to the Hazardous Waste Manifest requirements of the EPA specified in 40 CFR Part 262.
- 1.20 <u>Holidays</u> Those designated non-workdays as established by the City Commission of the City of Fort Lauderdale.
- 1.21 <u>Inspection</u> The term "inspection" and the act of inspecting as used in this Agreement is defined to mean the examination of construction to ensure that it conforms to the design concept expressed in the plans and specifications. This term shall not be construed to mean supervision, superintending and/or overseeing.
- 1.22 <u>Notice of Award</u> The written notice by City to the Contractor stating that upon compliance by the Contractor with the conditions precedent enumerated therein, within the time specified that the City will sign and deliver this Agreement.
- 1.23 <u>Notice to Proceed</u> A written notice to Contractor authorizing the commencement of the activities identified in the notice or as described in the Contract Documents.
- 1.24 <u>Plans</u> The official graphic representations of this Project that are a part of the Contract Documents.
- 1.25 <u>Premises (otherwise known as Site or Work Site)</u> means the land, buildings, facilities, etc. upon which the Work is to be performed.
- 1.26 <u>Project</u> The construction project described in the Contract Documents, including the Work described therein.

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- 1.27 <u>Project Manager</u> The employee of the City, or other designated individual who is herein referred to as the Project Manager, will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the contract Documents in connection with completion of the Work in accordance with this Agreement. The Project Manager, or designee, shall be the authorized agent for the City unless otherwise specified.
- 1.28 <u>Punch List</u> The City's list of Work yet to be done or be corrected by the Contractor, before the Final Completion date can be determined by the City.
- 1.29 <u>Record Documents</u> A complete set of all specifications, drawings, addenda, modifications, shop drawings, submittals and samples annotated to show all changes made during the construction process.
- 1.30 <u>Record Drawings or "As-Builts"</u> A set of drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the Contractor. These documents will be signed and sealed by a Professional Engineer, or a Professional Land Surveyor licensed in the State of Florida and employed by the Contractor at no cost to the City.
- 1.31 <u>Substantially Completed Date</u> A date when the Contractor has requested in writing, stating that the Work is substantially completed and is ready for an inspection and issuance of a final punch list for the Project. If, at the time of inspection, it is determined the project is substantially completed, the City will issue a letter of Substantial Completion along with a punch list of incomplete or deficient items to be completed prior to requesting a Final Completion inspection.
- 1.32 <u>Work</u> The construction and services required by the Contract Documents, whether completed or partially completed, and includes all labor, materials, equipment, and services provided or to be provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a part of the Project.

# ARTICLE 2 – SCOPE OF WORK

2.1 The Contractor shall complete all work as specified or indicated in the Contract Documents. The Project for which the Work under the Contract Documents may be the whole or only part is generally described as follows:

# ITB # 12621-923: HENDRICKS ISLE SEAWALL REPLACEMENT PROJECT # 12695

2.2 All Work for the Project shall be constructed in accordance with the approved plans and Specifications. The Work generally involves: -

# PROJECT DESCRIPTION

The City of Fort Lauderdale, Florida (City) is seeking bids from qualified bidders, hereinafter referred to as the Contractor, to provide seawall construction services for the City's Public Works Department, in accordance with the terms, conditions, and specifications contained in

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this Invitation To Bid (ITB). This project is located at the Southeast Isles, in the City of Fort Lauderdale. The work to be accomplished under this contract includes, but is not limited to, approximately 330 total linear feet of cantilevered steel sheet pile seawall with a concrete cap in two locations on the north side of Hendricks Isle.

2.3 Within ten (10) days of the execution of this Agreement, the Contractor shall submit a Construction Schedule, Schedule of Values and a listing of all personnel employed. The general sequence of the Work shall be submitted by the Contractor and approved by the City before any work commences. The City reserves the right to issue construction directives necessary to facilitate the Work or to minimize any conflict with operations.

## ARTICLE 3 – PROJECT MANAGER

3.1 The Project Manager is hereby designated by the City as Francisco Rios, whose address is <u>101 N. E. 3<sup>rd</sup> Avenue</u>, Suite #1410, Fort Lauderdale, FL 33301, telephone number: (954) 828-5807 and email address is <u>frios@fortlauderdale.gov</u>. The Project Manager will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the Contract Documents in connection with completion of the Work in accordance with this Agreement.

## **ARTICLE 4 – CONTRACT DOCUMENTS**

The Contract Documents, which comprise the entire Agreement between the City and Contractor, are incorporated herein and attached to this Agreement, and consist of the following:

- 4.1 This Agreement.
- 4.2 Exhibits to this Agreement: (Plans sheets [ 1 ] to [ 31 ] inclusive).
- 4.3 Public Construction Bond, Performance Bond, Payment Bond and Certificates of Insurance.
- 4.4 Notice of Award and Notice to Proceed.
- 4.5 General Conditions and Special Conditions.
- 4.6 Technical Specifications.
- 4.7 Plans/Drawings.
- 4.8 Addenda number \_\_\_\_\_\_ through \_\_\_\_\_, inclusive.
- 4.9 Bid Form and supplement Affidavits and Agreements.
- 4.10 All applicable provisions of State and Federal Law.
- 4.11 Invitation to Bid No., \_\_\_\_\_, Instructions to Bidders, and Bid Bond.

- 4.12 Contractor's response to the City's Invitation to Bid No., \_\_\_\_\_, dated
- 4.13 Schedule of Completion.
- 4.14 All amendments, modifications and supplements, change orders and work directive Changes, issued on or after the Effective Date of the Agreement.
- 4.15 Any additional documents that are required to be submitted under the Agreement.
- 4.16 Permits on file with the City and or those permits to be obtained shall be considered directive in nature and will be considered a part of this Agreement.

In the event of any conflict between the documents or any ambiguity or missing specification or instruction, the following priority is established:

- a. Approved change orders, addenda or amendments.
- b. Specifications and Drawings.
- c. Special Conditions.
- d. General Conditions.
- e. This Agreement dated \_\_\_\_\_\_, and any attachments.
- f. Invitation to Bid No., \_\_\_\_\_, and the specifications prepared by the City.
- g. Contractor's response to the City's Invitation to Bid No., \_\_\_\_\_, dated
- h. Schedule of Values.
- i. Schedule of Completion.

If during the performance of the Work, Contractor finds a conflict, error or discrepancy in the Contract Documents, Contractor shall so report to the Project Manager, in writing, within five (5) calendar days, and before proceeding with the Work affected shall obtain a written interpretation or clarification from the City.

Any Work that may reasonably be inferred from the specifications or plans as being required to produce the intended result shall be supplied whether or not it is specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials, or equipment, such works shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals or codes of any technical society, organization or associations, or to the code of any governmental authority whether such reference be specific or implied, shall mean the latest standard specification, manual or code in effect as of the Effective Date of this Agreement, except as may be otherwise specifically stated. However, no provision of any reference in the Contract Documents) shall change the duties and

responsibilities of the City, the Contractor, or any of their agents or employees from those set forth in the Contract Documents.

### **ARTICLE 5 – CONTRACT TIME**

- 5.1 The Contractor recognizes that **TIME IS OF THE ESSENCE**. The Work shall commence within **30** calendar days of the date of the Notice to Proceed.
- 5.2 The Work shall be Substantially Completed within **180** calendar days after the date when the Contract Time commences to run as provided in the Notice to Proceed.
- 5.3 The Work shall be finally completed on the Final Completion Date and ready for final payment in accordance with this Agreement within **240** calendar days after the date when the Contract Time commences to run as provided in the Notice to Proceed.

## **ARTICLE 6 – CONTRACT PRICE**

- 6.1 City shall pay Contractor for performance of the Work in accordance with Article 7, subject to additions and deletions by Change Order, as provided for in this Agreement.
- 6.2 The Parties expressly agree that the Contract Price, which shall not exceed the amount of <u>\$</u>, constitutes the total maximum compensation payable to Contractor for performing the Work, plus any Work done pursuant to a Change Order. The Contract Price is in accordance with the line items unit prices listed in the Bid. Line items are based on a unit price cost multiplied by a defined quantity. Any additional duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change to the Contract Price.
- 6.3 The Contract Price constitutes the compensation payable to Contractor for performing the Work plus any Work done pursuant to a Change Order. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change in the Contract price.

## ARTICLE 7 – PAYMENT

- 7.1 Contractor shall submit Applications for Payment in accordance with the Contract Documents. Applications for Payment will be processed by City as provided for in the General Conditions.
- 7.2 Progress Payments. City shall make progress payments on account of the Contract Price on the basis of Contractor's monthly Applications for Payment, which shall be submitted by the Contractor between the first (1<sup>st</sup>) and the tenth (10<sup>th</sup>) day after the end of each calendar month for which payment is requested. All progress payments will be made on the basis of the progress of the Work completed.
- 7.3 Prior to Final Completion, progress payments will be made in an amount equal to ninetyfive percent (95%) of the value of Work completed less in each case the aggregate of payments previously made.

- 7.4 Final Payment. Upon final completion of the Work in accordance with the General Conditions, as may be supplemented, the City shall pay Contractor an amount sufficient to increase total payments to one hundred percent (100%) of the Contract Price. However, not less than five percent (5%) of the Contract Price shall be retained until Record Drawings (as-builts), specifications, addenda, modifications and shop drawings, including all manufacturers' instructional and parts manuals are delivered to and accepted by the City.
- 7.5 City may withhold, in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:
  - 7.5.1 Defective work not remedied.
  - 7.5.2 Claims filed or reasonable evidence indicating probable filing of claims by other parties against Contractor or City because of Contractor's performance.
  - 7.5.3 Failure of Contractor to make payments properly to subcontractors or for material or labor.
  - 7.5.4 Damage to another contractor not remedied.
  - 7.5.5 Liquidated damages and costs incurred by Consultant for extended construction administration, if applicable.
  - 7.5.6 Failure of Contractor to provide any and all documents required by the Contract Documents.

When the above grounds are removed or resolved satisfactory to the Project Manager, payment shall be made in whole or in part.

- 7.6 The City shall make payment to the Contractor in accordance with the Florida Prompt Payment Act, Section 218.70, Florida Statutes (2021), as amended or revised, provided, however, complete and error free pay application is submitted.
- 7.7 The City shall make payment to the Contractor through utilization of the City's Purchasing Card (P-Card) Program. The City has implemented a P-Card Program utilizing the MASTERCARD and VISA networks. Purchases from this contract will be made utilizing the City's P-Card. Contractor will receive payment from the purchasing card in the same manner as other credit card purchases. Accordingly, Contractor must presently have the ability to accept these credit cards or take whatever steps necessary to implement the ability before the start of the contract term, or contract award by the City. <u>All costs associated with the Contractor's participation in this purchasing program shall be borne by the Contractor</u>. The City reserves the right to revise this program as necessary.
- 7.8 Payment Card Industry (PCI) Compliance

Contractor agrees to comply with all applicable state, federal and international laws, as well as industry best practices, governing the collection, access, use, disclosure, safeguarding and destruction of Protected Information.

Contractor and/or any subcontractor that handles credit card data must be, and remain, PCI compliant under the current standards and will provide documentation confirming compliance upon request by the City of Fort Lauderdale, failure to produce documentation could result in termination of the contract.

#### **ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

In order to induce the City to enter into this Agreement, Contractor makes the following representations upon which the City has relied:

- 8.1 Contractor is qualified in the field of public construction and in particular to perform the Work and services set forth in this Agreement.
- 8.2 Contractor has visited the Work Site, has conducted extensive tests, examinations and investigations and represents and warrants a thorough familiarization with the nature and extent of the Contract Documents, the Work, locality, soil conditions, water table condition, moisture conditions and all year-round local weather and climate conditions (past and present), and examination and investigations conducted by Contractor and the Contractor's experts, has determined that no conditions exist that would in any manner affect the Proposed Price and that the project can be completed for the Proposed Price submitted within the Contract Time as defined in this Agreement.

Furthermore, Contractor warrants and confirms that it is totally familiar with, understands and obligates Contractor to comply with all federal, state and local laws, ordinances, rules, regulations and all market conditions that affect or may affect the cost and price of materials and labor needed to fulfill all provisions of this Agreement or that in any manner may affect cost, progress or performance of the Work.

- 8.3 The Contractor has satisfied itself as to the nature and location of the Work under the Contract Documents, the general and local conditions of the Project, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, and roads, the conformation and conditions at the ground based on City provided reports, the type of equipment and facilities needed preliminary to and during the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under the Contract Documents.
- 8.4 The Contractor has also studied on its own, investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Works, and finds and has further determined that no conditions exist that would in any manner affect the Proposed Price and that the Project can be completed for the Proposed Price submitted.
- 8.5 Contractor has made or caused to be made examinations, investigations, tests and studies of such reports and related data in addition to those referred to in Paragraphs 8.2, 8.3 and 8.4 above as it deems necessary for the performance of the Work at the Contract Prices, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are, or will be, required by Contractor for such purposes.
- 8.6 Contractor has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

- 8.7 Contractor has given City written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution by City is acceptable to the Contractor.
- 8.8 <u>Labor</u>
  - 8.8.1 The Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. The Contractor shall at all times maintain good discipline and order at the site.
  - 8.8.2 The Contractor shall, at all times, have a competent superintendent, capable of reading and thoroughly understanding the drawings and specifications, as the Contractor's agent on the Work, who shall, as the Contractor's agent, supervise, direct and otherwise conduct the Work.
  - 8.8.3 The Contractor shall designate the superintendent on the job to the City, in writing, immediately after receipt of the Notice to Proceed. The Contractor understands and agrees that the superintendent's physical presence on the job site is indispensable to the successful completion of the Work. If the superintendent is frequently absent from the job site, the Project Manager may deliver written notice to the Contractor to stop work or terminate the Agreement in accordance with Article 17.
  - 8.8.4 The Contractor shall assign personnel to the job site that have successfully completed training programs related to trench safety, confined space and maintenance of traffic (MOT). A certified "competent person" shall be assigned to the job site. Personnel certified by the International Municipal Signal Associations with Florida Department of Transportation qualifications are required relative to (MOT). Failure to pursue the Work with the properly certified supervisory staff may result in notice to stop work or terminate the Agreement in accordance with Article 17.

## 8.9 <u>Materials:</u>

- 8.9.1 The Contractor shall furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of Work.
- 8.9.2 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. Suppliers shall be selected and paid by the Contractor; the City reserves the right to approve all suppliers and materials.
- 8.10 <u>Work Hours:</u> Except in connection with the safety or protection of persons, or the Work, or property at the site or adjacent thereto, and except as otherwise indicated in the Supplementary Conditions, all work at the site shall be performed during regular working hours between 8 a.m. and 5:00 p.m., Monday through Friday.

Unless approved by the City in advance, the Contractor will not perform work on Saturday, Sunday or any legal holiday (designated by the City of Fort Lauderdale)

without the Project Manager's written consent at least seventy-two (72) hours in advance of starting such work. For any overtime inspection required by City personnel, the Contractor shall pay for the additional charges to the City with respect to such overtime work. Such additional charges shall be a subsidiary obligation of the Contractor and no extra payment shall be made to the Contractor for overtime work. It shall be noted that the City's Inspector work hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday, and any work requiring inspection oversight being performed outside of this timeframe shall be paid for by the Contractor as Inspector overtime at a rate of \$100.00 per hour. The cost to the Contractor to reimburse the City for overtime inspection is established at direct-labor and overtime costs for each person or inspector required. Incidental overtime costs for engineering, testing and other related services will also be charged to the Contractor at the actual rate accrued.

- 8.11 <u>Patent Fee and Royalties:</u> The Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work, or any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. The Contractor hereby expressly binds himself or itself to indemnify and hold harmless the City from all such claims and fees and from any and all suits and action of every name and description that may be brought against City on account of any such claims, fees, royalties, or costs for any such invention or patent, and from any and all suits or actions that may be brought against said City for the infringement of any and all patents or patent rights claimed by any person, firm corporation or other entity.
- 8.12 <u>Permits:</u> The Contractor shall obtain and pay for all permits and licenses. There shall be no allowance for Contractor markup, overhead or profit for permits and licenses.

The Contractor shall pay all government charges which are applicable at the time of opening of proposals. It shall be the responsibility of the Contractor to secure and pay for all necessary licenses and permits of a temporary nature necessary for the prosecution of Work.

- 8.13 <u>Law and Regulations</u>: The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work. If the Contractor observes that the specifications or plans are in conflict, the Contractor shall give the Project Manager prompt written notice thereof within five (5) calendar days, and any necessary changes shall be adjusted by any appropriate modifications. If the Contractor performs any work knowing or having reason to know that it is contrary to such laws, ordinances, rules, standards, specifications and regulations, and without such notice to the Project Manager, the Contractor shall be all costs arising therefrom.
- 8.14 <u>Taxes:</u> The Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the laws of the City of Fort Lauderdale, County of Broward, and the State of Florida.
- 8.15 <u>Contractor Use of Premises:</u> The Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits and/or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

The Contractor shall not enter upon private property for any purpose without first securing the permission of the property owner in writing and furnishing the Project Manager with a copy of said permission. This requirement will be strictly enforced, particularly with regard to such vacant properties as may be utilized for storage or staging by the Contractor.

The Contractor shall conduct its work in such a manner as to avoid damage to adjacent private or public property. Any damage to existing structures of work of any kind, including permanent reference markers or property corner markers, or the interruption of a utility service, shall be repaired or restored promptly at no expense to the City or property owner.

The Contractor will preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site which do not reasonably interfere with the construction, as determined by the Project Manager. The Contractor will be responsible for repairing or replacing any trees, shrubs, lawns and landscaping that may be damaged due to careless operation of equipment, stockpiling of materials, tracking of grass by equipment or other construction activity. The Contractor will be liable for, or will be required to replace or restore at no expense to the City all properties and areas not protected or preserved as required herein that may be destroyed or damaged.

During the progress of the Work, the Contractor shall keep the premises free from accumulation of waste materials, rubbish and debris resulting from the Work. At the completion of the Work, the Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials and shall leave the site clean and ready for occupancy by the City. The Contractor shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents at no cost to the City.

- 8.16 <u>Project Coordination</u>: The Contractor shall provide for the complete coordination of the construction effort. This shall include, but not necessarily be limited to, coordination of the following:
  - 8.16.1 Flow of material and equipment from suppliers.
  - 8.16.2 The interrelated work with affected utility companies.
  - 8.16.3 The interrelated work with the City where tie-ins to existing facilities are required.
  - 8.16.4 The effort of independent testing agencies.
  - 8.16.5 Notice to affected property owners as may be directed by the Project Manager.
  - 8.16.6 Coordination with and scheduling of all required inspections from all permitting agencies.
- 8.17 <u>Project Record Documents and Final As-Builts (Record Drawings):</u> Contractor shall be responsible for maintaining up-to-date redline as-built drawings, on site, at all times during construction. All as-built information shall be surveyed and verified by a professional land surveyor registered in the State of Florida. Contractor shall provide the City with a minimum of three (3) sets of signed and sealed record drawings (Final As-Builts) and a CD of the electronic drawings files created in AutoCad 2014 or later. All costs associated with survey work required for construction layout and as-built preparation shall be the responsibility of the Contractor.

#### 8.18 Safety and Protection:

- 8.18.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  - 8.18.1.1 All employees working on the project and other persons who may be affected thereby.
  - 8.18.1.2 All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site.
  - 8.18.1.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- 8.18.2 The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and utilities when execution of the Work may affect them at least seventy-two (72) hours in advance (unless otherwise required). All damage, injury or loss to any property caused, directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractor's duties and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and accepted by the City.
- 8.19 <u>Emergencies:</u> In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the City is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Project Manager prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.
- 8.20 <u>Risk of Loss</u>: The risk of loss, injury or destruction shall be on the Contractor until acceptance of the Work by the City. Title to the Work shall pass to the City upon acceptance of the Work by the City.
- 8.21 Environmental: The Contractor has fully inspected the Premises and agrees, except as to the presence of any asbestos, to accept the Premises in an "as is" physical condition, without representation or warranty by the City of any kind, including, without limitation, any and all existing environmental claims or obligations that may arise from the presence of any "contamination" on, in or about the Premises. Further, Contractor and all entitles claiming by, through or under the Contractor, releases and discharges the City from any claim, demand, or cause of action arising out of or relating to the Contractor's use, handling, storage, release, discharge, treatment, removal, transport, decontamination, cleanup, disposal and/or presence of any hazardous substances including asbestos on,

under, from or about the Premises. The Contractor shall have no liability for any preexisting claims or "contamination" on the Premises.

The Contractor shall not use, handle, store, discharge, treat, remove, transport, or dispose of Hazardous Substances including asbestos at, in, upon, under, to or from the Premises until receipt of instructions from the City. At such time, a City approved Change Order, which shall not include any profit, shall authorize the Contractor to perform such services.

The Contractor shall immediately deliver to the Project Manager complete copies of all notices, demands, or other communications received by the Contractor from any governmental or quasi-governmental authority or any insurance company or board of fire underwriters or like or similar entities regarding in any way alleged violations or potential violations of any Environmental Law or otherwise asserting the existence or potential existence of any condition or activity on the Premises which is or could be dangerous to life, limb, property, or the environment.

For other and additional consideration, the Contractor hereby agrees, at its sole cost and expense, to indemnify and protect, defend, and hold harmless the City and its respective employees, agents, officials, officers, representatives, contractors and subcontractors, successors, and assigns (hereafter the "City") from and against any and all claims, demands, losses, damages, costs, expenses, including but not limited to mitigation, restoration, and natural restoration expenses, liabilities, assessments, fines, penalties charges, administrative and judicial proceedings and orders, judgments, causes of action, in law or in equity, remedial action requirements and/or enforcement actions of any kind (including, without limitation, attorneys' fees and costs) directly or indirectly arising out of or attributable to, in whole or in part, the Contractor's use, handling, storage, release, threatened release, discharge, treatment, removal, transport, decontamination, cleanup, disposal and/or presence of a Hazardous Substance (excluding asbestos) on, under, from, to or about the Premises or any other activity carried on or undertaken on or off the Premises by the Contractor or its employees, agents or subcontractors, in connection with the use, handling, storage, release, threatened release, discharge, treatment, mitigation, natural resource restoration, removal, transport, decontamination, cleanup, disposal and/or presence or any Hazardous Substance including asbestos located, transported, or present on, undue, from, to, or about the Premises. This indemnity is intended to be operable under 42 U.S.C. Section 9607, as amended or revised, and any successor section.

The scope of the indemnity obligations includes, but is not limited to: (a) all consequential damages; (b) the cost of any required or necessary repair, cleanup, or detoxification of the applicable real estate and the preparation and implementation of any closure, remedial or other required plan, including without limitation; (i) the costs of removal or remedial action incurred by the United States government or the State of Florida or response costs incurred by any other person, or damages from injury to destruction of, or loss of, natural resources, including the cost of assessing such injury, destruction, or loss, incurred pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, as amended; (ii) the clean-up costs, fines, damages, or penalties incurred pursuant to any applicable provisions of Florida law; and (iii) the cost and expenses of abatement, correction or cleanup, fines, damages, response costs, or penalties which arise from the provisions of any other statute, law, regulation, code ordinance, or legal requirement state or federal; and (c) liability for personal injury or

property damage arising under any statutory or common law tort theory, including damages assessed for the maintenance of a public private nuisance, response costs, or for the carrying on of an abnormally dangerous activity.

- 8.22 <u>No Extended Damages</u>: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any other reason or allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.
- 8.23 <u>No Liens:</u> If any subcontractor, supplier, laborer, or materialmen of Contractor or any other person directly or indirectly acting for or through Contractor files or attempts to file a mechanic's or construction lien against the real property on which the Work is performed or any part or against any personal property or improvements or claim against any monies due or to become due from the City to Contractor or from Contractor to a subcontractor, for or on account of any work, labor, services, material, equipment, or other items furnished in connection with the Work or any Change Order, Contractor agrees to satisfy, remove, or discharge such lien or claim at its own expense by bond, payment, or otherwise within twenty (20) days of the filing or from receipt of written notice from the City.

Additionally, until such time as such lien or claim is satisfied, removed or discharged by Contractor, all monies due to Contractor, or that become due to Contractor before the lien or claim is satisfied, removed or otherwise discharged, shall be held by City as security for the satisfaction, removal and discharge of such lien and any expense that may be incurred while obtaining such. If Contractor shall fail to do so, City shall have the right, in addition to all other rights and remedies provided by this Agreement or by law, to satisfy, remove, or discharge such lien or claim by whatever means City chooses at the entire and sole cost and expense of Contractor which costs and expenses shall, without limitation, include attorney's fees, litigation costs, fees and expenses and all court costs and assessments.

8.24 <u>Weather Emergencies</u>: Upon issuance of a hurricane watch by the National Weather Service, the Contractor shall submit to the City a plan to secure the work area in the event a hurricane warning is issued. The plan shall detail how the Contractor will secure the Premises, equipment and materials in a manner as to prevent damage to the Work and prevent materials and equipment from becoming a hazard to persons and property on and around the Premises. The plan shall include a time schedule required to accomplish the hurricane preparations and a list of emergency contacts that will be available and, in the City, before, during and immediately after the storm.

Upon issuance of a hurricane warning by the National Weather Service, if the Contractor has not already done so, the Contractor shall implement its hurricane preparedness

plan. Cost of development and implementation of the hurricane preparedness plan shall be considered as incidental to construction. Cost of any clean up and rework required after the storm will be considered normal construction risk within Florida and shall not entitle the Contractor to any additional compensation. Contractor shall be entitled to request an extension in time for completion of the Work, in accordance with the provisions of Article 15 of this Agreement, equal to the time it is shut down for implementation of the preparedness plan, the duration of the storm and a reasonable period to restore the Premises.

8.25 <u>Force Majeure:</u> No Party shall hold the other responsible for damages or for delays in performance caused by force majeure, acts of God, or other acts or circumstances beyond the control of the other party or that could not have been reasonably foreseen and prevented. For this purpose, such acts or circumstances shall include, but not be limited to weather conditions affecting performance, floods, epidemics, pandemics, war, act of Governmental Authority, state of emergency, riots, strikes, lockouts, or other industrial disturbances, or protest demonstrations. Should such acts or circumstances occur, the parties shall use their best efforts to overcome the difficulties arising therefrom and to resume the Work as soon as reasonably possible with the normal pursuit of the Work.

Inclement weather, continuous rain for less than three (3) days or the acts or omissions of subcontractors, third-party contractors, materialmen, suppliers, or their subcontractors, shall not be considered acts of force majeure.

No Party shall be liable for its failure to carry out its obligations under the Agreement during a period when such Party is rendered unable by force majeure to carry out its obligation, but the obligation of the Party or Parties relying on such force majeure shall be suspended only during the continuance of the inability and for no longer period than the unexpected or uncontrollable event.

The Contractor further agrees and stipulates, that its right to excuse its failure to perform by reason of force majeure shall be conditioned upon giving written notice of its assertion that a Force Majeure delay has commenced within 96 hours after such an occurrence. The Contractor shall use its reasonable efforts to minimize such delays. The Contractor shall promptly provide an estimate of the anticipated additional time required to complete the Project.

8.26 Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assisted Contracts: The recipient shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR Part 26. The recipient shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR Part 26 and as approved by DOT, is incorporated by reference in this Agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this Agreement. Upon notification to the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 *et seq.*).

Additionally, the Contractor assures that it, the sub recipient or the subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Agreement. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Agreement, which may result in the termination of this Agreement or such other remedy as the recipient deems appropriate. This additional language must be included in each subcontract the prime Contractor signs with a subcontractor.

## **ARTICLE 9 – CITY'S RESPONSIBILITIES**

- 9.1 The City shall furnish the data required of the City under the Contract Documents promptly and shall make payments to the Contractor promptly after they are due as provided in Article 7.
- 9.2 The City shall provide public rights-of-way and easement, where available, for the installation of conduits, transformers pads and related appurtenances only.
- 9.3 <u>Technical Clarifications and Interpretations:</u>
  - 9.3.1 The City shall issue, with reasonable promptness, such written clarifications or interpretations of the Contract Documents as it may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. Should the Contractor fail to request interpretation of questionable items in the Contract Documents, the City shall not entertain any excuse for failure to execute the Work in a satisfactory manner.
  - 9.3.2 The City shall interpret and decide matters concerning performance under the requirements of the Contract Documents, and shall make decisions on all claims, disputes or other matters in question. Written notice of each claim, dispute or other matter will be delivered by claimant to the other Party but in no event later than five (5) days after the occurrence of event and written supporting date will be submitted to the other Party within five (5) days after such occurrence. All written decisions of the City on any claim or dispute will be final and binding.
- 9.4 The Contractor shall perform all Work to the reasonable satisfaction of the City in accordance with the Contract Documents. In cases of disagreement or ambiguity, the City shall decide all questions, difficulties, and disputes of whatever nature, which may arise under or by reason of this Agreement or the quality, amount and value of the Work, and the City's decisions on all claims, questions and determination are final.
- 9.5 <u>Cancellation for Unappropriated Funds</u>: The obligation of the City for payment to a Contractor is limited to the availability of funds appropriated in a current fiscal period, and continuation of the contract into a subsequent fiscal period is subject to appropriation of funds, unless otherwise authorized by law.

## **ARTICLE 10 – BONDS AND INSURANCE**

- 10.1 <u>Public Construction and Other Bonds:</u> The Contractor shall furnish Public Construction or Performance and Payment Bonds ("Bond"), each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. These Bonds shall remain in effect until at least one (1) year after the date of final payment, except as otherwise provided by law. All Bonds shall be furnished and provided by the surety and shall be in substantially the same form as prescribed by the Contract Documents and be executed by such sureties as (i) are licensed to conduct business in the State of Florida, and (ii) are named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department and (iii) otherwise meet the requirements set forth herein that apply to sureties. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.
  - 10.1.1 <u>Performance Bond:</u> The Contractor shall execute and record in the public records of Broward County, Florida, a payment and performance bond in an amount at least equal to the Contract Price with a surety insurer authorized to do business in the State of Florida as surety, ("Bond"), in accordance with Section 255.05, Florida Statutes (2021), as may be amended or revised, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents.

A Corporate Surety Bond legally issued, meeting the approval of, and running to the City in an amount not less than the Contract Price of such improvements, conditioned that the Contractor shall maintain and make all repairs to the improvements constructed by the Contractor at their own expense and free of charge to the City, for the period of one (1) year after the date of acceptance of the Work within such period by reason of any imperfection of the material used or by reason of any defective workmanship, or any improper, imperfect or defective preparation of the base upon which any such improvement shall be laid.

- 10.2 <u>Disqualification of Surety:</u> If the Surety on any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Florida or it ceases to meet the requirements of clauses (i) and (ii) of Paragraph 10.1, the Contractor shall within five (5) days thereafter substitute another Bond and Surety, both of which shall be acceptable to the City.
- 10.3 <u>Insurance:</u> During the term of this Agreement, Contractor at its sole expense, shall provide insurance of such a type and with such terms and limits as noted below. Providing and maintaining adequate insurance coverage is a material obligation of Contractor. Contractor shall provide the City a certificate of insurance evidencing such coverage. Contractor's insurance coverage shall be primary insurance as respects to the City for all applicable policies. The limits of coverage under each policy maintained by Contractor shall not be interpreted as limiting Contractor's liability and obligations under this Agreement. All insurance policies shall be through insurers authorized or eligible to write policies in Florida and possess an A.M. Best rating of A-, VII or better, subject to the approval of the City's Risk Manager.

The coverages, limits and/or endorsements required herein protect the primary interests of the City, and these coverages, limits and/or endorsements shall in no way be required to be relied upon when assessing the extent or determining appropriate types and limits of coverage to protect the Contractor against any loss exposures, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, is not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under this Agreement.

The following insurance policies/coverages are required:

#### **Commercial General Liability**

Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- \$1,000,000 each occurrence and \$2,000,000 project aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- \$1,000,000 each occurrence and \$2,000,000 project aggregate for Products and Completed Operations

Policy must include coverage for Contractual Liability, Independent Contractors, and contain no exclusions for explosion, collapse, or underground.

Contractor must keep Completed Operations insurance in force until the third anniversary of expiration of this Agreement or the third anniversary of acceptance of work by the City.

The City, a political subdivision of the State of Florida, its officials, employees, and volunteers are to be covered as an additional insured with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of the Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City, its officials, employees, or volunteers.

#### Watercraft Liability (if applicable)

Coverage must be afforded in an amount not less than \$1,000,000 per occurrence and must cover the utilization of watercraft, including Bodily Injury and Property Damage arising out of ownership, maintenance, or use of any watercraft, including owned, non-owned, and hired.

Coverage may be provided in the form of an endorsement to the Commercial General Liability policy, or in the form of a separate policy covering Watercraft Liability or Protection and Indemnity for Bodily Injury and Property Damage.

#### Crane and Rigging Liability (if applicable)

Coverage must be afforded for any crane operations under the Commercial General or Business Automobile Liability policy as necessary, in line with the limits of the associated policy.

#### Pollution and Remediation Legal Liability (If any Hazardous Materials)

For the purpose of this section, the term "hazardous materials" includes all materials and substances that are designated or defined as hazardous by Florida or Federal law

or by the rules or regulations of Florida or any Federal Agency. If work being performed involves hazardous materials, the Contractor shall procure and maintain any or all of the following coverage, which will be specifically addressed upon review of exposure.

#### Contractors Pollution Liability Coverage

For sudden and gradual occurrences and in an amount not less than \$1,000,000 per claim arising out of this Agreement, including but not limited to, all hazardous materials identified under the Agreement.

#### Asbestos Liability Coverage

For sudden and gradual occurrences and in an amount not less than \$1,000,000 per claim arising out of work performed under this Agreement.

#### Disposal Coverage

The Contractor shall designate the disposal site and furnish a Certificate of Insurance from the disposal facility for Environmental Impairment Liability Insurance, covering liability for sudden and accidental occurrences in an amount not less than \$1,000,000 per claim and shall include liability for non-sudden occurrences in an amount not less than \$1,000,000 per claim.

#### Hazardous Waste Transportation Coverage

The Contractor shall designate the hauler and furnish a Certificate of Insurance from the hauler for Automobile Liability insurance with Endorsement MCS90 for liability arising out of the transportation of hazardous materials in an amount not less than \$1,000,000 per claim limit and provide a valid EPA identification number.

<u>Professional Liability and/or Errors and Omissions</u> (if architectural or engineering services are provided)

Coverage must be afforded for Wrongful Acts in an amount not less than \$1,000,000 each claim and \$1,000,000 aggregate.

Contractor must keep insurance in force until the third anniversary of expiration of this Agreement or the third anniversary of acceptance of work by the City.

#### **Business Automobile Liability**

Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than \$1,000,000 combined single limit each accident.

If the Contractor does not own vehicles, the Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

#### Workers' Compensation and Employer's Liability

Coverage must be afforded per Chapter 440, Florida Statutes. Any firm performing work on behalf of the City must provide Workers' Compensation insurance. Exceptions and exemptions will be allowed by the City's Risk Manager, if they are in accordance with Florida Statute.

The Contractor and its insurance carrier waive all subrogation rights against the City, a political subdivision of the State of Florida, its officials, employees, and volunteers for all

losses or damages. The City requires the policy to be endorsed with WC00 03 13 Waiver of our Right to Recover from Others or equivalent.

Contractor must be in compliance with all applicable State and federal workers' compensation laws, including the U.S. Longshore and Harbor Workers' Compensation Act or Jones Act, if applicable.

For any Contractor who has exempt status as an individual, the City requires proof of Workers' Compensation insurance coverage for that Contractor's employees, leased employees, volunteers, and any workers performing work in execution of this Agreement.

If the Contractor has applied for a workers' compensation exemption, the City does not recognize this exemption to extend to the employees of the Contractor. The Contractor is required to provide proof of coverage for their employees, leased employees, volunteers and any workers performing work in execution of this Agreement. This applies to all contractors including but not limited to the construction industry.

Insurance Certificate Requirements

- a. The Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than thirty (30) days prior to the start of work contemplated in this Agreement.
- b. The Contractor shall provide a Certificate of Insurance to the City with a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.
- c. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of the Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
- d. In the event the Agreement term goes beyond the expiration date of the insurance policy, the Contractor shall provide the City with an updated Certificate of Insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.
- e. The certificate shall indicate if coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the certificate will show a retroactive date, which should be the same date of the initial contract or prior.
- f. The City shall be named as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
- g. The City shall be granted a Waiver of Subrogation on the Contractor's Workers' Compensation insurance policy.
- h. The Agreement, Bid/Contract number, event dates, or other identifying reference must be listed on the certificate.

The Certificate Holder should read as follows:

City of Fort Lauderdale 100 N. Andrews Avenue Fort Lauderdale, FL 33301 The Contractor has the sole responsibility for all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for adding the City as an Additional Insured shall be at the Contractor's expense.

If the Contractor's primary insurance policy/policies do not meet the minimum requirements, as set forth in this Agreement, the Contractor may provide an Umbrella/Excess insurance policy to comply with this requirement.

The Contractor's insurance coverage shall be primary insurance as respects to the City, a political subdivision of the State of Florida, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the City, its officials, employees, or volunteers shall be excess of Contractor's insurance and shall be non-contributory.

Any exclusions or provisions in the insurance maintained by the Contractor that excludes coverage for work contemplated in this Agreement shall be deemed unacceptable and shall be considered breach of contract.

All required insurance policies must be maintained until the contract work has been accepted by the City, and/or this Agreement is terminated. Any lapse in coverage shall be considered breach of contract. In addition, Contractor must provide confirmation of coverage renewal via an updated certificate should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.

All notices of any claim/accident (occurrences) associated with this Agreement, shall be provided to the Contractor's insurance company and the City's Risk Management office as soon as practical.

It is the Contractor's responsibility to ensure that all independent and subcontractors comply with these insurance requirements. All coverages for independent and subcontractors shall be subject to all of the requirements stated herein. Any and all deficiencies are the responsibility of the Contractor.

#### Bond Requirements

This Agreement is required to be bonded pursuant to Section 255.05, Florida Statutes, and the Contractor shall furnish Payment and Performance bonds on the City's standard form covering the full and faithful performance of the Agreement for construction and the payment of obligations arising hereunder.

All bonds must be underwritten by a surety company authorized to issue bonds in the State of Florida. The Contractor shall deliver required bonds to the City no later than thirty (30) days prior to the start of work contemplated in this Agreement.

If the Surety on any bond furnished by the Contractor is declared bankrupt, becomes insolvent, its right to do business is terminated in the State of Florida, or it ceases to meet the requirements of Section 255.05, Florida Statutes, the Contractor shall within five (5) days thereafter substitute Surety, both of which shall be acceptable to the City.

#### Loss Control/Safety

Precaution shall be exercised at all times by the Contractor for the protection of all persons, including employees, and property. The Contractor shall comply with all laws, regulations, or ordinances relating to safety and health, and shall make special effort to detect hazardous conditions and shall take prompt action where loss control/safety measures should reasonably be expected.

The City may order work to be stopped if conditions exist that present immediate danger to persons or property. The Contractor acknowledges that such stoppage will not shift responsibility for any loss or damages from the Contractor to the City.

## **NOTE:** CITY PROJECT NUMBER, PROJECT NAME AND BID NUMBER MUST APPEAR ON EACH CERTIFICATE, AND THE CITY OF FORT LAUDERDALE MUST BE NAMED ON THE CERTIFICATE AS AN "ADDITIONAL INSURED" ON GENERAL LIABILITY POLICIES.

## ARTICLE 11- WARRANTY AND GUARANTEE, TESTS AND INSPECTIONS, CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

- 11.1 <u>Warranty:</u> The Contractor warrants and guarantees to the City that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to the Contractor. All defective work, whether or not in place, may be rejected, corrected or accepted as provided in this Article.
  - 11.1.1 <u>Warranty of Title:</u> The Contractor warrants to the City that it possesses good, clear and marketable title to all equipment and materials provided and that there are no pending liens, claims or encumbrances against the equipment and materials.
  - 11.1.2 <u>Warranty of Specifications:</u> The Contractor warrants that all equipment, materials and workmanship furnished, whether furnished by the Contractor, its subcontractors or suppliers, will comply with the specifications, drawings and other descriptions supplied or adopted and that all services will be performed in a workmanlike manner.
  - 11.1.3 <u>Warranty of Merchantability:</u> The Contractor warrants that any and all equipment to be supplied pursuant to this Agreement is merchantable, free from defects, whether patent or latent in material or workmanship, and fit for the ordinary purposes for which it is intended.
- 11.2 <u>Tests and Inspections:</u> Contractor shall retain the services of an independent, certified, testing lab to perform all testing as required by the specifications, contract drawings, and any applicable permitting agency. Contractor shall provide evidence of certification to the City before the work and testing is done. Testing results shall be submitted to the Project Manager for review and approval at the time the results are provided to the Contractor. The Contractor shall give the Project Manager and City Inspector a minimum of twenty-four (24) hours' advanced notice of readiness of the Work for all required inspections, tests, or approvals and shall notify all applicable permitting agencies in a timely manner based on requirements set forth in the permit documents.

- 11.2.1 Neither observations by the Project Manager nor inspections, tests or approvals by others shall relieve the Contractor from its obligations to perform the Work in accordance with the Contract Documents.
- 11.3 <u>Uncovering Work:</u> If any work that is to be inspected, tested or approved is covered without approval or consent of the Project Manager, it must, if requested by the Project Manager, be uncovered for observation and/or testing. Such uncovering and replacement shall be at the Contractor's sole expense unless the Contractor has given the Project Manager timely notice of the Contractor's intention to cover such Work and the Project Manager has not acted with reasonable promptness in response to such notice.
  - 11.3.1 If the Project Manager considers it necessary or advisable that Work covered in accordance with Paragraphs 11.2.1, 11.2.2 and 11.2.3 be observed by the City or inspected or tested by others, the Contractor at the City's request, shall uncover, expose or otherwise make available for observation, inspection or testing as the Project Manager may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, the Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such work is not found to be defective, the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection testing and reconstruction if it makes a claim therefore as provided in Articles 14 and 15.
- 11.4 <u>City May Stop the Work:</u> If the Work is defective, or the Contractor fails to supply sufficient skilled supervisory personnel or workmen or suitable materials or equipment or the work area is deemed unsafe, the City may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the City to stop the Work shall not give rise to any duty on the part of the City to exercise this right for the benefit of the Contractor or any other Party. The City will not award any increase in Contract Price or Contract Time if the Work is stopped due to the circumstances described herein.
- 11.5 <u>Correction or Removal of Defective Work Before Final Payment:</u> If required by the Project Manager, the Contractor shall promptly, without cost to the City and as specified by the Project Manager, either correct any defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by the City remove it from the site and replace it with non-defective Work.
- 11.6 One Year Correction Period After Final Payment: If within one (1) year after the date of final acceptance, or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, the Contractor shall promptly, without cost to the City and in accordance with the City's written instructions, either correct such defective Work, or, if it has been rejected by the City, remove it from the site and replace it with non-defective Work.

If the Contractor does not promptly comply with the terms of such instructions or in an emergency where delay would cause serious risk of loss or damage, the City may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs for such removal and replacement, including compensation for additional professional services, shall be paid by the Contractor.

- 11.7 <u>Acceptance of Defective Work, Deductions:</u> If, instead of requiring correction or removal and replacement of defective Work, the City, at the City's sole option, prefers to accept it, the City may do so. In such a case, if acceptance occurs prior to the Project Manager's recommendation of final payments, a Change Order shall be issued incorporating the necessary revisions in the Contract's Documents, including appropriate reduction in the Contract Price; or if the acceptance occurs after such recommendation, an appropriate amount shall be paid by the Contractor to the City.
- City May Correct Defective Work: If the Contractor fails within a reasonable time after 11.8 written notice of the Project Manager to proceed to correct defective Work or to remove and replace rejected Work as required by the Project Manager in accordance with Paragraph 11.5, or if the Contractor fails to perform the Work in accordance with the Contract Documents, the City may, after seven (7) days written notice to the Contractor, correct and remedy any such deficiency. In exercising its rights under this paragraph, the City shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, the City may exclude the Contractor from all or part of the site, take possession of all or part of the Work, suspend the Contractor's services related thereto and take possession of the Contractor's tools, construction equipment and materials stored at the site or elsewhere. The Contractor shall allow the City's representative agents and employees such access to the site as may be necessary to enable the City to exercise its rights under this paragraph. All direct and indirect costs of the City in exercising such rights shall be charged against the Contractor in an amount verified by the Project Manager, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Contract Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of the Contractor's defective Work. The Contractor shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by the City of the City's right hereunder.

## **ARTICLE 12 – INDEMNIFICATION**

- 12.1 <u>Disclaimer of Liability:</u> The City shall not at any time, be liable for injury or damage occurring to any person or property from any cause, whatsoever, arising out of Contractor's construction and fulfillment of this Agreement.
- 12.2 <u>Indemnification:</u> For other, additional good valuable consideration, the receipt and sufficiency of which is hereby acknowledged:
  - 12.2.1 Contractor shall, at its sole cost and expense, indemnify and hold harmless the City, its representatives, employees and elected and appointed officials from or on account of all claims, damages, losses, liabilities and expenses, direct, indirect or consequential including but not limited to fees and charges of engineers,

architects, attorneys, consultants and other professionals and court costs arising out of or in consequence of the performance of this Agreement at all trial and appellate levels. Indemnification shall specifically include but not be limited to claims, damages, losses, liabilities and expenses arising out of or from (a) the negligent or defective design of the project and Work of this Agreement; (b) any act, omission or default of the Contractor, its subcontractors, agents, servants or employees; (c) any and all bodily injuries, sickness, disease or death; (d) injury to or destruction of tangible property, including any resulting loss of use; (e) other such damages, liabilities, or losses received or sustained by any person or persons during or on account of any operations connected with the construction of this Project including the warranty period; (f) the use of any improper materials; (g) any construction defect including both patent and latent defects; (h) failure to timely complete the work; (i) the violation of any federal, state, county or City laws, ordinances or regulations by Contractor, its subcontractors, agents, servants, independent contractors or employees; (j) the breach or alleged breach by Contractor of any term of the Agreement, including the breach or alleged breach of any warranty or guarantee.

- 12.2.2 Contractor agrees to indemnify, defend, and hold harmless the City, its officers, agents and employees, from all damages, liabilities, losses, claims, fines and fees, and from any and all suits and actions of every name and description that may be brought against City, its officers, agents and employees, on account of any claims, fees, royalties, or costs for any invention or patent and/or for the infringement of any and all copyrights or patent rights claimed by any person, firm, or corporation.
- 12.2.3 Contractor shall pay all claims, losses, liens, settlements or judgments of any nature in connection with the foregoing indemnifications including, but not limited to, reasonable attorney's fees and costs for trials and appeals.
- 12.2.4 If any subcontractor, supplier, laborer, or materialmen of Contractor or any other person directly or indirectly acting for or through Contractor files or attempts to file a mechanic's or construction lien against the real property on which the work is performed or any part or against any personal property or improvements thereon or make a claim against any monies due or to become due from the City to Contractor or from Contractor to a subcontractor, for or on account of any work, labor, services, material, equipment, or other items furnished in connection with the Work or any change order, Contractor agrees to satisfy, remove, or discharge such lien or claim at its own expense by bond, payment, or otherwise within five (5) days of the filing or from receipt of written notice from the City.

Additionally, until such time as such lien or claim is satisfied, removed or discharged by Contractor, all monies due to Contractor, or that become due to Contractor before the lien or claim is satisfied, removed or otherwise discharged, shall be held by City as security for the satisfaction, removal and discharge of such lien and any expense that may be incurred while obtaining the discharge. If Contractor shall fail to do so, City shall have the right, in addition to all other rights and remedies provided by this Agreement or by law, to satisfy, remove, or discharge such lien or claim by whatever means City chooses at the entire and sole cost and expense of Contractor which costs and expenses shall, without limitation, include attorney's fees, litigation costs, fees and expenses and all court

costs and assessments, and which shall be deducted from any amount owing to Contractor. In the event the amount due Contractor is less than the amount required to satisfy Contractor's obligation under this, or any other article, paragraph or section of this Agreement, the Contractor shall be liable for the deficiency due the City.

12.2.5 The Contractor and the City agree that Section 725.06(2), Florida Statutes (2021), as may be amended or revised, controls the extent and limits of the indemnification and hold harmless provisions of this Agreement, if any, and that the Parties waive any defects in the wording of this Article that runs afoul of said statutory section.

### **ARTICLE 13 – CHANGES IN THE WORK**

- 13.1 Without invalidating this Agreement, the City may, at any time or from time-to-time order additions, deletions or revisions in the Work through the issuance of Change Orders. Upon receipt of a Change Order, the Contractor shall proceed with the Work involved. All Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Article 14 or Article 15 on the basis of a claim made by either Party.
- 13.2 The Project Manager may authorize minor changes in the Work not involving an adjustment in the Contract Price or the Contract Time, which are consistent with the overall intent of the Contract Documents. Such changes must be in writing and signed by the City and the Contractor.
- 13.3 If notice of any change affecting the general scope of the Work or change in the Contract Price is required by the provisions of any Bond to be given to the Surety, it will be the Contractor's responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. The Contractor shall furnish proof of such adjustment to the City.

## ARTICLE 14 – CHANGE OF CONTRACT PRICE

Change of Contract Price, approved by City, shall be computed as follows:

- 14.1 <u>Cost of the Work</u>: The term "Cost of the Work" means the sum of all direct costs necessarily incurred and paid by Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by the City, these costs shall be in amounts no higher than those prevailing in the City and shall include only the following items and shall not include any of the costs itemized in Paragraph 14.3:
  - 14.1.1 Payroll costs for employees in the direct employ of the Contractor in the performance of the Work under schedules of job classifications agreed upon by the City and the Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work.

Payroll costs shall include, but not be limited to, salaries and wages plus and cost of fringe benefits which shall include social security contributions, unemployment,

excise and payroll taxes, worker's compensation, health and retirement benefits, bonuses, sick leave, vacation and applicable holiday pay.

- 14.1.2 Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage, and required suppliers and field services. All cash discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to the City, and the Contractor shall make provisions so that they may be obtained.
- 14.1.3 Supplemental costs including the following:
  - 14.1.3.1 Cost, including transportation and maintenance of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work.
  - 14.1.3.2 Rentals of all construction equipment and machinery and the parts whether rented from the Contractor or others in accordance with rental agreements approved by the City, and the costs of transporting, loading, unloading, installation, dismantling and removal. The rental of any such equipment, machinery or parts shall cease when the use is no longer necessary for the Work.
  - 14.1.3.3 Sales, consumer, use or similar taxes related to the Work and for which the Contractor is liable, imposed by laws and regulations.
  - 14.1.3.4 Royalty payments and fees for permits and licenses.
  - 14.1.3.5 The cost of utilities, fuel and sanitary facilities at the Work site.
  - 14.1.3.6 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.
  - 14.1.3.7 Cost of premiums for additional bonds and insurance required because of changes in the Work.
- 14.2 The Contract Price may only be increased by a Change Order when Work is modified in accordance with Article 13 and approved by the City in writing. Any claim for an increase in the Contract Price resulting from a Change Order shall be based on written notice delivered to the Project Manager within ten (10) days of the occurrence of the Change Order giving rise to the claim. Notice of the amount of the claim with supporting data shall be included in the Change Order and delivered within twenty (20) days of such occurrence unless Project Manager allows an additional period of time to ascertain accurate cost data. Any change in the Contract Price resulting from any such claim shall be incorporated in the Change Order. IT IS EXPRESSLY AND SPECIFICALLY AGREED THAT ANY AND ALL CLAIMS FOR CHANGES TO THE CONTRACT PRICE SHALL BE WAIVED IF NOT SUBMITTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.

- 14.3 <u>Not Included in the Cost of the Work:</u> The term "Cost of the Work" shall not include any of the following:
  - 14.3.1 Payroll costs and other compensation of the Contractor's officers executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditor, accountants, purchasing and contracting agents, expediters, timekeepers, clerks and other personnel employed by the Contractor whether at the site or in the Contractor's principal or branch office for general administration of the work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 14.1.1, all of which are to be considered administrative costs covered by the Contractor's fee.
  - 14.3.2 Expenses of the Contractor's principal and branch offices other than the Contractor's office at the site.
  - 14.3.3 Any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work and charges against the Contractor for delinquent payments.
  - 14.3.4 Cost of premiums for all bonds and for all insurance whether or not the Contractor is required by the Contract Documents to purchase and maintain the same.
  - 14.3.5 Costs due to the negligence of the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.
  - 14.3.6 Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 14.1.
- 14.4 <u>Basis of Compensation:</u> The Contractor's compensation, allowed to the Contractor for overhead and profit, shall be determined as follows:
  - 14.4.1 A mutually acceptable negotiated fee:
    - 14.4.1.1 For costs incurred under Paragraphs 14.1.1 and 14.1.2, the Contractor's fee shall not exceed five percent (5%).
    - 14.4.1.2 No fee shall be payable on the basis of costs itemized under Paragraphs 14.1.3.1, 14.1.3.2, 14.1.3.3, 14.1.3.4, 14.1.3.5, 14.1.3.6, 14.1.3.7, 14.3.1, 14.3.2, 14.3.3, 14.3.4, 14.3.5 and 14.3.6.
    - 14.4.1.3 The amount of credit to be allowed by the Contractor to the City for any such change which results in a net decrease plus a deduction in the Contractor's fee by an amount equal to five percent (5%) for the net decrease.
    - 14.4.1.4 When both additions and credits are involved in any one change the combined overhead and profit shall be figured on the basis of net

increase if any, however, not to exceed five percent (5%) of the agreed compensation. Profit will not be paid on any Work not performed.

- 14.5 <u>Cost Breakdown Required:</u> Whenever the cost of any Work is to be determined pursuant to this Article, the Contractor will submit in form acceptable to the City an itemized cost breakdown together with supporting documentation. Whenever a change in the Work is to be based upon mutual acceptance of a lump sum, whether the amount is an addition, credit, or no-charge-in-cost, the Contractor shall submit an estimate substantiated by a complete itemized breakdown:
  - 14.5.1 The breakdown shall list quantities and unit prices for materials, labor, equipment and other items of cost.
  - 14.5.2 Whenever a change involves the Contractor and one (1) or more subcontractors and the change is an increase in the agreed compensation, the overhead and profit percentage for the Contractor and each subcontractor shall be itemized separately.
- 14.6 <u>Time for the City to Approve Extra Work:</u> Any Extra Work in an amount up to and not exceeding a cumulative amount of \$25,000 for a specific project can be approved by the City Manager and shall require a written Change Order proposal to be submitted to the Public Works Director for submittal and approval by the City Manager. Extra Work exceeding the cumulative amount of \$25,000 for a specific project must be approved by the City Commission and a written Change Order proposal must be submitted to the Public Works Director for submittal and approval by the City Manager and City Commission. No financial or time claim for delay to the project resulting from the Change Order approval process outlined above under Section 14.6 will be allowed.

## ARTICLE 15 – CHANGE OF THE CONTRACT TIME

- 15.1 The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to the Project Manager within five (5) days of the occurrence of the event giving rise to the claim. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.
- 15.2 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor if a claim is made there for as provided in Paragraph 15.1. Such delays shall include but not be limited to, acts or neglect by the City, or to fires, floods, labor disputes, epidemics, abnormal weather conditions, pandemics, act of Governmental Authority, state of emergency, or acts of God.
- 15.3 All time limits stated in the Contract Documents are of the essence. The provisions of this Article 15 shall not exclude recovery for damages for delay by the Contractor.
- 15.4 Delays caused by or resulting from entities, contractors or subcontractors who are not affiliated with the Contractor (non-affiliated Contractors) shall not give rise to a claim by the Contractor for damages for increases in material and/or labor costs. Such entities, contractors and subcontractors include, but are not limited to, the City's contractors and

subcontractors, Florida Power and Light Company, AT&T and Florida East Coast Railway, LLC.

15.5 <u>Rights of Various Interests:</u> Whenever work being done by City's forces or by other contractors is contiguous to or within the limits of work covered by this Agreement, the respective rights of the various interests involved shall be established by the Project Manager to secure the completion of the various portions of the Work in general harmony.

#### **ARTICLE 16 – LIQUIDATED DAMAGES**

- 16.1 Upon failure of the Contractor to complete the Work within the time specified for completion, the Contractor shall pay to the City the sum of Five Hundred Dollars (\$500.00) for each and every calendar day that the completion of the Work is delayed beyond the time specified in this Agreement for completion, as fixed and agreed liquidated damages and not as a penalty, so long as the delay is caused by the Contractor. Should an act of God or the acts or omissions of the City, its agents or representatives, in derogation to the terms of this Agreement cause the delay, the Contractor shall not be responsible for the delay nor liquidated damages. Liquidated damages are fixed and agreed upon between the Parties, recognizing the impossibility of precisely ascertaining the amount of damages that will be sustained by the City as a consequence of such delay and both Parties desiring to obviate any question of dispute concerning the amount of damages and the cost and effect of the failure of the Contractor to complete the Work on time. Liquidated damages shall apply separately to each portion of the Work for which a time of completion is given. The City shall have the right to deduct from or retain any compensation which may be due or which may become due and payable to the Contractor the amount of liquidated damages, and if the amount retained by the City is insufficient to pay in full such liquidated damages, the Contractor shall pay all liquidated damages in full. The Contractor shall be responsible for reimbursing the City, in addition to liquidated damages or other damages for delay, for all costs of engineering, architectural fees, and inspection and other costs incurred in administering the construction of the Project beyond the completion date specified or beyond an approved extension of time granted to the Contractor whichever is later. Delays caused by or resulting from entities, contractors or subcontractors who are not affiliated with the Contractor shall not give rise to a claim by Contractor for damages for increase in material and/or labor costs. Such entities, contractors and subcontractors include, but are not limited to, the City's contractors and subcontractors, Florida Power and Light Company, AT&T, and Florida East Coast Railway, LLC.
- 16.2 <u>No Extended Damages</u>: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any reason, allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application

and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

### ARTICLE 17 – SUSPENSION OF WORK AND TERMINATION

- 17.1 <u>City May Suspend Work:</u> The City may, at any time and without cause, suspend the Work or any portion of the Work for a period of not more than ninety (90) days by notice in writing to the Contractor which shall fix the date on which Work shall be resumed. The Contractor shall resume the Work on the date fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension, if the Contractor makes a claim as provided in Articles 14 and 15.
- 17.2 <u>City's Right to Terminate Contract:</u> The City may terminate this Agreement upon fifteen (15) calendar days' written notice upon the occurrence of any one or more of the following events:
  - 17.2.1 If the Contractor makes a general assignment for the benefit of creditors.
  - 17.2.2 If a trustee, receiver, custodian or agent of the Contractor is appointed under applicable law or under Contract, whose appointment or authority to take charge of property of the Contractor is for the purpose of enforcing a lien against such property or for the purpose of general administration of such property for the benefit of the Contractor's creditors.
  - 17.2.3 If Contractor fails to begin the Work within fifteen (15) calendar days after the Project Initiation Date, or fails to perform the Work with sufficient workers and equipment or with sufficient materials to ensure the prompt completion of the Work, or shall perform the Work unsuitably, or cause it to be rejected as defective and unsuitable, or shall discontinue the prosecution of the Work pursuant to the accepted schedule or if Contractor shall fail to perform any material term set forth in the Contract Documents, or from any other cause whatsoever shall not carry on the Work in an acceptable manner, Project Manager may give notice in writing to Contractor and its Surety of such delay, neglect or default, specifying the same.
  - 17.2.4 If the Contractor repeatedly fails to make prompt payments to subcontractors or for labor, material or equipment.
  - 17.2.5 If the Contractor repeatedly disregards proper safety procedures.
  - 17.2.6 If the Contractor disregards any local, state or federal laws or regulations.
  - 17.2.7 If the Contactor otherwise violates any provisions of this Agreement.
- 17.3 If Contractor, within a period of ten (10) calendar days after such notice, shall not proceed in accordance therewith, the City may exclude the Contractor from the Work site and take the prosecution of the Work out of the hands of the Contractor, and take possession of the Work and all of the Contractor's tools, appliances, construction equipment and machinery at the site and use them without liability to the City for trespass or conversion, incorporate in the Work all materials and equipment stored at the site or for which the City has paid the Contractor but which are stored elsewhere,

and finish the Work as the City may deem expedient. In this instance, the Contractor shall not be entitled to receive any further compensation until the Work is finished.

- 17.3.1 If after notice of termination of Contractor's right to proceed, it is determined for any reason that Contractor was not in default, the rights and obligations of City and Contractor shall be the same as if the notice of termination had been issued pursuant to the Termination for Convenience clause as set forth in Section 17.5 below.
- 17.3.2 Upon receipt of Notice of Termination pursuant to Sections 17.2 or 17.5, Contractor shall promptly discontinue all affected work unless the Notice of Termination directs otherwise and deliver or otherwise make available to City all data, drawings, specifications, reports, estimates, summaries and such other information as may have been required by the Contract Documents whether completed or in process.
- 17.4 If the Contractor commits a default due to its insolvency or bankruptcy, the following shall apply:
  - 17.4.1 Should this Agreement be entered into and fully executed by the Parties, funds released and the Contractor (Debtor) files for bankruptcy, the following shall occur:
    - 17.4.1.1 In the event the Contactor files a voluntary petition under 11 U.S.C. 301 or 302, or an order for relief is entered under 11 U.S.C. 303, the Contractor shall acknowledge the extent, validity, and priority of the lien recorded in favor of the City. The Contractor further agrees that in the event of this default, the City shall, at its option, be entitled to seek relief from the automatic stay pursuant to 11 U.S.C. 362. The City shall be entitled to relief from the automatic stay pursuant to 11 U.S.C. 362(d) (1) or (d) (2), and the Contactor agrees to waive the notice provisions in effect pursuant to 11 U.S.C. 362 and any applicable Local Rules of the United States Bankruptcy Court. The Contactor acknowledges that such waiver is done knowingly and voluntarily.
    - 17.4.1.2 Alternatively, in the event the City does not seek stay relief, or if stay relief is denied, the City shall be entitled to monthly adequate protection payments within the meaning of 11 U.S.C. 361. The monthly adequate protection payments shall each be in an amount determined in accordance with the Note and Mortgage executed by the Contractor in favor of the City.
    - 17.4.1.3 In the event the Contractor files for bankruptcy under Chapter 13 of Title 11, United States Code in additional to the foregoing provisions, the Contractor agrees to cure any amounts in arrears over a period not to exceed twenty-four (24) months from the date of the confirmation order, and such payments shall be made in addition to the regular monthly payments required by the Note and mortgage. Additionally, the Contractor shall agree that the City is over secured and, therefore, entitled to interest and attorney's fees pursuant to 11 U.S.C. 506(b). Such fees shall be allowed and payable as an administrative expense.

Further, in the event the Contractor has less than five (5) years of payments remaining on the Note, the Contractor agrees that the treatment afforded to the claim of the City under any confirmed plan of reorganization shall provide that the remaining payments shall be satisfied in accordance with the Note, and that the remaining payments or claim shall not be extended or amortized over a longer period than the time remaining under the Note.

- 17.4.2 Should this Agreement be entered into and fully executed by the parties, and the funds have not been forwarded to Contractor, the following shall occur:
  - 17.4.2.1 In the event the Contractor files a voluntary petition pursuant to 11 U.S.C. 301 or 302, or an order for relief is entered under 11 U.S.C. 303., the Contractor acknowledges that the commencement of a bankruptcy proceeding constitutes an event of default under the terms of this Agreement. Further, the Contractor acknowledges that this Agreement constitutes an executory contract within the meaning of 11 U.S.C. 365. The Contractor acknowledges that this Agreement is not capable of being assumed pursuant to 11 U.S.C. 365(c)(2), unless the City expressly consents in writing to the assumption. In the event the City consents to the assumption, the Contractor agrees to file a motion to assume this Agreement within ten (10) days after receipt of written consent from the City, regardless of whether the bankruptcy proceeding is pending under Chapter 7, 11, or 13 of Title 11 of the United States Code. The Contractor further acknowledges that this Agreement is not capable of being assigned pursuant to 11 U.S.C. 365(b)(1).
- 17.5 <u>Termination for Convenience</u>: This Agreement may be terminated for convenience in writing by City upon thirty (30) days' written notice to Contractor (delivered by certified mail, return receipt requested) of intent to terminate and the date on which such termination becomes effective. In such case, Contractor shall be paid for all work executed and expenses incurred prior to termination in addition to termination settlement costs reasonably incurred by Contractor relating to commitments which had become firm prior to the termination. Payment shall include reasonable profit for work/services satisfactorily performed. No payment shall be made for profit for work/services which have not been performed.
- 17.6 Where the Contractor's service has been so terminated by the City, the termination shall not affect any rights of the City against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the Contractor by the City will not release the Contractor from liability.
- 17.7 The Contractor has no right, authority or ability to terminate the Work except for the wrongful withholding of any payments due the Contractor from the City.

## **ARTICLE 18 – DISPUTE RESOLUTION**

18.1 <u>Resolution of Disputes</u>: Questions, claims, difficulties and disputes of whatever nature which may arise relative to the technical interpretation of the Contract Documents and fulfillment of this Agreement as to the character, quality, amount and value of any work

done and materials furnished, or proposed to be done or furnished under, or by reason of, the Contract Documents which cannot be resolved by mutual agreement of City Project Manager and CONSULTANT shall be submitted to the City Manager or his designee and CONSULTANT's representative for resolution. Prior to any litigation being commenced, for any disputes which remain unresolved, within sixty (60) days after final completion of the Work, the Parties shall participate in mediation to address all unresolved disputes to a mediator agreed upon by the Parties. Should any objection not be resolved in mediation, the Parties retain all their legal rights and remedies provided under the laws of Florida. Failure by a Party to comply in strict accordance with the requirements of this Article, then said Party specifically waives all of its rights provided hereunder, including its rights and remedies under the laws of Florida.

- 18.1.1 All non-technical administrative disputes (such as billing and payment) shall be determined by Contract Administrator.
- 18.1.2 During the pendency of any dispute and after a determination thereof, Contractor and Contract Administrator shall act in good faith to mitigate any potential damages including utilization of construction schedule changes and alternate means of construction. During the pendency of any dispute arising under this Agreement, other than termination herein, Contractor shall carry on the Work and adhere to the progress schedule. The Work shall not be delayed or postponed pending resolution of any disputes or disagreements.
- 18.1.3 For any disputes which remain unsolved, within sixty (60) calendar days after Final Completion of the Work, the Parties shall participate in mediation to address all unresolved disputes. A mediator shall be mutually agreed upon by the Parties. Should any objection not be resolved in mediation, the Parties retain all their legal rights and remedies under applicable law. If a Party objecting to a determination, fails to comply in strict accordance with the requirements of this Article, said Party specifically waives all of its rights provided hereunder, including its rights and remedies under applicable law.

## **ARTICLE 19 – NOTICES**

19.1 All notices required by any of the Contract Documents shall be in writing and shall be deemed delivered upon mailing by certified mail, return receipt requested to the following:

To the City:

City Manager City of Fort Lauderdale 100 North Andrews Avenue Fort Lauderdale, Florida 33301-1016

with copy to the:

Project Manager and City Attorney City of Fort Lauderdale 100 North Andrews Avenue Fort Lauderdale, Florida 33301-1016

To the	Contra	ctor:		

ARTICLE 20 – LIMITATION OF LIABILITY

- 20.1 The City desires to enter into this Agreement only if in so doing the City can place a limit on the City's liability for any cause of action arising out of this Agreement, so that the City's liability for any breach never exceeds the sum of \$1,000. For other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Contractor expresses its willingness to enter into this Agreement with the knowledge that the Contractor's recovery from the City to any action or claim arising from the Agreement is limited to a maximum amount of \$1,000, which amount shall be reduced by the amount actually paid by the City to the Contractor pursuant to this Agreement, for any action or claim arising out of this Agreement. Nothing contained in this paragraph or elsewhere in this Agreement is in any way intended either to be a waiver of the limitation placed upon the City's liability as set forth in Section 768.28, Florida Statutes (2021), as may be amended or revised, or to extend the City's liability beyond the limits established in said Section 768.28, Florida Statutes (2021), as may be amended or revised; and no claim or award against the City shall include attorney's fees, investigative costs, expert fees, suit costs or pre-judgment interest.
- 20.2 <u>No Extended Damages:</u> For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any reason, allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

## **ARTICLE 21 – GOVERNING LAW; WAIVER OF JURY TRIAL**

21.1 The Agreement shall be interpreted and construed in accordance with, and governed by, the laws of the state of Florida. The Parties agree that the exclusive venue for any lawsuit arising from, related to, or in connection with this Agreement shall be in the state courts of the Seventeenth Judicial Circuit in and for Broward County, Florida. If any claims arising from, related to, or in connection with this Agreement must be litigated in federal court, the Parties agree that the exclusive venue for any such lawsuit shall be in the United States District Court or United States Bankruptcy Court for the Southern District of Florida. **BY ENTERING INTO THIS AGREEMENT, THE PARTIES HEREBY**  EXPRESSLY WAIVE ANY AND ALL RIGHTS EITHER PARTY MIGHT HAVE TO A TRIAL BY JURY OF ANY ISSUES RELATED TO THIS AGREEMENT. IF A PARTY FAILS TO WITHDRAW A REQUEST FOR A JURY TRIAL IN A LAWSUIT ARISING OUT OF THIS AGREEMENT AFTER WRITTEN NOTICE BY THE OTHER PARTY OF VIOLATION OF THIS SECTION, THE PARTY MAKING THE REQUEST FOR JURY TRIAL SHALL BE LIABLE FOR THE REASONABLE ATTORNEYS' FEES AND COSTS OF THE OTHER PARTY IN CONTESTING THE REQUEST FOR JURY TRIAL, AND SUCH AMOUNTS SHALL BE AWARDED BY THE COURT IN ADJUDICATING THE MOTION.

#### **ARTICLE 22 – MISCELLANEOUS**

- 22.1 The duties and obligations imposed by this Agreement and the rights and remedies available to the Parties and, in particular but without limitation, the warranties, guaranties and obligations imposed upon the Contractor and all of the rights and remedies available to the City, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by laws or regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents, and the provisions of this Agreement.
- 22.2 The Contractor shall not assign or transfer this Agreement or its rights, title or interests. The obligations undertaken by the Contractor pursuant to this Agreement shall not be delegated or assigned to any other person or firm. Violation of the terms of this Paragraph shall constitute a material breach of Agreement by the Contractor and the City any, at its discretion, cancel this Agreement and all rights, title and interest of the Contractor which shall immediately cease and terminate.
- 22.3 The Contractor and its employees, volunteers and agents shall be and remain as independent contractor and not agents or employees of the City with respect to all of the acts and services performed by and under the terms of this Agreement. This Agreement shall not in any way be constructed to create a partnership, association or any other kind of joint undertaking or venture between the Parties.
- 22.4 The City reserves the right to audit the records of the Contractor relating in any way to the Work to be performed pursuant to this Agreement at any time during the performance and term of this Agreement and for a period of three (3) years after completion and acceptance by the City. If required by the City, the Contractor agrees to submit to an audit by an independent certified public accountant selected by the City. The Contractor shall allow the City to inspect, examine and review the records of the Contractor at any and all times during normal business hours during the term of this Agreement.
- 22.5 The remedies expressly provided in this Agreement to the City shall not be deemed to be exclusive but shall be cumulative and in addition to all other remedies in favor of the City now or later existing at law or in equity.

- 22.6 Should any part, term or provisions of this Agreement be decided by the courts to be invalid, illegal or in conflict with any state or federal law, the validity of the remaining portion or provision shall not be affected.
- 22.7 Prohibition Against Contracting With Scrutinized Companies: As to any contract for goods or services of \$1 million or more and as to the renewal of any contract for goods or services of \$1 million or more, subject to Odebrecht Construction, Inc., v. Prasad, 876 F.Supp.2d 1305 (S.D. Fla. 2012), affirmed, Odebrecht Construction, Inc., v. Secretary. Florida Department of Transportation, 715 F.3d 1268 (11th Cir. 2013), with regard to the "Cuba Amendment," the Contractor certifies that it is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and that it does not have business operations in Cuba or Syria, as provided in Section 287.135, Florida Statutes (2021), as may be amended or revised. As to any contract for goods or services of any amount and as to the renewal of any contract for goods or services of any amount, the Contractor certifies that it is not on the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2021), as may be amended or revised, and that it is not engaged in a boycott of Israel. The City may terminate this Agreement at the City's option if the Contractor is found to have submitted a false certification as provided under subsection (5) of Section 287.135, Florida Statutes (2021), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2021), as may be amended or revised, or is engaged in a boycott of Israel or has been engaged in business operations in Cuba or Syria, as defined in Section 287.135, Florida Statutes (2021), as may be amended or revised.
- 22.8 <u>Public Entity Crimes</u>: In accordance with the Public Crimes Act, Section 287.133, Florida Statutes (2021), as may be amended or revised, a person or affiliate who is a contractor, consultant or other provider, who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to the City, may not submit a bid on a contract with the City for the construction or repair of a public building or public work, may not submit bids on leases of real property to the City, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with the City, and may not transact any business with the City in excess of the threshold amount provided in Section 287.017, Florida Statutes (2021), as may be amended or revised, for category two purchases for a period of thirty-six (36) months from the date of being placed on the convicted vendor list. Violation of this section by Contractor shall result in cancellation of the City purchase and may result in Contractor debarment.
- 22.9 <u>Attorney Fees</u>: If City or Contractor incurs any expense in enforcing the terms of this Agreement through litigation, the prevailing Party in that litigation shall be reimbursed for all such costs and expenses, including but not limited to court costs, and reasonable attorney fees incurred during litigation.

## 22.10 <u>Public Records</u> IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE

## CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT <u>PRRCONTRACT@FORTLAUDERDALE.GOV</u>, 954-828-5002, CITY CLERK'S OFFICE, 100 N. ANDREWS AVENUE, FORT LAUDERDALE, FLORIDA 33301.

Contractor shall:

- 1. Keep and maintain public records required by the City in order to perform the service.
- 2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2021), as may be amended or revised, or as otherwise provided by law.
- 3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this Agreement if the Contractor does not transfer the records to the City.
- 4. Upon completion of the Agreement, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Agreement, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Agreement, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

# [THIS SPACE WAS INTENTIONALLY LEFT BLANK]

Project Name (Contractor) Project #

## <u>CITY</u>

IN WITNESS OF THE FOREGOING, the Parties have set their hands and seals the day and year first written above.

	CITY OF FORT LAUDERDALE, a Florida municipal corporation
	By: CHRISTOPHER J. LAGERBLOOM City Manager
	Date:
	ATTEST:
	By:
	JEFFREY A. MODARELLI City Clerk
	Approved as to Legal Form:
	Alain E. Boileau, City Attorney
$\mathbf{O}$	Ву:
	RHONDA MONTOYA HASAN
	Assistant City Attorney
## **CONTRACTOR**

WITNESSES:	CONTRACTOR., a Florida company/corporation.
	Ву:
Print Name	Print Name:
Title:	
	ATTEST:
Print Name	By: Secretary
(CORPORATE SEAL)	6
STATE OF:	
COUNTY OF:	
□ online notarization, this day of OF AUTHORIZED OFFICER) as	ed before me by means of □ physical presence or , 2021, by, (NAME (TITLE OF AUTHORIZED OFFICER), for , a Florida(TYPE OF COMPANY).
S	(Signature of Notary Public - State of Florida)
	(Print, Type, or Stamp Commissioned Name of Notary Public)
Personally Known OR Produced Ide	entification Type of Identification Produced:

## **GENERAL CONDITIONS**

# Unless otherwise modified in the Project's Special Conditions, the following General Conditions shall be part of the Contract:

**GC - 01 - DEFINITIONS -** The following words and expressions, or pronouns used in their stead, shall wherever they appear in the Contract and the Contract Documents, be construed as follows:

"Addendum" or "Addenda" - shall mean the additional Contract provisions issued in writing, by the Engineer, prior to the receipt of bids.

"Bid" – shall mean the offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

"Bidder" – shall mean any person, firm, company, corporation or entity submitting a bid for the Work.

"Bonds" –shall mean bid, performance and payment bonds and other instruments of security, furnished by Contractor and his surety in accordance with the Contract Documents.

"City" – shall mean the City of Fort Lauderdale, Florida, a Florida municipal corporation. In the event the City exercises its regulatory authority as a government body, the exercise of such regulatory authority and the enforcement of any rules, regulations, codes, laws and ordinances shall be deemed to have occurred pursuant to City's authority as a governmental body and shall not be attributable in any manner to the City as a party to this Contract.

"Consultant" – shall mean a person, firm, company, corporation or other entity employed by the City to perform the professional services for the project.

"Contractor" – shall mean the successful Bidder who has been employed by the City to perform the construction and related services for the project.

"Contract Work" - shall mean everything expressed or implied to be required to be furnished and furnished by the Contractor by any one or more of the parts of the Contract Documents referred to in the Contract hereof. In the case of any inconsistency in or between any parts of this Contract, the Project Manager shall determine which shall prevail.

"Design Documents" – shall mean the construction plans and specifications included as part of a Bid/Proposal Solicitation prepared either by the City or by the Consultant under a separate Agreement with the City.

"Engineer" - shall include the terms "professional engineer" and "licensed engineer" and means a person who is licensed to engage in the practice of engineering under Florida Statute, Chapter 471. An Engineer may be a City employee or a consultant hired by the City.

"Extra Work" - shall mean work other than that required by the Contract.

"Inspector" – shall mean an authorized representative of the City assigned to make necessary inspections of materials furnished by Contractor and of the Work performed by Contractor.

"Notice" - shall mean written notice sent by certified United States mail, return receipt requested, or sent by commercial express carrier with acknowledgement of delivery, or via fax or email, or by hand delivery with a request for a written receipt of acknowledgment of delivery and shall be served upon the Contractor either personally or to its place of business listed in the Bid.

"Owner" - shall mean the City of Fort Lauderdale.

"Project Manager" - shall mean a professional designated by the City to manage the Project under the supervision and direction of the Public Works Director or designee.

"Public Works Director" – shall mean the Public Works Director of the City of Fort Lauderdale.

"Site" - shall mean the area upon or in which the Contractor's operations are carried out and such other areas adjacent thereto as may be designated as such by the Project Manager.

"Sub-contractor" - shall mean any person, firm, company, corporation or other entity, other than employees of the Contractor, who or which contracts with the contractor, to furnish, or actually furnishes labor and materials, or labor and equipment, or labor, materials and equipment at the site.

"Surety" - shall mean any corporation or entity that executes, as Surety, the Contractor's performance and payment bond securing the performance of this Contract.

**GC - 02 - SITE INVESTIGATION AND REPRESENTATION** - The Contractor acknowledges that it has satisfied itself as to the nature and location of the Work under the Contract Documents, the general and local conditions of the Site, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, and roads, field conditions, the type of equipment and facilities needed preliminary to and during the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under the Contract Documents.

The Contractor acknowledges that it has conducted extensive tests, examinations and investigations and represents and warrants a thorough familiarization with the nature and extent of the Contract Documents, the Work, locality, soil conditions, moisture conditions and all year-round local weather and climate conditions (past and present), and, in reliance on such tests, examination and investigations conducted by Contractor and the Contractor's experts, has determined that no conditions exist that would in any manner affect the Bid Price and that the project can be completed for the Bid Price submitted.

Any failure by the Contractor to acquaint itself with all the Site conditions shall not relieve Contractor from responsibility for properly estimating the difficulty or cost thereof under the Contract Documents.

- **GC 03 SUBSTITUTIONS** If the Contractor desires to use materials and/or products of manufacturer's names different from those specified in the Contract Documents, the Bidder requesting the substitution shall make written application as described herein. The burden of proving the equality of the proposed substitution rests on the Contractor making the request. To be acceptable, the proposed substitution shall meet or exceed all expressed requirements of the Contract Documents and shall be submitted upon the Contractor's letterhead. The following requirements shall be met in order for the substitution to be considered:
  - 1. Requests for substitution shall be accompanied by such technical data, as the party making the request desires to submit. The Project Manager will consider reports from

reputable independent testing laboratories, verified experience records from previous users and other written information valid in the circumstances; and

- 2. Requests for substitution shall completely and clearly indicate in what respects the materials and/or products differ from those indicated in the Contract Documents; and
- 3. Requests for substitution shall be accompanied by the manufacturer's printed recommendations clearly describing the installation, use and care, as applicable, of the proposed substitutions; and
- 4. Requests for substitution shall be accompanied by a complete schedule of changes in the Contract Documents, if any, which must be made to permit the use of the proposed substitution.

If a proposed substitution is approved by the Project Manager, an addendum will be issued to prospective bidders not less than three (3) working days prior to the date set for opening of bids. Unless substitutions are received and approved as described above, the successful Bidder shall be responsible for furnishing materials and products in strict accordance with the Contract Documents.

- **GC- 04 CONSTRUCTION RESOURCES** Contractor shall provide all labor and equipment necessary to complete the installation within a timely manner. Contractor shall provide details as to manpower and equipment to be dedicated to the project in its Work Plan. Contractor is responsible for making arrangements, obtaining and purchasing construction water services if required to complete the work.
- **GC 05 - CONTROL OF THE WORK** The Project Manager shall have full control and direction of the Work in all respects. The Project Manager and/or his authorized designee(s) shall, at all times, have the right to inspect the Work and materials. The Contractor shall furnish all reasonable facilities for obtaining such information, as the Project Manager may desire respecting the quality of the Work and materials and the manner of conducting the Work. Should the Contractor be permitted to perform night Work, or to vary the period which work is ordinarily carried on in the daytime, he shall give ample notice to the Project Manager so that proper and adequate inspection may be provided. Such Work shall be done only under such regulations as are furnished in writing by the Project Manager, and no extra compensation shall be allowed to the Contractor, therefore. In the event of night work, the Contractor shall furnish such light, satisfactory to the Project Manager, as will ensure proper inspection. Nothing herein contained shall relieve the Contractor from compliance with any and all City ordinances relating to noise or Work during prohibited hours.
- **GC 06 SUB-CONTRACTOR** The Contractor shall not sublet, in whole or any part of the Work without the written consent and approval of the Project Manager. Within ten (10) days after official notification of starting date, the Contractor must submit in writing, to the Project Manager, a list of all Sub-contractors. No Work shall be done by any sub-contractor until such Sub-contractor has been officially approved by the Project Manager. A sub-contractor not appearing on the original list will not be approved without written request submitted to the Project Manager and approved by the Public Works Director. In all cases, the Contractor shall give his personal attention to the Work of the Sub-contractors and the Sub-contractor is liable to be discharged by the Contractor, at the direction of the Project Manager, for neglect of duty, incompetence or misconduct.

Acceptance of any sub-contractor, other person, or organization by the Project Manager shall not constitute a waiver of any right of Project Manager to reject defective Work or Work not in conformance with the Contract Documents.

Contractor shall be fully responsible for all acts and omissions of its Sub-contractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between City and any sub-contractor or other person or organization having a direct contract with Contractor, nor shall it create any obligation on the part of City to pay or to see to the payment of any moneys due to any sub-contractor or other person, or organization, except as may otherwise be required by law.

**GC** - 07 - **QUANTITIES** - Contractor recognizes and agrees that the quantities shown on plans and Bid/Price Schedule are estimates only and may vary during actual construction. No change shall be made involving any departure from the general scheme of the Work and that no such change involving a material change in cost, either to the City or Contractor, shall be made, except upon written permission of the City. However, the Project Manager shall have the right to make minor alternations in the line, grade, plan, form or materials of the Work herein contemplated any time before the completion of the same. That if such alterations shall diminish the quantity of the Work to be done, such alterations shall not constitute a claim for damages or anticipated profits. That if such alterations increase the amount of the Work to be done, such increase shall be paid for according to the quantity actually performed and at the unit price or prices stipulated therefore in the Contract. The City shall, in all cases of dispute, determine the amount or quantity of the several kinds of Work which are to be paid for under this Contract, and shall decide all questions relative to the execution of the same, and such estimates and decisions shall be final and binding.

Any Work not herein specified, which might be fairly implied as included in the Contract, of which the City shall judge, shall be done by the Contractor without extra charge. However, such cost increases shall be authorized either by the Public Works Director or designee, or the City Commission based upon the purchasing threshold amounts provided for in Chapter 2 of the City of Fort Lauderdale's Code of Ordinances.

- **GC 08 NO ORAL CHANGES** Except to the extent expressly set forth in the Contract, no change in, or modification, termination or discharge of the Contract in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the parties charged, therewith or their duly authorized representative.
- **GC 09 PERMITS AND PROTECTION OF PUBLIC** Permits on file with the City and/or those permits to be obtained by the Contractor, shall be considered directive in nature, and will be considered a part of this Contract. A copy of all permits shall be given to the City and become part of the Contract Documents. Terms of permits shall be met prior to acceptance of the Work and release of the final payment.

Contractor shall secure all permits and licenses required for completing the Project. Contractor will obtain the necessary State, County, and City construction/work permits if required.

The Contractor shall comply with all applicable Codes, Standards, Specifications, etc. related to all aspects of the Project.

Where there are telephones, light or power poles, water mains, conduits, pipes or drains or other construction, either public or private, in or on the streets or alleys, the Work shall be so conducted that no interruption or delay will be caused in the operation or use of the same. Proper written notice shall be given to all affected parties prior to proceeding with the Work.

The Contractor shall not be permitted to interfere with public travel and convenience by grading or tearing up streets indiscriminately, but the Work of constructing the various items in this contract shall proceed in an orderly, systematic and progressive manner.

- **GC 10 DISEASE REGULATIONS** The Contractor shall enforce all sanitary regulations and take all precautions against infectious diseases as the Project Manager may deem necessary. Should any infectious or contagious diseases occur among his employees, he shall arrange for the immediate removal of the employee from the Site and isolation of all persons connected with the Work.
- **GC 11 CONTRACTOR TO CHECK PLANS, SPECIFICATIONS, AND DATA** The Contractor shall verify all dimensions, quantities, and details shown on the plans, supplementary drawings, schedules, and shall notify the Project Manager of all errors, omissions, conflicts and discrepancies found therein within three (3) working days of discovery. Failure to discover or correct errors, conflictions, or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory Work, faulty construction, or improper operation resulting therefrom nor from rectifying such condition at its own expense.
- **GC 12 MATERIALS AND WORKMANSHIP** All material shall be new and the workmanship shall, in every respect, be in conformity with approved modern practice and with prevailing standards of performance and quality. In the event of a dispute, the Project Manager's decision shall be final. Wherever the Plans, Specifications, Contract Documents, or the directions of the Project Manager are unclear as to what is permissible and/or fail to note the quality of any Work, that interpretation will be made by the Project Manager, which is in accordance with approved modern practice, to meet the particular requirements of the Contract.
- **GC 13 SAFEGUARDING MARKS** The Contractor shall safeguard all points, stakes, grade marks, monuments, and benchmarks made or established on the Work, bear the cost of re-establishing same if disturbed, or bear the entire expense of rectifying Work improperly installed due to not maintaining or protecting or for removing without authorization, such established points, stakes and marks. The Contractor shall safeguard all existing and known property corners, monuments and marks not related to the Work and, if required, shall bear the cost of having them re-established by a licensed Professional surveyor registered in the State of Florida if disturbed or destroyed during the course of construction.
- **GC 14 RESTROOM FACILITIES** Contractor shall provide portable toilet facilities for employee's use at a location within the Work site to be determined by the City.
- **GC 15 PROGRESS MEETINGS** Weekly Status meetings will be conducted with representatives from the City and the Contractor. Contractor shall budget time to participate in such meetings. A well-run Project should result in short meetings.
- **GC 16 ISSUE RESOLUTION** Should Contractor become engaged in a dispute with a resident or a City employee, the Contractor shall report the situation to the Project Manager immediately. It shall be mandatory that the City participate in any dispute resolution. Failure of Contractor personnel to notify the City shall obligate Contractor to replace the offending employee immediately if requested by the City.
- **GC 17 CITY SECURITY-CONTRACTOR AND SUBCONTRACTOR EMPLOYEE INFORMATION** - Prior to commencing work, Contractor shall provide to the City a list of all personnel and subcontractors on site. The list will include the name, address, birth date and driver's license number for all personnel. All personnel and subcontractors on site will have on their person a company

photo ID during all stages of the construction. Contractor shall provide standard required personal information per current City procedures.

- **GC 18 POST-CONSTRUCTION SURVEY** The Contractor shall provide as-built survey, sealed and signed by a registered surveyor in the State of Florida, as a condition of final payment.
- GC 19 KEY PERSONNEL Contractor shall provide as part of the Work Plan, resumes for all key project personnel providing supervision and project management functions. Resumes shall include work history and years of experience performing this type of work.
- **GC 20 EXISTING UTILITY SERVICE** All existing utility service shall be maintained with a minimum of interruption at the expense of the Contractor.
- **GC 21 - JOB DESCRIPTION SIGNS** Contractor, at Contractor's expense, shall furnish, erect, and maintain suitable weatherproof signs on jobs over \$100,000 containing the following information:
  - 1. City Seal (in colors)
  - 2. Project or Improvement Number
  - 3. Job Description
  - 4. Estimated Cost
  - 5. Completion Date

Minimum size of sign shall be four feet high, eight feet wide and shall be suitably anchored. The entire sign shall be painted and present a pleasing appearance. Exact location of signs will be determined in the field. Two (2) signs will be required, one at each end of the job. All costs of this work shall be included in other parts of the work.

- **GC 22 FLORIDA EAST COAST RIGHT-OF-WAY** Whenever a City contractor is constructing within the Florida East Coast Railway Company's Right-of-Way, it will be mandatory that the contractor carry bodily injury and property damage insurance in amounts satisfactory to the Florida East Coast Company. This insurance requirement shall be verified by the contractor with the Florida East Coast Company prior to commencing work and maintained during the life of the Contract.
- **GC 23 ACCIDENTS** The Contractor shall provide such equipment and facilities as are necessary and/or required, in the case of accidents, for first aide services to be provided to a person who may be injured during the project duration. The Contractor shall also comply with the OSHA requirements as defined in the United States Labor Code 29 CFR 1926.50.

In addition, the Contractor must report immediately to the Project Manager every accident to persons or damage to property, and shall furnish in writing full information, including testimony of witnesses regarding any and all accidents.

**GC - 24 - SAFETY PRECAUTIONS** - Contractor must adhere to the applicable environmental protection guidelines for the duration of a project. If hazardous waste materials are used, detected or generated at any time, the Project Manager must be immediately notified of each and every occurrence. The Contractor shall comply with all codes, ordinances, rules, orders and other legal requirements of public authorities (including OSHA, EPA, DERM, the City, Broward County, State of Florida, and Florida Building Code), which bear on the performance of the Work.

The Contractor shall take the responsibility to ensure that all Work is performed using adequate safeguards, including but not limited to proper safe rigging, safety nets, fencing, scaffolding, barricades, chain link fencing, railings, barricades, steel plates, safety lights, and ladders that are necessary for the protection of its employees, as well as the public and City employees. All riggings and scaffolding shall be constructed with good sound materials, of adequate dimensions for their intended use, and substantially braced, tied or secured to ensure absolute safety for those required to use it, as well as those in the vicinity. All riggings, scaffolding, platforms, equipment guards, trenching, shoring, ladders and similar actions or equipment shall be OSHA approved, as applicable, and in accordance with all Federal, State and local regulations.

**GC - 25 - DUST PREVENTION** - The Contractor shall, by means of a water spray, or temporary asphalt pavement, take all necessary precautions to prevent or abate a dust nuisance arising from dry weather or Work in an incomplete stage. All costs of this Work shall be included in the cost of other parts of the Work.

Should the Contractor fail to abate a dust nuisance the Project Manager may stop the Work until the issue is resolved to the City's satisfaction.

GC - 26 - SITE CLEANUP AND RESTORATION – The Contractor shall remove all debris and unused or discarded materials from the work site daily. Contractor shall clean the work site to remove all directional drilling "Driller's Mud" materials. No "Driller's Mud" residue shall be allowed to remain in the soil or on the surface of the land or vegetation. All debris and drilling materials must be disposed of offsite at an approved location.

The Contractor shall promptly restore all areas disturbed that are outside the Project limits in equal or better condition at no additional cost to the City.

**GC - 27 - COURTEOUS BEHAVIOR AND RESPECT FOR RESIDENTS AND PROPERTY** – The Contractor and its employees, associates and sub-contractors shall maintain courteous behavior at all times and not engage in yelling, loud music, or other such activities. Contractor's employees shall not leave trash or other discarded items at the Work Site, especially on any private property. In the event complaints arise, Contractor shall immediately remove such offending employees from the project if requested to do so by the Project Manager. Contractor's employees shall not trespass on any private property unless necessary to complete the work but with prior permission from the owner.

Contractor shall notify and obtain permission from the residents 24 hours in advance when planning to work within the resident's property. In addition, Contractor shall notify the resident prior to entering their property to perform work or inspect/investigate the work site. Contractor shall not block residents' driveways unnecessarily. Contractor shall not park equipment on landscaped areas when the vehicle is not needed for the current construction activities. Contractor shall be responsible for repair and/or replacement of all damaged landscaping within 48 hours including repairing vehicle wheel impressions, irrigation systems, lighting systems, structures, or any other items of resident's property. Contractor shall not destroy, damage, remove, or otherwise negatively impact any landscaping within or outside the right-of-way without prior approval from the Project Manager.

**GC - 28 - PLACING BARRICADES AND WARNING LIGHTS** - The Contractor shall furnish and place, at Contractor's own expense, all barricades, warning lights, automatic blinker lights and such devices necessary to properly protect the work and vehicular and pedestrian traffic. Should the Contractor fail to erect or maintain such barricades, warning lights, etc., the Project Manager may, after 24 hours' notice to the Contractor, proceed to have such barricades and warning lights placed and maintained by City or other forces and all costs incurred thereof charged to the Contractor and may be retained by the City from any monies due, or to become due, to the Contractor.

**GC - 29 - TRAFFIC CONTROL** - The Contractor shall coordinate all Work and obtain, through the City's Transportation and Mobility Department, Broward County, Florida Department of Transportation, as applicable, any permits required to detour traffic or close any street before starting to work in the road

All traffic control devices, flashing lights, signs and barricades shall be maintained in working condition at all times and conform to Manual of Uniform Traffic Control Devices (MUTCD), latest edition.

**GC - 30 - COORDINATION** - The Contractor shall notify all utilities, transportation department, etc., in writing, with a copy to the Project Manager before construction is started and shall coordinate its Work with them. The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal, construction and rearrangement operations in order that services rendered by these parties will not be unnecessarily interrupted.

The Contractor shall arrange its Work and dispose of its materials so as to not interfere with the operation of other contractors engaged upon adjacent work, and to join its Work to that of others in a proper manner, and to perform its Work in the proper sequence in relation to that of other contractors as may be directed by the Project Manager.

Each Contractor shall be responsible for any damage done by it or its agents to the work performed by another contractor.

- **GC 31 WATER** Bulk water used for construction, flushing pipelines, and testing shall be obtained from fire hydrants. Contractor shall make payment for hydrant meter at Treasury Billing Office, 1st Floor, City Hall, 100 N. Andrews Avenue. With the paid receipt, contractor can pick up hydrant meter at the utility location office. No connection shall be made to a fire hydrant without a meter connected.
- GC 32 PROHIBITION AGAINST CONTRACTING WITH SCRUTINIZED COMPANIES As to any contract for goods or services of \$1 million or more and as to the renewal of any contract for goods or services of \$1 million or more, subject to Odebrecht Construction, Inc., v. Prasad, 876 F.Supp.2d 1305 (S.D. Fla. 2012), affirmed, Odebrecht Construction, Inc., v. Secretary, Florida Department of Transportation, 715 F.3d 1268 (11th Cir. 2013), with regard to the "Cuba Amendment," the Contractor certifies that it is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and that it does not have business operations in Cuba or Syria, as provided in Section 287.135, Florida Statutes (2021), as may be amended or revised. As to any contract for goods or services of any amount and as to the renewal of any contract for goods or services of any amount, the Contractor certifies that it is not on the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2021), as may be amended or revised, and that it is not engaged in a boycott of Israel. The City may terminate this Agreement at the City's option if the Contractor is found to have submitted a false certification as provided under subsection (5) of Section 287.135, Florida Statutes (2021), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2021), as may be amended or revised, or is engaged in a boycott of Israel, or has been engaged in business operations in Cuba or Syria, as defined in Section 287.135, Florida Statutes (2021), as may be amended or revised.
- **GC 33 USE OF FLORIDA LUMBER TIMBER AND OTHER FOREST PRODUCTS** In accordance with Florida Statute 255.20 (3), the City specifies that lumber, timber, and other forest products used for this Project shall be produced and manufactured in the State of Florida if such products are available and their price, fitness, and quality are equal. This requirement does not apply to plywood

specified for monolithic concrete forms, if the structural or service requirements for timber for a particular job cannot be supplied by native species, or if the construction is financed in whole or in part from federal funds with the requirement that there be no restrictions as to species or place of manufacture.

The Bidder affirms by submitting a bid response to this solicitation that they will comply with section 255.20 (3) Florida Statutes.

GC - 34 - PUBLIC RECORDS/TRADE SECRETS/COPYRIGHT: The Proposer's response to the Solicitation is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters or other material submitted in connection with this Solicitation and the Contract to be executed for this Solicitation, subject to the provisions of Chapter 119.07 of the Florida Statutes.

Any language contained in the Proposer's response to the Solicitation purporting to require confidentiality of any portion of the Proposer's response to the Solicitation, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Proposer submits any documents or other information to the City which the Proposer claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Proposer shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Proposer must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Proposer's response to the Solicitation constitutes a Trade Secret. The City's determination of whether an exemption applies shall be final, and the proposer agrees to defend, indemnify, and hold harmless the City and the City's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the City's treatment of records as public records. In addition, the proposer agrees to defend, indemnify, and hold harmless the City and the City's officers, employees, and agents, against any loss or damages incurred by any person or entity as a result of the City's treatment of records as exempt from disclosure or confidential. Proposals purporting to be subject to copyright protection in full or in part will be rejected. The proposer authorizes the City to publish, copy, and reproduce any and all documents submitted to the City bearing copyright symbols or otherwise purporting to be subject to copyright protection.

EXCEPT FOR CLEARLY MARKED PORTIONS THAT ARE BONA FIDE TRADE SECRETS PURSUANT TO FLORIDA LAW, DO NOT MARK YOUR RESPONSE TO THE SOLICITATION AS PROPRIETARY OR CONFIDENTIAL. DO NOT MARK YOUR RESPONSE TO THE SOLICITATION OR ANY PART THEREOF AS COPYRIGHTED.

# IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

prrcontract@fortlauderdale.gov

Mailing Address:	City Clerk's Office
-	100 N. Andrews Avenue
	Fort Lauderdale, Florida 33301-1016

E-mail:

## Contractor shall:

- 1. Keep and maintain public records required by the City in order to perform the service.
- 2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2021), as may be amended or revised, or as otherwise provided by law.
- 3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this Agreement if the Contractor does not transfer the records to the City.
- 4. Upon completion of the Agreement, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Agreement, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

**DIVISION 1** 

**GENERAL REQUIREMENTS** 

PROJECT NO. 12695

## SECTION 01001

#### GENERAL REQUIREMENTS

#### PART 1 – GENERAL REQUIREMENTS

#### 1.01 THE REQUIREMENT

- A. A brief description of the work is stated in the Invitation to Bid. To determine the full scope of the project or any particular part of the project, coordinate the applicable information in these Contract Documents and review the available project drawings.
- B. Project Environmental Goals: Contractor shall distribute copies of the Environmental Goals to each subcontractor and the Engineer. The overall goal is to construct functional systems incorporating the principles of sustainability. Specifically:
  - 1. Preserve and restore the site ecosystem and biodiversity; avoid site degradation and erosion. Minimize offsite environmental impact.
  - 2. Use the minimum amount of energy, water, and materials feasible to meet the design intent. Select energy and water efficient equipment and strategies.
  - 3. Use environmentally preferable products and decrease toxicity level of materials used.
  - 4. Use renewable energy and material resources.
  - 5. Optimize operational performance (through commissioning efforts) in order to ensure energy efficient equipment operates as intended.
  - 6. Consider the durability, maintainability, and flexibility of building systems.
  - 7. Manage construction site and storage of materials to ensure no negative impact on the indoor environmental quality of the building.
  - 8. Reduce construction waste through reuse, recycling, and supplier take-back.
- C. The work under this Contract shall be performed by the Contractor as required by the City. Work will be authorized in the form of a Notice to Proceed (NTP) issued to the Contractor. The Contractor shall complete all work in the Contract within the number of calendar days stipulated in the Contract unless an extension in the time of completion is granted by the Engineer, as stated in the Instructions to Bidders. Upon completion of the work and compliance with applicable provisions in the Contract Documents, the Contractor will receive final payment for all work done.
- D. Existing Work: In addition to requirements to protect existing vegetation, structures, equipment, utilities or other improvements, remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which will remain. Repair or replace portions of existing work which have been altered during

PROJECT NO. 12695

construction operations to match existing or adjoining work, as approved by the City. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before new work started.

- E. The following additional information, though not all-inclusive, is given to assist contractors in their evaluation of the work required to meet the project objectives.
- F. The Contractor shall become familiar with the existing operating conditions of the City's stormwater system and pumping stations and take such into consideration in planning and scheduling work. No extra claims shall be made for work required to achieve conditions beyond those obtainable under normal operation of the existing transmission, collection and pumping facilities necessary to accomplish the work.

#### 1.02 DOT SPECIFICATIONS

- A. Portions of The Florida Department of Transportation Standard Specifications for Road and Bridge Construction and their Roadway and Traffic Design Standards, hereinafter referred to as the DOT Standard Specifications, are referred to herein and amended, in part, and the same are hereby made a part of this Contract to the extent of such references and shall be as binding upon the Contract as though reproduced herein. Such reference shall mean the current edition, including all supplements. In case of a conflict in the requirements of the DOT Specifications and the requirements stated herein, the requirements herein shall prevail.
- B. Contractor will be required to submit MOTs for work in the county and state highways and City streets. Contractor shall coordinate with MOTs for nearby or highway work and obtain approval for all traffic control as required by the permits contained elsewhere in this section.

## PART 2 - SEQUENCE OF OPERATIONS

#### 2.01 SCHEDULING

- A. General: Prepare and submit schedule in accordance with the provisions of Section 01310 Progress Schedules.
- B. Plan the work and carry it out with minimum interference to the operation of the existing facilities. Do not make connections between existing work and new work until necessary inspection and tests have been completed on the new work and it is found to conform in all respects to the requirements of the Contract Documents.
- C. No work shall be started until the Contractor has received approved shop drawings, established material/delivery dates for all equipment, and received approval of the construction schedule from the Engineer. The Contractor shall have sufficient manpower, equipment, and material to complete the project.
- D. No work shall commence without express consent of the Engineer.
- E. If a privately-owned staging area is required, no work shall commence until approval of the facility is obtained from City Planning and Zoning in accordance with Section 47-19.2 of the Unified Land Development Regulations. Submit a copy of the approval and agreement to the City.

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## 2.02 MOBILIZATION AND DEMOBILIZATION

A. Contractor shall be responsible for mobilization and demobilization of labor, materials and equipment. Payment for mobilization and demobilization shall be included in the lump sum price indicated in the Proposal for the project.

## 2.03 COORDINATION

- A. Contractor shall cooperate in the coordination of separate activities in a manner that will provide the least interference with the Owner's operations and other contractors and utility companies working in the area, and in the interfacing and connection of the separate elements of the overall project work.
- B. If any difficulty or dispute should arise in the accomplishment of the above, the problem shall be brought immediately to the attention of the Engineer.

## 2.04 MAINTENANCE AND SHUTDOWN OF EXISTING OPERATIONS OR UTILITIES

- A. Continuous operation of the City's service functions is of critical importance. The Contractor's work shall not result in the interruption of sewage, water, or solid waste service to any customers.
- B. The Contractor shall be fully responsible for all precautionary measures together with all remediation, cleanup, disinfection, regulatory agency fines and all other labor, materials, and costs associated with any contamination of the potable water supply caused directly or indirectly by the activities of the Contractor in the performance of the work.
- C. Notwithstanding other indemnification requirements of the Contract Documents, the Contractor shall also indemnify, defend, and hold harmless the City and the Engineer from any and all legal action which may arise from contamination of the potable water supply caused directly or indirectly by the Contractor in the performance of the work.
- D. Minimizing conflicts with the ongoing area-wide commercial activities is of critical importance. The Contractor's work shall minimize in the interruption of operations at any facility or business.
- E. Connections to existing services or utilities, or other work that requires the temporary shutdown of any existing operations or utilities shall be planned in detail with appropriate scheduling of the work and coordinated with the City or Engineer in writing. The Contractor shall schedule short-term and extended shutdowns in advance and shall present all desired shutdowns in the 30 and 60-day schedules at the construction progress meetings.
- F. Seven (7) business days advanced notice shall be given in order that the City or Engineer may witness any required shutdowns, tie-ins, and startups. Temporary shutdowns of City services must be approved by the City. All tie-in and bypass operations shall be the responsibility of the Contractor and are considered incidental to the cost of construction and shall be provided at no additional cost to the City.

- G. If in the judgment of the City or Engineer, a requested shutdown is not required for the Contractor to perform the work, the Contractor shall utilize approved alternative methods to accomplish the work.
- H. Where required in the Construction Sequence, the Contractor shall proceed with the work continuously, (24 hours/day, 7 days/week) start to finish, until the work is completed and normal operation is restored.
- I. All materials and equipment (including emergency equipment) necessary to expedite tie-ins shall be on hand prior to the shutdown of existing services or utilities.
- J. If the Contractor completes all required work before a specified shutdown period has ended, the City may immediately place the existing system back into service.
- K. All shutdowns shall be scheduled for low flow period during the daily diurnal water demand and shall generally be limited to four (4) hours or less depending on water demand, system pressure, weather forecast and amount of potable water stored onsite. The schedule and duration of short-term shutdowns shall be at the discretion of the City.

## 2.05 OPERATION OF EXISTING SYSTEM PROHIBITED

A. At no time is the Contractor to close off any utility lines or open valves or take any other action which would affect the operation of existing systems. The City's operations crew will operate all valves. Provide at least one business day notice to City prior to any required operation of existing system.

## PART 3 - SITE CONDITIONS

## 3.01 SITE INVESTIGATION AND REPRESENTATION

- A. The Contractor acknowledges satisfaction as to the general nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, or similar physical conditions, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this Contract.
- B. Failure by the Contractor to become acquainted with the physical conditions and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the Work.
- C. The Contractor warrants that as a result of examination and investigation of all the aforesaid data, the Contractor can perform the work in a good and workmanlike manner and to the satisfaction of the City. The City assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefore is assumed by the City.

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- D. The Contractor shall be responsible for all restoration of disturbed areas encountered as pre-existing site conditions whether or not specifically shown or denoted on the Contract Documents. It is the Contractor's responsibility to fully familiarize itself with the project site and restoration requirements of the Measurement and Payment Section and to adequately reflect compensation for these items in its initial base bid. Failure by the Contractor to become acquainted with the physical conditions and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.
- E. Exercise reasonable care to verify locations of existing subsurface structures and underground facilities.
- F. Thoroughly check immediate and adjacent areas subject to excavation by visual examination (and by electronic metal and pipe detection equipment, as necessary) for indications of subsurface structures and underground facilities.
- G. Make exploratory excavations where existing underground facilities or structures may potentially conflict with proposed underground facilities or structures. Conduct exploratory excavations in presence of Engineer and sufficiently ahead of construction to avoid possible delays to Contractor's Work.

#### 3.02 INFORMATION ON SITE CONDITIONS

- A. General: Information obtained by the City or Engineer regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the City upon request. Such information is offered as supplementary information only. Neither the Engineer nor the City assumes any responsibility for the completeness or interpretation of such supplementary information.
- B. Where appropriate, subsurface boring logs are provided for supplemental informational purposes only. Contractor shall interpret this data at his own RISK.

## 3.03 UTILITIES

- A. The Contractor shall be responsible for determining and/or confirming, at his cost, the locations of all utilities within the project area, and shall be responsible for contacting each utility for location and notification prior to commencing work.
- B. The Contractor shall contact Sunshine State One Call at 811 or visit <u>www.sunshine811.com</u> at least two (2) full business days (10 business days for water crossings) prior to any excavation and make arrangements for locating all utilities in the project area.
- C. Contact the City of Fort Lauderdale Public Services Department at 954 828-8000 for water and sewer utility locations.
- D. If damage occurs, or if conflicts or emergencies arise during Work, contact the appropriate utility.
- E. Utility Cutovers and Interruptions: Make utility cutovers and interruptions after normal working hours or on Saturdays, Sundays, and City holidays. Conform to procedures required in the paragraph "Work outside Regular Hours." Ensure that new utility lines

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#### GENERAL REQUIREMENTS

are complete, except for the connection, before interrupting existing service. Interruption to water, sanitary sewer, storm sewer, telephone service, electric

F. Service, air conditioning, heating, fire alarm, compressed air, and CATV or other communications shall be considered utility cutovers pursuant to the paragraph entitled "Work Outside Regular Hours."

#### 3.04 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

- A. Where the Contractor's operations could cause damage or inconvenience to utilities, telephone, television, power, water, or sewer systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the Contractor with the owner of the utility affected.
- B. Notify all utility offices which are affected by the construction operation at least seven (7) working days in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.
- C. The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
- D. Neither the City nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.
- E. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.
- F. Perform relocations to minimize downtime of existing facilities.
- G. In the event the Contractor encounters water service lines or sewer laterals that interfere with trenching, he may, by obtaining prior approval of the property owner, the Engineer and the City, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's expense. Use only new materials for relocated facility. Match materials of existing facility, unless otherwise shown or specified.
- H. Install new portions of existing facilities in their relocated position prior to removal of existing facilities, unless otherwise accepted by City.
- I. Provide complete relocation of existing structures and Underground Facilities, including piping, utilities, equipment, structures, electrical conduit wiring, electrical duct bank, and other necessary items.

- J. The Contractor shall replace, at his own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract documents or ordered by the Engineer.
- K. Telephone and communications drops and signal systems may extend throughout the project area. Properly located cable, conduit, interface equipment, pull or junction boxes and other signal or systems equipment damaged by the Contractor shall be replaced at the Contractor's expense.
  - 1. Damaged cable shall be replaced as an entire run, from junction box to junction box.
  - 2. Notify Broward County Engineering two business days in advance of the need to remove traffic detection loops.
  - 3. Contractor shall verify marked cables and signal systems prior to excavation.

#### 3.05 INTERFERING STRUCTURES

- A. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.
- B. Protect underground and aboveground existing structures from damage, whether or not they lie within the limits of the easements obtained by the City. Where such existing fences, gates, sheds, buildings, or any other structure must be removed in order to properly carry out the construction, or are damaged during construction, restore to their original condition to the satisfaction of the Owner involved at the Contractor's own expense. Notify the Engineer of any damaged underground structure, and make repairs or replacements before backfilling.
- C. Without additional compensation, the Contractor may remove and shall replace in a condition as good as or better than original, such small miscellaneous structures as fences, mailboxes, and signposts that interfere with the Contractor's operations.

## 3.06 EASEMENTS AND WORK ON PRIVATE PROPERTY

A. Where portions of the work are located on public or private property, easements and permits will be obtained by the City, except as otherwise noted in the Contract Documents. Easements will provide for the use of property for construction purposes to the extent indicated on the easements. Copies of these easements and permits are available upon request to the City. It shall be the Contractor's responsibility to determine the adequacy of the easement obtained in every case and to abide by all requirements and provisions of the easement. The Contractor shall confine his construction operations to within the easement limits or street right-of-way limits or make special arrangements with the property owners or appropriate public agency for the additional area required. Any damage to property, either inside or outside the limits of the Contractor as specified herein. The Contractor shall provide immediate notice to the City of any damage to fencing and provide temporary fencing as required to provide a functionally similar level of security. The Contractor shall remove, protect, and replace all fences or other items encountered on public or

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private property. Before final payment will be authorized by the Engineer, the Contractor will be required to furnish the City with written releases from property owners or public agencies where side agreements or special easements have been made by the Contractor or where the Contractor's operations, for any reason, have not been kept within the construction right-of-way obtained by the City or the street right-of-way.

- B. It is anticipated that the required easements and permits will be obtained before construction is started. However, should the procurement of any easement or permit be delayed, the Contractor shall schedule and perform the work around these areas until such a time as the easement or permit has been secured.
- C. Prior to removing an existing structure or item, provide written notice to the City at least fourteen (14) days in advance of the anticipated removal.

## 3.07 ADJACENT FACILITIES AND PROPERTIES

- A. Examination:
  - 1. After Effective Date of the Agreement and before Work at site is started, Contractor, City, and affected property owners and utility owners shall make a thorough examination of pre-existing conditions including existing buildings, structures, and other improvements in vicinity of Work, as applicable, which could be damaged by construction operations.
  - 2. Periodic reexamination shall be jointly performed to include, but not limited to, cracks in structures, settlement, leakage, and similar conditions.
- B. Documentation:
  - 1. Record and submit documentation of observations made on examination inspections in accordance with Section 01300 Submittals.
  - 2. Upon receipt, Engineer will review, sign, and return one record copy of documentation to Contractor to be kept on file in field office.
  - 3. Such documentation shall be used as indisputable evidence in ascertaining whether and to what extent damage occurred as a result of Contractor's operations, and is for the protection of adjacent property owners, Contractor, and City.

## PART 4 - SAFETY AND CONVENIENCE

## 4.01 SAFETY AND ACCESS

A. The Contractor shall do all work necessary to protect the general public from hazards, including, but not limited to, surface irregularities or unramped grade changes in pedestrian sidewalk or walkway, and trenches or excavations in roadway. Barricades, lanterns, and proper signs shall be furnished in sufficient amount to safeguard the public and the work. All barricades and signs shall be clean and serviceable, in the opinion of the Engineer.

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- B. During construction, the Contractor shall construct and at all times maintain satisfactory and substantial temporary chain link fencing, solid fencing, railing, barricades or steel plates, as applicable, at all openings, obstructions, or other hazards in streets, sidewalks, floors, roofs, and walkways. All such barriers shall have adequate warning lights as necessary, or required, for safety. All lights shall be regularly maintained, and in a fully operational state at all times.
- C. The Contractor shall notify all residences and businesses of planned construction at least seven (7) days prior to the start of work in the block where they are located. Such notices shall be brochures or door-hangers with sufficient information to describe the extent and duration of the planned work. Notification activities shall be coordinated with the City.
- D. Homeowners and business owners shall be provided reasonable access. The Contractor shall provide temporary sidewalks, bridges or driveway access, including safe passage over open excavations as required.

## 4.02 ACCIDENT REPORTS

- A. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Engineer.
- B. If a claim is made by anyone against the contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

#### 4.03 SAFE ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

A. Authorized representatives of the state, federal, or local governmental agencies, shall at all times have safe access to the work, and the Contractor shall provide proper facilities for such access and inspection.

## 4.04 PROTECTION OF PROPERTY

- A. Protect stored materials located adjacent to the proposed work. Notify property owners affected by the construction no less than one (1) week and no more than two (2) weeks in advance of the time construction begins. During construction operations, construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to his residence or place of business for a period exceeding two (2) hours, unless the Contractor has made special arrangements with the affected persons.
- B. The Contractor shall identify and isolate his active work zone in such a manner as to exclude all personnel not employed by him, the Engineer, and the City.
- 4.05 FIRE PREVENTION AND PROTECTION
  - A. The Contractor shall perform all work in a fire-safe manner. He shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable federal, state, and local

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fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

#### 4.06 ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

- A. Notify the fire department and police department before closing any street or portion thereof. No closing shall be made without the City's approval of MOT plan. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without special written permission from the fire department. Conduct operations with the least interference to fire equipment access, and at no time prevent such access.
- B. The Contractor shall leave a night emergency telephone number or numbers with the police department, the Engineer, and the City, so that contact may be made easily at all times in case of barricade and flare trouble or other emergencies.
- C. Maintain postal service facilities in accordance with the requirements of the U.S. Postal Service. Move mailboxes to temporary locations designated by the U.S. Postal Service, and at the completion of the work in each area, replace them in their original location and in a condition satisfactory to the U.S. Postal Service.

## PART 5 - PRESERVATION, RESTORATION, AND CLEANUP

## 5.01 SITE RESTORATION AND CLEANUP

- A. At all times during the work, keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.
- B. Stockpile excavated materials in a manner that will cause the least damage to adjacent lawns, grassed areas, gardens, shrubbery, or fences, regardless of whether these are on private property, or on state, county, or city rights-of-way. Remove all excavated materials from grassed and planted areas, and leave these surfaces in a condition equivalent to their original condition. Replace excavated areas as specified in Section 02320 Trench Backfill, raked and graded to conform to their original contours.

#### 5.02 FINISHING OF SITE, BORROW, AND STORAGE AREAS

- A. Upon completion of the project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the surrounding terrain. Grassed areas shall be restored as specified.
- B. Cut, fit, adjust, or patch Work and work of others, including excavation and backfill as required, to make Work complete.
- C. Refinish surfaces to provide an even finish.

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- 1. Refinish continuous surfaces to nearest intersection.
- 2. Refinish entire assemblies.
- 3. Finish restored surfaces to such planes, shapes, and textures that no transition between existing work and Work is evident in finished surfaces.
- D. Restore existing work, Underground Facilities, and surfaces that are to remain in completed Work including concrete-embedded piping, conduit, and other utilities as specified and as shown.
- E. Make restorations with new materials and appropriate methods as specified for new Work of similar nature; if not specified, use recommended practice of manufacturer or appropriate trade association.
- F. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces and fill voids.
- G. Remove specimens of installed Work for testing when requested by City or Engineer.

#### PART 6 - PERMITS

- 6.01 GENERAL
  - A. Permits obtained by the City include the following:
    - 1. Environmental Resources Permit, Chaper 62-344
    - 2. ROW Permits
    - 3. Development and Environmental Review Approval
    - 4. U.S. Army Corps of Engineers
  - B. Permits to be obtained by the Contractor include, but are not limited to, the following:
    - 1. Stormwater Pollution Prevention Plan (SPPP) CGP:62-621.300
    - 2. Local, County, and State contracting licenses including but not limited to: Broward County, Environmental Resources License (ERL), Aquatic and Wetland Resources License, Surface Water Management License, Tree Removal License, Dewatering approval, zoning approval.
    - 3. If required, notify City of Fort Lauderdale Water Department prior to removing fire hydrants.
  - C. The Contractor shall comply with all applicable permit conditions.

- END OF SECTION -

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## SECTION 01005

#### INTENT OF DRAWINGS AND SPECIFICATIONS

## PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

- A. Intent of specifications and drawings is to cover an installation complete in every respect. It is not intended to give every detail on drawings and in specifications. The City will not be responsible for absence of any detail which the Contractor may require, nor for any special construction which may be found necessary as work progresses. If an item is either indicated or specified, it shall be considered sufficient for inclusion of said item in contract. The Contractor shall furnish and install materials and equipment usually furnished with such systems, and as needed to complete an operating installation, whether mentioned or not, which are customary to its trade.
- B. Incidental accessories not usually shown or specified but which are necessary for the proper installation and operation shall be included in work without additional cost to the City, the same as if herein specified.
- C. Any apparatus, appliance, material or work not shown on the drawings but mentioned in the specifications, or vice versa, or any incidental accessories necessary to make the work complete and ready for operation, shall be furnished, delivered, and installed by the Contractor without additional cost to the City.
- D. The City's or Engineer's interpretation of drawings and specifications shall be final and binding upon Contractor.
- E. The Contractor shall visit site prior to submitting bid, and thoroughly investigate and verify all conditions under which work shall be performed.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

- END OF SECTION

## SECTION 01010

## SUMMARY OF WORK

## PART 1 -- GENERAL

#### 1.01 THE REQUIREMENT

- A. The Work to be performed under this Contract shall consist of furnishing and installation of all tools, equipment, materials, supplies, manufactured articles, transportation and services, including fuel, power, water and essential communications for the performance of all labor, work and/or other operations as required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents, which may be necessary for the complete and proper construction of the Work in good faith, shall be provided by the Contractor as though originally so indicated, at no increase in cost to the City.
- B. The Contractor shall perform all work required for such construction in accordance with the Contract Documents and subject to the terms and conditions of the Contract, complete and ready for use.
- C. The principal features of the Work to be performed under this Contract include site, civil, structural, maintenance of traffic and all related work associated with the replacement of two (2) seawalls on Hendricks Isle in the Southeast Isles Neighborhood. This work includes installation of new seawalls and the demolition and/or modification of existing seawalls as required, demolition of existing stormwater infrastructure and installation of new stormwater infrastructure, including catch basins, stormwater gravity piping, outfalls, and inline check valves, utility locates, site restoration, tree protection, tree relocation, and related work. Also included in the Contract is all material, labor, and equipment for maintenance of operations during construction, erosion and sedimentation control, startup and testing of the new facilities, operation and maintenance manuals, record documents, test equipment and all other appurtenant and miscellaneous work required for completion of the work, in accordance with the Contract Documents and not included in other bid items.

#### 1.02 CONTRACT DOCUMENTS

- A. The Work to be done is shown on the Drawings entitled City of Fort Lauderdale Stormwater Improvements Southeast Isles Neighborhood – Hendricks Isle Seawall Replacement. The numbers and titles of all Drawings appear on the index sheets of the Drawings. All drawings so enumerated shall be considered an integral part of the Contract Documents as defined herein.
- B. Certain Document Sections refer to Divisions of the Contract Specifications. Sections are each individually numbered portions of the Specifications (numerically) such as 05010, 11100, 15115, etc. The term Division is used as a convenience term meaning all Sections within a numerical grouping. For example, Division 2 would thus include Sections 02000 through 02999 and would mean all site work specifications.

C. Contractor shall note that if there is a conflict between any of the Contract Documents the more stringent requirement shall apply and shall be furnished at no additional cost to the City.

#### 1.03 GENERAL ARRANGEMENT

- A. Drawings indicate the extent and general arrangement of the work. If any departures from the Drawings are deemed necessary by the Contractor to accommodate the materials and equipment he proposes to furnish, details of such departures and reasons therefore shall be submitted as soon as practicable to the City for approval. No such departures shall be made without the prior written approval of the City. Approved changes shall be made without additional cost to the City for this work or related work under other Contracts of the Project.
- B. The specific equipment proposed for use by the Contractor on the project may require changes in structures, auxiliary equipment, piping, electrical, mechanical, controls or other work to provide a complete satisfactory operating installation. The Contractor shall submit to the City, for approval, all necessary Drawings and details showing such changes to verify conformance with the overall project structural and architectural requirements and overall project operating performance. The Bid Price shall include all costs in connection with the preparation of new drawings and details and all changes to construction work to accommodate the proposed equipment, including increases in the costs of other Contracts.

## 1.04 CONSTRUCTION PERMITS AND ENCROACHMENTS

- A. The Contractor shall obtain, keep current and pay all fees for any necessary construction permits from those authorities, agencies, or municipalities having jurisdiction over land areas, utilities, or structures which are located within the Contract limits and which will be occupied, encountered, used, or temporarily interrupted by the Contractor's operations unless otherwise stated. Record copies of all permits shall be furnished to the Engineer and the City.
- B. When construction permits are accompanied by regulations or requirements issued by a particular authority, agency or municipality, it shall be the Contractor's responsibility to familiarize himself and comply with such regulations or requirements as they apply to his operations on this Project.
- C. Agencies requiring permits for this project may include, but are not limited to:
  - 1. City of Fort Lauderdale Department of Sustainable Development
  - 2. City of Fort Lauderdale Transportation and Mobility
  - 3. Broward County Traffic Engineering Department
  - 4. South Florida Water Management District
  - 5. Florida Department of Environmental Protection

6. Broward County Environmental Protection and Growth Management Department – Environmental Review

#### 1.05 ADDITIONAL ENGINEERING SERVICES

- A. In the event that the Engineer is required to provide additional engineering services as a result of substitution of materials or equipment which are not "or equal" by the Contractor, or changes by the Contractor in dimension, weight, power requirements, etc., of the equipment and accessories furnished, or if the Engineer is required to examine and evaluate any changes proposed by the Contractor for the convenience of the Contractor, then the Engineer's charges in connection with such additional services shall be charged to the Contractor by the City.
- B. Structural design shown on the Contract Drawings is based upon typical weights for major items of equipment as indicated on the Contract Drawings and specified. If the equipment furnished differs from that specified in the Contract Documents such that actual weight exceeds the weight of specified equipment, the Contractor shall assume the responsibility for all costs of redesign and for any construction changes required to accommodate the equipment furnished, including the Engineer's expenses in connection therewith, provided that the original weight assumptions were correct.
- C. In the event that the Engineer is required to provide additional engineering services as a result of Contractor's errors, omissions, or failure to conform to the requirements of the Contract Documents, or if the Engineer is required to examine and evaluate any changes proposed by the Contractor solely for the convenience of the Contractor, then the Engineer's charges in connection with such additional services shall be charged to the Contractor by the City and shall be deducted from monies due the Contractor.

#### 1.06 ADDITIONAL EXPENSES

- A. In the event the Work of this Contract is not completed within the time set forth in the Contract or within the time to which such completion may have been extended in accordance with the Contract Documents, the additional engineering or inspection charges incurred by the City may be charged to the Contractor and deducted from the monies due him. Extra work or supplemental Contract work added to the original Contract, as well as extenuating circumstances beyond the control of the Contractor, will be given due consideration by the City before assessing engineering and inspection charges against the Contractor.
- B. Charges for additional City's expenses shall be independent of any liquidated damages assessed in accordance with the Contract.

## 1.07 TIME OF WORK

A. Unless otherwise specifically permitted, the normal time of work under this Contract is limited to eight (8) hours per day, 40 hours per week, and shall generally be between the hours noted in Article 8.10 of the Contract Documents, Monday through Friday. Work beyond these hours or on City holidays will result in additional expense to the City. Any

expenses and/or damages arising from the Contractor's operations beyond the hours and days specified above shall be borne by the Contractor. This provision does not apply to shut down operations required by construction sequencing and constraints to maintain the existing facilities in operation. The Contractor may elect to work beyond these hours or on holidays or weekends provided that all costs incurred by the City for additional engineering shall be borne by the Contractor and approval has been obtained from the City. The City shall deduct the cost of additional engineering costs and overtime from monies due the Contractor.

- B. If it shall become imperative to perform work at night, weekends or holidays the City shall be informed in writing a reasonable time in advance of the beginning of such work (minimum of 10 days, except in an emergency situation as determined by the Contractor). Temporary lighting and all other necessary facilities for performing and inspecting the work shall be provided and maintained by the Contractor.
- C. Unless otherwise specifically permitted, all work that would be subject to damage shall be stopped during inclement, stormy weather. Only such work as will not suffer injury to workmanship or materials will be permitted. Contractor shall carefully protect his work against damage or injury from the weather.
- 1.08 SURVEYS AND LAYOUT
  - A. All work under this Contract shall be constructed in accordance with the lines and grades shown on the Drawings or as directed by the Engineer. Elevation of existing ground and appurtenances are believed to be reasonably correct but are not guaranteed to be absolute and therefore are presented only as an approximation. Any error or apparent discrepancy in the data shown or omissions of data required for accurately accomplishing the stake out survey shall be referred immediately to the Engineer for interpretation or correction.
  - B. All survey work for construction control purposes shall be made by the Contractor at his expense. The Contractor shall provide a Florida Licensed Surveyor as Chief of Party, competently qualified employees, all necessary instruments, stakes, and other material to perform the work.
  - C. Contractor shall establish all baselines for the location of the principal component parts of the work together with a suitable number of bench marks and batter boards adjacent to the work. Based upon the information provided by the Contract Drawings, the Contractor shall develop and make all detail surveys necessary for construction, including slope stakes, batter boards, stakes for all working points, lines and elevations.
  - D. Contractor shall have the responsibility to carefully preserve the bench marks, reference points and stakes, and in the case of destruction thereof by the Contractor or resulting from his negligence, the Contractor shall be charged with the resulting expense and damage and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes. Contractor shall provide a signed and sealed affidavit by his surveyor stating that they have verified all bench marks.
  - E. Existing or new control points, property markers and monuments that will be or are destroyed during the normal causes of construction shall be reestablished by the Contractor

and all reference ties recorded therefore shall be furnished to the Engineer. All computations necessary to establish the exact position of the work shall be made and preserved by the Contractor.

- F. The Engineer may check all or any portion of the work and the Contractor shall afford all necessary assistance to the Engineer in carrying out such checks. Any necessary corrections to the work shall be immediately made by the Contractor. Such checking by the Engineer shall not relieve the Contractor of any responsibilities for the accuracy or completeness of his work.
- G. At completion of the work, the Contractor shall furnish As-Built Drawings and As-Built GIS Database updates indicating the final layout of all structures, roads, existing benchmarks, etc. The As-Built Drawings and As-Built GIS database updates shall be in accordance with the requirements of Section 01320, Project Record Documents.

#### 1.09 SUBSURFACE DATA

- A. Subsurface data are offered in good faith solely for placing the Bidder in receipt of all information available to the City and in no event is to be considered as part of the Contract Documents.
- B. The Bidder must interpret such subsurface data according to his own judgment and acknowledge that he is not relying upon the same as accurately describing the subsurface conditions, which may be found to exist.
  - 1. The test boring logs present factual information of the subsurface conditions at the specific test boring location only. The Bidder should not consider, or conclude, that the subsurface conditions will be consistent between test boring locations.
- C. In making this data available, the City makes no guarantee, either expressed or implied, as to their accuracy or to the accuracy of any interpretation thereof.
- D. Subsurface data for this project can be found in the Appendix.
- 1.10 OPENINGS, CHASES, SLEEVES, INSERTS, ETC.
  - A. The Contractor shall provide all openings, chases, etc., in the work to fit his own work and that of any other contractors. All such openings or chases shown on the Drawings, or reasonably implied thereby, or as confirmed or modified by shop, setting, or erecting Drawings approved by the Engineer, shall be provided by the Contractor and/or Subcontractors.
  - B. Where pipes or conduits are to pass through slabs or walls, or where equipment frames or supports are to be installed as an integral part of an opening, the sleeves, opening forms or frames shall be furnished by the installer of the pipes, conduits, or equipment, but shall be placed by the Subcontractor. Where hanger inserts and similar items are to be installed as an integral part of a slab or wall, they shall be furnished by the installer of the pipe or other equipment requiring the hanger, but shall be verified by the Contractor and incorporated into the concrete placement.

- C. When requested by the Contractor, the installer of the pipes, conduit, or equipment, including those Subcontractors who require openings or chases in slabs and walls for passage of ducts, mounting of equipment, etc., shall furnish all necessary information, instructions, and materials to effect accurate installation of the required openings, chases, sleeves, frames, inserts, etc. When such items are secured in position, and just prior to construction of the surrounding slab or wall, the Subcontractor for whom the items are installed shall ascertain the proper number, locations, and settings thereof; and the Contractor shall schedule his operations so as to provide a reasonable opportunity and time interval for such inspection.
- D. Any costs resulting from correction of defective, ill-timed, or mislocated work, or for subsequent work which becomes necessary because of omitted openings, chases, sleeves, frames, inserts, etc., shall be borne by the Contractor responsible therefor. To this end, no Contractor shall arbitrarily cut, drill, alter, damage, or otherwise endanger the work of another Contractor. The nature and extent of any corrective or additional work shall be subject to the approval of the Engineer following consultation with the Contractors involved.

## 1.11 FIRE PROTECTION

- A. Contractor shall take all necessary precautions to prevent fires at or adjacent to the work, buildings, etc., and shall provide adequate facilities for extinguishing fires which do occur. Fires shall not be permitted.
- B. When fire or explosion hazards are created in the vicinity of the work as a result of the locations of fuel tanks, or similar hazardous utilities or devices, the Contractor shall immediately alert the local Fire Marshal and the City of such tank or device. The Contractor shall exercise all safety precautions and shall comply with all instructions issued by the Fire Marshal and shall cooperate with the City to prevent the occurrence of fire or explosion.

## 1.12 FIRST AID FACILITIES AND ACCIDENTS

- A. First Aid Facilities
  - 1. The Contractor shall provide at the site such equipment and facilities as are necessary to supply first aid to any of his personnel who may be injured in connection with the work.
- B. Accidents
  - 1. The Contractor shall promptly report, in writing, to the City all accidents whatsoever out of, or in connection with, the performance of the work, whether on or adjacent to the site, which cause death, personal injury or property damage, giving full details and statements of witnesses.
  - 2. If death, serious injuries, or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the City and the Engineer.

3. If any claim is made by anyone against the Contractor or a Subcontractor on account of any accidents, the Contractor shall promptly report the facts, in writing, to the City, giving full details of the claim.

## 1.13 SAFETY AND HEALTH REQUIREMENTS

- A. The Contractor shall comply in every respect with all Federal, State and local safety and health regulations. Copies of the Federal Regulations may be obtained from the U.S. Department of Labor, Occupational Safety and Health Administration.
- B. The Contractor shall provide all barricades and flashing warning lights or other devices necessary to warn pedestrians and area traffic.
- C. Personnel working in contact with sewage flow or surfaces carrying wastewaters or sludges shall be immunized as recommended by the State of Florida Health Department.
- 1.14 ULTIMATE DISPOSITION OF CLAIMS BY ONE CONTRACTOR ARISING FROM ALLEGED DAMAGE BY ANOTHER CONTRACTOR
  - A. During the progress of the work, other Contractors may be engaged in performing other work or may be awarded other Contracts for additional work on this project. In that event, the Contractor shall coordinate the work to be done hereunder with the work of such other Contractors and the Contractor shall fully cooperate with such other Contractors and carefully fit its own work to that provided under other Contracts as may be directed by the City. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor.
  - B. If the Engineer determines that the Contractor is failing to coordinate his work with the work of the other Contractors as the City directed, then the City shall have the right to withhold any payments otherwise due hereunder until the Contractor completely complies with the City's directions.
  - C. If the Contractor notifies the Engineer in writing that another Contractor is failing to coordinate his work with the work of this Contract as directed, the Engineer will promptly investigate the charge. If the Engineer finds it to be true, the City will promptly issue such directions to the other Contractor with respect thereto as the situation may require and issue a response to the Contractor in writing. The City, the Engineer, nor any of their agents shall not, however, be liable for any damages suffered by the Contractor by reason of the other Contractor's failure to promptly comply with the directions so issued by the City, or by reason of another Contractor's default in performance, it being understood that the City does not guarantee the responsibility or continued efficiency of any Contractor.

#### 1.15 LIMITS OF WORK AREA

A. The Contractor shall provide for the storage of equipment, materials, and accumulated construction debris off-site. Responsibility for protection and safekeeping of equipment and materials at or near the sites will be solely that of the Contractor and no claim shall be made against the City by reasons of any act of an employee or trespasser.

- B. The Contractor shall secure all storage areas used for the project work. If required, Contractor shall submit a temporary fencing plan and permits for all storage areas used for the project work.
- C. The Contractor shall provide a phasing and staging plan that results in minimal impact to the site and nearby residences and provides for continual pedestrian and vehicular access.

## 1.16 WEATHER CONDITIONS

- A. No work shall be done when the weather is unsuitable. The Contractor shall take necessary precautions (in the event of impending severe weather, including hurricanes, tropical storms or major rain/wind storms) to protect all work, materials, or equipment from damage or deterioration due to floods, driving rain, and/or wind. The City reserves the right, to order that additional protection measures over and beyond those proposed by the Contractor, be taken to safeguard all components of the Project.
- B. The mixing and placing of concrete or pavement courses, the laying of masonry, and installation of sewers and water mains and stormwater pipes shall be stopped during rainstorms, if ordered by the Engineer; and all freshly placed work shall be protected by canvas or other suitable covering in such manner as to prevent running water from coming in contact with it. Sufficient coverings shall be provided and kept ready at hand for this purpose. The limitations and requirements for mixing and placing concrete or laying of masonry, in cold weather shall be as described elsewhere in these Specifications.

## 1.17 WEATHER DAYS

- A. A "Weather Day" is defined as a normal work day during which the Contractor was unable to perform critical path work for a continuous period of more than four (4) hours during that day.
- B. The CONTRACTOR shall be required to submit a record of rain delay in accordance with the contract documents and within 48 hours of the occurrence of the event to the ENGINEER and the OWNER for review.
- C. Weather Days must be reported in the Progress Schedule Update Narrative Report and substantiated with the amount of rainfall obtained from the nearest City identified rain gauge and a description of the activity that was interrupted.

## 1.18 HURRICANE PRECAUTIONS

- A. During such periods of time as are designated by the United States Weather Bureau as being a hurricane watch or warning, the Contractor, at no cost to the City, shall take all precautions necessary to secure the Project site in response to all threatened storm events.
- B. Compliance with any specific hurricane watch or warning precautions will not constitute additional work.
- C. Suspension of the Work caused by an impending or actual storm event will entitle the Contractor to additional Contract Time equivalent to the time lost as a result of the

threatened or actual storm event and shall not give rise to a claim for compensable delay.

- 1. In the event of a threatened storm that does not occur, the Contract Time will be equivalent to the time between United States Weather Bureau notice of a watch or warning and the lifting of same.
- 2. In the event of an actual storm event, the Contract Time will be equivalent to the time between United States Weather Bureau notice of a watch or warning and the time required to establish safe working conditions.

## 1.19 USE OF FACILITIES BEFORE COMPLETION

- A. The City reserves the right to enter and use any portion of the constructed facilities before final completion of the whole work to be done under this Contract. However, only those portions of the facilities which have been completed to the City's satisfaction may be placed into service. The City will issue only one Certificate of Substantial Completion to the Contractor covering the entire project regardless of when each portion of the facilities is placed into service.
- B. It shall be the City's responsibility to prevent premature connections to or use of any portion of the installed facilities by private or public parties, persons or groups of persons, before the City issues his Certificate of Substantial Completion covering that portion of the work to be placed in service.
- C. Consistent with the approved progress schedule, the Contractor shall cooperate with the City to accelerate completion of those facilities, or portions thereof, which have been designated for early use by the City.

## 1.20 UTILITY LOCATIONS

- A. As far as possible, all existing utility lines in the project area have been shown on the plans. However, Fort Lauderdale does not guarantee that all lines are shown, or that said lines are in their true location. It shall be the Contractor's responsibility to identify and locate all underground or overhead utility lines or equipment affected by the project. No additional payment will be made to the Contractor because of discrepancies in actual and plan location of utilities.
- B. The Contractor shall notify each utility company involved at least thirty (30) days prior to the start of construction to arrange for positive underground location, relocation, or support of its utility where that utility may be in conflict with or endangered by the proposed construction. Relocation of water mains or other utilities for the convenience of the Contractor shall be paid for by the Contractor. All charges by utility companies for temporary support of its utilities shall be paid for by the Contractor. All cost of permanent utility relocations to avoid conflict shall be the responsibility of the Contractor and the utility company involved.
- C. The Contractor shall schedule and coordinate the Work in such a manner that it is not delayed by the utility companies relocating or supporting their utilities. No compensation will be paid to the Contractor for any loss of time or delay.
- D. All overhead, surface or underground structures and/or utilities encountered are to be

carefully protected from damage or displacement. All damage to said structures and/or utilities is to be completely repaired within a reasonable time; needless delay will not be tolerated. The City reserves the right to remedy any damage by ordering outside parties to make repairs at the expense of the Contractor. All repairs made by the Contractor are to be made to the satisfaction of the utility owner and shall be inspected by a representative of the utility owner and the Engineer.

- E. The Contractor should be aware of the Sunshine State One Call Center, which has a free locating service for contractors and excavators:
  - 1. Within forty-eight hours before excavating, dial toll free 811, and a locator will be dispatched to the Work location. Contractor shall reasonably notify other utility companies not notified by Sunshine State One Call Center.
- F. In the event that during the course of the Work Contractor encounters subsurface or concealed conditions or unknown physical conditions of an unusual nature at the Project site which differ materially from those shown on the Contract Documents, which are not marked in the field by locating services or Utility Department, and which differ from those ordinarily encountered and generally recognized as inherent in Work of the character called for in the Contract Documents, Contractor, without disturbing the conditions and before performing any Work affected by such conditions, shall, within twenty-four (24) hours of their discovery, notify City and Engineer in writing of the existence of the aforesaid conditions. Engineer and City shall, within two (2) business days after receipt of Contractor's written notice, investigate the site conditions identified by Contractor. Should Engineer determine that the conditions of the Project site are not so materially different to justify a change in the terms of the Contract, Engineer shall so notify City and Contractor in writing, stating the reasons, and such determination shall be final and binding upon the parties hereto.
- G. No request by Contractor for a change to the Contract Price or Time under this provision shall be allowed if the Contractor has not given written notice in strict accordance with these provisions, or if it is made after the date certified by the Engineer as the date of Substantial Completion.

## 1.21 ENVIRONMENTAL PROTECTION

A. The Contractor shall furnish all labor and equipment and perform all Work required for the prevention of environmental pollution during and as a result of the Work under this contract. The Contractor shall be responsible for preparing and complying with the requirements of the National Pollution Prevention Discharge Elimination System (NPDES) and Storm Water Pollution Prevention Plan (SWPPP), including preparation and submittal of the Notice of Intent (NOI) prior to start of construction. For the purpose of this contract environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life, affect other species of importance to man, or degrade the utility of the environment for aesthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, land and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants. B. The Contractor shall take all steps necessary to protect water quality in the connected waters around the project and shall utilize such additional measures as directed by the Engineer. Silt screens, hay bales, turbidity curtains, or other control measures adjacent to outfall construction shall not be removed until the turbidity of the affected waters is equal to or lower than the ambient turbidity of undisturbed segments of adjacent surface waters.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

- END OF SECTION -

#### SECTION 01025

#### MEASUREMENT AND PAYMENT

#### PART 1 - GENERAL

## 1.01 THE REQUIREMENT

- A. Payment for the various items in the Bid, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, taxes, materials, commissions, transportation and handling, bonds, insurance, overhead and profit, and incidentals appurtenant to the items of Work being described, as necessary to complete the various items of the Work all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenance items of work.
- B. Payment for the various items of the Bid Schedule shall constitute full compensation for CONTRACTOR's superintendent at the job site full-time during construction.
- C. Payment shall also include providing the necessary equipment and manpower to pothole and verify depths and locations of existing utilities sufficiently ahead of construction to avoid conflicts with the design alignment and grade of the transmission pipeline. Conflicts with utilities shown on the DRAWINGS which result from the CONTRACTOR's negligence to pothole sufficiently ahead of construction (a minimum of two days ahead of construction of the pipeline or as approved by the ENGINEER) shall be resolved by the CONTRACTOR at no additional cost to the OWNER.
- D. Payment for all bid items shall constitute full compensation for the complete installation of each bid item including but not limited to excavation, dewatering, backfill and compaction. The work shall include for all bid items to be completed, tested and ready for acceptance by the appropriate government agency.
- E. No separate payment for pavement restoration will be made unless specifically shown on the plans or directed by the ENGINEER. All bid items shall include pavement restoration.
- F. The CONTRACTOR's attention is called to the fact that the quotations for the various items of Work are intended to establish a total price for completing the Work in its entirety. Should the contractor feel that the cost for any item of Work has not been established by the Schedule of Prices Bid for this Section, it shall include the cost for
that Work in some other applicable bid item, so that its proposal for the project does reflect its total price for completing the Work in its entirety.

- 1.02 MEASUREMENT GENERAL
  - A. Weighing, measuring, and metering devices used to measure quantity of materials for Work shall be suitable for purpose intended and conform to tolerances and Specifications as specified in National Institute of Standards and Technology, Handbook 44.
  - B. Materials that are specified for measurement by the cubic yard measured in the vehicle shall be hauled in vehicles of such type and size that actual contents may be readily and accurately determined. Unless all vehicles are of uniform capacity, each vehicle must bear a plainly legible identification mark indicating its water level capacity. Vehicles shall be loaded to at least their water level capacity. Loads hauled in vehicles not meeting above requirements or loads of a quantity less than the capacity of the vehicle, measured after being leveled off as above provided, will be subject to rejection, and no compensation will be allowed for such material.
  - C. Where measurement of quantities depends on elevation of existing ground, elevations obtained during construction will be compared with those shown on Drawings. Variations of 1 foot or less will be ignored, and profiles shown on Drawings will be used for determining quantities. Variations greater than one foot will be considered in adjusting quantities.
  - D. Units of measure shown on Bid Form shall be as follows, unless specified otherwise. All methods of measurement shall be approved by the City.

Item	Method of Measurement
AC	Acre - Field Measure
AL	Allowance
CY	Cubic Yard - Field Measure within limits specified or shown, or measured in vehicle by volume, as specified
EA	Each - Field Count
GAL	Gallon - Field Measure
HR	Hour
LB	Pound(s) - Weight Measure
LF	Linear Foot - Field Measure
LS	Lump Sum - Unit is one; no measurement will be made
SF	Square Foot
SY	Square Yard

Item	Method of Measurement	
		_

TON Ton - Weight Measure by Scale (2,000 pounds)

## 1.03 SCHEDULE OF PRICES BID

#### A. General Requirements

<u>Item No. 1 – All Work Associated with Mobilization and Demobilization (7.5%)</u>: The lump sum price for this item shall be full compensation for mobilization and demobilization activities. This includes but is not limited to, Performance and Payment Guarantee Insurance, scheduling, project coordination, labor associated with permit acquisition, temporary facilities, audio-visual preconstruction record, project signs, door hangers, property owner notification, preparatory work and operations necessary for the movement of personnel and setting up of all equipment, instruments, and incidentals to the project site, finish grading, site cleanup, and all other activities necessary to prepare and complete the contract work. The payment for mobilization and demobilization shall not exceed 7.5% of the contract price for Bid Items 5 through 20. Partial payments for mobilization and demobilization shall be made as follows:

Construction % Complete (Items 5 through 20)	Allowable % of Lump Sum for Mobilization/Demobilization
After NTP	2.5
5	25
10	50
25	75
100	100

<u>Item No. 2 – All Work Associated with the Maintenance of Traffic (3%):</u> The lump sum price for this item shall be full compensation for all labor, equipment, material, and work required for maintenance of traffic in accordance with FDOT Standards and/or Broward County and/or the City of Fort Lauderdale. This item includes but is not limited to, preparing maintenance of traffic plans (MOTs) to appropriate agencies for approval, providing personnel as required to direct traffic (flaggers, crossing guards, local police, etc.), all temporary signage and striping, barricades, temporary barrier walls, drums, cones, installing temporary fencing and walkways as required to maintain pedestrian traffic, installing temporary steel plates for vehicular traffic and all other work incidental to the maintenance of traffic as required by FDOT Standards and/or Broward County and/or the requirements of the City of Fort Lauderdale and the Contract Documents. Payment for Maintenance of Traffic shall not exceed 3% of the sum of Bid Items 5 through 20 and will be made in equal monthly amounts during the duration of the Contract Time.

<u>Item No. 3 – All Work Associated with Project Record Documents:</u> The lump sum price for this item shall be full compensation for the cost of preparing and submitting approved record drawings and geodatabase data as outlined in the Contract

Documents. This item includes, but is not be limited to, preparing record drawings in AutoCAD and AutoCAD Civil 3D format; providing elevations and GPS coordinates for the regraded Rights-of-Way, asphalt (if changed), new storm drains, stormwater structures, outfalls, new seawalls, tie-ins to existing storm drains, deflections, and conflict separations; and other data as may be required in the Contract Documents. Initiation for payment of this bid item will not occur until all items in the list of submittals are approved and accepted by the City. Final payment for this item will not be made until final record drawings (signed and sealed by a Florida registered surveyor) have been received and accepted by the City. Payments for Record Drawings/Geodatabase Data will be made as follows:

Item	Allowable Percent of Lump Sum For Record Drawings/Geodatabase Data
Draft Record Drawings and Geodatabase Data Submitted for City Approval	50%
Final Record Drawings and Geodatabase Data Submitted, Approved, and Accepted by City	100%

Item No. 4 - All Work Associated with Prevention, Control, and Abatement of Erosion and Water Pollution: The lump sum price indicated for this bid item shall be full compensation for all labor, equipment, and material necessary for preparation, submittal, approval, and implementation of the NPDES Permit Application (Notice of Intent and Notice of Termination), reporting by a person holding a certification as an FDEP NPDES Construction Site Inspector, preparing a Stormwater Pollution Prevention Plan (SWPPP) and implementation of Best Management Practices (BMP) and environmental pollution protection throughout construction as outlined in the Contract Documents and required by the City. Payment for this item will be made in equal monthly payments throughout the duration of active construction and will not be issued prior to Mobilization.

B. Drainage

<u>Item No. 5 – Remove and Dispose of Existing Drainage Structures</u>: The unit price for this item shall be full compensation for all labor, equipment, and material required to remove and dispose of existing drainage structures on a per unit basis. This item includes, but is not limited to, locating, verifying, and protecting existing utilities including support of existing utility poles, saw cutting and removing existing paving and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposing of unsuitable material, removal and disposal of existing drainage and outfall structures, backfilling and compacting fill material, placing structural asphalt, providing temporary and permanent restoration including pavement

and temporary asphalt, pavement markings and striping and all other associated restoration work.

<u>Item No. 6 – Remove and Dispose of Existing Drainage Pipe up to 18 Inches Diameter</u>: The unit price for this item shall be full compensation on a per linear foot basis for all labor, equipment, and material required to remove and dispose of existing storm drain or outfall pipes, including in line check valves. This item includes, but is not limited to, locating, verifying and protecting existing utilities including support of existing utility poles, saw cutting and removing existing paving and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposing of unsuitable material, removal and disposal of existing piping and inline check valves, capping, grouting and abandoning existing piping in place, backfilling and compacting fill material, placing structural asphalt, providing temporary and permanent restoration including pavement and temporary asphalt, pavement markings and striping, and all other associated restoration work.

<u>Item No. 7 – Furnish and Install Catch Basins</u>: The unit price for this item shall be full compensation for all labor, equipment, and materials required to furnish and install catch basins with concrete aprons, all in accordance with the Contract Documents on a per unit basis. This item includes, but is not limited to, locating, verifying, and protecting existing utilities including support of existing utility poles, saw cutting and removing of existing pavement and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposal of unsuitable material, temporary bracing of existing adjacent structures, construction and installation of the reinforced concrete catch basins, plugged openings (bricks and expanding grout as approved by Engineer), backfill and compaction, base pad, mud work, frames, grates, rims, covers, sealing pipe inlets and outlet, concrete top slabs, all appurtenant items, and associated restoration work. This item also includes installation of concrete aprons where shown on drawings, formwork, expansion joint material, concrete, and trimming for concrete aprons.

<u>Item No. 8 - All Work Associated with Inline Check Valves:</u> The unit price for this item shall be full compensation for all labor, equipment, and materials required to furnish and install inline check valves all in accordance with the Contract Documents. This item includes, but is not limited to, furnishing and installing anchor bolts, rings, seals, gaskets, valves, grout, testing, and any other items required for a complete and satisfactory installation.

<u>Item No. 9 - All Work Associated with Installation of 15-inch Reinforced Concrete Pipe:</u> The unit price for this item shall be full compensation on a per linear foot basis for all labor, equipment, and material required to furnish, transport, store, and install reinforced concrete pipe all in accordance with the Contract Documents. The item includes, but it is not limited to, locating, verifying, and protecting existing utilities, saw cutting and removing of existing pavement and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, joint material, pipe bedding, backfilling and compacting fill material, concrete encasement if required, providing temporary restorations including pavement and pavement markings and striping, pipe flushing, post-construction testing, all appurtenant items, and associated incidental restoration work. Measurement for payment shall be the linear feet of pipe installed along the horizontal centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.

Item No. 10 – All Work Associated with Installation of 12-inch Reinforced Concrete Pipe: The unit price for this item shall be full compensation on a per linear foot basis for all labor, equipment, and material required to furnish, transport, store, and install reinforced concrete pipe all in accordance with the Contract Documents. The item includes, but it is not limited to, locating, verifying, and protecting existing utilities, saw cutting and removing of existing pavement and sidewalks, excavating, dewatering, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, joint material, pipe bedding, backfilling and compacting fill material, concrete encasement if required, providing temporary restorations including pavement and pavement markings and striping, pipe flushing, post-construction testing, all appurtenant items, and associated incidental restoration work. Measurement for payment shall be the linear feet of pipe installed along the horizontal centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.

<u>Item No. 11 – Furnish and Install Pollution Retardant Baffles:</u> The unit price for this item shall be full compensation for all labor, equipment, and materials required to furnish and install pollution retardant baffles all in accordance with the Contract Documents. This item includes, but is not limited to, furnishing and installing anchor bolts, angle brackets, seals, gaskets, pollution retardant baffles, grout, and any other items required for a complete and satisfactory installation.

Item No. 12 - Furnish and Construct 8-inch Ductile Iron Water Main Offset and Restrain Existing Pipe: The lump sum price for this item shall be full compensation for the construction of the 8-inch ductile iron water main offset to the existing 8-inch ductile iron water main as well as restraining the existing 8-inch water main at the locations indicated. This item includes, but is not limited to, locating, verifying, and protecting existing utilities, coordinating with Owner for shut offs, saw cutting and removing existing asphalt pavement or drop curb, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, removal and disposal of the existing 8-inch water main to be demolished, furnishing, storing, installing, and testing of the restrained joint connections, piping, and fittings indicated on the plans, performing field cuts, providing pipe restraints to offset and to the existing pipe, dewatering and disposing of pipe contents of existing line, pipe bedding, backfilling and compacting fill material, swabbing pipe with disinfectant, post construction testing, temporary restorations including pavement and pavement markings and striping, furnishing and installing asphalt for curb restoration, and all other appurtenant and incidental restoration work required for a complete and satisfactory installation.

Item No. 13 – Furnish & Install 8-inch PVC Sanitary Sewer Main & Connect to Existing Pipe: The lump sum price for this item shall be full compensation for the construction of the 8-inch PVC sanitary sewer and connection to the existing 8-inch vitrified clay pipe sanitary sewer at the location indicated. This item includes, but is not limited to, locating, verifying, and protecting existing utilities, coordinating with Owner for shut offs, bypassing the existing sewer, saw cutting and removing existing asphalt pavement or drop curb, removing and disposing of existing vitrified clay pipe to be demolished, installing temporary sheeting and shoring, removing and disposal of unsuitable material within and below the pipe trench, tracer wire installation,

dewatering and disposing of pipe contents of existing line, pipe bedding, backfilling and compacting fill material, temporary restorations including pavement and pavement markings and striping, and all other appurtenant and incidental restoration work required for a complete and satisfactory installation.

C. Seawall Bid Items

<u>Item No. 14 – All Work Associated with Cantilevered Steel Sheet Pile Wall with</u> <u>Concrete Cap</u>: The unit price for this item is the payment, on a linear foot basis, for all materials, labor, equipment, and work necessary and required for the complete installation of a cantilevered steel sheet pile wall with concrete cap. This item includes, but is not limited to, application of coating to steel sheet pile wall, installation of cantilevered steel sheet pile wall, installation of jet filters, termination details at ends, all required temporary bracing, shoring, demolition, removal and disposal of existing seawall and/or portions of existing seawall deemed necessary by Contractor to install proposed wall. This item also includes all noise, vibration, and settlement mitigation measures required in accordance with the Contract Documents.

<u>Item No. 15 – All Work Associated with FDOT Number 57 Stone for Seawall</u> <u>Construction</u>: The unit price for this item is the payment, on a cubic yard basis, for all labor, equipment, material and work required for furnishing and installing FDOT Number 57 stone as required for a complete installation of the proposed seawall. This item includes the furnishing and placement of FDOT Number 57 stone in void spaces between the existing and proposed seawalls as shown in the Contract Documents. This item excludes all FDOT Number 57 stone used for any other purpose.

<u>Item No. 16 – All Work Associated with Outfall Drainage Pipe Penetrations through</u> <u>Proposed Seawall</u>: The unit price for this item is the payment, on a unit basis, for all labor, equipment, material, and work necessary and required for constructing 15-inch outfall drain pipe penetrations through the proposed seawall. This item includes, but is not limited to, excavation, removal of existing wall as required, penetration through proposed wall, installing concrete face, installation of manatee grates, backfilling, grading, site restoration and all other appurtenant work as shown in the Contract Documents associated with the pipe penetration.

D. Restoration

<u>Item No. 17 – Milling and Resurfacing:</u> The unit price for this item is the payment, on a square yard basis, for all labor, equipment, material, and work necessary for milling and resurfacing Hendricks Isle in accordance with the Contract Documents. This item includes, but is not limited to, milling of existing pavement at a maximum thickness of 1 inch up to 2.5 inches, removing and disposing of the existing asphalt, installing SP-9.5 asphalt concrete overlay at an average thickness of 1 inch to provide a uniform surface within the limits of pavement restoration, applying a tack coat, adjusting rim elevations of existing manholes, catch basins, and valve boxes, providing temporary pavement markings, and saw cutting of all pavement. This item also includes permanent thermoplastic pavement markings, raised retro reflective pavement markers, and all other miscellaneous and appurtenant work.

<u>Item No. 18 – Remove and Replace Existing Drop Curb</u>: The unit price for this item, on a linear foot basis, for all labor, equipment, material, and work necessary for

removing and replacing drop curbs in accordance with the Contract Documents. This item includes, but is not limited to, removing and disposing of the existing drop curb, installation of 4-inch limerock curb pad, formwork, expansion joint material, concrete, and trimming for new curb.

<u>Item No. 19 – Existing Tree Protection and Disposition</u>: The lump sum price for this item shall be full compensation for all labor, equipment, material and work necessary for the protection of existing trees and landscaping to remain in place; including all aspects of protection, trimming, pruning, fertilizing, and watering; demolition, removal, and disposal of existing trees and landscaping to be removed; and removal and relocation of existing trees to locations defined by the City/Engineer; replacement of trees and any landscape and hardscape impacted in any way by the removal and/or relocation of trees as required to accommodate the work. This item includes, but is not limited to, preparation and submittal of a tree disposition plan as well as the process for submitting and gaining approval of this plan and procuring all permits related to tree removal and/or relocation as required by all regulatory agencies with jurisdiction over this area.

<u>Item No. 20 – Miscellaneous Site Restoration</u>: The lump sum price for this item shall be full compensation for all labor, equipment, material, and work necessary for the restoration of the right of way along Hendricks Isle not included in other bid items. This item includes, but is not limited to, replacing asphalt driveways and parking spaces, restoring swales, grading, sodding, landscaping, hardscaping, restoration of existing irrigation, sidewalks, edging and hedges, and all other work incidental to the restoration of the right of way as required by the Contract Documents. This item also includes all Work not defined in other Bid Items.

#### 1.04 NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS

- A. Payment will not be made for following:
  - 1. Loading, hauling, and disposing of rejected material.
  - 2. Quantities of material wasted or disposed of in manner not called for under Contract Documents.
  - 3. Rejected loads of material, including material rejected after it has been placed by reason of failure of Contractor to conform to provisions of Contract Documents.
  - 4. Material not unloaded from transporting vehicle.
  - 5. Defective Work not accepted by City.
  - 6. Material remaining on hand after completion of Work.

#### 1.05 PARTIAL PAYMENT FOR STORED MATERIALS AND EQUIPMENT

A. Partial Payment: Payment for stored materials and equipment shall only be made with submittal of "paid" receipts. The Contractor shall also submit a separate list covering the cost of materials, delivered and unloaded with taxes paid. This list shall also include the installed value of the item with coded reference to the Work items in the Schedule of Payment Items. Copies of itemized invoices shall be submitted for along

with the list of materials stored onsite. No partial payments will be made for materials and equipment delivered or stored unless Shop Drawings or preliminary operation and maintenance manuals are acceptable to Engineer.

B. Final Payment: Will be made only for products incorporated in Work; remaining products, for which partial payments have been made, shall revert to Contractor unless otherwise agreed, and partial payments made for those items will be deducted from final payment.

## 1.06 ALLOWANCES

- A. The allowances shall be used only at the discretion of and as ordered by the City.
- B. Any portion of these allowances that remain after all authorized payments have been made will be withheld from contract payments and will remain with the City.
- C. Allowance Accounts
  - 1. <u>Permits, License, and Fees Allowance</u>: The allowance account for this item shall be full compensation for all permits, licenses, and fees required of the Contractor from the various agencies having jurisdiction over the construction of the project. The allowance shown is an estimate of the fees required. Payment will be based on the actual permit, license or fee paid directly to the agency, documented by paid receipts and specifically excluding any labor, markups, overhead and profit, administration, or other costs involved in obtaining the permits, licenses or fees. Fees specifically excluded from this allowance include, but are not limited to, reinspection fees and expired permit fees. Any portion of this fund remaining after all authorized payments have been made will be withheld from contract payment and will remain with the City of Fort Lauderdale.
  - 2. <u>Undefined Conditions Allowance</u>: The allowance account for this item shall include work associated with undefined conditions or conflicts developing from undefined conditions including, but not limited to, removal, relocation and replacement of gas, cable, telephone and fiber optic utilities in conflict with proposed utilities, structures, or work during construction. All work authorized for payment shall be authorized in writing by the City. Amount to be paid per undefined conditions or conflicts shall be negotiated or agreed to by both parties.
  - 3. <u>Testing Fees Allowance</u>: The allowance account for this item shall be full compensation for payment of testing requested by the City or Engineer. The allowance shown is an estimate of the fees required. Payment will be based on the actual fees paid directly to the testing laboratory, documented by paid receipts and specifically excluding any labor, markups, overhead and profit, administration, or other costs involved in paying fees. The cost of any required test or laboratory analysis with the Contractor fails shall be paid for by the Contractor. Any portion of this fund remaining after all authorized payments have been made will be withheld from contract payment and will remain with the City of Fort Lauderdale.

## PART 2 - PRODUCTS

(NOT USED)

# PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

### SECTION 01035

#### MODIFICATION PROCEDURES

#### PART 1 -- GENERAL

#### 1.01 THE REQUIREMENT

- A. The Contractor shall provide all labor, materials, equipment and appliances required for the complete execution of replacement of existing seawalls as shown on the Drawings and specified under the various Sections of the Contract Specifications and as required by conditions at the site.
- B. The Contractor shall have examined all work to be performed and familiarize himself with the nature and extent to which the existing site will be damaged, items removed or rearranged due to the work under his Contract and that of other Contracts.
- C. Major portions of the work are indicated on the Drawings and the accompanying Specifications thereto. All work must be complete in all respects and executed with high quality workmanship.
- 1.02 SITE AND BUILDINGS
  - A. <u>Site Visit</u>: Prior to submission of Bids, the Contractor shall have visited the site and thoroughly acquainted himself with the exact nature of the work indicated on the Drawings and the Specifications requirements. Failure to comply with the aforementioned requirements shall not constitute a basis for claims for additional compensation.
  - B. <u>Measurements</u>: Prior to ordering any materials or doing any work, the Contractor shall verify all measurements, dimensions and other conditions of each building scheduled for work as may be necessary or required in connection with his work. The Contractor shall be responsible for the correctness of same.
- 1.03 MATERIALS
  - A. All materials to perform and complete the work shall be new.
  - B. All salvaged materials shall be sound and undamaged. Materials to be reused shall be stored and protected as directed by the Engineer. Care shall be taken to prevent damage to materials or equipment to be reused.
- 1.04 SHORING, UNDERPINNING AND BRACING
  - A. When necessary and required, the Contractor shall provide underpinning and temporary shoring and bracings, all in accordance with code requirements, and as approved by the Engineer.
  - B. Shoring and bracing shall be of such form and so installed as to safely support the work and interfere as little as possible with the progress of the work. Suitable means shall be provided to adjust any settlement in the shoring supports. Temporary shoring shall consist

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## MODIFICATION PROCEDURES

of sound timbers or rolled shapes of required dimensions which shall be removed after necessity for same ceases to exist. All work removed or damaged through installation of temporary shoring or through improper shoring shall be replaced or repaired after the shoring is removed, at no additional cost to the City.

#### 1.05 WORK PREPARATION AND TEMPORARY ACCESS

- A. The Contractor, before commencing work, shall prepare and submit for approval a progress schedule in accordance with the requirements of Section 01300 - Submittals, in order to coordinate the work of all trades and to insure completion on or before the completion date. The City and the Engineer reserve the right to revise or modify such schedules as required to expedite each phase of work and to coordinate such work with the partial use of the building for purposes as directed.
- B. No facility such as toilets, corridors, etc., shall be barricaded or access restricted without providing other temporary or interim means of access. It is further required that no work specified hereinafter shall disturb or interfere with the operation of the existing mechanical installation until proposed new work has been completed or satisfactorily installed. Exception may be made to this requirement only by written approval from the City and Engineer.
- C. Detailed sequence of availability of areas within the present buildings where work is to be performed under each Contract shall be in accordance with Section 01520 Construction Constraints, but may be modified by the Contractor, upon authorization by the City and Engineer as the work progresses.
- D. Existing built-in equipment to remain in the final work, but requiring temporary removal for the installation of new construction, alterations, repairs and/or renovations, shall be disconnected by the Contractor and removed to temporary storage areas designated by the City. Resetting of existing equipment under this heading shall be performed by the Contractor including connecting to electric service lines.
- E. The Contractor shall furnish and install all temporary fire exits, fire extinguishers, hose and safety devices as may be required by authorities having jurisdiction.
- F. Work within existing buildings to be performed, once started, shall be completed as quickly as practicable and each trade shall determine before work is started that all required materials are at hand or readily obtainable to avoid delays.
- G. Shutdowns of existing services within existing buildings which may be occupied during construction will be permitted only upon written approval by the City subject to at least three weeks notice in writing to the City in each case. Shutdowns will be limited to times which will result in the least interference with normal operations. Refer to Section 01520 Construction Constraints for additional requirements.
- 1.06 DUST-PROOF PARTITIONS
  - A. The Contractor shall furnish and erect all necessary temporary dust-proof partitions where required to protect unaltered portions of existing buildings and structures or as directed by the City or Engineer.

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B. Partitions shall be constructed of wood studs with plywood on both sides. Partitions shall extend from floor to ceiling with a closure plate at floor and ceiling. The Contractor shall furnish and install one door in each enclosure complete with hardware attached and keyed as directed. Such enclosures will be required in areas of major demolition work and for protection of existing equipment.

#### 1.07 DUST PROTECTION BARRIERS

- A. Furnish and erect all necessary temporary dust protection barriers where required to protect unaltered portions of existing buildings and structures or as directed by the City or Engineer.
- B. Furnish and install entrances as required through each dust protection barrier.

#### 1.08 WEATHER PROTECTION

- A. Where exterior walls or roofs are being altered, or disturbed for any adjacent alteration, the Contractor shall provide temporary weather protection in those areas to keep interior of buildings absolutely dry and unaffected by the weather. The Contractor will be held responsible for any damage caused by improper protection against weather.
- B. Where existing exterior walls or roofs are disturbed due to alterations, disturbances shall be kept to a minimum and walls or roofs shall be repaired and patched in such a manner that the buildings will be absolutely watertight and meet the conditions of the existing roofing flashing and waterproofing bonds and guarantees.

## 1.09 CUTTING, PATCHING, REPAIRING, AND REFINISHING

- A. The Contractor shall be responsible for cutting all openings in walls, floors and ceilings (indicated to remain) to accommodate alteration work under his Contract in accordance with the requirements of the General Conditions, Supplemental Conditions, and as hereinafter specified. Rough patching and all finish patching shall be by the Contractor.
  - Where new openings are to occur in existing exterior and interior concrete and masonry bearing walls and structural concrete floor, the Contractor will be required to notify the City and Engineer in writing and shall obtain approval prior to cutting operations. The Engineer will determine whether such openings affect the structural stability or load bearing capacities of walls and floors.
  - 2. All holes and openings to be cut in existing walls, floors and ceilings of any nature shall be geometrically correct and no larger than necessary to accommodate the new work.
  - 3. No cutting of finished or structural work may be done without the approval of the Engineer.
- B. Major demolition and removal work such as demolition of buildings and structures, complete or nearly complete removal of floors, walls and ceilings indicated on the Drawings, shall be performed by the Contractor. The Contractor shall also be responsible for all finish patching operations of holes and openings in existing floors, walls, ceilings and roofs to accommodate the alteration work under the Plumbing, HVAC and Electrical Sections as well as that required for the Contractor's work hereinafter specified.

## 1.10 EXISTING EQUIPMENT AND FURNISHINGS

- A. Existing built-in equipment to remain in the final work and requiring temporary removal shall be as hereinbefore specified under Article 1.05, Paragraph D of this Section.
- B. Existing appliances and portable equipment such as desks, chairs, tables, personal computers, etc., shall remain the property of the City and will be removed from rooms and spaces to be altered by the Contractor prior to construction and alteration operations, and stored where directed by the City.
- C. All unsalvageable equipment shall become the property of the Contractor in accordance with the requirements of Section 01540 entitled "Demolition and Removal of Existing Structures and Equipment", and shall be removed from each building and away from the site. Equipment to be retained, or relocated, shall be as shown on the Drawings or as specified.

## 1.11 SCHEDULE OF INTERIOR FINISHES FOR EXISTING BUILDINGS

- A. Unless otherwise specified, all materials required for the work in the existing buildings shall be new, and where required shall match existing adjacent finishes.
- B. As indicated on the Drawings, specified or otherwise required to complete the work, the Contractor shall cut new openings and block up existing openings in floors, walls, partitions and ceilings; remove existing floors; remove, relocate existing and/or install new windows, doors, frames, transoms, access doors, partition sash and trim.
- C. The Contractor shall remove window sash, frame, sill, stool and trim at exterior door openings to be blocked up; remove door, frame and trim and, unless otherwise hereinafter specified or indicated on the Drawings to be blocked up with other materials, window and door openings shall be blocked up with brick and/or masonry block.
  - 1. At door, sash and other openings in interior partitions and walls to be closed, block up such openings with same materials and construction as adjacent, unless otherwise indicated on the Drawings. Plaster and finishes applied at blocked up openings shall finish even and straight, flush with and of the same texture or other surface characteristics of existing adjacent finishes.
- D. Existing finishes or subfloor surfaces which are scheduled to receive new floor finishes shall be repaired, patched with concrete, asphalt latex type emulsion and underlayment as required to suit existing surfaces or the new floor surfacing material to be applied.
- E. Concrete and floors disturbed by alterations shall be patched to finish even, straight and flush with adjacent surfaces.
- F. Where new ceramic tile flooring or base is to be installed over present concrete floors or base, and where a cove exists at the floor, the Contractor shall cut away part of the cove by grinding or other approved means to the extent required for installation of the new flooring or base.
- G. Existing partitions to be removed shall be removed for their entire height.

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- H. Where existing bases and other trim are removed and grounds are exposed and will not be covered by new finishing materials such as resilient base, new trim, or wall covering, grounds shall be removed and wall surfaces patched with plaster to finished even, straight and flush with adjacent existing plaster surfaces. Where existing plaster ceilings are scheduled to be removed, the ceilings shall be replaced with new metal furring, lathing and plaster finish or acoustical ceilings or other ceiling system as indicated on the Drawings.
- I. Where partitions or walls are removed and existing ceiling on each side of the partition or wall is to remain, the gap shall be patched; a vertical break shall be provided if the ceilings are at different levels. Where the ceiling on one side is to remain and a new ceiling is scheduled for the area on the other side, the new ceiling shall be constructed so that the new and existing finished ceiling areas will be at the same level.
- J. Existing floors, walls and ceilings shall be cut as required for removal of existing services and for installation of new plumbing, heating, ventilating and air conditioning, and electrical work and related piping, duct work, conduits, fixtures and equipment.
- K. In addition to work specifically called for in the finish schedule on the Drawings, all finishes disturbed in the performance of any alterations or new work by any Contractor shall be patched or repaired to match existing surfaces or finishes. Holes, slots, chases, etc., in floors, walls and ceilings left by the removal of existing, or installation of new piping, plumbing fixtures, radiators, duct work, registers, grills, conduit, receptacles, switches, lighting fixtures and other items of the other Contracts shall also be patched or repaired by the Contractor.
- L. Existing spaces not listed on the finish schedule on the Drawings may require no work other than complete painting and patching by the Contractor of surfaces damaged in performance of any work included under this Contract.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

- END OF SECTION -

## SECTION 01070

#### ABBREVIATIONS

#### PART 1 - GENERAL

### 1.1 THE REQUIREMENT

A. Wherever in these specifications references are made to the standards, specifications, or other published data of the various national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these specifications, the following acronyms or abbreviations which may appear in these specifications shall have the meanings indicated herein.

## 1.2 ABBREVIATIONS AND ACRONYMS

AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of the State Highway and Transportation Officials
ACI	American Concrete Institute
ACOE	Army Corps of Engineers
ACPA	American Concrete Pipe Association
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGMA	American Gear Manufacturer's Association
AHGDA	American Hot Dip Galvanizers Association
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APHA	American Public Health Association
APWA	American Public Works Association

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## ABBREVIATIONS

ASA Acoustical Society of America ASAE American Society of Agriculture Engineers ASCE American Society of Civil Engineers ASHRAE American Society of Heating, Refrigerating, and Air-Conditioning Engineers ASLE American Society of Lubricating Engineers ASME American Society of Mechanical Engineers ASMM Architectural Sheet Metal Manual ASSE American Society of Sanitary Engineers ASTM American Society for Testing and Materials AWPA American Wood Preservers Association AWPI American Wood Preservers Institute AWS American Welding Society AWWA American Water Works Association BCEPGMD Broward County Environmental Protection and Growth Management Department BCHD **Broward County Health Department** BHMA Builders Hardware Manufacturer's Association CMA **Concrete Masonry Association** CRSI **Concrete Reinforcing Steel Institute** DIPRA **Ductile Iron Pipe Research Association** EIA **Electronic Industries Association** EPA Environmental Protection Agency ETL Electrical Test Laboratories FBC Florida Building Code FDEP Florida Department of Environmental Protection FDOT Florida Department of Transportation FS **Federal Specifications** 

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## ABBREVIATIONS

IEEE	Institute of Electrical and Electronics Engineers	
IES	Illuminating Engineering Society	
IPCEA	Insulated Power Cable Engineers Association	
ISA	Instrument Systems and Automation	
ISO	International Organization for Standardization	
MBMA	Metal Building Manufacturers Association	
MMA	Monorail Manufacturers Association	
MTI	Marine Testing Institute	
NAAM	National Association of Architectural Metal Manufacturers	
NACE	National Association of Corrosion Engineers	
NBS	National Bureau of Standards	
NEC	National Electrical Code	
NEMA	National Electrical Manufacturer's Association	
NFPA	National Fire Protection Association	
NIOSH	National Institute of Occupational Safety and Health	
NIST	National Institute of Standards and Testing	
NRCA	National Roofing Contractors Association	
NSF	National Science Foundation	
OSHA	Occupational Safety and Health Administration	
PCA	Portland Cement Association	
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association	
SSPC	Society for Protective Coatings	
SSPWC	Standard Specifications for Public Works Construction	
SFWMD	South Florida Water Management District	
UL	Underwriters Laboratories, Inc.	

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# PART 2 - PRODUCTS

(NOT USED)

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## ABBREVIATIONS

## PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

## ABBREVIATIONS

## SECTION 01090

## REFERENCE STANDARDS

#### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

- A. <u>Titles of Sections and Paragraphs</u>: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- B. <u>Applicable Publications</u>: Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date of the opening of bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. <u>Specialists, Assignments:</u> In certain instances, Specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the Contractor has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the Work; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the Contractor.

#### 1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of the specifications, all work specified herein shall conform to or exceed the requirements of all applicable codes.
- B. References herein to "Building Code" shall mean the Florida Building Code (FBC) Broward Edition. The latest edition of the code as approved and used by the local agency as of the date of the opening of bids, as adopted by the agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- C. In case of conflict between codes, reference standards, Drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the Engineer for clarification and directions prior to ordering or providing any materials or labor. The Contractor shall follow the most stringent requirements.

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#### REFERENCE STANDARDS

- D. <u>Applicable Standard Specifications</u>: The Contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and Specifications listed herein.
- E. References herein to "OSHA Regulations for Construction" shall mean <u>Title 29, Part</u> <u>1926, Construction Safety and Health Regulations</u>, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- F. References herein to "OSHA Standards" shall mean <u>Title 29, Part 1910, Occupational</u> <u>Safety and Health Standards</u>, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

- END OF SECTION -

## SECTION 01200

## **PROJECT MEETINGS**

#### PART 1 - GENERAL

#### 1.01 PRECONSTRUCTION CONFERENCE

- A. A preconstruction conference will be held after award of contract and prior to the Notice to Proceed. The Engineer shall prepare and distribute the meeting agenda and shall preside at the meeting. The Engineer shall record and distribute minutes of the proceedings and decisions.
- B. The Contractor shall provide a Project Superintendent and a dedicated Project Manager specific to this project as a supervisor to oversee proper performance of the Work. The Project Manager shall attend all meetings and have the authority to make decisions on behalf of the General Contractor. The Project Manager shall be responsible for all coordination, document handling, submittal review and processing, quality control, and project scheduling. The Project Manager, once approved by the City and the Engineer shall not be replaced without prior consent by the City and Engineer.
  - 1. The Project Manager and Project Superintendent shall be direct employees of the Prime Contractor.
  - 2. The Project Manager and Project Superintendent shall fluently speak, read and write in English.
- D. Attendance:
  - 1. City
  - 2. Engineer
  - 3. Program Manager
  - 4. Contractor's Project Manager
  - 5. Contractor's Project Superintendent
  - 6. Major Subcontractors
- E. Minimum Agenda:
  - 1. Tentative construction and submittal schedules
  - 2. Critical work sequencing
  - 3. Designation of responsible personnel
  - 4. Processing of Field Decisions and Change Orders
  - 5. Adequacy of distribution of Contract Documents

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#### **PROJECT MEETINGS**

- 6. Submittal of Shop Drawings and samples
- 7. Procedures for maintaining record documents
- 8. Use of site and City's requirements
- 9. Major equipment deliveries and priorities
- 10. Safety and first aid procedures
- 11. Security procedures
- 12. Housekeeping procedures
- 13. Processing of Partial Payment Requests
- 14. General regard for community relations
- 1.02 PRELIMINARY CPM SCHEDULE REVIEW MEETING
  - A. The Contractor shall participate in a Preliminary CPM Schedule Review Meeting in accordance with the requirements of Section 01300.
- 1.03 PROGRESS MEETINGS
  - A. Progress meetings will be held weekly at the Field Office during the performance of the work of this Contract. Additional meetings may be called as progress of work dictates. Day and time of progress meetings will be scheduled at the Preconstruction Meeting.
  - B. Engineer will prepare and distribute agenda, preside at meetings and record minutes of proceedings and decisions. Engineer will distribute copies of minutes to participants.
  - C. Attendance:
    - 1. City
    - 2. Engineer
    - 3. Program Manager
    - 4. Contractor's Project Manager
    - 5. Contractor's Project Superintendent
    - 6. Subcontractors, as pertinent to the agenda
  - D. Minimum Agenda:
    - 1. Review and approve minutes of previous meetings.
    - 2. Review progress of Work since last meeting.
    - 3. Review proposed 30-60 day construction schedule.

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## **PROJECT MEETINGS**

- 4. Note and identify problems which impede planned progress.
- 5. Develop corrective measures and procedures to regain planned schedule.
- 6. Revise construction schedule as indicated and plan progress during next work period.
- 7. Maintaining of quality and work standards.
- 8. Complete other current business.
- 9. Schedule next progress meeting.
- 1.04 NIEGHBORHOOD ASSOCIATION MEETINGS
  - A. The Contractor shall attend meetings with the local Neighborhood Associations and other stakeholders as requested by the City. Contractor shall be prepared to provide information on construction schedule, scope of work, impacts to local residents, and other coordination items.
- 1.05 OTHER MEETINGS
  - A. The Contractor shall attend and participate in other meetings as required during execution of the Work. These meetings may include, but are not limited to, the following:
    - 1. Meetings requested by regulatory agencies having jurisdiction over the project
    - 2. Meetings with utility entities for coordination purposes throughout the construction

period

- 3. Meetings with other stakeholders including City officials, residents, and businesses
- 4. Coordination meetings with other Contractors conducting work at the site

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

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**PROJECT MEETINGS** 

## SECTION 01300

## SUBMITTALS

## PART 1 - GENERAL

### 1.01 THE REQUIREMENT

A. This section specifies the means of all submittals. All submittals, whether their final destination is to the City, Engineer, or other representatives of the City, shall be directed through the Engineer. A general summary of the types of submittals and the number of copies required is as follows:

#### Copies to Engineer

	Type of Submittal
Е	Progress Schedule
Е	Construction Schedule
Е	Schedule of Payment Items
4 + E	Progress Payment Applications
3 + E	Shop Drawings
2 + E	Warranties
Е	Audio Visual Preconstruction Record
Е	Project Photographs
2 + E	Certificates of Compliance
2*	Product Samples
3 + E	Operation and Maintenance Manual
3 + E	Record Drawings
Е	As Built GIS Database
2 + E	Elevation Certificates for New Buildings – Certified by Surveyor

E – Electronic submittal in pdf format.

\* Unless otherwise required in the specific Section where requested.

- B. All submittals shall also be submitted to Engineer electronically.
- 1.02 SUBMITTAL PROCEDURES

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- A. The Contractor shall transmit each submittal with a form acceptable to the Engineer, clearly identifying the project Contractor, the enclosed material and other pertinent information specified in other parts of this section. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- B. Revise and resubmit submittals as required, identify all changes made since previous submittals. Resubmittals shall be noted as such.
- C. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- D. All electronic submittals shall be digitally submitted to the Engineer through the construction project management system Procore (<u>www.procore.com</u>). All submittals shall be numbered, labeled and dated. See the attached Procore Guidelines at the end of this specification section for additional information.

## 1.03 CONSTRUCTION PROGRESS SCHEDULE

- Α. The Contractor shall have the capability of preparing and utilizing the specified construction progress scheduling techniques. A statement of capability shall be submitted in writing to the Engineer with the issuance of the Frist Notice-to-Proceed by the City and will verify that either the Contractor's organization has in-house capability qualified to use the technique or that the Contractor employs a consultant who is so gualified. Capability shall be verified by description of the construction projects to which the Contractor or its consultant has successfully applied the scheduling technique and which were controlled throughout the duration of the project by means of systematic use and updating of the construction progress schedule, the network analysis and associated reports. The submittal shall include the name of the individual on the Contractor's staff who will be responsible for the construction progress schedule, and associated reports and for providing the required updating information of same. The Contractor shall submit its proposed progress (baseline) schedule to the Engineer for review and comment in accordance with the Contract Documents. The Engineer shall have the authority to determine acceptability/correctness of the schedule logic and activity interrelationships. The use of extraneous, nonworking activities and activities which add restraints to the construction schedule shall not be accepted. Baseline schedules that do not meet their contract completion dates shall not be accepted.
- B. The Contractor's progress schedule (baseline and monthly updates) shall be computergenerated and resource loaded. Each computer-generated construction progress schedule and associated report shall include the following tabulations: a list of activities in numerical order, a list of activity precedence, schedules sequenced by Early Start Date, Total Float, and Late Start Date. Each schedule, and report shall include the following minimum items:
  - 1. Activity Numbers

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- 2. Estimated Duration
- 3. Activity Description
- 4. Early Start Date (Calendar Dated)
- 5. Early Finish Date (Calendar Dated)
- 6. Latest Allowable Start Date (Calendar Dated)
- 7. Latest Allowable Finish Date (Calendar Dated)
- 8. Status (whether critical)
- 9. Total Float and Free Float
- 10. Resource Plots
- C. In addition, each construction progress schedule, network analysis and report shall be prefaced with the following summary data:
  - 1. Contract Name and Number
  - 2. Contractor's Name
  - 3. Contract Duration and Float
  - 4. Contract Schedule with critical path.
  - 5. The Effective or Starting Date of The Schedule (the date indicated in the Notice-to-Proceed)
- D. The work day to calendar date correlation shall be based on an 8-hour day and 40-hour week with adequate allowance for holidays, adverse weather and all other special requirements of the Work. Normal work hours are Monday through Friday, 7:30 am to 4:30 pm.
- E. If the Contractor desires to make changes in its method of operating which affect the construction progress schedule and related items, the Contractor shall notify the Engineer in writing stating what changes are proposed and the reason for the change. If the Engineer accepts these changes, in writing, the Contractor shall revise and submit, without additional cost to the City, all of the affected portions of the construction progress schedule, and associated reports. The construction progress schedule and related items shall be adjusted by the Contractor only after prior acceptance, in writing by the Engineer. Adjustments may consist of changing portions of the activity sequence, activity durations, division of activities, or other adjustments as may be required. The addition of extraneous,

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nonworking activities and activities which add restraints to the construction progress schedule shall not be accepted.

- F. Except where earlier completions are specified, schedule dates which show completion of all Work prior to the contract completion date shall, in no event, be the basis for claim for delay against the City by the Contractor.
- G. Construction progress schedules and related items which contain activities showing negative float or which extend beyond the contract completion date will be accepted only upon the condition that the Contractor will comply with recovery schedule requirements as specified in paragraph H. below.
- H. Whenever it becomes apparent from the current construction progress schedule and associated reports that delays to the critical path have resulted and the contract completion date will not be met, or when so directed by the Engineer, the Contractor shall take some or all of the following actions at no additional cost to the City. They shall submit to the Engineer for approval, a written statement of the steps they intend to take to remove or arrest the delay to the critical path in the current construction progress schedule, including a computer generated schedule revision to reflect proposed actions
  - 1. Increase construction personnel in such quantities and crafts as will substantially eliminate the backlog of work.
  - 2. Increase the number of working hours per shift, shifts per day, working days per week, the amount of construction equipment, or any combination of the foregoing, sufficiently to substantially eliminate the backlog of work.
  - 3. Reschedule activities to achieve maximum practical concurrence of accomplishment of activities, and comply with the revised schedule.
- I. When so requested by the Engineer, the Contractor should fail to submit a written statement of the steps they intend to take or should fail to take such steps as reviewed and accepted in writing by the Engineer, the Engineer may direct the Contractor to increase the level of effort in personnel (trades), equipment and work schedule (overtime, weekend and holiday work, etc.) to be employed by the Contractor in order to remove or arrest the delay to the critical path in the current construction progress schedule, and the Contractor shall promptly provide such level of effort at no additional cost to the City.
- J. If the completion of any activity, whether or not critical, falls more than 100 percent behind its previously scheduled and accepted duration, the Contractor shall submit to the Engineer for approval a schedule adjustment showing each such activity divided into two activities reflecting completed versus uncompleted work.

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## SUBMITTALS

- K. Shop drawings which are not approved on the first submittal or within the time scheduled, and equipment which does not pass the specified tests and certifications shall be immediately rescheduled.
- L. The contract time will be adjusted only in accordance with the General Requirements and other portions of the Contract Documents as may be applicable. If the Engineer finds that the Contractor is entitled to any extension of the contract completion date, the Engineer's determination as to the total number of days extension shall be based upon the current construction progress schedule and on all data relevant to the extension. Such data shall be included in the next updating of the schedule and related items. Actual delays in activities which, according to the construction progress schedule, do not affect any contract completion date will not be the basis for a change therein.
- M. From time to time it may be necessary for the contract schedule of completion time to be adjusted by the City in accordance with the General Requirements and other portions of the Contract Documents as may be applicable. Under such conditions, the Engineer will direct the Contractor to reschedule the Work or contract completion time to reflect the changed conditions, and the Contractor shall revise the construction progress schedule and related items accordingly, at no additional cost to the City.
- N. Available float time may be used by the City through the City's Engineer.
- O. The City controls the float time and, therefore, without obligation to extend either the overall completion date or any intermediate completion dates, the City may initiate changes that absorb float time only. City initiated changes that affect the critical path on the network diagram shall be the sole grounds for extending the completion dates. Contractor initiated changes that encroach on the float time may be accomplished only with the City's concurrence. Such changes, however, shall give way to City initiated changes competing for the same float time.
- P. To the extent that the construction project schedule, or associated report or any revision thereof shows anything not jointly agreed upon or fails to show anything jointly agreed upon, it shall not be deemed to have been accepted by the Engineer. Failure to include on a schedule any element of Work required for the performance of this Contract shall not excuse the Contractor from completing all Work required within any applicable completion date, notwithstanding the review of the schedule by the Engineer.
- Q. Review and acceptance of the construction progress schedule, and related reports, by the Engineer is advisory only and shall not relieve the Contractor of the responsibility for accomplishing the Work within the contract completion date. Omissions and errors in the construction progress schedule, and related reports shall not excuse performance less than that required by the Contract and in no way make the Engineer an insurer of the Contractor's success or liable for time or cost overruns flowing from any shortcomings in the construction progress schedule, and related reports.

SUBMITTALS

- R. The Contractor shall present and discuss the proposed schedule at the preconstruction conference.
- S. The construction progress schedule shall be based upon the precedence diagramming method of scheduling and shall be prepared in the form of a horizontal bar chart showing in detail the proposed sequence of the Work and identifying all construction activities included but not limited to yard piping, all structures and treatment units and all related Work specified herein to be performed under the Contract. The schedule shall be time scaled, identifying the first day of each week, with the estimated date of starting and completion of each stage of the Work in order to complete the project within the contract time. The project critical path shall be clearly identified in color or by other means acceptable to the Engineer.
- T. The progress schedule shall be plotted on 22 inch by 34 inch and 11 inch by 17 inch paper and shall be revised and updated monthly, depicting progress through the last day of the current month and scheduled progress through completion. Up to date hard copies of the schedule shall be submitted along with the application for monthly progress payments for the same period.
- U. The construction progress schedule shall be developed and maintained using Primavera and Primavision software as manufactured by Primavera Systems, Inc., or equal.
- V. The Contractor shall produce a 3-week Look Ahead Schedule for construction meetings on a bi-weekly basis or as determined by City.
- 1.04 SCHEDULE OF PAYMENT ITEMS
  - A. The Contractor shall submit a Schedule of Payment Items for review in accordance with the Contract Documents. The schedule shall contain the installed value of the component parts of Work for the purpose of making progress payments during the construction period and shall directly correlate on an item by item basis (unless otherwise accepted by the Engineer) to each individual activity detailed in the construction progress schedule. The sum of all scheduled items shall equal the total value of the Contract. Reference section entitled "Measurement and Payment" for further details.
  - B. The Contractor shall expand or modify the above schedule and materials listing as required by the Engineer's initial or subsequent reviews.

## 1.05 PROGRESS PAYMENT APPLICATIONS

A. Applications for payments shall be made to the Engineer for review in accordance with Article 7 of the Construction Agreement.

1.06 SHOP DRAWINGS

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- A. The Contractor shall submit electronic copies of shop drawings in Adobe Portable Document Format (PDF) format for review by all general, civil, mechanical, structural, architectural, electrical and instrumentation related improvements, including details, piping layout and appurtenances, wiring, color selection charts, materials and equipment fabricated especially for this Contract, and materials and equipment for which such Drawings are specified or specifically requested by the Engineer.
- B. Within one week of shop drawing approval (Furnish as Submitted or Furnish as Corrected), Contractor shall provide three (3) color hard copies of each shop drawing. Contractor may be required to submit certain sheets in large format to ensure all portions of shop drawing are legible. Engineer shall distribute electronic and hard copies to the City.
- C. Shop drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the Drawings.
- D. When so specified, or if considered by the Engineer to be acceptable, the manufacturer's specifications, catalog data, descriptive matter, illustrations, etc. may be submitted for review in place of shop drawings. In such case, the requirements shall be as specified for shop drawings, insofar as applicable.
- E. Time delays caused by rejection of submittals are not cause for extra charges to the City or time extensions.
- F. <u>Requirements</u>: The Contractor shall be responsible for the prompt submittal of all shop drawings so that there shall be no delay to the Work due to the absence of such drawings. Electronic copies of all shop drawings shall be submitted as directed by the Engineer during the preconstruction meeting. Shop drawings shall be submitted as a single, complete, and searchable image format document in PDF format with bookmarks for shop drawings consisting of multiple sections and/or more than 20 pages total.
- G. All shop drawings shall be submitted to the Engineer through the Contractor. Each shop drawing shall be individually submitted. The Contractor is responsible for obtaining shop drawings from subcontractors and returning reviewed shop drawings to them. All Drawings shall be clearly marked with the name of the project, City, Contractor, specification section number and building, equipment, or structure to which the drawing applies. Drawings shall be suitably numbered stamped and signed by the Contractor. Each shop drawing shall be accompanied by a transmittal form listing the information identified above.
- H. All submissions shall be dated and properly referenced to the specifications section and Contract Drawing number. The submittal number shall match the following submittal numbering system (or an equivalent system as approved by the Engineer):

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Submittal Numbering System

- 1. Package ID: The package number will reflect the CSI (specification) section number as it appears in the specifications.
- 2. Subgroup ID: The submittal number will include the CSI number followed by the submittal number and a sequential letter indicating resubmittal number.

Example:

<u>Package</u>	<u>Submittal</u>	<b>Description</b>
03300	03300-001	Concrete Admixture A, First Submittal
	03300-001A	Concrete Admixture A, Second Submittal
	03300-001B	Concrete Admixture A, Third Submittal
	03300-002	Concrete Admixture B, First Submittal

- I. <u>Product Data</u>: Where manufacturer's publications in the form of catalogs, brochures, illustrations, or other data sheets are submitted in lieu of prepared shop drawings, such submission shall specifically indicate the particular item offered. Identification of such items and relative pertinent information shall be made with indelible ink. Submissions showing only general information will not be accepted.
- J. Product data shall include materials of construction, dimensions, performance characteristics, capacities, wiring diagrams, piping and controls, etc.
- K. <u>Warranties</u>: When warranties are called for, a sample of the warranty shall be submitted with the shop drawings. The sample warranty shall be the same form that will be used for the actual warranty. Actual warranties shall be originals and notarized.
- L. <u>CONTRACTOR's Review</u>: Only submittals which have been checked and corrected should be submitted to the Contractor by its subcontractors and vendors. Prior to submitting shop drawings to the Engineer, the Contractor shall check thoroughly all such shop drawings to satisfy itself that the subject matter thereof conforms to the Drawings and Specifications in all respects. Shop drawings which are correct shall be marked with the date, checker's name and indications of the Contractor's approval, and then shall be submitted to the Engineer. Other shop drawings submitted to the Engineer will be returned to the Contractor unreviewed.

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SUBMITTALS

- M. <u>CONTRACTOR's Responsibility</u>: The Engineer's review of shop drawings will be general and shall not relieve the Contractor of the responsibility for details of design, dimensions, etc., necessary for proper fitting and construction of the Work required by the Contract and for achieving the specified performance.
- N. <u>CONTRACTOR's Modifications</u>: For submissions containing departures from the Contract Documents, the Contractor shall include proper explanation in their letter of transmittal. Should the Contractor submit for review equipment that requires modifications to the structures, piping, layout, etc. detailed on the Drawings, or specified, Contractor shall also submit for review details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the City, shall do all Work necessary to make such modifications.
- O. <u>Substitutions</u>: Whenever a particular brand or make of material, equipment, or other item is specified, or is indicated on the Drawings, it is for the purpose of establishing a standard of quality, design, and type desired and to supplement the detailed specifications. Any other brand or make which is equivalent to that specified or indicated may be offered as a substitute subject to the following provisions:
  - 1. The Contractor shall submit for each proposed substitution sufficient details, complete descriptive literature, and performance data together with samples of the materials, where feasible, to enable the Engineer to determine if the proposed substitution is equal, in all respects including, but not limited to, quality, performance, ease of maintenance, availability of spare parts, and experience record.
  - 2. The Contractor shall submit certified tests, where applicable, by an independent laboratory attesting that the proposed substitution is equal.
  - 3. A list of installations where the proposed substitution is equal. Such listing shall cover a minimum of the previous three years and will furnish project names and contact phone numbers.
  - 4. Where the acceptance of a substitution requires excessive review by the Engineer, revision or redesign of any part of the Work, all such additional review costs, revisions and redesign, and all new drawings and details required therefore, shall be at the Contractor's expense.
  - 5. In all cases the Engineer shall be the sole judge as to whether a proposed substitution is to be accepted. The Contractor shall abide by the Engineer's decision when proposed substitute items are judged to be unacceptable and shall in such instances furnish the item as specified. No substitute items shall be used in the Work without written acceptance of the Engineer.

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SUBMITTALS

- 6. Acceptance of any proposed substitution shall in no way release the Contractor from any of the provisions of the Contract Documents.
- 7. The City may require, at Contractor's expense, a special performance guarantee or other surety with respect to any substitute.
- P. <u>Complete Submittals</u>: Each submittal shall be complete in all aspects incorporating all information and data required to evaluate the products' compliance with the Contract Documents. Partial or incomplete submissions shall be returned to the Contractor without review.
- Q. <u>Engineer's Review</u>: The Engineer will review and return by email the reviewed shop drawings within 15 calendar days of receipt of such shop drawings. Reviewed shop drawings will be returned to the Contractor by email and marked with the appropriate box checked either "FURNISH AS SUBMITTED", "FURNISH AS CORRECTED" or "REVISE AND RESUBMIT".
- R. <u>Work Prior to Review</u>: No material or equipment shall be purchased, fabricated especially for this Contract, or delivered to the project site until the required shop drawings have been submitted, processed, reviewed by the Engineer and marked either "FURNISH AS SUBMITTED" or "FURNISH AS CORRECTED". All materials and Work involved in the construction shall be as represented by said shop drawings.
- S. The Contractor shall not proceed with any portion of the Work (such as the construction of foundations) for which the design and details are dependent upon the design and details of equipment for which submittal review has not been completed.
- 1.07 WARRANTIES
  - A. Warranties called for in the Contract Documents shall be originals and submitted to the City through the Engineer. When warranties are required, they shall be submitted prior to request for payment.
  - B. When advance copies of warranties are requested, they shall be submitted with, and considered as shop drawings.
- 1.08 CERTIFICATES
  - A. Four copies of certificates of compliance and test reports shall be submitted for requested items to the Engineer prior to request for payment.

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## 1.09 PRODUCT SAMPLES

- A. Contractor shall furnish for review all product samples as required by the Contract Documents or requested by the Engineer to determine compliance with the specifications.
- B. Samples shall be of sufficient size or quantity to clearly illustrate the quality, type, range of color, finish or texture and shall be properly labeled to show complete project identification, the nature of the material, trade name of manufacturer and location of the Work where the material represented by the sample will be used.
- C. Samples shall be checked by the Contractor for conformance to the Contract Documents before being submitted to the Engineer and shall bear the Contractor's stamp certifying that they have been so checked. Transportation charges on samples submitted to the Engineer shall be prepaid by the Contractor.
- D. The Engineer's review will be for compliance with the Contract Documents, and its comments will be transmitted to the Contractor with reasonable promptness.
- E. Acceptable samples will establish the standards by which the completed Work will be judged.

## 1.10 OPERATION AND MAINTENANCE MANUALS

- A. <u>General</u>: The Contractor shall furnish and deliver to the Engineer three (3) complete Operation and Maintenance (O&M) Manuals for the substantial, complete systems including instructions, technical bulletins, and any other printed matter such as diagrams, prints or drawings, containing full information required for the proper operations, maintenance, and repair of all Contractor furnished equipment. Also included shall be a spare parts diagram and complete spare parts list. These requirements are a prerequisite to the operation and acceptance of equipment. Each O&M Manual shall be bound together in appropriate three-ring hard cover binders. A detailed table of contents shall be provided for each Manual. Provide an appropriate label on the binder edge. Provide tabs and separate sections for operation, maintenance, spare parts, etc.
- B. Written operations and maintenance instructions are required for all equipment items supplied for this project. The amount of detail shall be commensurate with the complexity of the equipment item. Extensive pictorial cuts of equipment are required for operator reference in servicing.
- C. Information not applicable to the specific piece of equipment installed on this project shall be struck from the Manual by the Contractor. Information provided shall include a source of replacement parts and names of service representatives, including addresses and telephone numbers.

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- D. When written instructions include shop drawings and other information previously reviewed by the Engineer, only those editions which were accepted by the Engineer, and which accurately depict the equipment installed, shall be incorporated in the O&M Manual.
- E. Maintenance and Lubrication Schedules: The Contractor shall include in the O&M Manual, for all Contractor furnished mechanical and electrical equipment including switchgear and motor control centers, instrumentation, valves, gates, etc., complete maintenance and lubrication schedules. Separate forms shall be submitted for each piece of equipment. Sample forms are included at the end of this section. As an alternate to the forms, the Contractor may submit an electronic copy of the manufacturer's recommended preventive maintenance requirements.
- F. The Contractor shall include in the O&M Manual, for all Contractor furnished pumps and motors, complete data sheets. Separate forms shall be submitted for each different type and size of pump and motor. Sample forms are included at the end of this section.
- G. The Contractor shall also furnish and deliver to the Engineer three (3) USB drives with all O&M manuals in an electronic format suitable for downloading into the City O&M database system. All manuals and drawings for the vendor provided equipment, sub-system or system shall be in Adobe Portable Document Format (PDF) format. They shall be PDF Formatted Text and Graphics (formerly Normal) or PDF Searchable Image (formerly Image+Text). If submitted in Searchable Image format, they shall be Optical Character Recognized (OCR'ed) at a 95 percent confidence level, using Adobe Acrobat Capture 3.x or an equivalent product. There shall be links from all Table of Contents entries to the actual occurrence in the body of the manual. Bookmarks shall be created for all linked Table of Contents entries. This requirement applies to all equipment to be furnished on this project.
- 1.11 RECORD DRAWINGS
  - A. Requirements for record drawings shall be in accordance with Section 01320.
- 1.12 AS-BUILT GIS DATABASE
  - A. Requirements for the as-built GIS Database updates shall be in accordance with Section 01320.
- 1.13 ELEVATION CERTIFICATES (FOR NEW BUILDINGS)
  - A. Two copies of Elevation Certificates for each new building, certified by a registered surveyor, shall be submitted to the Engineer prior to the request for certificate of completion / certificate of occupancy from the City of Fort Lauderdale Building Department.
- 1.14 AUDIO-VISUAL PRECONSTRUCTION RECORD

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- A. <u>General</u>: Prior to commencing work, the Contractor shall have a continuous color audio-video recording taken of the entire Project, including adjacent work areas, plant site and all other areas that will be disturbed by the Contractor's operations, to serve as a record of preconstruction conditions. No construction shall begin prior to review and acceptance of the recordings covering the respective, affected construction area by the Engineer. The Engineer shall have the authority to reject all or any portion of the recording not conforming to the specifications and order that it be redone at no additional charge. The Contractor shall reschedule unacceptable coverage within five days after being notified. The Engineer shall designate those areas, if any, to be omitted from or added to the audio-video coverage. Recordings shall not be performed more than ninety days prior to construction in any area. Recording format shall be MP4 audio-video, minimum 1280 x 720 resolution, and playable using Windows Media Player. CDs and/or DVDs will not be accepted. All flash drives and written records shall become property of the City.
- B. <u>Services</u>: The Contractor shall engage the services of a professional electrographer. The color recording shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of preconstruction color audio-video documentation. The electrographer shall furnish to the Engineer a list of all equipment to be used for the audio-video recording, i.e., manufacturer's name, model number, specifications and other pertinent information. Additional information to be furnished by the electrographer is the names and addresses of two references that the electrographer has performed color audio-video recordings for on projects of a similar nature within the last twelve months.
- C. <u>Equipment</u>: All equipment, accessories, materials and labor to perform this service shall be furnished by the Contractor.
  - 1. The total audio-video system shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume and clarity, and be free from distortion and interruptions.
  - 2. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be less than twelve feet. In some instances, audio-video coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance acceptable to the Engineer.
- E. <u>Recorded Information Audio</u>: Each recording shall begin with the current date, project name and municipality and be followed by the general location; i.e., process structure, or area, viewing side and direction of progress. The audio track shall consist of an original live recording. The recording shall contain the narrative commentary of the electrographer, recorded simultaneously with the electrographer fixed elevation video record of the zone of influence of construction.
- F. <u>Recorded Information Video</u>: All video recordings must, by electronic means, display continuously and simultaneously, generated with the actual recording, transparent digital

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information to include the date and time of recording. The date information shall contain the month, day and year. The time information shall contain the hours, minutes, and seconds. Additional information shall be displayed periodically. Such information shall include, but not be limited to, project name, process structure or area, and the viewing side. This transparent information shall appear on the extreme upper left hand third of the screen.

- G. <u>Conditions for Recording</u>: All recording shall be done during times of good visibility. No recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recordings and to produce bright, sharp video recordings of those subjects.
- H. <u>Video Coverage</u>: Video coverage shall include all surface features located within the zone of influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavement, landscaping, fences, signs and interior and exterior of existing structures affected by the work and the exteriors of structures adjacent to the work, and any other on-site area that will be occupied or impacted by the Contractor or any of their subcontractors or suppliers within the area covered.

#### 1.15 PROJECT PHOTOGRAPHS

- A. The Contractor shall engage and pay for the services of a photographer for ground level progress pictures each month during the course of the construction activities. The photographer's periodic visits and work shall be coordinated with the City. A total of 25 progress photographs in electronic format of completed work is required each month. A photograph (picture) shall be defined as one image. Meta data shall include the following information:
  - 1. Location
  - 2. Name/number of structure
  - 3. Photo Number
  - 4. Date photgraph was taken
  - 5. Description
  - 6. Name of photographer
  - 7. Owner's witness
- B. Digital images of each photograph shall be submitted electronically to the Engineer with the Contractor's monthly estimate.

PART 2 -- PRODUCTS (NOT USED)

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#### SUBMITTALS

## PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

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### SUBMITTALS



# Hazen's Procore Guidelines for Contractors

July, 2017

# 1. Invitation To Project From Hazen:

1.1. After the pre-construction meeting has been held, Hazen will invite the contractor's project team to Procore. Please provide contact information using the table below for 1) your company and 2) users you wish to add from your company.

Company							
Inforn	nation						
Company Name:							
Address:							
City:							
State:							
Zip:							
Business Phone:							
Fax:							
		User	<sup>-</sup> Information				
First Name	Last Name	Email Address	Address (If different from Company Address)	Business Phone	Cell Phone	Job Title	Folder Tracking For Submittals? (See 2.6)

- 1.2. Once Hazen has received a Contractor's company and user information, an invitation will be sent to each user. Procore will send two emails: One email invites the user to join Procore, provides a link to set-up an account password, and offers links to download Procore's mobile apps. The second email informs the user that they have been added to a project and provides a link to access the project page in Procore.
  - 1.2.1. Procore invitation email:

come to Procore			
Hazen and Sawye to me 🖃	r <hazen_sawyer_notifications@procoretech.com></hazen_sawyer_notifications@procoretech.com>	11:19 AM (10 minutes ag	jo) 🛣 🔸 🔻
	Hazen and Sawyer	Hazen	
	Hi Demo Contractor,	Г	
	You've been invited to join Procore, the online Project Management syster <b>Sawyer</b> .	m for Hazen and	Procore uses your provided email as th
	Below is the information regarding your account:		login. To create you
	Login: <u>sjames0079@gmail.com</u> Password: <u>Click here to create your new password</u>		Procore account clic the link next to
	Once you have set up your password, you can login to Procore by visiting and entering your Login and Password.	app.procore.com	password.
	Download Our Free Mobile Apps		
	Use Procore's free mobile apps to login anywhere from your smartphone of <u>Download Procore for iPhone</u> <u>Download Procore for iPad</u> Download Procore for Android (smartphones and tablets)	or tablet.	Links to download Procore's mobile ap
	If you have any trouble logging into Procore, please contact Procore's cus email at <u>support@procore.com</u> or on the web at <u>http://support.procore.com</u>		
	Best Regards,		
	The Procore Team		
	Powered by <u>Procore   support@procore.com   http://support.procore</u>	com	

#### 1.2.2. Added to Project email:



# 2. <u>Submittal Upload/Response</u>

2.1. After you have setup your account/password. Go to procore.com. Your login will be the email you provided Hazen. Enter your password created in step 1.2.1. Once logged in, you will be directed to the main "Portfolio" screen as shown below. In this view you will see the main project information (Hazen Project #, Address, City, etc.).

Hazen		iazen and : Select a Pro			*							t.	₩ ? 🕼 DC
PORTFOLIO	Projec	ts My	Open If	tems							Expo	ort 🔻	SEARCH FOR PROJECTS
Displaying 1 of 1											≡ :		Clear Search
_	Project#	Address	City	State	ZIP	Phone	Program	Status	Stage	Туре	Department	Notes	FILTER PROJECTS BY County
Test Project Displaying 1 of 1								Active	Course of Construction	Pipeline			All   Department  All

2.2. Click on the project name (blue hyperlink) to access the project's home page as shown below.

<	Haze	n m	hazen and sawyer Test Project	•		-			<b>₩ 3 18 DC</b>
P	ROJECT H	OME							PROJECT WEATHER Project location has not been set
Ρ	ROJECT OVE	RVIEW							Project location has not been set
	Overview				Overdue Next 7 Days	> 7 Days		Total Open	
					No Data				
M	IY OPEN ITEM	15							
		Item Type	Details			Status		Due Date	
					No Open Items				
R	ECENTLY CH	ANGED ITEMS	5						
		Item Type			Details		From	Date Created	
				I	No Recent Items				
									Minimize Sidebar 🕨 🕨

2.3. To upload a submittal for Hazen's review, go to the "Documents" tool by clicking the dropdown arrow under toolbox ribbon.



2.3.1. Inside the documents tool, you will see three file folders (Conformed Drawings and Specs, Contractor Uploads, and Finalized Construction Documents).

Hazen III HAZEN AND S Test Project			sox 🗾 🕇 📩	FAVORITES	₩ Ø 🕸 DC
DOCUMENTS					▲ Download ▲ Import Options
Test Project     Conformed Drawings and Specs	NEW DO	CUMENTS THIS	+ Create Sub Folder		
Contractor Uploads     Finalized Construction Documents	Folder	File Name	Uploaded/Created On	Uploaded/Created By	SEARCH FOR A DOCUMENT
			Clear Search		
					FILTER DOCUMENTS BY Uploaded/Created On Start
					End Uploaded/Created By Select A Person
					Clear Filter

2.3.2. To upload a submittal for review, highlight the Contractor Uploads folder. The middle portion of your screen will update and you will see a box labeled "Upload Files Into Folder". Simply drag and drop a PDF file of the submittal (properly named, spec section-submittal number-revision number) into the grey box. Once the file has fully uploaded, click "Upload".

Hazen III Hazen and S Test Project		FAVORITES	₩ ? 🏚 DC
DOCUMENTS  Test Project  Test Project  Conformed Drawings and Specs  Contractor Uploads  Finalized Construction Documents	FOLDER: CONTRACTOR UPLOADS         Subfolders:       1         Files:       0	Export Track Folder: Upload Files Into Folder Attach File(s) Upload Upload	▲ Download     ▲ Import Options     ■ Email     ← Create Sub Folder  SEARCH FOR A DOCUMENT  Clear Search  FILTER DOCUMENTS BY Uploaded/Created On

2.4. Once a submittal has been reviewed by Hazen, the Project Manager (PM) or Submittal Coordinator (SC) will upload the review comments to the "Final Submittals and Shop Drawing Comments" folder.

<	Hazen III HAZEN AND SAI Test Project	WYER - X TOOLBOX Document	ts 🗾 🕇	FAVORITES	₩ 3 🕼	DC
	Test Project	See step 2.6 on explanation of fold tracking	ler		Export 👻 ^	
		FOLDER: FINAL SU MMENTS	JBMITTALS AND SHO	P DRAWING CO Track Folder: 📝 Parent Folde	er ("Finalized Construction Documents") Marke d for Tracking	
	Change Orders	Subfolders:	17	Upload Files Into Fol	der	
	Claims-CORs Claims-CORs Clascout Documents Field Orders Requests for Proposals Work Change Directives Closed RFis Final Submittals and Shop Drawing Comme	Files:	0		Drag and Drop File(s) Upload	
	Div 01-General					
l	Div 02-Statework     Div 03-Concrete     Div 04-Masonry     Div 05-Metals     Div 06-Wood and Plastics     Div 07-Thermal and Moisture Protection     Div 08-Dors and Windows	FOLDER PERMISSI This folder has no permi			E	
l	Div 09-Finishes     Div 10-Specialties     Div 11-Equipment General     Div 12-Furnishings     Div 12-Special Construction	FOLDER TRACKIN				
	Div 14-Conveying Systems     Div 15-Mechanical     Div 16-Electrical     Div 16-Electrical     Div 17-Control and Information Systems	FILES IN THIS FOLD	DER			

2.5. This process is similar for other documents (Change Documents, RFIs, etc.). Contractor shall upload all documents to the "Contractor Uploads" folder. Once reviewed, Hazen will upload responses to the "Finalized Construction Documents".

<	Hazen III HAZEN AND SA Test Project	AWYER - X TOOLBOX Documents	FAVORITES	₩ 3 k® DC
۵	OCUMENTS	See step 2.6 on explanation of folder		▲ Download ▲ Import Options
	Test Project     Conformed Drawings and Specs	tracking	Export 💌	
Γ	Contractor Uploads     Finalized Construction Documents	FOLDER: FINALIZED CONSTRUCTION	DOCUMENTS Track Folder: 🗑	+ Create Sub Folder
	Change Documents     Change Orders	Subfolders: 4	Upload Files Into Folder	SEARCH FOR A DOCUMENT
	Claims-CORs Closeout Documents Field Orders Requests for Proposals Work Change Directives	Files: 0		Clear Search
l	Work Charge Directives     Work Charge Directives     Closed RFIs     Executed Payment Applications     Final Submittals and Shop Drawing Comm     Div 01-General		Upload	FILTER DOCUMENTS BY Uploaded/Created On
	Div 02-Sitework Div 03-Concrete Div 04-Masonry Div 05-Metals Div 06-Wood and Plastics Div 06-Wo	FOLDER PERMISSIONS This folder has no permissions set.		Start
	Div 07-Thermal and Moisture Protectio Div 08-Doors and Windows Div 09-Finishes Div 10-Specialties Div 11-Equipment General Div 12-Furnishings Div	FOLDER TRACKING O people are currently tracking this folder.		Uploaded/Created By Select A Person  Clear Filter
	Div 13-Special Construction     Div 14-Conveying Systems     Div 15-Mechanical     Div 16-Electrical     Div 16-Control and Information System	FILES IN THIS FOLDER		PROCORE DRIVE

Contractor Guidelines

2.6. Hazen's PM/SC will adjust Procore settings so that the Contractor is automatically tracking the "Finalized Construction Documents" folder. This allows Procore to automatically send the Contractor an email when Hazen has uploaded final construction documents (closed RFIs, submittal comments, etc.). As shown below, Procore will send an email stating that "The following item(s) has changed within the Procore Document Management system". You may click on the blue link directly to view the document or you may log into Procore and access the documents tool.



#### SECTION 01312

#### FIELD ENGINEERING

#### PART 1 - GENERAL

- 1.01 REQUIREMENTS
  - A. Contractor shall provide and pay for field Engineering and Survey services required for the project.
  - B. Identify existing control points and property line corner stakes indicated on the Drawings, as required.
- 1.02 QUALIFICATIONS OF SURVEYOR
  - A. Qualified Registered Professional Surveyor & Mapper, acceptable to the City and the Engineer.
- 1.03 SURVEY REFERENCE POINTS
  - A. Location and elevation of benchmarks are shown on the Drawings. Identify basic horizontal and vertical control points for the construction project including:
    - 1. Permanent coordinate reference points with horizontal and vertical control, located and staked as shown on the plans.
  - B. Contractor's Responsibilities:
    - 1. Provide survey and layout required to layout the Work.
    - 2. Check and establish exact location of existing facilities prior to construction of new facilities and any connections thereto.
    - 3. In event of discrepancy in data or benchmarks, request clarification before proceeding with Work.
    - 4. Retain professional land surveyor or civil engineer registered in state of Florida who shall perform or supervise engineering surveying necessary for construction staking and layout.
    - 5. Maintain complete accurate log of survey Work as it progresses as a Record Document.
    - 6. On request of City, submit documentation.
    - 7. Provide competent employee(s), tools, stakes, and other equipment and materials as City may require to:
    - 8. Establish control points, lines, and easement boundaries.
    - 9. Check layout, survey, and measurement Work performed by others.

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#### FIELD ENGINEERING

- 10. Measure quantities for payment purposes.
- C. The Contractor shall locate and protect control points prior to starting site construction work and preserve all permanent reference points during construction.
  - 1. Make no changes or relocations without prior written notice to City.
  - 2. Report to Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
  - 3. Contractor's surveyor shall replace project control points which may be lost or destroyed. Replacements shall be established based on original survey control.
- D. Contractor shall be responsible for performing survey and preparing As-Built drawings for all other portions of the work in accordance with Section 01320 Project Record Documents.
- 1.04 PROJECT SURVEY REQUIREMENTS
  - A. Contractor's surveyor shall establish a minimum of two permanent benchmarks on site, referenced to data established by survey control points.
  - B. Contractor shall establish lines and levels, locate and lay out, prepare a Horizontal and Vertical Control Plan for the purpose of construction staking by instrumentation and similar appropriate means:
    - 1. Stakes for grading and fill placement.
    - 2. Controlling lines and levels as required.
  - C. From time to time, verify layouts by same methods.
  - D. Horizontal and vertical control plan shall be made available to City in AutoCAD Civil 3D 2019 format or most current release.
  - E. Any plan released to the Contractor via electronic media is for as-built use only. They have not been geometrically calculated by a Surveyor. This applies to all aspects of the plans including, but not limited to, right-of-way, road utilities and drainage.
- 1.05 RECORDS
  - A. Maintain a complete, accurate log of all control and survey work as it progresses.
  - B. On completion of construction work, prepare a certified survey showing all dimensions, locations and elevations of project.
- 1.06 SUBMITTALS
  - A. Submit name and address of Professional Surveyor & Mapper and Professional Engineer to City and Engineer.

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#### FIELD ENGINEERING

- B. On request of City or Engineer, submit documentation to verify accuracy of field engineering work.
- C. Submit certificate signed by Registered Engineer or Professional Surveyor & Mapper certifying that elevation and locations of work are in conformance, or non-conformance, with Contract Documents.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

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#### FIELD ENGINEERING

#### SECTION 01320

#### PROJECT RECORD DOCUMENTS

#### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

- A. The Contractor shall submit Project Record Documents, including As Builts and As Built GIS Database updates as specified herein.
- B. Maintain at the site of the City a record copy of:
  - 1. Drawings
  - 2. Specifications
  - 3. Addenda
  - 4. Change Orders and other modifications to the Contract
  - 5. Approved Shop Drawings, Product Data and Samples
  - 6. Field Test Records
  - 7. Stormwater Pollution Prevention Plan (SWPPP)
- 1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES
  - A. Store documents and samples in Contractor's field office apart from documents used for construction:
    - 1. Provide files and racks for storage of documents.
    - 2. Provide locked cabinet or secure storage space for storage of samples.
  - B. File documents and samples in accordance with CSI format.
  - C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
  - D. Make documents and samples available at all times for inspection by City and City Project Manager.
- 1.03 MARKING DEVICES
  - A. Provide felt tip marking pens for recording information in the color code designated by Engineer.
- 1.04 RECORDING

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#### PROJECT RECORD DOCUMENTS

- A. Label each document, "PROJECT RECORD" in neat large printed letters, or by rubber stamp.
- B. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction: (hard copy and ACAD format)
  - 1. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 2. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
  - 3. Field changes of dimension and detail.
  - 4. Changes made by Field Order or by Change Order.
  - 5. Details not on original Contract Drawings.
- D. Specifications and Addenda; Legibly mark each Section to record:
  - 1. Manufacturer, trade name, catalog number, and supplier of each produce and item of equipment actually installed.
  - 2. Changes made by Field Order or by Change Order.
- 1.05 AS-BUILT AND RECORD DRAWINGS
  - A. The term 'As-Built Drawing' refers to drawings signed and sealed by a Florida registered surveyor and mapper (PSM) provided by the Contractor. As-built information will be provided to the Engineer of Record for review. Contractor will prepare record drawings based on as-built information.
  - B. The as-built drawings cover sheet will be signed, sealed and dated by the PSM. The cover sheet will include the PSM's name, business name, PSM number, address and telephone number and contain the following statement:

"I hereby certify that the as-built location information of the potable water, reclaimed water, wastewater and drainage facilities shown on these drawings conforms to the minimum technical standards for land surveying in the State of Florida, Chapter 5J-17.050(10)(i) (Florida Administrative Code), as adopted by the Department of Agriculture and Consumer Services, Board of Professional Surveyors and Mappers, and that said as-builts are true and correct to the best of our knowledge and belief."

- C. As-builts will contain the information on the design drawings, plus the following additional requirements:
  - 1. As-builts are to document changes between the design and construction. All information that is incorrect due to changes during construction will be corrected.

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PROJECT RECORD DOCUMENTS

Incorrect or no longer relevant information will be erased or struck through. Any facilities constructed in a horizontal or vertical location materially different (one-tenth foot horizontal, one-tenth foot vertical) than the design location will have their design location struck through and will be redrafted at the constructed location. Design drawing dimensioning to water and wastewater facilities will be corrected as necessary.

- 2. Drawings will be a complete set including cover sheet, index (if one was included in the approved design drawings) and any other sheets included in the approved design set. Standard detail sheets are not necessary.
- 3. Drawings will include the Minimum As-Built and Record Drawing Contents described in the City of Fort Lauderdale minimum standards.
- D. The Contractor shall maintain full size (24"x36" or 22"x34") field drawings to reflect the "as-built" items of Work as the Work progresses. Upon completion of the work the Contractor shall prepare a record set of "AS-BUILT" Drawings on full-size, reproducible material and an electronic file in .DWG format (AutoCAD, latest Version). One set of full size design Drawings on reproducible material will be furnished to the Contractor by the design Engineer at the current square foot price. An electronic file of the design Drawings will be furnished to the Contractor by the Engineer at no additional cost (for asbuilt purposes only). No additional payment will be made for those "as-built" Drawings.
- E. The cost of maintaining record changes, and preparation of the AS-BUILT Drawings shall be included in the unit prices bid for the affected items. Upon completion of the Work, the Contractor shall furnish the City Project Manager the reproducible AS-BUILT Drawings and electronic files. The completed AS-BUILT Drawings shall be delivered to the City Project Manager at least 48 hours prior to final inspection of the Work. The Final Inspection will not be conducted unless the AS-BUILT Drawings are in the possession of the City Project Manager.
- F. The completed As-Built Drawings shall be certified by a Professional Surveyor and Mapper registered in the State of Florida. This certification shall consist of the surveyor's embossed seal bearing the registration number, the surveyor's signature and date on each sheet of the drawing set. In addition, the key sheet, cover sheet or first sheet of the plans set shall list the business address and telephone number of the surveyor. The final as-builts shall also be submitted using state plane coordinates. (NAVD 1988 for vertical; NAD '83 with '90 adjustment for horizontal).
- G. Representative items of Work that should be shown on the record Drawings as verified, changed or added are shown below:
  - 1. <u>Plans:</u>
    - a. Structure types, location with grade of rim and flow-line elevations.
    - b. Pipe type, length, size and elevations.
    - c. Utility type, length, size and elevation in conflict structures.

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- d. All maintenance access structures, valves and hydrants within right-ofway.
- e. Spot (critical) elevations at plateaued intersections. (P.C., P.T., and mid point of all intersections, etc.)
- f. Sewer laterals shall be stationed between maintenance access structures.
- 2. <u>Pavement Marking and Signing Plans</u>: Sign location where installed if different from plans.
- 3. <u>Water and Sewer Plans:</u> Location (horizontal and vertical) of all pipe lines, structures, fittings, services, valves and appurtenances, and water main / sanitary sewer pipe crossings.
- H. The Contractor shall submit an electronic set of progress As-Built Drawings with each application for payment. These Drawings shall accurately depict the Work completed and for which payment is being requested.
- I. The term 'Record Drawing' refers to the final drawing set signed and sealed by the Engineer of Record. The Engineer of Record will prepare or have prepared record drawings based on as-built information provided by the PSM and from information provided by the Engineer's staff. The Engineer of Record shall retain the signed and sealed 'as-built' drawings provided by the PSM with the other project records for possible review by City upon request. Record Drawings shall meet the requirements of the Contract Documents.
- J. As-Built and Record Drawings shall include the following contents at a minimum.
  - 1. The amount of information required on as-built and record drawings will require the drawing author to organize its presentation in order to make the drawings readable. On occasion, it may be necessary to put stormwater, water, and wastewater information on separate sheets, and/or use a table to show coordinate information.
  - 2. Show the location of easements used by the stormwater, water, and wastewater facilities.
  - 3. Indicate pipe joint locations where stormwater, water, wastewater or reclaimed water piping crosses.
  - 4. Indicate the length of gravity stormwater and wastewater piping and actual slope between manhole centers.
  - 5. Show all abandoned in place facilities including the extent and method of abandonment.
  - 6. Show elevations to the nearest tenth of a foot for:
    - a. Top of pipe for elevations at vertical deflection points and every 200 feet along straight runs.

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#### PROJECT RECORD DOCUMENTS

- b. Top of pipe of stormwater, water, or wastewater facilities where they cross all other facilities (drainage, telephone, cable TV, electric, etc.)
- 7. Show elevations to the nearest one hundredth of a foot for:
  - a. Manholes (MH) rims.
  - b. Inverts of every gravity wastewater and stormwater pipe and force main connections to MH.
  - c. Lift station top of slab, bottom of wet well, influent pipe invert and control set points.
- 8. Coordinates will be provided for City maintained facilities, including:
  - a. Water mains, force mains and reclaimed water mains at deflection points and every 200 feet along straight runs.
  - b. The center of each MH, fitting, valve, blow off, hydrant, water meter box, wastewater cleanout, lift station wetwell, double detector check or other non-pipe water or wastewater facility.
  - c. The location of each connection to existing facilities.
  - d. The corners (vertices) of all easements being granted to the City as a part of the project.
  - e. Other locations designated by City.
- 9. Show the changed location of any non-water/wastewater/stormwater features so they are at the visually correct location relative to City maintained facilities.
- 10. Drawings shall include color photographs of all connections to existing City infrastructure as well as all critical utility crossings and where specifically required on the design drawings. The pictures will be taken with a GPS camera that automatically geotags the picture. A maximum of six photographs per sheet is acceptable. Each photograph shall have a minimum size of 8"x10". Photographs shall have a density of 3.0 megapixel or greater. Plot resolution is to be minimum 300 dots per inch. Photographs shall normally be taken from a point between four feet (4') and six feet (6') above the subject infrastructure and shall show good detail in both shadow and sunlit areas. Include a measuring device in the photo for scale and where applicable to indicate the depth or separation of the utilities. A symbol (i.e. an arrow) is to be used in the plan views indicating the location and direction of view for each photograph submitted. The symbol must include the photograph number. A caption under each photograph shall include the following information:
  - a. Photograph number
  - b. Photograph description
  - c. Date of photograph
  - d. Location and direction of view (for example 201 NW 34 Street looking North)
  - e. State plane coordinates

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#### PROJECT RECORD DOCUMENTS

- f. All photographs included in the drawings will also be provided to City in JPEG format on CD or DVD media. The CD or DVD will be labeled with the City project name and number. Individual photo files will be named using the same photograph number contained in the drawings.
- 11. The size and material of the piping shall be verified by the survey crew at the time of as-built.
- 12. As-builts of all drainage lines shall include the following information:
  - a. Rims, inverts, length of piping between structures, length of exfiltration trench, and weir elevations if applicable.
  - b. The size and material of the piping shall be verified by the survey crew at the time of as-built.
- 13. As-builts for the edge of pavement and sidewalk locations shall include horizontal locations and shall indicate all deviations from the design plans.
- 14. All rock as-builts for parking lot, roadways and swales areas shall consist of the following:
  - a. Rock elevations at all high and low points, and at enough intermediate points to confirm slope consistency and every 50' for roadways.
  - b. Rock as-builts shall be taken at all locations where there is a finish grade elevation shown on the design plans.
  - c. All catch basin and maintenance access structure rim elevations shall be shown.
  - d. Elevations around island areas will also be required.
  - e. As-builts shall be taken on all paved and unpaved swales prior to placement of asphalt and/or topsoil/sod, at enough intermediate points to confirm slope consistency and conformance to the plan details.
  - f. Note: Rock as-builts required prior to paving. Consultant shall review rock as-builts within five days of receipt.
- 15. Lake and canal bank as-builts shall include a key sheet of the lake for the location of cross sections. Lake and canal bank cross sections shall be plotted at a minimum of every 100 lf, unless otherwise specified. As-builts shall consist of the location and elevation of the top of bank, edge of water and the deep cut line, with the distance between each shown on the drawing.
- 16. Retention area as-built elevations shall be taken at the bottom of the retention area and at the top of bank. If there are contours indicated on the design plans, then they shall be as-built as well.
- 17. If a change is made via field order or deviation to any structure, pipeline, etc., a new location shall be noted on the as-builts. The City Project Manager may

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request additional as-built information to verify horizontal or vertical locations.

#### 1.06 AS BUILT GIS DATABASE REQUIREMENTS

- A. The Contractor shall submit updates to the City's GIS database cataloging the constructed stormwater infrastructure. Updates shall be in accordance with the City's latest geodatabase and corresponding Geodatabase Data Dictionary. The Geodatabase Data Dictionary is provided as an attachment to this specification.
- B. Contractor shall enter location and attribute information collected from survey field work and final As-Built Drawings into a City issued geodatabase template. The City shall provide a template in Microsoft Excel format to be used for data entry. This template will adhere to the City's geodatabase schema for feature classes, related tables, and domain tables. The asset types to be collected and delivered shall include, but not limited to, the following assets:
  - 1. Control valves
  - 2. Exfiltration trenches
  - 3. Gravity mains
  - 4. Pressurized mains
  - 5. Inlets
  - 6. Manholes
  - 7. Network structures (including pump stations or pipe ends)
  - 8. Inline valves
  - 9. Outfalls
- C. Attribute types shall be coordinated with the City, but shall adhere to the requirements of the City's Geodatabase Data Dictionary.
- 1.07 SUBMITTAL
  - A. Submittals of final As-Built Drawings shall be made with monthly payment applications and at the completion of the entire project. At Contract closeout, deliver all Record Documents to City Project Manager, for presentation to the City.
  - B. A complete set of As-Built Drawings shall be prepared and delivered to the City Project Manager. Work shall be performed by a Registered Professional Surveyor and Mapper shall include, but not be limited to the following:
    - 1. Valve boxes, splice boxes, pull boxes, all underground utilities-waterlines, electrical runs, irrigation system, storm drainage pipe and structures, sanitary sewer lines and structures, finished necessary grades, benches, curbs, fences,

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#### PROJECT RECORD DOCUMENTS

walls, signs, light fixtures and other items as necessary in accordance with City Record Plan/As-built plan requirements.

- C. Submittal of the draft As-Built GIS Database shall be done electronically. The Engineer will review the Excel file for completeness. The City shall provide written comments on the submittal. The Contractor shall provide a written response for each comment. The Contractor shall make revisions to the Excel file and submit both the responses to the comments and the revised database file for review by the Engineer and the City. Should further modifications of GIS database file be required, the Contractor shall make these modifications at no additional cost to the City.
- D. Accompany all submittals with transmittal letters in duplicate, containing:
  - 1. Date.
  - 2. Project title and number.
  - 3. Contractor's name and address.
  - 4. Title and number of each Record Document.
  - 5. Signature of Contractor or authorized representative.

#### PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

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#### PROJECT RECORD DOCUMENTS

#### SECTION 01400

#### QUALITY CONTROL

#### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

#### A. Testing Laboratory Services

- Laboratory testing and checking and all certifications required by the Specifications, including the cost of transporting all samples and test specimens, shall be provided by the Contractor unless otherwise indicated in the Specifications. Payment for laboratory services shall be made from the Allowance item entitled "Laboratory Testing Fees". Payment shall be made based on the actual cost of service upon submission of paid invoices.
- 2. The Contractor shall retain the services of an independent, certified testing laboratory to perform all testing required by the Contract Documents and by permitting agencies. The Contractor shall submit the name of the testing laboratory and evidence of all appropriate certifications for approval by the Engineer and the City.
- 2. In the case of a conflict between this Specification Section and the Contractor's Quality Management Plan, the more stringent requirement between the two documents shall govern.
- 3. Procedure
  - a. The Contractor shall plan and conduct his operations to permit taking of field samples and test specimens, as required, and to allow adequate time for laboratory tests.
  - b. The collection, field preparation and storage of field samples and test specimens shall be performed by the Contractor as required by the Specifications and as directed by the City.
- 4. Supplementary and Other Testing
  - a. Nothing shall restrict the Contractor from conducting tests he may require. Should the Contractor at any time request the City to consider such test results, the test reports shall be certified by an independent testing laboratory acceptable to the City. Testing of this nature shall be conducted at no additional cost to the City.

#### 1.02 OBSERVATION AT PLACE OF MANUFACTURE

- A. Unless otherwise specified, all products, materials, and time and equipment shall be subject to observation by the Engineer at the place of manufacture.
- B. The presence of the Engineer at the place of manufacture however, shall not relieve the Contractor of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the Engineer.

#### 1.03 SAMPLING AND TESTING

- A. Unless otherwise specified, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the City reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the Engineer, will ensure the City that the quality of the work is in full accord with the Contract Documents.
- B. Any waiver by the City of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the Engineer reserves the right to make independent investigations and tests and failure of any portion of the Work to meet any of the requirements of the Contract Documents, shall be reasonable cause for the Engineer to require the removal or correction and reconstruction of any such Work in accordance with the General Conditions.
- D. Materials to be tested include, but are not necessarily limited to the following:
  - 1. cement,
  - 2. concrete aggregate,
  - 3. concrete,
  - 4. bituminous paving materials,
  - 5. structural and reinforcing steel,
  - 6. waterproofing,
  - 7. select backfill, subgrade, base material, crushed stone or gravel and sand,
  - 8. water during pipeline disinfection and bacteriological testing

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#### QUALITY CONTROL

#### 1.04 SITE INVESTIGATION AND CONTROL

- A. The Contractor shall verify all dimensions in the field and shall check field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the Work due to its failure to comply with this requirement.
- B. The Contractor shall inspect related and appurtenant Work and shall report in writing to the Engineer any conditions which will prevent proper completion of the Work. Failure to report any such conditions shall constitute acceptance of all site conditions, and any required removal, repair, or replacement caused by unsuitable conditions shall be performed by the Contractor within the scope of the Project.

#### 1.05 OBSERVATION AND TESTING

- A. The work or actions of the testing laboratory shall in no way relieve the Contractor of its obligations under the Contract. The laboratory testing work will include such observations and testing required by the Contract Documents, existing laws, codes, ordinances, etc. The testing laboratory will have no authority to change the requirements of the Contract Documents, nor perform, accept or approve any of the Contractor's Work.
- B. The Contractor shall allow the Engineer ample time and opportunity for field observation and testing materials and equipment to be used in the Work. The Contractor shall advise the Engineer promptly upon placing orders for materials and equipment so that arrangements may be made, if desired, for observation before shipment from the place of manufacture. The Contractor shall at all times furnish the Engineer and its representatives, facilities including labor, and allow proper time for inspecting and testing materials, equipment, and installation. The Contractor must anticipate that possible delays may occur in the execution of its work due to the necessity of materials and equipment being inspected and accepted for use. The Contractor shall furnish, at its own expense, all samples of materials required by the Engineer for testing, and shall make its own arrangements for providing water, electric power, or fuel for the various observations and tests of structures and equipment.
- C. The Contractor shall furnish the services of representatives of the manufacturers of certain equipment, as prescribed in other Sections of the Specifications. The Contractor shall also place his orders for such equipment on the basis that, after the equipment has been tested prior to final acceptance of the work, the manufacturer will furnish the City with certified statements that the equipment has been installed properly and is ready to be placed in functional operation. Tests and analyses required of equipment shall be paid for by the Contractor, unless specified otherwise in the Section which covers a particular piece of equipment.
- D. Where other tests or analyses are specifically required in other Sections of these Specifications, the cost thereof shall be borne by the party (City or Contractor) so designated in such Sections. The City will bear the cost of all tests, observations, or investigations undertaken by the order of the Engineer for the purpose of determining conformance with the Contract Documents if such tests, observations, or investigations

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are not specifically required by the Contract Documents, and if conformance is ascertained thereby. Whenever nonconformance is determined by the Engineer as a result of such tests, observations, or investigations, the Contractor shall bear the full cost thereof or shall reimburse the City for said cost. In this connection, the cost of any additional tests and investigations, which are ordered by the Engineer to ascertain subsequent conformance with the Contract Documents, shall be borne by the Contractor.

- E. Significance of Tests
  - 1. Test results shall be binding on both the Contractor and the City, and shall be considered irrefutable evidence of compliance or noncompliance with the Specification requirements, unless supplementary testing shall prove, to the satisfaction of the City, that the initial samples were not representative of actual conditions.
- F. Supplementary and Other Testing
  - 1. Nothing shall restrict the Contractor from conducting tests he may require. Should the Contractor at any time request the City to consider such test results, the test reports shall be certified by an independent testing laboratory acceptable to the City. Testing of this nature shall be conducted at the Contractor's expense.

#### 1.06 RIGHT OF REJECTION, IMPERFECT WORK, EQUIPMENT, OR MATERIALS

- A. The Engineer, acting for the City, shall have the right, at all times and places, to reject any articles or materials to be furnished hereunder which, in any respect, fail to meet the requirements of the Contract Documents, regardless of whether the defects in such articles or materials are detected at the point of manufacture or after completion of the Work at the site, or during the subsequent guarantee period. If the Engineer or its representative, through an oversight or otherwise, has accepted materials or Work which is defective, or which is contrary to the Contract Documents, such materials, no matter in what stage or condition of manufacture, delivery, or erection, may be subsequently rejected by the Engineer for the City. Any defective or imperfect work, equipment, or materials furnished by the Contractor which is discovered shall be removed immediately even though it may have been overlooked by the Engineer and estimated for payment. Satisfactory work or materials shall be substituted for that rejected.
- B. The Contractor shall promptly remove rejected articles or materials from the site of the Work after notification of rejection. All costs of removal and replacement of rejected articles or materials as specified herein shall be borne by the Contractor.
- C. The Engineer may order tests of imperfect or damaged work, equipment, or materials to determine the required functional capability for possible acceptance, if there is no other reason for rejection. The cost of such tests shall be borne by the Contractor; and the nature, tester, extent and supervision of the tests will be as determined by the Engineer. If the results of the tests indicate that the required functional capability of the work, equipment, or material was not impaired, consistent with the final general appearance of

QUALITY CONTROL

same, the work, equipment, or materials may be deemed acceptable. If the results of such tests reveal that the required functional capability of the questionable work, equipment, or materials has been impaired, then such work, equipment, or materials shall be deemed imperfect and shall be replaced. The Contractor may elect to replace the imperfect work, equipment, or material in lieu of performing the tests.

#### 1.07 OTHER CONSTRUCTION CONSIDERATIONS

- A. <u>Sleeves and Openings</u>: The Contractor shall provide all openings, chases, etc., to fit its own work and that of any other subcontractors and Contractor's. All such openings or chases shown on the Contract Drawings, or reasonably implied thereby, or as confirmed or modified by acceptable shop, setting or erecting drawings, shall be provided by the Contractor.
- B. Where pipes or conduits are to pass through slabs or walls, or where equipment frames or supports are to be installed as integral part of an opening, the sleeves, openings, forms or frames shall be furnished by the installer of the pipes, conduits or equipment, but shall be placed by the Contractor. Where hanger inserts, anchor bolts and similar items are to be embedded in concrete as an integral part of a slab or wall, they shall be furnished by the installer of the pipe or other equipment requiring the hanger, etc., but shall be placed by the Contractor.
- C. <u>Weather Conditions</u>: Work that may be affected by inclement weather shall be suspended until proper conditions prevail. In the event of impending storms, the Contractor shall take necessary precautions to protect all work, materials and equipment from exposure.
- D. <u>Fire Protection</u>: The Contractor shall take all necessary precautions to prevent fires at or adjacent to the Work, including its own buildings and trailers. Adequate fire extinguisher and hose line stations shall be provided throughout the work area.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

#### 3.01 BUOYANCY

A. The Contractor shall be completely responsible for any tanks, pipelines, utility access, foundations or similar improvements that may become buoyant during the construction operations due to groundwater levels. Should there be any possibility of buoyancy, the Contractor shall take the necessary steps to prevent damage due to floating or flooding, and shall repair or replace said improvements at no additional cost to the City.

- END OF SECTION -

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QUALITY CONTROL

#### SECTION 01520

#### CONSTRUCTION CONSTRAINTS

#### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

- A. The intent of this Section is to outline the minimum requirements necessary to provide continuous public services throughout the construction period.
- B. Work under the Contract shall be scheduled and performed in such a manner as to result in the least possible disruption to the operation of existing water, wastewater, and stormwater transmission facilities and nearby residents.
- C. The Contractor has the option of providing additional temporary facilities that can eliminate a constraint, provided it is done without cost to the City (including additional City labor) and provided that all requirements of these Specifications are fulfilled. Work not specifically covered in the following paragraphs may, in general, be done at any time during the contract period, subject to the operating requirements and constraints and construction requirements outlined hereinafter. All references to days in this Section shall be consecutive calendar days.

#### 1.02 OPERATION REQUIREMENTS

- A. Coordination with Private Property Owners: Work is located in City of Fort Lauderdale right-of-way areas. Work is also adjacent to private residences and public access areas. The Contractor shall coordinate work with the City and shall minimize impacts to private property owners and public access areas. Contractor shall replace surrounding ground affected including but not limited to pavers, sidewalks, sod, landscape and bring it to original or better conditions.
- B. Sequence of certain major events and identification of time constraints for removing existing facilities from active service and installation of new facilities are described below. No phase of work (or tasks within a phase) shall preclude or be performed in parallel with a subsequent phase unless specifically defined so in these documents. In all cases, work in each phase shall be checked out an accepted for satisfactory use, subject to the City's approval, prior to the Contractor proceeding to the next phase of construction.
- C. Critical events in the sequence of construction are specified herein. The outlined sequence of construction does not include all items necessary to complete the Work, but is intended to identify the sequence of critical events necessary to eliminate disruption to the public and to the City's facilities. It shall be understood by the Contractor that the critical events identified are not all inclusive and that additional items of work not shown may be required. The sequence of construction is a precedence requirement and does not attempt to schedule the Contractor's work.
- 1.03 SEQUENCE OF CONSTRUCTION
  - A. Mobilization / Site Preparation

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- 1. Mobilize for work video roadways, swales and adjacent area, obtain permits, develop and submit construction schedule, submit shop drawing schedule and being shop drawing submittals and procurement of materials.
- 2. For interfering utilities, construct new utilities up to tie-in points, perform tests, make final connections with minimum amount of shut down time. After acceptance of new utilities, remove existing interfering underground utilities and structures. Provide temporary services as required to maintain continuous operation.
- B. Detailed Construction
  - 1. Project Notification shall be performed in accordance with the requirements of Section 01580.
  - 2. The Contractor shall be responsible for all damages/claims resulting from its activities on the surrounding neighborhood and its residents.
- C. Final Site Work and Closeout
  - 1. Final grading, paving, sodding, landscaping, miscellaneous work, demobilization and related closeout activities shall be as defined elsewhere in the Contract Documents.

#### 1.04 CONTRUCTION CONSTRAINTS

- A. Construction Dewatering
  - 1. All dewatering equipment such as pumps, air compressors, generators, etc. proposed for use during construction in residential areas shall be provided with noise enclosures suitable to meet the requirements of the City of Fort Lauderdale Noise Ordinance.
  - 2. The Contractor is responsible for draining and dewatering all existing utilities impacted by the work as required to complete the relocation, demolition, bypass, or tie-in connections. Contractor is responsible for disposal of the contents of each line.
  - 3. Additional requirements for construction dewatering are defined on the Drawings.
- B. Work in City of Fort Lauderdale Right-of-Way
  - 1. Contractor shall coordinate with City of Fort Lauderdale Engineering Department prior to start of restoration.
  - 2. Contractor shall not begin new construction on the next section of roadway until the previous roadway is significantly complete. A roadway shall be considered significantly complete when all work is complete including the first lift of asphalt. The milling of the roadway and placement of the final lift of asphalt, final striping, and landscape restoration shall be done at the end of the project.
  - 3. Construction within the right-of-way of affected roads shall be scheduled so that all improvements are completed at once, and the residents are only disrupted for one time period. This excludes water or sewer plumbing work outside the roadway which shall be scheduled after mains are tested and accepted for connection by individual services.

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#### CONSTRUCTION CONSTRAINTS

- 4. At any time, the entire length of the project area shall remain unobstructed and open to through traffic for each section. Access for emergency vehicles shall be maintained at all times to all homes and businesses. Excavation must be backfilled or barricaded at the end of each work day to prevent hazardous conditions. If a trench, excavation, or structure is to be left open, it must be covered with a steel plate and barricaded at the end of each work day or when work will be suspended for more than eight (8) hours.
- 5. Transportation provisions for handicapped or disabled residents shall be made by the Contractor if construction temporarily prevents access to homes. Constant access shall be provided for residents on the Special Needs List.
- 6. The Contractor shall also make provisions with local bus, school bus, garbage collection, mail delivery, and other agencies for continuation of service. A traffic maintenance plan indicating detours, schedules, and alternate routes which has been approved by the Engineer, the City, and Broward County Traffic Engineering Division shall be submitted to all affected agencies for coordination and routing purposes.
- 7. Pipe and material shall not be strung out along installation routes for longer than two (2) weeks prior to installation.
- 8. A safe walk route for all schools within the vicinity of the construction zone shall be maintained during the arrival and dismissal of school. Contractor shall not block bus access to schools during school hours.
- C. Maintenance of Existing Facilities
  - 1. It may be necessary to interrupt the operation of the existing water and/or sewer system. In all cases where the Contractor must cause an interruption, the Contractor shall prepare and submit to the Engineer seven (7) working days prior to commencing work, a complete description of the proposed procedure and a guaranteed time schedule. At least 24 hours prior to the time proposed for starting the Work, the Contractor will be notified by the Engineer whether or not the Work will be permitted as proposed.
  - 2. The Engineer reserves the right to require the Contractor to work 24 hours per day in all cases where interference with operation of the system may result in dangerous health hazards or offensive conditions.
  - 3. In no case will the Contractor be permitted to interfere with the existing system until all materials, supplies, equipment, tools and incidentals necessary to complete the work are on site. Backup equipment and/or materials on key items shall be required on work necessitating interference with the existing system.
  - 4. The Contractor shall be responsible for draining and dewatering existing uilities as required to complete tie-in activities. The Contractor is responsible for the disposal of contents of the line(s) in accordance with all federal, state, and local regulations.

#### PART 2 - PRODUCTS

(NOT USED)

#### PART 3 - EXECUTION

#### 3.01 COORDINATION WITH EXISTING UTILITIES AND OTHER AGENCIES

A. The Contractor shall notify all utilities in writing with a copy to the City/Engineer prior to construction commencement. The Contractor shall cooperate with these utility owners as necessary to minimize service interruptions.

- END OF SECTION -

#### SECTION 01525

#### MAINTENANCE OF TRAFFIC

#### PART 1 -- GENERAL

- 1.01 GENERAL
  - A. The Contractor shall maintain pedestrian and vehicular traffic within the limits of the projects for the duration of the construction period, including any temporary suspensions of the work, construct and maintain detours, provide facilities for access to adjacent residences, schools, bus pick up and drop off locations, common grounds, businesses, etc., along the project, furnish, install and maintain traffic control and safety devices during construction, furnish and install work zone pavement markings for maintenance of traffic in construction areas and provide any other special requirements for safe and expeditious movement of pedestrian and vehicular traffic in accordance with the Contract Documents. Maintenance of Traffic includes all facilities, devices and operations as required for safety and convenience of the public within the work zones, and shall include provisions for pedestrian, residential, and school student traffic as well as vehicular traffic.

The Contractor shall not maintain traffic over those portions of the project where no work is to be accomplished or where construction operations will not affect existing roads. Do not obstruct or create a hazard to any traffic during the performance of the work, and repair any damage to existing pavement open to traffic.

- B. Beginning Date of Contractor's Responsibility: The Contractor shall maintain traffic starting the day work begins on the project. No work shall commence without approved and constructed Traffic Control Plans in place.
- C. Worksite Traffic Supervisor: The Contractor shall provide a Worksite Traffic Supervisor. Requirements are as follows:
  - 1. Ensure that the Worksite Traffic Supervisor is available on a 24-hour per day basis, participates in all changes to traffic control and reviews the project on a day-to-day basis.
  - 2. Ensure that the Worksite Traffic Supervisor is present to direct the initial setup of the traffic control plan and any changes. Provide the Worksite Traffic Supervisor with all equipment and materials needed to set up, and maintain traffic control and handle traffic-related situations.
  - 3. Ensure that the Worksite Traffic Supervisor immediately corrects all safety deficiencies. Do not allow minor deficiencies that are not immediate safety hazards to remain uncorrected for more than 24-hours.

- 4. Ensure that the Worksite Traffic Supervisor is available within 45 minutes after notification of an emergency situation and is prepared to positively respond to repair the work zone traffic control or to provide alternate traffic arrangements.
- 5. The City may disqualify and remove from the project a Worksite Traffic Supervisor that fails to comply with the provisions of this specification. The City may suspend all activities, except traffic and erosion control and such other activities that are necessary for project maintenance and safety, for failure to comply with these provisions.
- 6. Ensure that the Worksite Traffic Supervisor performs a drive-through inspection and observes traffic flow as soon as the work zone is activated and in each subsequent phase of work as they are opened to traffic. Provide to the Engineer and City a report that includes a listing of any deficiencies and proposed corrective measures.
- 7. Ensure that the Worksite Traffic Supervisor conducts within the limits of the project, daily daytime and weekly night time inspections within the limits of the project for projects with predominate daytime work activities and daily nighttime and weekly daytime inspections for projects with predominate nighttime work, of all traffic control devices, traffic flow, pedestrian, bicyclist, student, bus rider, school, residence and business accommodations.
- 8. Advise the project personnel of the schedule of these inspections and give them the opportunity to join in the inspection as is deemed necessary. Submit a comprehensive weekly report to the Engineer and City and include the condition of all traffic control devices (including pavement markings) being used. The inspection report shall also include assurances that pedestrians are accommodated with a safe travel path around work sites and safely separated from mainline traffic, that existing or detoured bicyclist paths and bus routes and stops are being maintained satisfactorily throughout the project limits, that existing residences in the work areas are being provided with adequate access for vehicular and pedestrian traffic at all times and that existing businesses in the work areas are being provided with adequate entrances for vehicular and pedestrian traffic during business hours. The Worksite Traffic Supervisor shall sign the report and certify that all of the above issues are being handled in accordance with the Contract Documents. If deficiencies are noted, the Worksite Traffic Supervisor shall note such deficiencies and include the proposed corrective actions in the report and implement immediate corrective action.
- D. Traffic Control Plan
  - 1. The Contractor is responsible for preparing a Traffic Control Plan (TCP) to be signed and sealed by a licensed Florida Engineer competent and trained in the preparation of TCP. The licensed Florida Engineer (TCPE) signing and sealing the Traffic Control Plan shall review all of the reports from the Worksite Traffic Supervisor and inspect the installation for compliance with his approved plan upon the initial installation and for each subsequent phase of the plan. The Contractor shall provide the Engineer and City with an inspection report from the TCPE

indicating compliance with his approved TCP. The TCP shall meet the requirements of the Manual on Uniform Traffic Control Devices (MUTCD) Part VI, and the following jurisdictional agencies.

- a. City of Fort Lauderdale Transportation and Mobility
- b. City of Fort Lauderdale Department of Sustainable Development
- c. City of Fort Lauderdale Fire Department
- d. City of Fort Lauderdale Police Department
- e. School Board of Broward County
- 2. Standards: FDOT Design Standards (DS) are the minimum standards for the use in the development of all traffic control plans. The MUTCD Part VI is the minimum national standard for traffic control for highway construction, maintenance, and utility operations. Follow the basic principles and minimum standards contained in these documents for the design, application, installation, maintenance, and removal of all traffic control devices, warning devices and barriers which are necessary to protect the public and workers from hazards within the project limits.
- 3. The Contractor shall provide sufficient time in the construction schedule to develop and obtain approval for each TCP.
- 4. The Contractor shall include provisions for detouring pedestrians and providing maintenance of traffic plans and conveyances that meet current ADA (Americans with Disabilities Act) requirements.
- 5. The Contractor shall submit approved maintenance of traffic plans and schedules for the development, review, approval and implementation of the maintenance of traffic plan in accordance with the Contract Documents and Section 01300, "Submittals".

#### PART 2 -- PRODUCTS (Not Used)

#### PART 3 – EXECUTION

A. Maintenance of Roadway Surfaces: Maintain all lanes that are being used for the maintenance of traffic, including those on detours and temporary facilities, under all weather conditions. Keep the lanes free of dust, dirt, muck, potholes and rutting. Provide the lanes with the drainage facilities necessary to maintain a smooth riding surface under all weather conditions.

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- B. Number of Traffic Lanes:
  - 1. Maintain one lane of traffic in each direction.

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- 2. Maintain two lanes of traffic in each direction at existing four (or more) lane cross roads.
- 3. Construct each lane used for maintenance of traffic at least as wide as the traffic lanes existing in the area before commencement of construction. Do not allow traffic control and warning devices to encroach on lanes used for maintenance of traffic.
- 4. The Engineer may allow the Contractor to restrict traffic to one-way operation for short periods of time provided that the Contractor employs adequate means of traffic control and does not unreasonable delay traffic, and conforms to the approved requirements in the TCP. The Contractor shall include as a part of the TCP the estimated periods of one-way traffic operations and estimation of reasonable time delays and shall obtain the prior approval of the City Engineer having jurisdiction for these time periods and time delays. The Contractor shall include the TCP as a part of his Plan of Operation and MOT plan and in accordance with Section 01300, "Submittals".
- C. Crossings and Intersections: Provide and maintain adequate accommodations for intersecting and crossing traffic. Do not block or unduly restrict any road or street crossing the project unless approved by the Engineer and City Engineer. Maintain all existing actuated or traffic responsive mode signal operations for main and side street movements for the duration of the Contract. Restore any loss of detection within twelve (12) hours. Use only detection technology approved by the Engineer to restore detection capabilities. Before beginning any construction, provide the Engineer a plan for maintaining detection devices for each intersection and the name(s) and phone numbers of persons that can be contracted when signal operation malfunctions.
- D. Access for Residences and Businesses: Provide continuous access to all residences and all places of business, adjacent schools, common property and community facilities.
- E. Safe Walk Route: The safe walk route for all school students within the vicinity of the construction zone shall be maintained during the times students are arriving at or leaving school. If the current walking surface cannot be maintained, a temporary road-rock four-ft walkway shall be created in accordance with Broward County requirements. Accommodations shall be made immediately by the Contractor for the disabled persons.
- F. Protection of the Work from Injury by Traffic: Where traffic would be injurious to a base, surface course, or structure constructed as a part of the work, maintain all traffic outside the limits of such areas until the potential for injury no longer exists.
- G. Flagger: Provide trained flaggers as required by approved TCPs. State certified school crossing guards or off duty police officers shall be required to cross students at any locations other than those currently used.
- H. Use of High Visibility Safety: Provide personnel with appropriate high visibility safety garments. Ensure that these garments be worn whenever the workers are within fifteen (15) feet of the edge of the travel way and during nighttime operations. Workers

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MAINTENANCE OF TRAFFIC

operating machinery or equipment in which loose clothing could become entangled during operation shall be required to wear appropriate high visibility clothing that will not be subject to entanglement such as orange shirts or jackets. Require Contractor personnel to wear reflective orange vest/garment during nighttime operations.

- I. Existing Pavement Markings: Where a detour changes the lane use of where normal vehicle paths are altered during construction, remove all existing pavement markings that will conflict with the adjusted vehicle paths. Do not overpaint. Remove existing pavement markings using a method that will not damage the surface texture of the pavement and which will eliminate the previous marking pattern regardless of weather and light conditions. Remove all pavement markings that will be in conflict with "next phase of operation" vehicle paths as described above, before opening to traffic.
- J. Detours
  - 1. General: Construct and maintain detour facilities wherever it becomes necessary to divert traffic from any existing roadway or bridge, or wherever construction operations block the flow of traffic.
  - 2. Construction: Plan, construct, and maintain detours for the safe passage of traffic in all conditions of weather. Provide the detour with all facilities necessary to meet this requirement.
  - 3. Construction Methods: Select and use construction methods and materials that provide a stable and safe detour facility. Construct the detour facility to have sufficient durability to remain in good condition, supplemented by maintenance, for the entire period that the detour is required.
  - 4. Removal of Detours: Remove detours when they are no longer needed and before the Contract is completed. Restore the area used for detours to a condition equal to or better than existed before beginning of construction. Take ownership of all materials from the detour and remove them.
  - 5. Detours Over Existing Roads and Streets: When the TCP specifies that traffic be detoured over roads or streets outside the project area, do not maintain such roads or streets; however, maintain all signs and other devices placed for the purpose of the detour.
- K. Traffic Control Officer.
  - 1. Provide uniformed law enforcement officers, including marked law enforcement vehicles, to assist in controlling and directing traffic in the work zone when traffic control in a signalized intersection is necessary when signals are not in use.
- L. Driveway Maintenance.
  - 1. General: Ensure that each residence and or business has safe, stable, and reasonable access.

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- 2. Construction Methods: Place, level, manipulate, compact, and maintain the material, to the extent appropriate for the intended use. As permanent driveway construction is accomplished at a particular location, the Contractor may salvage and reuse previously placed materials that are suitable for reuse on other driveways.
- M. Temporary Traffic Control Devices.
  - Installation and Maintenance: Install and maintain adequate traffic control devices, warning devices and barriers to protect the traveling public and workers, and to safeguard the work area. Erect the required traffic control devices, warning devices and barriers to prevent any hazardous conditions and in conjunction with any necessary traffic re-routing. Immediately remove, turn or cover any devices or barriers that do not apply to existing conditions.
  - 2. Notify the Engineer, City, and City Engineer's representative of any scheduled operation, which will affect traffic patterns or safety, sufficiently in advance of commencing such operation to permit his review of the plan for the proposed installation of traffic control devices, warning devices of barriers.
  - 3. Ensure an employee is assigned the responsibility of maintaining the position and condition of all traffic control devices, warning devices and barriers throughout the duration of the Contract. Keep the Engineer, City, and City Engineer's representative advised at all times of the identification and means of contacting this employee on a 24-hour basis.
  - 4. Keep traffic control devices, warning devices, safety devices and barriers in the correct position, properly directed, clearly visible and clean, at all times. Immediately repair, replace or clean damaged, defaced or dirty devices or barriers.
- N. Work Zone Signs: Provide signs in accordance with the approved TCPs and Design Standards.
- O. High Intensity Flashing Lights: Furnish Type B lights in accordance with the approved TCPs and Design Standards.
- P. Warning/Channelizing Devices: Furnish warning/channelizing devices in accordance with the approved TCPs and Design Standards.
  - 1. Reflective Collars for Traffic Cones: At night use cone collars, designed to properly fit the taper of the cone when installed. Place the upper 6-inch collar a uniform 3 <sup>1</sup>/<sub>2</sub> inch distance from the top of the cone and the lower 4 inch collar a uniform 2 inch distance below the bottom of the upper 6 inch collar. Ensure that the collars are capable of being removed for temporary use or attached permanently to the cone in accordance with the manufacturer's recommendations. Provide a white sheeting having a smooth outer surface and that essentially has the property of a retro-reflector over its entire surface.

- 2. Barrier Wall (Temporary): Furnish, install, maintain, remove and relocate a temporary barrier wall in accordance with the approved TCPs.
- 3. Glare Screen (Temporary): Furnish, install, maintain, remove and relocate glare screen systems in conjunction with temporary barrier wall at locations identified in the approved TCPs. Ensure the anchorage of the glare screen to the barrier is capable of safely resisting an equivalent tensile load of 600 lb/ft of glare screen, with a requirement to use a minimum of three (3) fasteners per barrier section. When glare screen is utilized on temporary barrier wall, warning lights will not be required.
- Q. Guardrail (Temporary): Furnish guardrail (temporary) in accordance with the approved TCPs.
- R. Advance Warning Arrow Panel: Furnish advance warning panel in accordance with the approved plans, Design Standards and approved TCPs.
- S. Temporary Traffic Control Signals: furnish, install and operate temporary traffic control signals as indicated in the approved TCPs. Temporary traffic control signals will consist of either portable or fixed traffic signals. Provide certification that the portable traffic signals meet the requirements of the Design Standards. The Engineer may approve used signal equipment if it is in acceptable condition.
  - T. Work Zone Pavement Marking.
    - Description: Furnish and install Work Zone Pavement Markings for maintenance of traffic construction areas and in close conformity with the lines and details shown on the plans. Measure the reflectivity of white and yellow stripes in accordance with Florida Method FM 5-541. Re-stripe anytime the reflectivity falls below the final values shown in FM 5-541. Use only pavement marking materials that do not contain any lead or chromium compounds.
    - 2. Centerlines, lane lines, edge lines, stop bars and turn arrows in work zones will be required in accordance with the MUTCD with the following additions:
      - a. Install edge lines on paved shoulders.
      - b. Place edge lines on all detours where vehicle paths are altered from normal operations and where a lane is narrowed from its normal width for any reason.
      - c. Apply Work zone Pavement Markings, including arrows and messages as determined by the TCPE to be required for the safe operation of the facility, before the end of the day if the highway is open to traffic. Channelizing devices may be used to direct traffic during the day before placing the Work Zone Pavement Markings.
      - d. Work Zone Pavement Markings shall be designated in the approval TCPs as removable or non-removable.

MAINTENANCE OF TRAFFIC
- END OF SECTION -

## SECTION 01530

## PROTECTION OF EXISTING FACILITIES

## PART 1 - GENERAL

## 1.01 THE REQUIREMENT

- A. The Contractor shall be responsible for the preservation and protection of property adjacent to the work site against damage or injury as a result of its operations under this Contract. Any damage or injury occurring on account of any act, omission or neglect on the part of the Contractor shall be restored in a proper and satisfactory manner or replaced by and at the expense of the Contractor to an equal or superior condition than previously existed.
- B. The Contractor shall comply promptly with such safety regulations as may be prescribed by the City or the local authorities having jurisdiction and shall, when so directed, properly correct any unsafe conditions created by, or unsafe practices on the part of, its employees. In the event of the Contractor's failure to comply, the City may take the necessary measures to correct the conditions or practices complained of, and all costs thereof will be deducted from any monies due the Contractor. Failure of the Engineer to direct the correction of unsafe conditions or practices shall not relieve the Contractor of its responsibility hereunder.
- C. In the event of any claims for damage or alleged damage to property as a result of work under this Contract, the Contractor shall be responsible for all costs in connection with the settlement of or defense against such claims. Prior to commencement of work in the vicinity of property adjacent to the work site, the Contractor, at its own expense, shall take such surveys as may be necessary to establish the existing condition of the property. Before final payment can be made, the Contractor shall furnish satisfactory evidence that all claims for damage have been legally settled or sufficient funds to cover such claims have been placed in escrow, or that an adequate bond to cover such claims has been obtained.
- 1.02 PROTECTION OF WORK AND MATERIAL
  - A. During the progress of the work and up to the date of final payment, the Contractor shall be solely responsible for the care and protection of all work and materials covered by the Contract.
  - B. All work and materials shall be protected against damage, injury or loss from any cause whatsoever, and the Contractor shall make good any such damage or loss at its own expense. Protection measures shall be subject to the approval of the Engineer.
- 1.03 BARRICADES, WARNING SIGNS AND LIGHTS
  - A. The Contractor shall provide, erect and maintain as necessary, strong and suitable barricades, danger signs and warning lights along all roads accessible to the public, as required by the authority having jurisdiction, to insure safety to the public. All barricades and obstructions along public roads shall be illuminated at night and all lights for this purpose shall be kept burning from sunset to sunrise.

### PROTECTION OF EXISTING FACILITIES

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- B. Each Contractor shall provide and maintain such other warning signs and barricades in areas of and around their respective work as may be required for the safety of all those employed in the work, City operating personnel, or those visiting the site.
- 1.04 TEMPORARY BRIDGES
  - A. Construct temporary bridges at all points where maintenance of traffic across pipeline construction is necessary.
  - B. Make bridges over public streets, roads, and highways acceptable to authority having jurisdiction thereover.
  - C. Bridges erected over private roads and driveways shall be adequate for service to which they will be subjected.
  - D. Provide substantial guardrails and suitably protected approaches.
  - E. Provide foot bridges not less than 4 feet wide with handrails and uprights of dressed lumber.
  - F. Maintain bridges in place as long as conditions of the Work require their use for safety of public, except that when necessary for proper prosecution of the Work in immediate vicinity of bridge. Bridge may be relocated or temporarily removed for such period as Engineer may permit.
- 1.05 EXISTING UTILITIES AND STRUCTURES
  - A. The term existing utilities shall be deemed to refer to both publicly-owned and privatelyowned utilities such as electric power and lighting, telephone, water, gas, storm drains, process lines, sanitary sewers and all appurtenant structures.
  - B. Where existing utilities and structures are indicated on the Drawings, it shall be understood that all of the existing utilities and structures affecting the work may not be shown and that the locations of those shown are approximate only. It shall be the responsibility of the Contractor to ascertain the actual extent and exact location of existing utilities and structures. In every instance, the Contractor shall notify the proper authority having jurisdiction and obtain all necessary directions and approvals before performing any work in the vicinity of existing utilities.
  - C. Prior to beginning any excavation work, the Contractor shall, through field investigations, determine any conflicts or interferences between existing utilities and new utilities to be constructed under this project. This determination shall be based on the actual locations, elevations, slopes, etc., of existing utilities as determined in the field investigations, and locations, elevation, slope, etc. of new utilities as shown on the Drawings. If interference exists, the Contractor shall bring it to the attention of the Engineer as soon as possible. If the Engineer agrees that interference exists, it shall modify the design as required.
  - D. Additional costs to the Contractor for this change shall be processed through a Change Order as detailed elsewhere in these Contract Documents. In the event the Contractor fails to bring a potential conflict or interference to the attention of the Engineer prior to beginning excavation work, any actual conflict or interference which does arise during the Project shall be corrected by the Contractor, as directed by the Engineer, at no additional expense to the City.

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- E. The work shall be carried out in a manner to prevent disruption of existing services and to avoid damage to the existing utilities. Temporary connections shall be provided, as required, to insure uninterrupted existing services. Any damage resulting from the work of this Contract shall be promptly repaired by the Contractor at its own expense in a manner approved by the Engineer and further subject to the requirements of any authority having jurisdiction. Where it is required by the authority having jurisdiction that they perform their own repairs or have them done by others, the Contractor shall be responsible for all costs thereof.
- F. Where excavations by the Contractor require any utility lines or appurtenant structures to be temporarily supported and otherwise protected during the construction work, such support and protection shall be provided by the Contractor. All such work shall be performed in a manner satisfactory to the Engineer and the respective authority having jurisdiction over such work. In the event the Contractor fails to provide proper support or protection to any existing utility, the Engineer may, at its discretion, have the respective authority to provide such support or protection as may be necessary to insure the safety of such utility, and the costs of such measures shall be paid by the Contractor.
- G. Protection of existing utilities, structures and other facilities: The underground pipes, utilities and structures shown on the Plans are located according to the best information available, but may vary by several feet from both the position and elevation shown. The Contractor shall explore far enough ahead of its work to determine the exact location and condition of such utilities, structures or facilities so that, before the Work is installed, the Engineer may change the line or grade of the pipe or other facility, should that become necessary to avoid a conflict. Should this exploration reveal that adjustments to the work are necessary; the Contractor shall immediately notify the Engineer and coordinate with him to adjust the work in a timely fashion avoiding delays to construction. No request for additional compensation or Contract time (except for a non-compensable time extension at the sole discretion of the Engineer, whose decision shall be final) resulting from encountering utilities or structures not shown, or differing in location or elevation from that shown, will be considered. The Contractor shall explore sufficiently ahead of the Work to allow time for any necessary adjustment without delay occasioned by encountering underground utilities or structures which could have or should have been discovered by timely exploration ahead of the Work shall rest solely with the Contractor.
- H. Relocation of existing utilities: The relocation of existing utilities, as noted on the Plans, or for the convenience of the Contractor shall be the responsibility of the Contractor. This work shall be completed by either the forces of the existing utility or the Contractor's forces at the discretion of the responsible utility. If the work is to be performed by the Contractor, all work shall be done in accordance with the utility company's requirements. Under no circumstances shall the Contractor be authorized extra payment for this work, and all cost for the relocation shall be the responsibility of the Contractor.
- I. Any conflicts between the field investigation and the information shown on the Plans shall be brought to the immediate attention of the Engineer
- 1.06 TREES WITHIN PROJECT LIMITS
  - A. <u>General:</u> The Contractor shall exercise all necessary precautions so as not to damage or destroy any trees on the project site, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or City.

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## PROTECTION OF EXISTING FACILITIES

existing trees which are damaged during construction shall be replaced by the Contractor or a certified tree company to the satisfaction of the City.

B. <u>Replacement:</u> The Contractor shall immediately notify the City if any tree is damaged by the Contractor's operations. If, in the opinion of the City, the damage is such that replacement is necessary, the Contractor shall replace the tree at its own expense. The tree shall be of a like size and variety as the tree damaged, or, if of a smaller size, the Contractor shall pay to the City compensatory payment acceptable to the City.

## 1.07 NOTIFICATION BY THE CONTRACTOR

A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way the Contractor shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than three days nor more than seven days prior to excavation.

## 1.08 DETOURS

- A. Where authority having jurisdiction requires that traffic be maintained over construction work in a public street, road, or highway, and traffic cannot be maintained on original roadbed or pavement, construct and maintain detour around the Work. Coordinate traffic routing with that of others working in same or adjacent areas.
- 1.09 RESTORATION OF PAVEMENT
  - A. <u>General:</u> All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.
  - B. <u>Temporary Resurfacing</u>: Wherever required by the public authorities having jurisdiction, the Contractor shall place temporary surfacing, signage, striping and/or other traffic controls as required, promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.
  - C. <u>Permanent Resurfacing</u>: In order to obtain a satisfactory junction with adjacent surfaces, the Contractor shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.

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PART 2 - PRODUCTS

(NOT USED)

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## PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

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## PROTECTION OF EXISTING FACILITIES

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## SECTION 01550

## SITE ACCESS AND STORAGE

## PART 1 - GENERAL

## 1.01 HIGHWAY LIMITATIONS

A. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

## 1.02 TEMPORARY CROSSINGS

- A. General: Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Safe and adequate public transportation stops and pedestrian crossings at intervals not exceeding 300 feet shall be provided. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time.
- B. Emergency Access and Security: In order to provide protection to the workers and residents, the CONTRACTOR shall maintain emergency access to all adjacent properties at all times during construction. If a road is required to be closed to vehicular traffic and the distance of the closure exceeds 150 feet between stabilized surfaces, or prevents access to properties for a distance that exceeds 150 feet, the CONTRACTOR shall provide a 10 foot wide stabilized accessway on one side of the trench capable of supporting a Fire Truck. CONTRACTOR shall also provide stabilized accessways across the trench or unstabilized area a minimum of 6 feet in width at a spacing not to exceed 100 feet capable of supporting foot traffic. These accessways shall be protected and delineated with lighted barricades or other such devices as approved by the regulatory agency. Both ends of the emergency accessway shall be blocked in accordance with the MOT permit approved by City with signage indicating that this accessway is to be used by emergency vehicles only.
- C. No trenches or holes shall be left open after working hours. In the event a trench must be left open after hours, it shall be done so only with the express written permission from the ENGINEER, and it shall be the CONTRACTOR's responsibility to provide proper protection of the open trench or hole as required by the regulatory agency. In addition, the CONTRACTOR shall provide a security guard at the site whenever the CONTRACTOR's personnel are not present, 24 hours per day/7 days per week. It shall be the Security Guard's responsibility to protect the open trench or hole from trespassers and to direct emergency personnel on site. The Security Guard shall not have any other responsibilities such as operating pumps or equipment but shall be dedicated to protecting the trench or open hole. The Security Guard shall be equipped with a wireless telephone capable of calling 911 to report an emergency and shall keep that telephone

on their person at all times. In addition to this provision the CONTRACTOR shall maintain trench safety and comply with current OSHA regulations and the Trench Safety Act. The CONTRACTOR shall maintain and keep all safety barricades, signage, flashers, and detours, in operating condition. A copy of the approved MOT plans, and details, shall be on site at all times.

- D. Measurement and payment for security guard services shall be included in the Mobilization unit price.
- E. Temporary Bridges: Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the CONTRACTOR shall secure the written consent of the individuals or authorities concerned to omit such temporary bridges or steel plates, which written consent shall be delivered to the ENGINEER prior to excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the CONTRACTOR shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.
- F. Street Use: Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized WORK of utility companies or other agencies in such streets, alleyways, or parking areas. No street shall be closed to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.
- G. Traffic Control: For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of City and the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1).
- H. The CONTRACTOR shall take all necessary precautions for the protection of the WORK and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The CONTRACTOR shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of the Florida Department of Transportation.
- I. The CONTRACTOR shall submit a traffic control plan to the City of Fort Lauderdale and/or the Broward County Traffic Engineering Division as required for approval prior to construction. The CITY reserves the right to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes shall supersede these plans and be done solely at the CONTRACTOR's expense.

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- J. The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.
- K. Temporary Driveway Closure: The CONTRACTOR shall notify the CITY of the closure of the driveways to be closed more than one eight-hour work day at least 2 weeks prior to the closure. The CONTRACTOR shall minimize the inconvenience and minimize the time period that the driveways will be closed. The CONTRACTOR shall fully explain to the CITY/occupant how long the WORK will take and when closure is to start.

## 1.03 CONTRACTOR'S WORK AND STORAGE AREA

- A. The CONTRACTOR shall designate and arrange for the use of a portion of property, adjacent to the WORK for its exclusive use during the term of the Contract as a storage and shop area for its construction operations relative to this Contract. This shall include but not be limited to interim storage of suitable materials for fill or backfill. Storage areas shall be fenced for the safety of the surrounding neighborhood (minimum 6 foot chain link fence).
- B. The CONTRACTOR shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the WORK. This shall include but not be limited to interim storage of suitable materials for fill or backfill.
- C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.
  - 1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
  - 2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
  - 3. The CONTRACTOR shall develop and submit to the ENGINEER a plan for storing and disposing of the materials above.
  - 4. The CONTRACTOR shall obtain and submit to the ENGINEER a single EPA number for wastes generated at the site.
  - 5. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.
  - 6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.
- 1.04 PARKING
  - A. The CONTRACTOR shall:
    - 1. Provide temporary parking areas as follows:

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- a. 2 spaces for the CITY and ENGINEER
- b. 1 space designated for the handicapped or as required by regulatory agencies
- 2. The CONTRACTOR shall direct its employees to park in designated areas secured by the CONTRACTOR.
- 3. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

- END OF SECTION -

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## SECTION 01560

## TEMPORARY ENVIRONMENTAL CONTROLS

## PART 1 - GENERAL

## 1.01 EXPLOSIVES AND BLASTING

A. The use of explosives on the Work will not be permitted.

## 1.02 DUST ABATEMENT

A. The Contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary (as determined by the Engineer) to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The Contractor shall be responsible for any damage resulting from any dust originating from its operations. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the Engineer. No separate payment will be allowed for dust abatement measures and all costs thereof shall be included in the Contractor's bid price.

## 1.03 RUBBISH CONTROL

A. During the progress of the Work, the Contractor shall keep the site of the Work and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the Work site, and shall establish regular intervals of collection and disposal of such materials and waste. The Contractor shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

## 1.04 SANITATION

- A. <u>Toilet Facilities</u>: Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction.
- B. Such facilities shall be made available when the first employees arrive on the Work, shall be properly secluded from public observation, and shall be constructed and maintained in suitable numbers and at such points and in such manner as may be required.
- C. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition

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TEMPORARY ENVIRONMENTAL CONTROLS

at all time and shall enforce their use. It shall rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the City, or on adjacent property.

- D. The City and the Engineer shall have the right to inspect any building or other facility erected, maintained, or used by the Contractor, to determine whether or not the sanitary regulations have been complied with.
- E. <u>Sanitary and Other Organic Wastes</u>: The Contractor shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the Contractor or organic material wastes from any other source related to the Contractor's operations shall be disposed of away from the site in a manner satisfactory to the Engineer and in accordance with all laws and regulations pertaining thereto.

## 1.05 CHEMICALS

A. All chemicals used during project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, paint, fuel, solvent or reactant of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. The handling, storage, use and disposal of all such chemicals and disposal of residues shall be in strict accordance with all applicable rules and regulations of Federal, State and local jurisdictional agencies and the printed instructions of the manufacturer and all regulatory requirements. Copies of antidote literature shall be kept at the storage site and at the Contractor's job site office. A supply of antidotes shall be kept at the Contractor's office.

## 1.06 NOISE CONTROL

A. Noise resulting from the Contractor's work shall not exceed the noise levels and other requirements stated in local ordinances. The Contractor shall be responsible for curtailing noise resulting from its operation. It shall, upon written notification from the Engineer or noise control officers, make any repairs, replacements, adjustments, additions and furnish mufflers when necessary to fulfill requirements.

## 1.07 EROSION ABATEMENT AND WATER POLLUTION

- A. It is imperative that any Contractor dewatering operation not contaminate or disturb the environment of the properties adjacent to the Work. The Contractor shall, therefore, schedule and control its operations to confine all runoff water from disturbed surfaces, water from dewatering operations that becomes contaminated with silt, muck and other deleterious matter, fuels, oils, bitumens, calcium chloride, chemicals and other polluting materials.
- B. The Contractor shall construct temporary silting basin(s) of adequate size and provide all necessary temporary materials, operations and controls including, but not limited to, filters, coagulants, screens, and other means necessary to attain the required discharge water quality.

- C. The Contractor shall be responsible for providing, operating and maintaining materials and equipment used for conveying the clear water to the point of discharge. All pollution prevention procedures, materials, equipment and related items shall be operated and maintained until such time as the dewatering operation is discontinued. Upon the removal of the materials, equipment and related items, the Contractor shall restore the area to the condition prior to its commencing work.
- D. The Contractor shall be responsible for acquiring all applicable permits for discharge of waters as necessary, except as may have otherwise been provided in other sections of these specifications.

## 1.08 MANATEE CONDITIONS FOR IN WATER WORK

A. The Contractor shall comply with the conditions outlined in the "Standard Manatee Conditions for In-Water Work" as published by the Florida Fish and Wildlife Conservation Commission. See the attached document at the end of this specification section for additional information.

## 1.09 PRECAUTIONS DURING ADVERSE WEATHER

- A. During adverse weather, and against the possibility thereof, the Contractor shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building paper shelters, or other acceptable means. The Contractor shall be responsible for all changes caused by adverse weather.
- B. The City may suspend construction operations at any time when, in its judgment, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather conditions may be, in any season.

## 1.10 HURRICANE PRECAUTIONS

- A. The requirements of Article 8.24 of the Contract Documents apply to the work of this section.
- B. The Contractor shall take all precautions necessary to protect the job site during hurricane and tropical storm watches and warnings.
- C. Within 30 days of the date of Notice to Proceed, the Contractor shall submit to the Engineer and City a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the City. The Plan shall be provided for informational purposes only and will not be reviewed by the Engineer or City.
- 1.11 PERIODIC CLEANUP AND BASIC SITE RESTORATION
  - A. During construction, the Contractor shall regularly remove from the site all accumulated

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TEMPORARY ENVIRONMENTAL CONTROLS

debris and surplus materials of any kind which results from its operations. Unused equipment and tools shall be stored at the Contractor's yard or base of operations for the project.

- B. The Contractor shall perform the cleanup work on a regular basis and as frequently as ordered by the Engineer. Basic site restoration in a particular area shall be accomplished immediately following the installation or completion of the required facilities in that area. Furthermore, such work shall also be accomplished, when ordered by the Engineer, if partially completed facilities must remain incomplete for some time period due to unforeseen circumstances.
- C. Upon failure of the Contractor to perform periodic clean-up and basic restoration of the site to the Engineer's satisfaction, the Engineer may, upon five days prior written notice to the Contractor, employ such labor and equipment as it deems necessary for the purpose, and all costs resulting therefrom shall be charged to the Contractor and deducted from amounts of money that it may be due.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

## STANDARD MANATEE CONDITIONS FOR IN-WATER WORK 2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

- a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or in Vero Beach (1-772-562-3909) for south Florida, and emailed to FWC at ImperiledSpecies@myFWC.com.
- f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8½ " by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at <a href="http://www.myfwc.com/WILDLIFEHABITATS/manatee\_sign\_vendors.htm">http://www.myfwc.com/WILDLIFEHABITATS/manatee\_sign\_vendors.htm</a>. Questions concerning these signs can be forwarded to the email address listed above.

## **CAUTION: MANATEE HABITAT**

## All project vessels

## IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work all in-water activities must

## SHUT DOWN

Report any collision with or injury to a manatee:



## Wildlife Alert: 1-888-404-FWCC(3922)

cell \*FWC or #FWC

## **SECTION 01580**

## PROJECT IDENTIFICATION AND SIGNS

## PART 1 - GENERAL

## 1.01 THE REQUIREMENT

- A. The Contractor shall furnish, install and maintain project identification signs and provide temporary on-site informational signs to identify key elements of construction facilities. Signs shall be removed upon completion of construction.
- B. The Contractor shall notify property owners that may be affected by construction operation at least five (5) working days in advance.
- 1.02 RELATED REQUIREMENTS
  - A. All applicable sections of the Technical Specifications.
  - B. Conditions of the Contract.
- 1.03 PROJECT IDENTIFICATION SIGN
  - A. Up to one (1) painted signs, of not less than 32 square feet area each, with painted graphic content. Signs shall be in accordance with the General Conditions. Project signs must be submitted to the City for approval prior to fabrication and installation.
  - B. Graphic design, style of lettering, and colors: As designated by Engineer.
  - C. Erect on the site at a lighted location of high public visibility at a location outside the public Right-of-Way, as approved by Engineer.
  - D. An example project sign is provided at the end of this section.
- 1.04 INFORMATIONAL SIGNS
- A. Painted signs and painted lettering, or standard products:
  - 1. Size of signs and lettering: As required by regulatory agencies, or as appropriate to usage.
  - 2. Colors: As required by regulatory agencies, otherwise of uniform colors throughout project.
- B. Erect at appropriate locations to provide required information.
- 1.05 PROPERTY OWNER NOTIFICATION
  - A. All homes and businesses affected by construction activities shall be notified by use of a "doorhanger" type announcement describing at a minimum, the nature of the Work, the proposed schedule, and the Contractor's contact information. An example door hanger

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PROJECT IDENTIFICATION AND SIGNS

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is provided at the end of this section.

- B. Door hangers shall be submitted to the City for approval prior to use.
- C. Door hangers shall be printed and distributed by the Contractor.
- 1.06 QUALITY ASSURANCE
- A. Sign Painter: Professional experience in type of Work required.
- B. Finishes, Painting: Adequate to resist weathering and fading for scheduled construction period.

## PART 2 - PRODUCTS

- 2.01 SIGN MATERIALS
  - A. Structure and Framing: May be new or used, wood or metal, in sound condition structurally adequate to Work and suitable for specified finish.
  - B. Sign Surfaces: Exterior softwood plywood with medium density overlay, standard large sizes to minimize joints.
  - C. Thickness: As required by standards to span framing members, to provide even, smooth surface without wave or buckles.
  - D. Rough Hardware: Galvanized.
  - E. Paint: Exterior quality:
    - 1. Use Bulletin colors for graphics.
    - 2. Colors for structure, framing, sign surfaces and graphics: As selected by Engineer.

## PART 3 - EXECUTION

- 3.01 PROJECT IDENTIFICATION SIGN
- A. Paint exposed surfaces of supports, framing and surface material; one coat of primer and one coat of exterior paint.
- B. Paint graphics in styles, sizes and colors selected.
- 3.02 INFORMATIONAL SIGNS
  - A. Paint exposed surfaces: One coat of primer and one coat of exterior paint.
  - B. Paint graphics in styles, sizes and colors selected.
  - C. Install at a height for optimum visibility, on ground-mounted poles or attached to temporary structural surfaces.

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### PROJECT IDENTIFICATION AND SIGNS

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## 3.03 MAINTENANCE

- A. Maintain signs and supports in a neat, clean condition; repair damages to structure, framing or sign.
- B. Relocate informational signs as required by progress of the Work.

## 3.04 REMOVAL

- A. Remove signs, framing, supports and foundations at completion of project.
- 3.05 MEASUREMENT AND PAYMENT
- A. There shall be no special measurement or payment for the Work under this section, it shall be included in the lump sum price bid for item 'Mobilization'.

- END OF SECTION -

## PROJECT IDENTIFICATION AND SIGNS

## Stormwater Master Plan Improvements Creating a resilient and safe coastal community

## What's Happening?

What's Happening: The City of Fort Lauderdale is proactively preparing for the future by investing in new stormwater infrastructure to reduce flooding throughout our community.

(954) 828-8000 www.fortlauderdale.gov



Dean J. Trantalis Mayor



# City of Fort Lauderdale

## Planned Improvements

- Installing a tidal valves
- Installing a new seawall
- Pavement Restoration
- Landscaping Restoration
- Installing new drainage pipe
- Installing new drainage structures

## Fort Lauderdale City Commission

Heather Moraitis **Commissioner**, **District** I

Steven Glassman **Commissioner**, **District II** 

**Robert L. McKinzie** Vice Mayor, District III

Ben Sorensen **Commissioner**, **District IV** 



## Cost

## **Expected Completion**

## Project Number

## Contractor

Chris Lagerbloom, ICMA-CM City Manager



## [CONTRACTOR'S NAME] [CONTRACTOR'S STREET ADDRESS] [CONTRACTOR'S CITY, STATE AND ZIP] [CONTRACTOR'S TELEPHONE NUMBER] [CONTRACTOR'S FAX NUMBER]

## **MEMORANDUM**

TO: RESIDENTS OF [LOCATION OF CONSTRUCTION]

- DATE: [CURRENT DATE]
- **RE:** CONSTRUCTION IN YOUR AREA
- FROM: [CONTRACTOR'S NAME]

Construction in your area will commence on [date of construction commencement].

The construction area is from [boundary #1] to [boundary #2].

Access to the area will be limited at certain times due to the construction activities. We apologize for any inconvenience and we will do our best to accommodate access to residents.

Thank you,

[Contractor Name]



## SECTION 01600

## MATERIALS AND EQUIPMENT

## PART 1 - GENERAL

## 1.01 THE REQUIREMENT

- A. The word "Products," as used herein is defined to include purchased items for incorporation into the Work, regardless of whether specifically purchased for project or taken from Contractor's stock of previously purchased products.
- B. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of Work.
- C. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items).
- D. Definitions in this Section are not intended to negate the meaning of other terms used in Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," "special construction," and similar terms, which are selfexplanatory and have recognized meanings in the construction industry.

## 1.02 QUALITY ASSURANCE

- A. <u>Source Limitations</u>: To the greatest extent possible for each unit of Work, the Contractor shall provide products, materials, or equipment of a singular generic kind from a single source.
- B. <u>Compatibility of Options</u>: Where more than one choice is available as options for Contractor's selection of a product, material, or equipment, the Contractor shall select an option which is compatible with other products, materials, or equipment already selected. Compatibility is a basic general requirement of product/material selections.
- 1.03 DESIGN
  - A. Equipment and appurtenances shall be designed in conformity with the ASME, AIEE, NEMA and other generally accepted applicable standards and shall be of rugged construction and sufficient strength to withstand all stresses which may occur during fabrication, testing, transportation, installation and all conditions of operation. All bearings and moving parts shall be adequately protected by bushings or other acceptable means against wear, and provision shall be made for adequate lubrication by readily accessible devices. Details shall be designed for appearance as well as utility. Protruding members, joints, corners, gear covers, etc., shall be finished in appearance.

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## MATERIALS AND EQUIPMENT

B. All exposed welds on machinery shall be ground smooth and the corners of structural shapes shall be rounded or chamfered.

## 1.04 PRODUCT DELIVERY-STORAGE-HANDLING

A. The Contractor shall deliver, handle, and store products in accordance with supplier's written recommendations and by means and methods that will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at site and overcrowding of construction spaces. In particular, the Contractor shall provide delivery/installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

## 1.05 TRANSPORTATION AND HANDLING

- A. Products shall be transported by methods to avoid product damage and shall be delivered in undamaged condition in supplier's unopened containers or packaging, dry.
- B. The Contractor shall provide equipment and personnel to handle products, materials, and equipment including those provided by City, by methods to prevent soiling and damage.
- C. The Contractor shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

## 1.06 STORAGE AND PROTECTION

- A. Products shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Sensitive products shall be stored in weather-tight enclosures and temperature and humidity ranges shall be maintained within tolerances required by supplier's written instructions.
- B. For exterior storage of fabricated products, they shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.
- C. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
- D. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure products are undamaged and are maintained under required conditions.
- E. Storage shall be arranged in a manner to provide access for maintenance of stored items and for inspection.
- 1.07 MAINTENANCE OF STORAGE
  - A. Stored products shall be periodically inspected on a scheduled basis.

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MATERIALS AND EQUIPMENT

- B. The Contractor shall maintain a log of inspections and make said log available to the Engineer on request.
- C. The Contractor shall verify that storage facilities comply with supplier's product storage requirements.
- D. The Contractor shall verify that supplier required environmental conditions are maintained continually.
- E. The Contractor shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of Contract Documents.
- 1.08 MAINTENANCE OF EQUIPMENT STORAGE
  - A. For mechanical and electrical equipment in long-term storage, the Contractor shall provide a copy of the supplier's service instructions to accompany each item, with notice on enclosed instruction shown on exterior of package.
  - B. Equipment shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document to the Engineer.
- 1.09 LUBRICANTS
  - A. During testing and prior to acceptance, the Contractor shall furnish all lubricants necessary for the proper lubrication of all equipment furnished under this Contract.
- 1.10 SPECIAL TOOLS
  - A. For each type of equipment furnished by it, the Contractor shall provide a complete set of all special tools (including calibration and test equipment) which may be necessary for the adjustment, operation, maintenance and disassembly of such equipment.
  - B. Special tools shall be delivered at the same time as the equipment to which they pertain. The Contractor shall properly store and safeguard such special tools until completion of the Work, at which time they shall be delivered to the City.

## 1.11 PROTECTION AGAINST ELECTROLYSIS

- A. Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact and any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other acceptable materials.
- 1.12 FASTENERS
  - A. All necessary bolts, anchor bolts, nuts, washers, plates and bolt sleeves shall be furnished by the Contractor in accordance herewith.

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## MATERIALS AND EQUIPMENT

- B. Bolts shall have suitable washers and, where so required, their nuts shall be hexagonal.
- C. All bolts, anchor bolts, nuts, washers, plates, and bolt sleeves shall be Type 316 stainless steel unless otherwise specifically indicated or specified.
- D. Unless otherwise specified, stud, tap, and machine bolts shall be of the best quality refined bar iron. Hexagonal nuts of the same quality of metal as the bolts shall be used.
- 1.13 SALVAGED AND EXCAVATED MATERIALS
  - A. In the absence of special provisions in other Sections of the Specifications, salvage materials, equipment or supplies that occur are the property of the City and shall be cleaned and stored as directed by the Engineer.
  - B. All excavated materials needed for backfilling operation shall be stored on site. Where additional area is needed for stockpiling, it shall be obtained by the Contractor.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

## SECTION 01770

## CONTRACT CLOSEOUT

## PART 1 - GENERAL

## 1.01 THE REQUIREMENT

- A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the WORK.
- 1.02 RELATED REQUIREMENTS
- A. All applicable sections of the Technical Specifications.
- B. Conditions of the Contract
- 1.03 SUBSTANTIAL COMPLETION
- A. When CONTRACTOR considers the WORK is substantially complete, the CONTRACTOR shall submit to ENGINEER:
  - 1. A written notice that the WORK, or designated portion thereof, is substantially complete.
  - 2. A list of items to be completed or corrected.
  - 3. Final as-builts per requirements of Section 01320 and City of Fort Lauderdale As-Built Plan Requirements.
- B. Within a reasonable time after receipt of such notice, City and ENGINEER will make an inspection to determine the status of completion.
- C. Should ENGINEER determine that the WORK is not substantially complete:
  - 1. ENGINEER will promptly notify the CONTRACTOR in writing, giving the reasons therefore.
  - 2. CONTRACTOR shall remedy the deficiencies in the WORK, and send a second written notice of substantial completion to the ENGINEER.
  - 3. ENGINEER will reinspect the WORK.
- D. When ENGINEER concurs that the WORK is substantially complete, ENGINEER will:
  - 1. Prepare a Certificate of Substantial Completion accompanied by CONTRACTOR's list of items to be completed or corrected, as verified and amended by the ENGINEER.
  - 2. Submit the Certificate to the CITY and the CONTRACTOR for their written acceptance of the responsibilities assigned to them in the Certificate.

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CONTRACT CLOSEOUT

- 1.04 FINAL INSPECTION
- A. On completion of the WORK, the CONTRACTOR shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. WORK has been inspected for compliance with Contract Documents.
  - 3. WORK has been completed in accordance with Contract Documents.
  - 4. Equipment and systems have been tested in the presence of the ENGINEER and are operational.
  - 5. WORK is completed and ready for final inspection.
- B. ENGINEER will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should ENGINEER consider that the WORK is incomplete and defective:
  - 1. ENGINEER will promptly notify the CONTRACTOR, in writing, listing the incomplete or defective WORK.
  - 2. CONTRACTOR shall take immediate steps to remedy the stated deficiencies, and send a second written certification to ENGINEER that the WORK is complete.
  - 3. ENGINEER will reinspect the WORK.
- D. When the ENGINEER finds that the WORK is acceptable under the Contract Documents, the ENGINEER shall request the CONTRACTOR to make closeout submittals.
- 1.05 REINSPECTION FEES
- A. Should CITY or ENGINEER perform reinspections due to failure of the WORK to comply with the claims of status of completion made by the CONTRACTOR:
  - 1. CONTRACTOR will compensate CITY or ENGINEER for such additional services, and/or.
  - 2. CITY will deduct the amount of such compensation from the final payment to the CONTRACTOR.
- 1.06 CONTRACTOR'S CLOSEOUT SUBMITTALS TO CITY'S REPRESENTATIVE
- A. Evidence of compliance with requirements of governing authorities:
  - 1. Certificate of Occupancy
  - 2. Permit Closeout Certification

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## CONTRACT CLOSEOUT

- 3. Certificates of Inspection
  - a. Mechanical
  - b. Electrical
  - c. Other, as may be required
- B. Project Record Documents: To requirements of Section 01320
- C. Operating and Maintenance Data, Instructions to City's Personnel: To requirements of Section 01300
- D. Guarantees and Bonds: To requirements of Section 01300
- E. Evidence of Payment and Release of Liens: To requirements of General and Supplementary General Conditions
- F. Certificate of Insurance for Products and Completed Operations
- 1.07 FINAL ADJUSTMENT OF ACCOUNTS
- A. Submit a final statement of accounting to ENGINEER.
- B. Statement shall reflect all adjustments to the Contract Sum:
  - 1. The original Contract Sum
  - 2. Additions and deductions resulting from:
    - a. Previous Change Orders
    - b. Allowances
    - c. Unit Prices
    - d. Deductions for uncorrected WORK
    - e. Penalties and Bonuses
    - f. Deductions for liquidated damages
    - g. Deductions for reinspection payments
    - h. Other adjustments
  - 3. Total Contract Sum, as required
  - 4. Previous payments
  - 5. Sum remaining due

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- C. ENGINEER will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.
- 1.08 FINAL APPLICATION FOR PAYMENT
- A. CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

- END OF SECTION -

## CONTRACT CLOSEOUT

**DIVISION 2** 

SITEWORK

## SECTION 02015

## MOBILIZATION AND DEMOBILIZATION

## PART 1 - GENERAL

## 1.01 THE REQUIREMENT

- A. The Work specified in this section consists of all Work necessary to move in personnel and equipment and prepare the site for construction, complete and to remove the same personnel and equipment from the site when construction is complete.
- B. The limits of the Contractor's staging area and other applicable restrictions are shown on the Drawings.

## PART 2 - PRODUCTS

## 2.01 TEMPORARY UTILITIES

A. The Contractor shall provide all temporary facilities required for performing the Work as specified in Section entitled "TEMPORARY ENVIRONMENTAL CONTROLS".

## PART 3 - EXECUTION

### 3.01 LAYOUT

- A. The Contractor shall set up construction facilities in a neat and orderly manner within designated areas as noted on the Staging Plan drawing of the Contract documents. It shall accomplish all required Work in accordance with applicable portions of these specifications and shall confine its operations to Work areas as shown on the drawings.
- 3.02 DEMOBILIZATION
  - A. At the completion of Work the Contractor shall remove its personnel, equipment, and temporary facilities from the site in a timely manner. The Contractor shall also be responsible for transporting all unused materials belonging to the City to a place of storage on site designated by the City and for removing from the site and disposing of all other materials and debris resulting from the construction. It shall then return all areas used for its activities to a condition as noted on the Contract documents.

## - END OF SECTION -

## SECTION 02100

## EROSION AND SEDIMENTATION CONTROL – STORMWATER POLLUTION PREVENTION

## PART 1 - GENERAL

## 1.01 DESCRIPTION

- A. Provide all work and take all measures necessary to control soil erosion resulting from construction operations, prevent flow of sediment from construction site, and contain construction materials (including excavation and backfill) within protected working area as to prevent damage to any stream or wetlands.
- B. The Contractor is responsible for creating a Stormwater Pollution Prevention Plan (SWPPP) for regulatory approval and enforcing its requirements in accordance with applicable Federal, State, and local regulations. The complete SWPPP shall be submitted by the Contractor and approved by the regulatory agencies having jurisdiction before the start of construction. The Contractor shall provide all labor, materials, and equipment required in the prevention of environmental pollution and degradation and thereby for the protection of all environmental resources encountered during construction.
- C. The Contractor is responsible for all permitting and reporting forms as required through the Florida Department of Environmental Protection (FDEP) – National Pollutant Discharge Elimination System (NPDES) program for construction activities.
- D. Temporary erosion controls may include, but are not limited to, mulching, netting, and watering on site surfaces and spoil and borrow area surfaces and providing interceptor ditches at ends of berms and at those locations that will ensure erosion during construction will be either eliminated or maintained within acceptable limits as established by the City.
- E. Temporary sedimentation controls may include, but are not limited to, silt dams, barriers, turbidity curtains, hay bales, drop inlet protection, curb inlet protection, and appurtenances at the foot of sloped surfaces and other areas that will ensure sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the City.

## 1.02 REFERENCE

- A. "Guidelines for Erosion and Sediment Control, Planning and Implementation" published by the United States Environmental Protection Agency.
- B. "Processes, Procedures and Methods to Control Pollution Resulting from all Construction Activity", published by the United States Environmental Protection Agency.
- C. "The Florida Stormwater, Erosion, and Sedimentation Control Inspector's Manual" published by the Florida Department of Environmental Protection.

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EROSION AND SEDIMENTATION CONTROL -STORMWATER POLLUTION PREVENTION

D. NPDES Stormwater Program: <u>www.dept.state.fl.us/water/stormwater/npdes/</u>

## 1.03 SUBMITTALS

- A. Contractor shall provide a copy of all permit applications, approvals, and reporting documentation submitted in support to SWPPP.
- B. Contractor shall submit a copy of the SWPPP in accordance with Section 01300.
- 1.04 QUALITY ASSURANCE
  - A. Operations restricted to areas of work indicated on drawings and area which must be entered for construction of temporary or permanent facilities.
  - B. Engineer has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct immediate permanent or temporary pollution control measures to prevent contamination of any stream or wetlands, including construction of temporary berms, dikes, dams, sediment basins, sediment traps, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.

## PART 2 - PRODUCTS

- 2.01 GENERAL
  - A. All products shall be in accordance with Drawings and approved SWPPP.

## PART 3 - EXECUTION

## 3.01 GENERAL

- A. Prior to the start of work, provide and install the site sedimentation and erosion control as indicated on the Drawings and the Contractor prepared SWPPP and as required by applicable regulations. Maintain such system for the duration of the project.
- B. Should any of the temporary erosion and sediment control measures employed by the Contractor fail to produce results that comply with the requirements of the City or SWPPP, Contractor shall immediately take any and all necessary steps to correct the deficiency at his own expense.
- C. Construct earth berms or diversions to intercept and divert runoff water from critical areas.
- D. Discharge silt-laden water from excavations onto filter fabric mat and/or baled hay or straw sediment traps to ensure that only sediment-free water is returned to watercourses.
- E. Do not place excavated soil material adjacent to watercourse in manner that will cause it to wash away by high water or runoff.

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- F. Prevent damage to vegetation by excessive watering or silt accumulation in the discharge area.
- G. Do not dump soiled material into any streams, wetlands, surface waters, or unspecified locations.
- H. Do not pump silt-laden water from trenches or excavations into surface waters, streams, wetlands, or natural or man-made channels leading thereto.
- I. Prevent damage to vegetation adjacent to or outside of construction area limits.
- J. Do not dispose of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in streams, wetlands, surface waters, or natural or man-made channels leading thereto, or unspecified locations.
- K. Do not alter flow line of any stream unless indicated or specified.
- L. All exposed graded, cleared, filled, etc. land to remain shall be stabilized with sod, filter fabric, and/or vegetation acceptable to the Owner.

- END OF SECTION -

## SECTION 02200

## SITE PREPARATION

## PART 1 - GENERAL

## 1.01 DEFINITIONS

- A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.
- B. Clearing: Removal of interfering or objectionable material lying on or protruding above ground surface.
- C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 2 inches caliper to a depth of 12 inches below subgrade.
- D. Scalping: Removal of sod without removing more than upper 3 inches of topsoil.
- E. Stripping: Removal of topsoil remaining after applicable scalping is completed.
- F. Project Limits: Areas, as specified, within which Work is to be performed.
- 1.02 QUALITY ASSURANCE
  - A. Obtain Engineer's approval of staked clearing, grubbing, and stripping limits, prior to commencing clearing, grubbing, and stripping.
- 1.03 SCHEDULING AND SEQUENCING
  - A. Prepare site only after adequate erosion and sediment controls are in place. Limit areas exposed uncontrolled to erosion during installation of temporary erosion and sediment controls.

### PART 2 - MATERIALS

(NOT USED)

### PART 3 - EXECUTION

- 3.01 GENERAL
  - A. Clear, grub, and strip areas actually needed for waste disposal, borrow, or site improvements within limits specified.
  - B. Property obstructions which are to remain in-place, such as buildings, sewers, drains, water or gas pipes, bridges, etc., are to be carefully protected from damage.

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SITE PREPARATION

- C. Do not injure or deface vegetation that is not designated for removal. All branches potentially interfering with construction operations shall be pruned prior to starting work and following approval of the City and the City of Fort Lauderdale Urban Forester.
- 3.02 LIMITS
  - A. As Follows, but not to extend beyond project limits.
    - 1. Excavation Including Trenches: 5 feet beyond top of cut slopes or shored wall.
    - 2. Fill:
      - a. Clearing and Grubbing: 5 feet beyond toe of permanent fill.
      - b. Stripping and Scalping: 2 feet beyond toe of permanent fill.
    - 3. Waste Disposal:
      - a. Clearing: 5 feet beyond perimeter.
      - b. Scalping and Stripping: Not required.
      - c. Grubbing: Around perimeter as necessary for neat finished appearance.
    - 4. Overhead Utilities:
      - a. Clearing, Grubbing, Scalping, and Stripping: Wherever grading is required, including borrow pits, ditches, etc.
      - b. Other Areas: As shown.
  - B. Remove rubbish, trash, and junk from entire area within Project limits.

## 3.03 TEMPORARY REMOVAL OF INTERFERING PLANTINGS

- A. Remove and store, as specified in the Contract Documents, trees, plants, and ground covers, shrubs and trees that are not designated for removal but do interfere with construction or could be damaged by construction activities.
- B. Photograph and document location, orientation, and condition of each plant prior to its removal. Record sufficient information to uniquely identify each plant removed and to assure accurate replacement.
- 3.04 CLEARING
  - A. Clear areas within limits specified.
  - B. Fell trees so that they fall away from facilities and vegetation not designated for removal.
  - C. Cut stumps not designated for grubbing 12 inches below the ground surface.
  - D. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

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## SITE PREPARATION
#### 3.05 GRUBBING

A. Grub areas within limits specified.

#### 3.06 SCALPING

- A. Do not remove sod until after clearing and grubbing is completed and resulting debris is removed.
- B. Scalp areas within limits specified.
- 3.07 STRIPPING
  - A. Do not remove topsoil until after scalping is completed.
  - B. Strip areas within limits to minimum depths specified. Do not remove subsoil with topsoil.
  - C. Stockpile strippings, meeting requirements of Section 02911, Soil Preparation, for topsoil, separately from other excavated material.
- 3.08 TREE REMOVAL OUTSIDE CLEARING LIMITS
  - A. Remove Within Project Limits:
    - 1. Dead, dying, leaning, or otherwise unsound trees that may strike and damage Project facilities in falling.
    - 2. Trees designated by Engineer.
    - 3. Cut stumps off flush with ground, remove debris, grind stump and if disturbed, restore surrounding area to its original condition.

#### 3.09 TREE TOPPING

- A. Top trees designated by the City so remaining portion will not strike facilities in falling. Where topping will remove more than 1/2 of a tree's crown, remove entire tree.
- B. Treat wounds resulting from topping in accordance with standard horticultural practice to preserve the natural character of the tree.
- 3.10 PRUNING
  - A. Remove branches below the following heights:
    - 1. Sixteen feet above roadways and shoulders.
    - 2. Nine feet above sidewalks.
    - 3. Six feet above roofs.

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### SITE PREPARATION

- B. Prune only after planting and in accordance with standard horticultural practice to preserve the natural character of the plant. Perform in presence of the Engineer. Remove all dead wood, suckers, and broken or badly bruised branches. Use only clean, sharp tools. Do not cut lead shoot.
- 3.11 DISPOSAL
  - A. Clearing and Grubbing Debris:
    - Woody debris may be chipped. Chips may be sold to Contractor's benefit or used for landscaping onsite as mulch or uniformly mixed with topsoil, provided that resulting mix will be fertile and not support combustion. Maximum dimensions of chipped material used onsite shall be 1/4-inch by 2 inch. Dispose of chips that are unsaleable or unsuitable for landscaping or other uses with unchipped debris.
    - 2. Limit offsite disposal of clearing and grubbing debris to locations that are approved by federal, state, and local authorities, and that will not be visible from Project.
  - B. Scalpings: As specified for clearing and grubbing debris.
  - C. Strippings:
    - 1. Dispose of strippings that are unsuitable for topsoil or that exceed quantity required for topsoil offsite or in waste disposal areas approved by Engineer.
    - 2. Stockpile topsoil in sufficient quantity to meet Project needs. Dispose of excess strippings as specified for clearing and grubbing.

- END OF SECTION -

### SECTION 02220

### DEMOLITION

#### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

A. Removal and disposal of structures, pavement surfaces, sidewalks, underground obstructions, and other facilities necessary to prepare the area for construction of proposed facilities.

#### PART 2 - MATERIALS

(NOT USED)

#### PART 3 - EXECUTION

- 3.01 GENERAL
- A. Utilities:
  - 1. Notify City or appropriate utilities to turn off affected services before starting demolition or alterations. Provide not less than seven (7) days notice to the owner of the utility prior to the shutdown.
  - 2. Remove utility lines exposed by demolition excavation.
  - 3. Remove electric, sanitary, and storm drainage adjacent to buildings to be demolished.
  - 4. Excavate utility lines serving buildings to be demolished and provide a permanent leak-proof closure for water and gas lines.
  - 5. Plug sewerlines at locations shown or at limits of excavation if not shown with concrete length of plug, 5 feet minimum to prevent groundwater infiltrating sewer systems.
- B. Removal and Storage of Equipment for Reuse:
  - 1. Do not remove equipment and materials without approval of Engineer.
  - 2. Properly store and maintain equipment and materials in same condition as when removed.
  - 3. Engineer will determine condition of equipment and materials prior to removal.

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### DEMOLITION

### 3.02 DEMOLITION

- A. Additional quantities of new construction or additional work caused by the demolition, beyond the limits, will be performed at the Contractor's expense.
- B. Drawings define minimum portion of structures to be removed. Unless otherwise shown, rough cuts or breaks may be made exceeding limits of demolition shown. Provide sawcut at limits of all pavement removal. Structures shall be removed in such a way as to leave no obstructions to any proposed new structures or to any waterways.
- C. Core drill floor slabs, catch basins, and other concrete improvements to remain in place below ground, or break holes at structure's lowest point to allow water to freely migrate through.
- D. Remove piping from areas to be backfilled. Pipe, valves, and fittings adjacent to those to be removed may also be removed as salvage.
- E. Remove all materials associated with existing equipment that is to be removed or relocated.
- F. Cut off concealed or embedded conduit, boxes, or other materials a minimum of 2 inches below final finished surface.
- G. Extract existing piling, which conflict with new piles, prior to driving new piles.
- 3.03 DISPOSAL
- A. Dispose of debris and other nonsalvaged materials offsite in licensed landfills.

### 3.04 BACKFILLING

- A. Demolished Areas: Backfill to existing ground level or foundation level of new construction.
- B. Backfill Material and Compaction:
  - 1. Conform to Sections 02222 and 02224.
  - 2. Do not use demolition debris as backfill material.
- 3.05 SALVAGE
- A. Equipment and materials, including piping within the limits of demolition, unless otherwise specified, will become the property of Contractor.
- B. Any material designated to remain by the City shall be stored in neat piles in a location directed by the City.

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DEMOLITION

- C. Fire Hydrants:
  - 1. Salvage for future use by City.
  - 2. Remove and leave for City in location directed by the City.

- END OF SECTION -

### SECTION 02222

### EXCAVATION AND BACKFILL FOR UTILITIES

#### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

- A. Excavate, grade and backfill as required for underground piping systems and appurtenances as shown on the Drawings and specified herein.
- B. All excavation for the project is unclassified.
- 1.02 RELATED WORK SPECIFIED ELSEWHERE
  - A. Division 15
  - B. Division 16
- 1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS
  - A. <u>Codes</u>: All codes, as referenced herein, are specified in Section 01090, "Reference Standards".
  - B. <u>Commercial Standards</u>:

ASTM D 422	Standard Test Method for Particle-Size Analysis of Soils.		
ASTM D 698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.		
ASTM D 1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.		
ASTM D 1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.		
ASTM D 2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.		
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)		

# 1.04 SUBMITTALS

A. <u>General</u>: Submit information and samples to the Engineer for review as specified herein in accordance with the Section entitled "Submittals".

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- B. <u>Dewatering</u>: The Contractor shall submit to the Engineer its proposed methods of handling trench water and the locations at which the water will be disposed of. Methods shall be acceptable to the Engineer before starting the excavation.
- C. <u>Bedding and Backfill Materials</u>: The Contractor shall notify the Engineer of the off-site sources of bedding and backfill materials.
  - 1. Submit to the Engineer a representative sample weighing approximately 25 lbs. The sample shall be delivered to a location at the work site determined by the Engineer.
  - 2. The Contractor shall notify the Engineer in writing of the sources of each material at least ten calendar days prior to the anticipated use of the materials.
- D. <u>Sheeting System</u>: Drawings of the sheeting system and design computations shall be submitted to the Engineer; however, the review of these drawings shall in no way relieve the Contractor of the responsibility to provide a safe and satisfactory sheeting and shoring system. Sheeting and shoring shall be designed by the Contractor, and the proposed design shall be sealed by a Professional Engineer registered in the State of Florida. If the Engineer is of the opinion that at any point sufficient or proper supports have not been provided, it may order additional supports put in at the Contractor's expense.
- E. <u>Dewatering Permits:</u> If the quantity or nature of water withdrawn requires approval/permits from regulatory agencies, the Contractor shall procure such permits at its expense and submit copies to the Engineer before commencing the work.

# 1.05 QUALITY CONTROL

- A. An independent testing laboratory will be retained by the City to do appropriate testing as described in the Section entitled "Quality Control". The Contractor shall schedule its work so as to permit a reasonable time for testing before placing succeeding lifts and shall keep the laboratory informed of his progress. A minimum of 48 hours of notice shall be provided to the testing laboratory to mobilize its activities.
- B. Field Density Testing Frequency for Pipeline Backfill: The frequency of the field density testing shall be in accordance with the notes on the Drawings. If the Drawings do not indicate a frequency then field density testing shall be as follows:
  - 1. Pipeline installed: for each layer (i.e. lift) of compacted material perform a minimum of one density test at 150-foot interval.

# 1.06 SUBSURFACE INFORMATION

A. A separate geotechnical report is provided for information purposes with the Contract Documents. The report identifies properties below grade and also offers recommendations for foundation design, primarily for use of the Engineer. The recommendations shall not be construed as requirements of the Contract.

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B. The City and the Engineer will not assume responsibility for variations of sub-soil quality or conditions at locations other than places shown and at the time the geotechnical investigation was made. The Contractor shall examine the site and review the available geotechnical report or undertake its own subsurface investigation prior to submitting its bid, taking into consideration all conditions that may affect its work.

### 1.07 GROUNDWATER

- A. The Contractor shall be responsible for anticipating groundwater conditions and shall provide positive control measures as required. Such measures shall ensure stability of excavations, groundwater pressure control, prevention of tanks, pipes, and other structures from being lifted by hydrostatic pressures, and avoiding the disturbance of subgrade bearing materials.
- B. The Contractor shall be responsible for obtaining all permits required for dewatering operations.

# 1.08 TRENCH SAFETY ACT COMPLIANCE

- A. The Contractor by signing and executing the contract is, in writing, assuring that it will perform any trench excavation in accordance with the Florida Trench Safety Act, Section 553.60 <u>et. seq.</u>. The Contractor has further identified the separate item(s) of cost of compliance with the applicable trench safety standards as well as the method of compliance as noted in the "Bid Forms" Section of the Contract front-end documents.
- B. The Contractor acknowledges that this cost is included in the applicable items of the Proposal and Contract and in the Grand Total Bid and Contract Price.
- C. The Contractor is, and the City and Engineer are not, responsible to review or assess the Contractor's safety precautions, programs or costs, or the means, methods, techniques or technique adequacy, reasonableness of cost, sequences or procedures of any safety precaution, program or cost, including but not limited to, compliance with any and all requirements of Florida Statute Section 553.60 <u>et. seq.</u> cited as the "Trench Safety Act". The Contractor is, and the City and Engineer are not, responsible to determine if any safety or safety related standards apply to the project, including but not limited to, the "Trench Safety Act".

# 1.09 PROTECTION OF PROPERTY AND STRUCTURES

A. The Contractor shall, at its own expense, sustain in place and protect from direct or indirect injury, all pipes, poles, conduits, walls, buildings, and all other structures, utilities, and property in the vicinity of its Work. Such sustaining shall be done by the Contractor. The Contractor shall take all risks attending the presence or proximity of pipes, poles, conduits, walls, buildings, and all other structures, utilities, and its Work. It shall be responsible for all damage, and assume all expenses, for direct or indirect injury and damage, caused by its Work, to any such pipe, structures, etc., or to any person or property, by reason of injury to them, whether or not such structures, etc., are shown on the Drawings.

B. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations. Barricades with flashing lights shall also be placed along excavation from sunset each day to sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded where required to meet OSHA, local and Federal Code requirements, in such a manner to prevent persons from falling or walking into any excavation within the site fenced property limits.

# PART 2 - PRODUCTS

- 2.01 MATERIALS
  - A. <u>General:</u> Materials shall be furnished as required from on-site excavations or from acceptable off-site sources as required. The Contractor shall notify the Engineer in writing of the sources of each material at least ten calendar days prior to the anticipated use of the materials.
- 2.02 BEDDING
  - A. <u>Pipe Bedding</u>: In general, clean sandy materials excavated from the utility trench, that is free from organics, clay and construction debris, can be used as pipe bedding when construction is in a dry condition and when the bedding is not sided by muck. Pipe bedding material shall be able to pass through a 3/4-inch sieve. Separation of suitable material for pipe bedding from other material shall be made during the excavation.
  - B. Sand shall be used for all copper and other service lines.
  - C. In the case of a "dry" installation, sand shall be used for PVC and ductile iron pipe where the bottom of the trench is located in the limestone zone.
  - D. In the case of a "wet" installation, pearock shall be used for PVC and ductile iron pipe where the bottom of the trench is located in the limestone zone.
  - E. Precast concrete items shall use crushed stone.

#### 2.03 PEAROCK

A. Pearock shall consist of hard, durable particles of proper size and gradation, and shall be free from organic material, wood, trash, sand, loam, clay, excess fines, and other deleterious materials. Pearock shall conform to the requirements of ASTM C 33, Size Number 8, graded within the following limits:

Percent Finer by Weight	
100	
85 to 100	
10 to 30	
0 to 10	

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<u>Sieve Size</u> No. 16

Percent Finer by Weight 0 to 5

# 2.04 CRUSHED STONE (3/4-INCH ROCK)

A. Crushed stone shall consist of hard, durable, subangular particles of proper size and gradation, and shall be free from organic material, wood, trash, sand, loam, clay, excess fines, and other deleterious materials. Crushed stone shall conform to the requirements of ASTM C 33, Size Number 57, graded within the following limits:

Sieve Size	Percent Finer by Weight	
1 1/2 inch	100	
1 inch	95 to 100	
1/2 inch	25 to 60	
No. 4	0 to 10	
No. 8	0 to 5	

# 2.05 SAND

A. Sand shall be used for bedding polyvinyl chloride, fiberglass, HDPE and other plastic pipe when installed under dry trench conditions. Sand shall be graded sand with 100 percent passing a 3/8-inch sieve and not more than 5 percent passing a No. 200 sieve.

### 2.06 SELECT BACKFILL

- A. <u>Select Backfill</u>: It is the intent of these specifications to obtain clean sandy material passing through a 3/4-inch sieve as select backfill material for utility and structural applications.
- B. At locations where subsurface preparations for structures have been performed under this or other previous construction contracts, clean excavated material (structural fill) may be used as select backfill. Any excess fill shall be disposed of off-site by the Contractor.

# 2.07 GENERAL BACKFILL

- A. General backfill (for grading applications) shall be placed above the select backfill. General backfill shall be clean granular soil, free of organics or other deleterious material, have a maximum size of 6 inches and shall contain no more that five percent fines passing a U.S. Standard No. 200 sieve.
- B. General backfill used under roadways shall be compatible with the materials and compaction specified under the Sections entitled "Asphaltic Pavement" and "Concrete Curb and Sidewalk".

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#### PART 3 - EXECUTION

#### 3.01 EXCAVATION

- A. The Contractor shall perform all excavation of every description and of whatever substance encountered, to the dimensions, grades and depths shown on the Drawings, or as directed. For projects within the treatment plant, all excavations shall be made by open cut unless shown otherwise on the Drawings. For projects within the right-of-way, unless shown otherwise on the Drawings, all excavations shall be made by open cut, except for service connections to houses located across the road from the watermain, where directional boring shall be used. All existing utilities such as pipes, poles and structures shall be carefully located, supported and protected from injury; in case of damage, they shall be restored at the Contractor's expense.
- B. Pipe trenches for piping shall be excavated to a width within the limits of the top of the pipe and the trench bottom so as to provide a clearance on each side of the pipe barrel, measured to the face of the excavation, or sheeting if used, of 8 inches to 12 inches. Where the pipe size exceeds 12 inches, the clearance shall be from 12 inches to 18 inches. All pipe trenches shall be excavated to a level where suitable material is reached, a minimum of 8 inches below the excavated depth that will allow for a minimum of 36-inches of covering unless otherwise indicated on the Drawings. Excavation depths in other types of materials and conditions shall be made as hereinafter specified.
- C. In areas where trench widths are not limited by right-of-way and/or easement widths, property line restrictions, existing adjacent improvements, including pavements, structures and other utilities, and maintenance of traffic, the trench sides may be sloped to a stable angle of repose of the excavated material but only from a point one foot above the crown of the pipe. A substantially and safely constructed movable shield, "box" or "mule" may be used in place of sheeting when the trench is opened immediately ahead of the shield and closed immediately behind the shield as pipe laying proceeds inside the shield.
- D. Ladders or steps shall be provided for and used by Workmen to enter and leave trenches, in accordance with OSHA requirements.
- E. Excavation for appurtenances shall be sufficient to provide a clearance between their outer surfaces and the face of the excavation or sheeting, if used, of not less than 12 inches.
- F. Excavated unsuitable material shall be removed from the site and disposed of by the Contractor. Materials removed from the trenches shall be stored and in such a manner that will not interfere unduly with any on-site operations, traffic on public roadways and sidewalks and shall not be placed on private property. In congested areas, such materials as cannot be stored adjacent to the trench or used immediately as backfill shall be removed to other convenient places of storage acceptable to the City at the Contractor's expense.
- G. Excavated material that is suitable for use as backfill shall be used in areas where sufficient material is not available from the excavation. Suitable material in excess of

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backfill requirements shall be either used on the site as directed by the Engineer or disposed of the Contractor.

H. Barriers shall be placed at excavations in accordance with OSHA requirements.

#### 3.02 SHEETING AND BRACING

- A. The Contractor shall furnish, place and maintain sheeting and bracing to support sides of the excavation as necessary to provide safe working conditions in accordance with OSHA requirements, and to protect pipes, structures and other Work from possible damage. Where wood sheeting or certain designs of steel sheeting are used, the sheeting shall be cut off at a level of 2 feet above the top of the installed pipe and that portion below the level shall be left in place. If interlocking steel sheeting is used, it may be removed providing removal can be accomplished without disturbing the bedding, pipe or alignment of the pipe. Any damage to the pipe bedding, pipe or alignment of the constructed utility caused by the removal of sheeting shall be cause for rejection of the affected portion of the work. The City may permit sheeting to be left in place at the request and expense of the Contractor, or the City may order him in writing to leave in place, for the preventing of damage to structures or property. Payment for sheeting ordered to remain in place shall be paid for at a negotiated price.
- B. If the Engineer is of the opinion that at any point sufficient or proper supports, have not be provided, he may order additional supports put in at the Contractor's expense. The Contractor shall be responsible for the adequacy of all sheeting used and for all damage resulting from sheeting and bracing failure or from placing, maintaining and removing it.

#### 3.03 REMOVAL OF WATER

- A. <u>General</u>: It is a basic requirement of these Specifications unless otherwise authorized per Article 3.10 that excavations shall be free from water before pipe or structures are installed.
- B. The Contractor shall provide pumps, and other appurtenant equipment necessary to remove and maintain water at such a level as to permit construction in a dry condition. The Contractor shall continue dewatering operations until backfilling has progressed to a sufficient depth over the pipe to prevent flotation or movement of the pipe in the trench or so that it is above the water table. If at any point during the dewatering operation it is determined that fine material is being removed from the excavation sidewalls, the dewatering operation shall be stopped. If any of the subgrade or underlying material is disturbed by movement of groundwater, surface water, or any other reason, it shall be replaced at the Contractor's expense with crushed stone or gravel.
- C. The Contractor shall use dewatering systems that include automatic starting devices, and standby pumps that will ensure continuous dewatering in the event of an outage of one or more pumps.
- D. <u>Disposal</u>: Water from the trenches and excavation shall be disposed of in such a manner as will not cause injury to public health, to public or private property, to the

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Work completed or in progress, to the surface of the streets, cause any interference with the use of the same by the public, or cause pollution of any waterway or stream. The Contractor shall submit his proposed methods of handling trench water and locations at which the water will be disposed of to the Engineer for review and shall receive acceptance before starting the excavation. Disposal to any surface water body will require silt screens to prevent any degration in the water body. The Contractor shall have responsibility for acquiring all necessary permits for disposal.

#### 3.04 TRENCH STABILIZATION

A. No claim for extras, or additional payment will be considered for cost incurred in the stabilization of trench bottoms which are rendered soft or unstable as a result of construction methods, such as improper or inadequate sheeting, dewatering or other causes. In no event shall pipe be installed when such conditions exist and the Contractor shall correct such conditions so as to provide proper bedding or foundations for the proposed installation at no additional cost to the City before placing the pipe or structures.

#### 3.05 PIPE BEDDING

- A. Pipe trenches shall be excavated as described in Article 3.01. The resulting excavation shall be backfilled with acceptable pipe bedding material, up to the level of the centerline of the proposed pipe barrel. This backfill shall be tamped and compacted to provide a proper bedding for the pipe and shall then be shaped to receive the pipe. Bedding shall be provided under the branch of all fittings to furnish adequate support and bearing under the fitting.
- B. Any over excavation below the levels required for installation of the pipe shall be backfilled with acceptable bedding material, tamped, compacted and shaped to provide proper support for the proposed pipe, at the Contractor's expense.

#### 3.06 BACKFILL

- A. Pipeline trenches shall be backfilled to a level 12 inches above the top of the pipe with select backfill obtained from the trench excavation. When placed in the dry, such material shall be placed in 6-inch layers, each compacted to the densities specified in Article 3.07. Only hand operated mechanical compacting equipment shall be used within six inches of the installed pipe.
- B. After the initial portion of backfill has been placed as specified above, and after all excess water has completely drained from the trench, backfilling of the remainder of the trench may proceed. The remainder of the backfill shall be selected material obtained from the excavation and shall be placed in horizontal layers, the depth of which shall not exceed the ability of the compaction equipment employed, and in no event shall exceed a depth of 9 inches. Each layer shall be moistened, tamped, puddled, rolled or compacted to the densities specified in Article 3.07.
- 3.07 COMPACTION AND DENSITIES

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- A. Compaction of backfill shall be 98 percent of the maximum density where the trench is located under structures or paved areas, and 95 percent of the maximum density elsewhere per ASTM D 1557. More thorough compaction may be required when Work is performed in other regulatory agencies jurisdictions, such as the FDOT. Methods of control and testing of backfill construction are:
  - 1. Maximum density of the material in trenches shall be determined by ASTM D 1557.
  - 2. Field density of the backfill material in place shall be determined by ASTM D 1556 or D 2922.
- B. <u>Testing</u>: Laboratory and field density tests, which in the opinion of the Engineer are necessary to establish compliance with the compaction requirements of these Specifications, shall be ordered by the Engineer. The Contractor shall coordinate and cooperate with the testing laboratory. The testing program will be implemented by the Engineer establishing depths and locations of tests. Modifications to the program will be made as job conditions change.
- C. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompacted until the required compaction is secured, at no additional cost to the City. The costs for retesting such Work shall be paid for by the Contractor.

#### 3.08 ADDITIONAL EXCAVATION AND BACKFILL

- A. Where organic material, such as roots, muck, or other vegetable matter, or other material which, in the opinion of the Engineer, will result in unsatisfactory foundation conditions, is encountered below the level of the proposed pipe bedding material, it shall be removed to a depth of two feet below the outside bottom of the pipe or to a greater depths as directed by the Engineer and removed from the site. Sheeting shall be installed if necessary to maintain pipe trenches within the limits identified by the Engineer. The resulting excavation shall be backfilled with suitable backfill material, placed in 12-inch layers, tamped and compacted up to the level of the bottom of the proposed pipe bedding material. Sufficient compaction of this material shall be performed to protect the proposed pipe against settlement. Lean concrete may be used in lieu of backfill when pipe installation is in the wet or at the Contractor's option. Construction shall then proceed in accordance with the provisions of Article 3.05 "Pipe Bedding".
- B. Additional excavation (more than two feet below the pipe) shall be performed when ordered by the Engineer. Where organic or other material is encountered in the excavation, the Contractor shall bring the condition to the attention of the Engineer and obtain his determination as to whether or not the material will require removal, prior to preparing the pipe bedding. The excavation of material up to a depth of two feet below the outside bottom is an incidental item of construction and the Work shall be done at no additional cost to the City. Where ordered by the Engineer, excavation greater than two feet below the pipe and additional backfill will be compensated by the City.
- 3.09 FINE GRADING

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A. After piping trenches backfilled, the disturbed areas of the site shall be fine graded. Any lumber, undesirable materials and rocks larger than the 3-inch size shall be removed from the surface. The completed surface shall be to the preconstruction elevation unless otherwise directed by the City. Minor adjustments to line and grade may be required as the work progresses in order to satisfy field conditions.

#### 3.10 ALTERNATE METHOD OF CONSTRUCTION

- A. <u>Use of This Method</u>: A combination of conditions in the substrate, water table, or method of disposal may be encountered during the course of the work which makes dewatering impossible, or only possible through the use of unusual methods, the cost of which is excessive. When such conditions are encountered, but only after all reasonable means (pumps, well points, etc.) to dewater the excavation have been employed without success, the Contractor, may request to employ the following Alternate Method of Construction. The concurrence of the Engineer shall be obtained in writing and shall limit the use of the alternate method of construction to such specific portions of the Work as the Engineer shall determine.
- B. The requirements set forth in other sections of these Specifications shall establish the required standards of construction quality for this work. Use of the alternate method of construction described hereinafter shall in no way be construed as relieving the Contractor of the work. No additional payment will be made to the Contractor for excavation, backfill, sheeting or any cost incurred for Work or materials, or any other costs incurred as a result of the use of this alternate method of construction. The prices established in the Proposal shall be for full payment for the various items of work.
- C. Subject to all the requirements stated herein, including written acceptance of the Engineer, construction will be permitted in accordance with the following specifications. All requirements of these Specifications shall apply to this construction unless otherwise specifically modified herein.
- D. <u>Removal of Water</u>: The installation of pipe and appurtenances under water will be permitted and the requirements of Article 3.03 will be waived.
- E. Excavation shall be performed in accordance with Article 3.01.
- F. <u>Pipe Bedding</u>: Pipe bedding shall be placed from 6 inches below the outside bottom of the proposed pipe barrel up to the centerline of the pipe barrel. The bedding material shall be pearock as specified in Article 2.03 "Pearock". Limerock screenings, sand or other fine organic material shall not be used.
- G. The bedding material shall be placed and then be shaped to receive the pipe at the intended elevation. Bedding shall be provided under the branch of all fittings to furnish adequate support and bearing under the fitting.
- H. <u>Backfill</u>: After the pipe is installed, backfilling shall proceed in accordance with the provisions of Article 3.06 "Backfill" and 3.07 "Compaction and Densities". Select backfill material shall be used to backfill around the pipe and to a level one foot above the crown of the pipe. Under no circumstances will material other than select backfill or specified pipe bedding material be considered satisfactory for this purpose.

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I. If the Alternate Method of Construction is used, all backfill material, including specified pipe bedding material, shall be carefully lifted into the trench and not released to fall freely therein until the bucket or container is at or just above water level. Under no circumstances will backfill material be dumped or pushed into the trenches containing water. Below existing water level, the backfill material shall be carefully rammed into place in uniform layers, of equal depth on each side of the pipe, up to the water level. Above the water level, backfill material shall be placed and compacted for normal backfill as previously specified.

#### 3.09 RESTORATION OF EXISTING SURFACES

- A. Restore all grassed areas disturbed by the trenching operations by resodding in accordance with the Section entitled "Sodding" or the Section entitled "Landscaping".
- B. Restore all asphaltic concrete pavement areas disturbed by the trenching operations in accordance with the Section entitled "Asphaltic Concrete Pavement."
- C. Restore all concrete pavement, curbs, and sidewalks disturbed by the trenching operations in accordance with the Section entitled "Concrete Curbs and Sidewalks".

- END OF SECTION -

### SECTION 02224

### EXCAVATION AND BACKFILL FOR STRUCTURES

#### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

- A. This Section includes, except as elsewhere provided, excavation, filling and compacting within the limits defined on the Contract Drawings for complete construction of structures for this project.
- B. All excavation for the project is unclassified.
- 1.02 QUALITY CONTROL
  - A. <u>Codes and Standards</u>: Excavation and backfill work shall be performed in compliance with applicable codes, standards and requirements of governing authorities having jurisdiction in the area.
  - B. <u>Testing and Inspection Service</u>: An independent testing laboratory shall be retained by the City to conduct appropriate soils and other testing in accordance with the Contract Documents.
- 1.03 JOB CONDITIONS
  - A. <u>General</u>
    - 1. A separate geotechnical report is provided for information purposes with the Contract Documents. The report identifies properties below grade and also offers recommendations for foundation design, primarily for use of the Engineer. The recommendations shall not be construed as requirements of the Contract unless specifically referenced by the Contract Documents.
    - 2. The City and/or the Engineer will not assume responsibility for variations of sub-soil quality or conditions at locations other than places shown and at the time the geotechnical investigation was made. The Contractor shall examine the site and review the available geotechnical report or undertake its own subsurface investigation prior to submitting its bid, taking into consideration all conditions that may affect its work.
  - B. <u>Existing Utilities</u>
    - 1. Locate existing underground utilities in the areas of work. Accurate "As Built" Information describing existing pipelines and underground utilities is not available. Test pits and hand excavation in critical areas will be required prior to initiating work.
    - 2. All existing utilities including piping, electrical conduits, electric duct banks and telephone cables that are shown on the Contract Drawings to be relocated, shall

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EXCAVATION AND BACKFILL FOR STRUCTURES

be relocated prior to initiating earth work. Excavation and backfill for relocation of existing utilities shall conform to the requirements of Section 02222. The Contractor shall coordinate relocation of utilities with utility companies having jurisdiction in the area. Should unknown or incorrectly identified piping or other utilities be encountered during excavation, the Contractor shall consult the City and the Engineer of such piping or utility immediately for directions.

- 3. The Contractor shall cooperate with the City and utility companies in keeping respective services and facilities in operation.
- 1.04 PROHIBITION OF BLASTING
  - A. The use of explosives for excavation work is strictly prohibited on this project.

### 1.05 SUBMITTALS

- A. The Contractor shall submit information and samples to the Engineer for review as specified herein in accordance with Section 01300. The information shall include:
  - 1. Detailed description of dewatering method chosen and sequence of dewatering operations.
  - 2. Plans showing the methods and location of dewatering and discharge. The drawings shall include a sufficient number of detailed sections to clearly illustrate the scope of work. The drawings showing all of the above information, including calculations, shall be prepared by a qualified Professional Engineer registered in the state of Florida, and shall bear its seal and signature. If required by regulatory agencies, a copy of the dewatering permit shall be submitted.
  - 3. Lists of materials and equipment to be used. Detailed description of the method(s) of excavation, fill and compaction to be used.
  - 4. Plans of open cut excavations showing side slopes and limits of the excavation at grade where not shown on the Contract Drawings.
  - 5. Design computation of sheeting system. Sheeting and shoring plans shall be designed and sealed by a Professional Engineer registered in the State of Florida. Submittals shall indicate depth of penetration.
  - 6. The Contractor shall furnish the Engineer, for approval, a representative sample of structural fill material from off-site sources at least ten calendar days prior to the date of anticipated use of such material. The sample shall be delivered to the site at a location determined by the Engineer. The submittal shall identify the source of the material.

### 1.06 PROTECTION OF PROPERTY AND STRUCTURES

A. The Contractor shall, at its own expense, sustain in place and protect from direct and indirect injury, its work at all times as well as all pipes, poles, conduits, walls, buildings, and all other structures, utilities and property in the vicinity of its work. Such sustaining

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shall be done by the Contractor. The Contractor shall take all risks attending the presence or proximity of pipes, poles, conduits, walls, buildings and all other structures, utilities, and property in the vicinity of its work. It shall be responsible for all damage, and assume all expenses, for direct or indirect injury and damage, caused by its work, to any such pipes, structures, etc., or to any person or property, by reason of injury to them, whether or not such structures, etc., are shown on the Drawings.

- B. Barriers and lights shall be placed at all excavations in accordance with OSHA requirements.
- C. Safe and suitable ladders for access to trenches shall be provided in accordance with OSHA requirements.

### PART 2 - PRODUCTS

- 2.01 GENERAL
  - A. Specific locations/areas of work where these materials shall be utilized are defined on the Drawings.
- 2.02 STRUCTURAL FILL
  - A. Fill material shall be noncohesive, nonplastic, granular mixture of local clean sand or local clean sand and limerock free from vegetation, organic material, muck or deleterious matter. Material shall conform to AASHTO-2 gradation with no more than ten (10) percent by weight passing the No. 200 sieve. All rock or hard material shall pass through a 3-inch diameter ring. Broken Portland cement or asphaltic concrete shall not be considered an acceptable fill material. Fill material containing limerock shall have sufficient sand to fill the voids in the limerock. Material placed in the upper 6-inches of all backfills or fills shall not contain any stones or rocks larger than 1-inch in diameter. Limits of excavation and fill shall be as defined on the Drawings. All structural fill materials shall be obtained from off-site sources.
- 2.03 CRUSHED LIMESTONE
  - A. Crushed limestone placed below foundation slabs shall be hard, durable, subangular particles of proper size and gradation, and shall be free from organic materials, wood, trash, sand, loam, chalk, excess fines and other deleterious materials. Maximum aggregate size shall be 3/4 inches.
- 2.04 OTHER MATERIALS
  - A. Requirements for any other fill material, if needed, are defined in the Drawings.

#### PART 3 - EXECUTION

#### 3.01 CONTRACTOR INSPECTIONS

- A. Examine the areas and conditions under which excavating, filling, and grading are to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.
- B. Examine and accept existing grade of the project site walkways, pavements, etc., prior to commencement of work and report to Engineer if elevations of existing subgrade substantially vary from elevations shown on the Drawings.

# 3.02 EXCAVATION FOR STRUCTURES

- A. Unless otherwise indicated on the Drawings, all excavation shall be made in such a manner, and to such widths, as will give ample room for properly constructing and inspecting the structures they are to contain. Excavation shall be made in accordance with the details shown on the Drawings, and as specified herein. Attention shall be given to the proper handling of storm water runoff. The Contractor shall intercept and collect surface run off both at the top and bottom of cut slopes. The excavating equipment shall operate in an organized fashion so as to remove silt from one edge of the excavation to the other so as not to trap silt within the undercut area.
- B. Where required on the Drawings, unsuitable material (silt layer) beneath the groundwater encountered at the site shall be removed using a drag line or hydraulic excavator, as approved by the Engineer. The equipment shall operate in an organized manner so as to remove silt from one edge of the excavation to the other so as not to trap silt within the undercut area. Unsuitable material shall be hauled to and stockpiled temporarily by the Contractor at the "Temporary Muck Storage" location defined on the Drawings. Once drained, and during "dry" weather as determined by the Engineer in the field, the Contractor shall remove and dispose of it off-site. The Contractor shall be responsible for managing and maintaining the temporary muck storage area and shall ensure impact of this area, including providing dust control, runoff control, etc. is minimized. Also, the Contractor shall clean all roadways impacted by his demucking, hauling, temporary stockpiling and removal operations at a frequency as determined by the Engineer in the field.
- C. In excavating for footings, structures, and foundations, the Contractor shall take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive concrete.
- D. The Contractor shall ensure that its excavation work does not adversely affect the bearing capacity of the structural subsurface. Also, the Contractor shall proceed with foundation work immediately after excavation work and as expeditiously as possible so as to minimize any potential for subsurface disturbance due to environmental factors, adverse weather, etc. The Contractor shall also take all necessary precautions to protect its work from potential adverse impacts. Where excavated areas are disturbed by subsequent operations or adverse weather, scarify surface reshape, fill as required and compact to required density.

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- E. All excavated soil material, removed underground utilities including pipes and fittings, electrical conduits and duct banks, and other undefined materials removed within the limits of the excavation, shall be disposed off-site by the Contractor.
- F. Refer to the Drawings for additional requirements for excavation for specific locations/areas of work.

### 3.03 UNAUTHORIZED EXCAVATION

A. Excavation work carried outside of the work limits required by the Contract Documents shall be at the Contractor's expense, and shall be backfilled by the Contractor at its own expense with structural fill, as directed by the Engineer. Where, in the judgement of the Engineer, such over-excavation requires use of lean concrete or crushed stone, the Contractor, at its expense, shall furnish and place such materials.

### 3.04 SHEETING AND BRACING

- A. The term "sheeting" shall represent any type of shoring used to support sides of the excavation. Walls of the excavation shall be kept vertical where open cut is not practical and, if required to protect the safety of workmen, the general public, this or other work or structure, or excavation walls, the excavation shall be properly sheeted and braced for conditions encountered and OSHA requirements. Excavation for the structures shall be sufficient to provide a clearance between their outer surfaces and the face of the excavation, sheeting, or bracing, of not less than two feet, unless otherwise indicated on the Drawings. Materials encountered in the excavation, which have a tendency to slough or flow into the excavation, undermine the bank, weaken the overlying strata, or are otherwise rendered unstable by the excavation operation shall be retained by sheeting, stabilization, grouting or other acceptable methods.
- B. Minimum length of embedment below the deepest part of the excavation shall be 0.3 times the depth of excavation being supported or greater depending on the sheeting. The design of the sheeting arrangement shall be the responsibility of the Contractor.
- C. Sheeting shall be removed provided its removal will not jeopardize pipes or structures. Any sheeting left in place shall be cut-off two feet below finished grade, or as directed. The Contractor will not receive extra compensation for sheeting left in place or the cut off work required.

### 3.05 REMOVAL OF WATER

- A. <u>General</u>
  - 1. The Contractor shall provide pumps, well points, and other appurtenant equipment necessary to remove and maintain water at such a level as to permit construction in the dry where defined on the Drawings. The ground water level shall be controlled so as to permit the placing and curing of concrete and the maintenance of supporting foundations and adjacent work and structures in the dry.

- 2. The Contractor shall use dewatering systems that include automatic starting devices, and standby pumps that will ensure continuous dewatering in the event of an outage of one or more pumps.
- 3. If excavations to be dewatered cannot be maintained dry by the Contractor's dewatering efforts, then the Contractor shall provide tremie seals at no additional cost to the City. The placement of tremie seals shall not preclude dewatering operations specified herein. The limits of tremie seals shall be recommended by the Contractor and reviewed and accepted by the Engineer.
- Β. Disposal: The Contractor shall be responsible to dispose of water from the dewatering operation in accordance with the Contract Documents and shall obtain all necessary permits and conform to all local regulations and codes. Water from the excavation shall be disposed of in such a manner as will not cause injury to public health, to public or private property, to the work completed or in progress, to the surface of the streets, will not cause any interference with the use of the same by the public, or will not cause pollution of any waterway or stream. Water from dewatering operation may be disposed at locations directed by the City with the proper installation of siltation screens and operation of the dewatering system in accordance with all local regulations and codes. The Contractor shall submit its dewatering method and point(s) of discharge to the Engineer for review at least twenty (20) days prior to any dewatering activities. The Contractor shall provide maintenance of canal(s) and drainage ditches to which it discharges. The cost of maintaining drainage ditches and canal(s) shall be included in the bid price. The Contractor shall remove siltation and haul, and dispose of this material on a regular basis to maintain the original base conditions at all time, so as not to impact drainage in the general area.
- 3.06 FILL PLACEMENT AND COMPACTION
  - A. <u>General</u>
    - 1. Fill material (including structural fill and other fill material) shall be placed within the limits of excavations as shown on the Drawings. When placed in the wet, fill material shall be placed in standing groundwater to a level one foot above stabilized groundwater. The material shall be placed at one edge of the excavation and pushed to the other so as to move residuals across the bottom of the excavation. The leading edge of the fill should be cleaned regularly to remove it of the advancing residuals. All residuals shall be disposed at off-site locations shown on the Drawings or specified herein.
    - 2. Once fill materials have been placed one foot above the stabilized groundwater, then the entire lift should be rolled with six passes from an 10-ton roller. The coverages shall be overlapping and shall occur while the compactor operated at a travel speed of not more than two feet per second. If a vibratory compactor is used, it should be operated with the vibrator off so as not to induce capillary moisture into the dry fill soils.
    - 3. Fill materials placed following this initial lift shall be placed in the dry with loose lift thickness of eight inches or less. Each lift shall be compacted to achieve a minimum of 98 percent Modified Proctor maximum dry density in accordance with

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EXCAVATION AND BACKFILL FOR STRUCTURES ASTM D1557. Fill materials shall be placed within two percent of optimum moisture content.

- B. <u>Inspection and Testing</u>: The fill placement and compaction shall be observed by the Engineer. As a minimum, an in-place density test will be made in each lift of compacted soil for every 2,500 square feet of area. The Contractor shall coordinate and cooperate with the testing laboratory.
- C. <u>Final Grades</u>: Final structure fill grades shall be within 0.1 feet of elevations shown. Where shown on the Drawings, surfaces shall be sloped for drainage or other surfaces.
- D. Refer to the Drawings for additional fill and compaction requirements for specific locations/areas of work.
- 3.07 BACKFILL AGAINST STRUCTURES
  - A. Backfill against nonwater holding structures shall not be performed until the concrete has been inspected by the Engineer. Backfill against walls shall also be deferred until the structural slab for floors above the top fill line have been placed and attained design strength. Partial backfilling against adequately braced walls may be considered by the Engineer on an individual situation basis. Where walls are to be waterproofed, all work shall be completed and membrane materials dried or cured according to the manufacturers instructions before backfilling.
  - B. Backfill against tanks and other structures which are to retain liquids shall not be performed until leakage tests are completed and accepted by the Engineer.

- END OF SECTION -

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### EXCAVATION AND BACKFILL FOR STRUCTURES

# SECTION 02240 DEWATERING

PART 1 - GENERAL

(NOT USED)

PART 2 - MATERIALS

(NOT USED)

### PART 3 - EXECUTION

- 3.01 GENERAL
  - A. The Contractor shall be responsible for design, installation, and operation of a dewatering system to dewater specified excavations.
    - 1. The dewatering system shall be designed in accordance with the Best Management Practices (BMP's) adopted by FDEP.
    - 2. Inspection and control of dewatering system operations will be in accordance with the FDEP guidelines established in the Florida Erosion and Sediment Control Inspector's Manual (current edition).
  - B. Continuously manage and control excavation water recharge in order to facilitate and not impede construction activities at all times, including weekends, holidays, and during periods of work stoppages, and furnish and install, and operate, a contingency backup dewatering system to maintain control of excavation water levels to facilitate construction (i.e.; no construction delays).

#### 3.02 SUBMITTALS

- A. Submittals shall be made in accordance with the requirements specified in Contract Documents and the requirements of this Section.
- B. Provide name, address, and phone numbers of all subcontractors.
- C. The Contractor shall submit a Dewatering Best Management Practices (BMP) Plan prior to the start of excavation expected to include dewatering operations. The Plan shall provide detailed descriptions of dewatering procedures to be utilized to meet the requirements of this Section. Methodologies to control dewatering discharge contamination include, but are not limited to:
  - 1. Holding tanks of adequate size and volume.
  - 2. Wellpoint systems.
  - 3. Sump pumping systems.
  - 4. Chemical precipitation of particulates.

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### DEWATERING

- 5. Filter systems and siltation controls.
- 6. Outfall booms.
- D. The Contractor shall provide a Site Health and Safety Plan and Activity Hazard Analysis (AHA) for contaminated soil as specified in the Contract Documents and/or groundwater as specified in this Section, to include the following:
  - 1. A written description of the proposed method for temporary stockpiling, transportation, and disposal of all wastes.
  - 2. Copy of permits of disposal facilities.
  - 3. Certification of disposal of all wastes.
  - 4. Directions to the nearest hospital and phone number.
  - 5. Emergency contact phone numbers.
  - 6. Laboratory analyses and sampling plan required for transportation and disposal of all wastes in accordance with applicable federal, state, and local requirements.
- E. Upon Completion of Remediation Activities, the following shall be provided:
  - 1. Copy of manifests for all wastes leaving the site.
  - 2. Copy of the laboratory analyses results from all sampling activities.
  - 3. Copy of closure reports that may be required.
- 3.03 SURFACE WATER CONTROL
  - A. Remove surface runoff controls when no longer needed.
  - B. Seal off or berm catch basins in the area of construction to prevent discharge of untreated dewatering effluent or runoff from unstabilized construction areas into storm drains.
  - C. All drain inlets or catch basins used for dewatering discharge shall be provided with silt and sediment removal barriers as approved by the Engineer.
    - 1. All barriers shall be cleaned regularly to avoid sediment discharge into the storm drain system.
    - 2. Construction activities will be stopped at no cost to the City until sediment controls are properly maintained, installed, and in compliance with the dewatering permit.
    - 3. All barriers shall be removed upon issuance of a hurricane warning.

# 3.04 DEWATERING SYSTEMS

- A. Design, furnish, and install, operate, and maintain a dewatering system of sufficient size and capacity to permit excavation and subsequent construction activities in water-free conditions, and to lower and maintain the excavation area groundwater level a minimum of 2 feet below the lowest point of excavation. The dewatering system shall be designed and operated such that the system continuously maintains excavations water levels so as to maintain the excavation water level in order to allow for the initiation and completion of excavation backfill compaction and restoration activities.
- B. Dewatering systems shall include, but is not limited to, furnishing and installing wells or well points, and or other equipment and appurtenances as may be necessary, including system components or equipment, installed outside the outermost perimeter of the excavation limits, and sufficiently below lowest point of excavation, to maintain the specified or required groundwater elevation.
- C. Open trench pumping maybe permitted upon the approval of the Engineer.
- D. Design and Operate Dewatering Systems:
  - 1. To prevent loss of ground as water is removed.
  - 2. To avoid inducing settlement or damage to existing facilities, completed Work, or adjacent property.
  - 3. Avoid surface water pollution or discharge of sediment to storm drain systems or waterways.
- E. Provide supplemental ditches and sumps only as necessary to collect water from local seeps. Do not use ditches and sumps as primary means of dewatering. The Contractor shall not direct any flow of water over pavement surfaces. Discharge of water shall be conducted as approved by the local, state, and federal agencies and the Engineer.
- F. Provide controls to prevent surface water from entering excavation pits, trenches, or stockpiled materials.

# 3.05 PIPELINES CONSTRUCTED UNDER WATER

- A. In the event that it is found that the water in a trench cannot be lowered by ordinary means, i.e., well points and pumps, an alternate construction method may be proposed by the Contractor. Complete details, specifications, manufacturer's descriptive literature, installation lists and any other pertinent data regarding the proposed alternate method shall be submitted as an alternate by the Contractor to the City within 5 calendar days of the time that the Contractor anticipates using such alternate method.
- B. If the City approves the alternate method in writing, it may be used, so long as the Work is performed in a manner which, in the opinion of the Engineer, conforms to the method and procedure as set forth in the information supplied by the Contractor in his original application for use of an alternate method. The City may revoke

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DEWATERING

approval of the alternate method if at any time, in his opinion, the Work is not conforming to any applicable portion of these Specifications.

- C. No pipeline shall be laid under water without approval of the City.
- D. If the dewatering system is eliminated or the effort reduced, and the pipe is laid underwater, additional pipe zone material will be required as backfill to the water table elevation, or to the level it was reduced to.

#### 3.06 DISPOSAL OF WATER

- A. All water generated, pumped, or removed from excavations as a result of excavation dewatering activities shall be collected, containerized, and managed prior to discharge and or treatment at an approved discharge point or facility, in accordance with Broward County Code of Regulation, Sections 27. Contractor shall secure, obtain, and pay for all necessary local, state, and federal permits, licenses, fees, and or approvals to discharge water or perform onsite or offsite treatment and disposal. Treat water collected by dewatering operations as required by regulatory agencies, prior to discharge.
- B. Discharge water as permitted, and in regulatory compliance with Contractor obtained discharge permits/licenses.
  - 1. All discharge activities shall be performed so as to prevent silt and sediment discharge and eliminate any soil erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property.
  - 2. Maximum allowable turbidity of discharges to surface waters or storm drains will be 10 NTU's or the maximum permitted by the agency having jurisdiction, whichever is less.
  - 3. Sump discharges cannot be discharged directly to storm drains or surface waters without treatment.
- C. Affected storm sewer outfalls shall be protected with floating silt booms as approved by the Broward County Department of Environmental Protection and Growth Management Division (BCEPGMD) and the Engineer. All accumulated debris resulting from the dewatering discharge collecting in the boom shall be removed on a daily basis.
- D. Visible silt plumes emanating from the area around the outfalls will be considered a failure of the silt and sediment removal measures and may result in a Notice of Violation issued by BCEPGMD. The Contractor will be responsible for all fines associated with the violation of the dewatering permit conditions issued to the Contractor.
- E. Failure to control dewatering discharges as described above and as detailed in the Florida Erosion and Sediment Control Inspector's Manual, may result in an order to cease dewatering operations until the discharge problems are corrected. No claims will be accepted for costs or delays associated with unacceptable dewatering discharge practices.

### DEWATERING

# 3.07 WELL POINT REMOVAL

- A. Well point holes shall be filled with sand which shall be washed into the hole.
- B. Well point holes located within asphalt pavement surfaces or concrete pavements, shall be filled with sand to the subgrade. The remaining hole shall be filled with nonshrink grout.

### 3.08 CONTAMINATED GROUNDWATER AND DISPOSAL REQUIREMENTS

- A. If Contractor suspects, witnesses, or identifies, groundwater contamination at any time during the performance of the Work, Contractor shall notify the City immediately. Results will be obtained by the onsite mobile laboratory.
- B. If analytical testing documents and indicates elevated concentrations above FDEP action levels (Chapter 62-777, Florida Administrative Code) dewatering operations will be suspended until appropriate treatment and or construction measures can be implemented. Contractor shall not resume operations until notified to do so in writing by the City and construction of the remaining pipelines in that area will be installed in the wet or normal construction activities shall be resumed in another areas determined by the Engineer. There shall be no delay or mobilization claim associated with moving to another project area unless all other Work has been completed. In addition, the local agency will be immediately notified via telephone and in writing by the Contractor. Dewatering activities in the area will not proceed until review of the matter with the local agency is resolved and written authorization is issued.
- C. The Contractor shall submit a dewatering plan to the City for review. The Contractor is advised that the SFWMD, BCEPGMD, etc. May require that a dewatering plan, prepared by a state of Florida licensed Professional Engineer or registered professional geologist, be submitted and approved prior to issuance of a dewatering permit. The Contractor will retain a state of Florida licensed Professional Engineer or registered Professional Geologist to provide an initial report of potential dewatering issues in the site vicinity. The Contractor shall retain a state of Florida licensed Professional Engineer or registered professional Engineer or a state of Florida licensed Professional dewatering issues in the site vicinity. The Contractor shall retain a state of Florida licensed Professional Engineer or registered geologist to provide any additional services required by regulatory agencies regarding dewatering and contaminated sites.
- D. The Contractor is advised that the BCEPGMD may have identified contaminated sites within ¼ mile radius of the project site. The Contractor may be required to provide testing and monitoring of the dewatering operations, and to institute dewatering methods and controls, as required by BCEPGMD, SFWMD, etc. The contractor will be responsible for all costs associated with means and methods of dewatering which will be set forth by dewatering permits.

# DEWATERING

- E. Treatment of the groundwater will include three options depending on the magnitude of the contamination in the trench or as determined by the Engineer: Granular Activated Carbon (GAC) Treatment Vessels, Mobile Air Stripping Units, or Vacuum Truck Removal and Disposal or other method as approved by the Engineer. The Contractor will provide a submittal list of all qualified groundwater remediation subcontractors for GAC vessel treatment/portable air stripping unit and vacuum truck disposal including phone numbers, contact names, and addresses prior to start of construction. The selected groundwater treatment/recycling facility for hauling contaminated groundwater shall also be identified.
- F. If contaminated groundwater in the dewatering trench is encountered, the remediation operations will begin once local agency approval is obtained. Contaminated water will be disposed first into a high volume holding (FRAC) tank and then treated through a GAC unit/portable air stripper or recovered into vacuum hauling trucks for disposal.
- G. Effluent water from the treatment system will be analyzed by the onsite mobile laboratory to confirm that concentrations are below regulatory limits. Effluent water will then be directed to a pre-approved alternative location as determined by local agency and/or the Engineer.

- END OF SECTION -

### SECTION 02369

# STEEL SHEET PILING

#### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

- A. Furnish and install steel sheet piling, complete with bracing, tiebacks wales, and other incidentals required for a complete system as shown on the Drawings. Sheet piling where shown is mandatory for this project. The Contractor assumes responsibility for any excavation support needed to allow construction regardless of whether system is shown on the drawings.
- B. Contractor shall consider the possibility of encountering hard rock materials during sheet piling installation. No additional payment will be made for installation of sheet piling through hard rock materials.
- 1.02 QUALITY ASSURANCE
  - A. Unless otherwise indicated, all workmanship and practices shall be in accordance with ASTM A328. Welding shall conform to AWS DI.1 Structural Welding Code. Steel for sheet piling shall conform to ASTM A572 Grade 50. Protective tape for tie rods (if required) shall conform to F.S. L-T-1512A and Military Spec. MIL, 1-631D and AM5.

#### DESIGN

- A. Sheet piling design for seawalls shall be as shown on the Drawings.
- 1.04 SUBMITTALS
  - A. <u>Shop Drawings</u>: Submit shop drawings specifying the following:
    - Sheeting type, layout, pipe penetrations, connection details, special corner piles (for turns) and elevations.
    - Overhead obstructions such as powerlines shall be clearly indicated and clearances from such obstructions shall be followed per local regulations.
    - Coating for piles per Specification 09900 Painting.
    - Driving guide, falsework, sequence of construction, driving equipment including pile hammer, power plant, leads, and cushion material and helmet.
    - Steel mill reports, certifying the ASTM designation of the material.
    - Connection details and dimensions of the wales and struts to be installed under this Contract, if applicable.

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#### STEEL SHEET PILING

#### 1.05 DESIGN CRITERIA

A. The layout of the sheeting shall not be changed without the written permission of the Engineer.

# PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. <u>Sheet Piling</u>: Sheet pile material and section shall be as shown on the drawings. Sheet piles shall be Z-shaped, hot-rolled and with Larssen interlocks. The sheet pile shall have a minimum thickness of 3/8-inch and be continuously interlocked throughout their entire length. Piling shall conform to ASTM A572 with a minimum yield strength of 50,000 psi.
- B. <u>Corner Piles (Connection Knuckles)</u>: Special corner piles (connection knuckles) shall be furnished from the manufacturer and installed where there are turns in the sheet pile wall which are beyond the allowable turn for standard sheet pile. The standard sheet pile shall not be turned at an angle greater than what is allowable by the manufacturer.

#### PART 3 - EXECUTION

- 3.01 PLACING PILES
  - A. Carefully locate piling as shown on the approved Contractor submittals. Place piles in a plumb position with each pile interlocked with adjoining piles for its entire length, so as to form a continuous diaphragm throughout the length of each run of wall. Place all piles as true to line as possible and provide suitable temporary wales or guide structures to ensure that the piles are driven to correct alignment.
- 3.02 DRIVING PILES
  - Driving: Drive all piles to the elevation required and extend to the elevation indicated for Α. the top of piles. A tolerance of  $+/-\frac{1}{2}$ -inch top elevation will be permitted. Drive piles by approved methods in such manner as not to subject the piles to serious damage and to ensure proper methods throughout the length of the piles. Pile hammers shall be maintained in proper alignment during driving operations by use of suitable leads or by guides attached to the hammer. A protecting cap shall be employed in driving to prevent damage to the top of piles. Adequate precautions shall be taken to ensure that piles are driven plumb. If at any time the forward or leading edge of the piling is found to be out of plumb in the plane of the wall, the piles already assembled and partly driven shall be removed to the first plumb pile, and the Contractor shall take corrective measures to ensure the plumbness upon installation. Each run of piling shall be driven to grade progressively from the start and no pile shall be driven to a lower grade than those behind it in the same run except when the piles behind it cannot be driven deeper. If the pile next to the one being driven tends to follow below final grade it may be pinned to the next adjacent pile. Should obstructions render it impracticable to drive a pile to the specified penetration, the Contractor shall make such changes in design alignment of the pile structure as may be deemed necessary by the City's representative to ensure the adequacy and stability of the structure. Piles driven out of interlock with adjacent piles or otherwise damaged shall be removed and replaced by new pile at the

#### STEEL SHEET PILING

Contractor's expense. If the Contractor encounters difficulty driving the sheet piling to the specified tip elevation, he shall provide driving shoes for sheets and/or pre-auger and backfill with concrete in order to obtain the specified tip elevation. No additional payment will be made for driving shoes, auguring and backfill with concrete or spudding.

- B. <u>Pile Hammer</u>: Select and use a vibratory type hammer which has sufficient weight and energy to suitably install the specified pile, without damage, into the soils as indicated on the Drawings.
- C. <u>Driving Shoes</u>: The Contractor will be permitted to provide hardened cast steel shoes which fully support the pipe pile and sheet pile tips for driving. Driving shoes shall be installed according to manufacturer's recommendations.

#### 3.03 SETTLEMENT MONITORING, VIBRATION MONITORING AND MITIGATION

- A. The work required under this section does not modify the requirements or responsibilities for the preservation of existing property from damage. The Contractor shall evaluate the need for, design of and provide any necessary precautionary features to protect existing structures from damage. Employ construction methods that will not produce damaging vibrations, soil movement, soil loss, or instability of existing structures.
- B. The ENGINEER will choose and retain the services of a vibration monitoring and inspection consultant (VMC).
- C. The Contractor shall, at his own expense and no cost to the CITY, implement settlement and vibration mitigation measures to prevent any damage to existing property.
- D. Before starting work, the Contractor shall check and verify governing dimensions and elevations of the work to be performed. The VMC will provide a list adjacent structures to be inspected prior to the work at the project. Inspections will be conducted within 100 feet of the piles being driven. Inspections will consist of interior and exterior written documentation and digital photographs of visible existing defects. A summary report will be prepared and retained by the ENGINEER, the City and copies provided to the Contractor. Individual copies of inspections will be provided to the property owners.
- E. The Contractor shall survey adjacent structures and improvements, establishing exact elevations at fixed points to act as reference benchmarks. The Contractor shall clearly identify bench marks and record existing elevations. Datum level used to establish benchmark elevations shall be located at a sufficient distance so as not to be affected by movement resulting from sheet piling, excavation activities or other construction operations.
- F. During pile driving or excavation, the Contractor shall resurvey bench marks weekly, employing a licensed Land Surveyor or registered Professional Engineer. The Contractor shall maintain an accurate log of surveyed elevations for comparison with original elevations. The Contractor shall promptly notify the VMC if benchmark changes occur or if cracks, sags or other damage becomes evident nearby.

STEEL SHEET PILING

- G. Vibration monitoring will be performed by the VMC at nearby structures when sheet piling work is ongoing. The Contractor shall facilitate full access to the site, as is required by the VMC, for them to perform monitoring. Vibration monitoring points will include structures within a radius deemed appropriate by the VMC from the locations of installation. If at any time the Contractor or VMC detects damage to any structure, the sheet piling shall be stopped immediately. If at any time settlement, heave or vibration exceeds the following values, sheet piling shall be stopped immediately and a corrective mitigation plan shall be implemented in order to meet threshold values.
  - Maximum allowable settlement of structures = 0.00833-feet (i.e. 0.10 inches)
  - Maximum allowable peak particle vibration (PPV) level for public infrastructure = 0.75 inch/second, unless determined that the structure requires additional protection.
  - Maximum allowable vibration level for residential structures = 0.50 inch/second, unless determined that structure requires additional protection.
- H. Written complaints or claims (Claims) by property owners for damage to property shall be responded to by the Contractor in writing within 10 calendar days of receiving the Claim. The response shall include acknowledgement of the Claim and a plan to work towards resolution. The Contractor shall submit a copy of the response to the VMC, for informational purposes only, within 5 calendar days of receiving the Claim and prior to submitting the response to the property owner. The property shall be inspected by the Contractor and a follow-up response with proposed resolution shall occur within 30 days of receiving the Claim. The follow-up response shall be submitted to the VMC within 15 days of receiving the Claim, for informational purposes only.

# 3.04 NOISE ABATEMENT LAWS, MONITORING AND MITIGATION

- A. The Contractor shall establish, at his own expense, that the proposed method of sheet pile installation will meet all applicable local, state or federal noise abatement laws, by-laws, ordinances and regulation in effect.
- B. The ENGINEER will choose and retain the services of a noise monitoring consultant (NMC).
- C. The Contractor shall, at his own expense and no cost to the CITY, implement noise mitigation measures complying with the City of Fort Lauderdale Noise Control Ordinance Chapter 17. Noise levels monitored by the NMC shall be the basis for review of construction activity and determined compliance. The contractor will be provided daily summary reports of the noise levels measured to allow ongoing noise compliance.

- D. Noise monitoring will be performed when sheet piling work is ongoing. The Contractor shall facilitate full access to the site, as is required by the NMC, for them to perform monitoring. If at any time levels exceed values established by applicable local, state or federal noise abatement laws, by-laws, ordinances or regulation in effect, sheet piling shall be stopped immediately, and a corrective mitigation plan shall be implemented in order to meet such values.
- E. Written complaints or claims (Claims) regarding noise shall be responded to by the Contractor in writing within five (5) calendar days of receiving the Claim. The response shall include acknowledgement of the Claim. The response shall also contain either proof of compliance, a proposed resolution or a plan to work towards a resolution. The Contractor shall submit the response to the VMC, for informational purposes only, within three (3) calendar days of receiving the Claim and prior to submitting the response to the Claim. A follow-up response with a proposed resolution shall occur within 15 days of receiving the Claim, if either proof of compliance or a resolution has not been proposed initially. The follow-up response shall be submitted to the VMC within seven (7) days of receiving the Claim, for informational purposes only.

- END OF SECTION -

### SECTION 02371

# GEOTEXTILES

#### PART 1 - GENERAL

### 1.01 DEFINITIONS

- A. Fabric: Geotextile, a permeable geosynthetic comprised solely of textiles.
- B. Minimum Average Roll Value (MinARV): Minimum of series of average roll values representative of geotextile furnished.
- C. Maximum Average Roll Value (MaxARV): Maximum of series of average roll values representative of geotextile furnished.
- D. Nondestructive Sample: Sample representative of finished Work, prepared for testing without destruction of Work.
- E. Overlap: Distance measured perpendicular from overlapping edge of one sheet to underlying edge of adjacent sheet.
- F. Seam Efficiency: Ratio of tensile strength across seam to strength of intact geotextile, when tested according to ASTM D4884.
- 1.02 DELIVERY, STORAGE, AND HANDLING
  - A. Deliver each roll with sufficient information attached to identify it for inventory and quality control.
  - B. Handle products in manner that maintains undamaged condition.
  - C. Do not store products directly on ground. Ship and store geotextile with suitable wrapping for protection against moisture and ultraviolet exposure. Store geotextile in way that protects it from elements. If stored outdoors, elevate and protect geotextile with waterproof cover.

### PART 2 - PRODUCTS

# 2.01 SUBMITTALS

- A. Submittals shall be in accordance with Section 01300 Submittals.
- 2.02 NONWOVEN GEOTEXTILE
  - A. Pervious sheet of polypropylene, or polyethylene fabricated into stable network of fibers that retain their relative position with respect to each other. Nonwoven geotextile shall be composed of continuous or discontinuous (staple) fibers held together through needle-punching, spun-bonding, thermal-bonding, or resin-bonding.

- B. Geotextile Edges: Selvaged or otherwise finished to prevent outer material from pulling away from geotextile.
- C. Unseamed Sheet Width: Minimum 6 feet.
- D. Physical Properties: Conform to requirements in Table No. 1.

TABLE NO 1 PHYSICAL PROPERTY REQUIREMENTS FOR NONWOVEN GEOTEXTILE				
Property	Requirement	Test Method		
Mass Per Unit Area	7.8 oz/yd², MinARV	ASTM D5261		
Water Permittivity at 50mm Constant Head	1.4 sec. <sup>-1</sup> , MinARV	ASTM D4491		
Apparent Opening Size (AOS)	0.212 mm	ASTM D4751		
Grab Tensile Strength, Machine Direction	160 lbs, MinARV	ASTM D4632		
Grab Elongation, Machine Direction	50 percent, MaxARV			
CBR Puncture Strength	410 lbs, MinARV	ASTM D6241		
Trapezoid Tear Strength	60 lbs, MinARV	ASTM D4533		
Ultraviolet Radiation Resistance	70 percent strength retention, MinARV after 500 hours	ASTM D4355		

# PART 3 - EXECUTION

# 3.01 LAYING GEOTEXTILE

A. Lay and maintain geotextile smooth and free of tension, folds, wrinkles, or creases.

# 3.02 SHEET ORIENTATION FOR SUBSURFACE DRAINAGE

- A. Orient geotextile in the trench with the long dimension parallel to the trench.
- B. The filter material shall not be dropped on the geotextile from heights greater than 3 feet.
#### 3.03 JOINTS

- A. Unseamed Joints:
  - 1. Overlapped.
  - 2. Overlap, unless otherwise shown:
    - a. Foundation/Subgrade Stabilization: Minimum 18 inches.
    - b. Riprap: Minimum 18 inches.
    - c. Other Applications: Minimum 12 inches.

### 3.04 INSTALLING GEOTEXTILE IN TRENCHES

- A. Place geotextile in a way that will completely envelope granular drain material to be placed in trench and with specified overlap at joints. Overlap geotextile in direction of flow. Place geotextile in a way and with sufficient slack for geotextile to contact trench bottom and sides fully when trench is backfilled.
- B. After granular drain material is placed to required grade, fold geotextile over top of granular drain material, unless otherwise shown. Maintain overlap until overlying fill or backfill is placed.

### 3.05 REPAIRING GEOTEXTILE

- A. Repair or replace torn, punctured, flawed, deteriorated, or otherwise damaged geotextile.
- B. Repair Procedure:
  - 1. Place patch of undamaged geotextile over damaged area and at least 18 inches in all directions beyond damaged area.
  - 2. Remove interfering material as necessary to expose damaged geotextile for repair.
  - 3. Sew patches or secure them with heat fusion tacking or with pins and washers, as specified above in Article SECURING GEOTEXTILE, or by other means approved by Engineer.

### 3.06 REPLACING CONTAMINATED GEOTEXTILE

A. Protect geotextile from contamination that would interfere, in Engineer's opinion, with its intended function. Remove and replace contaminated geotextile with clean geotextile.

- END OF SECTION -

### SECTION 02481

### TREE RELOCATION AND PROTECTION

#### PART 1 – GENERAL

### 1.01 WORK TO BE PERFORMED AND WORK INCLUDED

- A. Prepare and relocate trees and palms designated for relocation within the project boundaries, to include all aspects of preparation, relocation, protection, and maintenance.
- B. Protection and care of existing trees and palms to remain within the project boundaries, to include all aspects of protection, pruning, fertilization, and watering.
- C. Watering by water truck.
- D. Follow up maintenance as required by these Specifications.
- E. Labor, materials, equipment, and services to complete all preparation, relocations and protection work as shown on the Drawings, as specified herein, or both.
- 1.02 SUBMITTALS
  - A. Copy of all permits submitted for tree relocations.
  - B. The Contractor shall utilize the services of a Licensed Landscape Architect or Certified Arborist for preparation of tree disposition plans, tree removal permits, tree relocation permits, and all required supporting documentation.
  - C. Verification of Qualifications: The Contractor shall provide a list of references and project list of a minimum of five (5) projects that the Contractor has successfully completed that are similar in scope and nature.
  - D. List of all equipment to be utilized during tree preparation and transplanting.
  - E. Literature on specified wetting agents, fertilizers, and soil conditioners.
- 1.03 APPLICABLE STANDARDS AND SPECIFICATIONS
  - A. Comply with the following standards and specifications for all materials, methods, and workmanship unless otherwise noted:
    - 1. Codes and Standards of the American Association of Nurserymen.
    - 2. Codes and Standards of the National Arborists Association.
    - 3. Codes and Standards of the International Society of Arboriculturists.
- 1.04 PERMITS

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A. The Contractor shall secure any permits required, including tree removal and tree relocation permits, in order to complete the work under this Section. Cost of permit fees associated with tree removals and/or relocations shall be paid for under the "Permits Allowance" bid item.

### 1.05 DESCRIPTION

- A. Trees to be relocated within the project area will be specifically designated in the field as project work progresses or as noted in the drawings.
- B. Existing trees to be relocated shall be crown pruned and be treated with soil amendments prior to relocation.
- C. Existing trees to be relocated or to remain shall be protected with barricades during construction. Trees or shrubs to remain which are scarred or destroyed shall be replaced at the direction of the City Forester with the same species, size, and quality at no cost to the City.
- D. Tree pits resulting from relocated material shall be backfilled with clean fill and brought flush with surrounding grade.

### 1.06 GUARANTEES

- A. The Contractor shall guarantee his work in the following way:
  - 1. Any tree or palm that dies or is deemed in unacceptable condition for one year following final project acceptance shall be removed by the Contractor, including root ball, and backfilling of pit, at no cost to the City.
  - 2. The Contractor shall provide a comparable specimen at no additional cost to the City.
  - 3. The guarantee shall be enforced if it is deemed by the City Forester that tree mortality or decline is a product of negligence by the Contractor.

### PART 2 – MATERIALS

- 2.01 SOIL AMENDMENTS
  - A. Root stimulant shall be Roots Biostimulant, concentrate or powder, as manufactured by LISA Products Corp., (305) 797-6801, or City-approved equal. Stimulant shall be applied either as a wash, or by injection, mixed per manufacturer's recommendation.
  - B. Soil conditioner shall be Lesco Wet, as manufactured by Lesco, Inc. or NoburN, as manufactured by Roots or City-approved equal.
  - C. Minor element liquid fertilizer mix shall be Micro Mix liquid as produced by Lesco, Inc., or equal; to be diluted at a rate of 1 gallon per 100 gallons of water and applied at a rate of 50 gallons per 1,000 square feet of canopy, or Iron Roots, applied per manufacturer's instructions.

#### TREE RELOCATION AND PROTECTION

- D. Time Release Fertilizer tablets shall be Agriform, 15 grams, designation 8-8-8; or approved equal.
- 2.02 EQUIPMENT
  - A. Soil amendments shall be injected into the soil by means of a spray apparatus utilizing mechanical agitation to keep powdered amendments suspended.
  - B. Root pruning equipment shall be designed for this task, and shall produce clean cuts of roots without damage to the resulting root ball.
  - C. Relocation equipment shall be capable of lifting and transporting trees without damage.
- 2.03 SOIL
  - A. Soil to be placed once trees or palms are transplanted shall meet the requirements specified in the Contract Documents.
- 2.04 WATER
  - A. Water shall be clean and potable.,
- 2.05 MULCH
  - A. Grade A Eucalyptus mulch, free of viable weed seeds.
- 2.06 BRACING AND STAKES
  - A. All bracing and stakes shall be pressure treated pine. Compression bands shall be stainless steel.

#### PART 3 - EXECUTION

- 3.01 EXCAVATING NEAR EXISTING TREES
  - A. Maintain a minimum 6-foot clearance from all tree trucks except palm trees.
  - B. Use a 24-inch minimum depth saw cut in pavement or dirt/gravel roadway before start of excavation in areas where there are large trees close to the construction area. No coating application is required after saw cutting roots.
- 3.02 PREPARATION FOR RELOCATION OF TREES AND PALMS WITHIN THE PROJECT BOUNDARIES
  - A. Crown Pruning: All trees and palms shall be crown pruned prior to relocation.
    - 1. Broadleaf Trees:
      - a. All trees are to be trimmed by thinning the crown only, and not by reducing crown dimensions. Trim to conform to NAA Standards, including removal of dead wood.

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- b. Repair any existing injuries to trees including cavities and machinery marks.
- 2. Palms:
  - a. Remove all fruits and seed pods, and all but the seven (7) youngest fronds.
  - b. Tie all remaining fronds with untreated cotton twine or burlap straps.
- B. Fertilization and Watering:
  - 1. Preparation: Clear the root ball area of all foreign material, trash, etc., to expose undisturbed soil.
  - 2. Application/Schedule:
    - a. Trees shall be deep injection fertilized a minimum of 14 days prior to relocation. Specified liquid fertilizer shall be used and applied at the concentration and application rates stated herein.
    - b. Mix wetting agent, biostimulant, and minor element mix to produce a single fluid with each component included at the specified concentration. Inject into the root zone within the limits of proposed root ball at the rate of 50 gallons fluid per 1,000 square feet of tree canopy, using only approved spray equipment.
    - c. Form an earth berm 6 inches high outside the proposed root ball prior to watering. Water application shall saturate the root ball to its entire depth.
- C. Root Pruning:
  - 1. Technique:
    - a. All trees shall be excavated by digging a trench a minimum of 36 inches deep by 6 inches wide, either by hand or with a trenching machine designed for this purpose. Provide continuous trenching around the tree or palm at a minimum distance of 30 inches from the trunk. Hand cut broadleaf tree roots after trenching to produce clean cuts with no splits or tears.
    - b. Barricades: Barricade all root pruned trees and palms at outside of soil berm with minimum 4-foot chain link fence or other barricade approved by the City.
    - c. Timing:
      - 1) All oaks to be relocated shall be maintained for a minimum of 10 weeks after root pruning prior to relocation.

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- 2) Palms shall be maintained a minimum of 4 weeks prior to relocation.
- 3.03 RELOCATION OF TREES AND PALMS
  - A. General: Trees to be relocated shall be as directed by the Engineer.
  - B. Preparation:
    - 1. Trees and palms shall be injected with soil amendments a minimum of 14 days prior to relocation. Apply at manufacturer's recommended concentration and application rates.
    - 2. Trees and palms shall be thoroughly soaked to the full depth of the root ball daily for seven (7) consecutive days prior to relocation.
    - 3. Accurately locate position and elevation where all trees are intended to be planted, for verification by City Forester. Verify that no overhead or underground utilities, existing or proposed, conflict with proposed locations.
    - 4. Ascertain that all proposed paths for machinery are clear of utilities and other obstructions.
  - C. Excavation of Tree Pits: Dig all pits with vertical sides and flat bottom. Existing soil may be utilized as backfill as directed by the City Forester. All Tree Pits to be lined with root barrier adjacent to roadways and sidewalks as directed by City.
  - D. Digging and Handling Broadleaf Trees:
    - 1. Notify City 2 business days in advance of each relocation to allow for observation of procedures.
    - 2. Determine line of previous root pruning and excavate around root mass to leave area 12 inches out from line of root pruning undisturbed. Digging shall be accomplished so as to produce clean cuts on all roots without tearing or splitting. Trenching shall be a minimum of 36 inches deep.
    - 3. Trees are to be handled in such a way as to avoid damage to bark and limbs subject to support cables or chains. Attach padded support cables or chains at multiple points where possible. Alternatively, tree trunks may be drilled and doweled for broadleaf trees. The City Forester reserves the right to require doweling in lieu of lifting by straps.
    - 4. Root balls are to be undercut prior to lifting. Do not force tree from ground prior to undercutting. Ball depth to be determined upon assessing conditions at time of trenching, to keep intact the entire root ball.
    - 5. Trees shall be properly wrapped during moving so trunks will not be scarred and damaged and to avoid broken limbs. Broken limbs or scarred trunks shall cause tree to be unacceptable and rejected at the City's option. Broken limbs

and wounds which do not (in the judgment of the City Forester) cause the tree to be rejected shall be cleanly cut.

- 6. Transport plant material on vehicles of adequate size to prevent overcrowding, broken limbs, foliage damage or root ball damage.
- 7. Root balls and foliage shall be kept moist during all phases of relocation.
- 8. Partially backfill tree pits with 12 inches of approved planting soil prior to setting tree. This layer of soil to be thoroughly drenched prior to relocation to achieve a stable platform at the correct elevation so that the top of rootball is 1 inch above proposed grade.
- 9. Rotate tree prior to setting to achieve best positioning relative to adjacent trees and viewing angles.
- E. Backfilling:
  - 1. Flood bottom soil layer to settle tree into best position and to remove air pockets.
  - 2. Continue to flood root ball as planting soil is deposited to ensure removal of all air pockets.
  - 3. Create a saucer to retain water.
- F. Bracing:
  - 1. Support tree with machinery until bracing is complete.
  - 2. Buttresses may support separate trunks on multiple trunk trees.
  - 3. Maintain braces until completion of project. Removal of braces shall be by others.
- G. Watering: Relocated trees shall by watered using water-truck. Watering schedule shall be: once per day for first six weeks; followed by three times per week for following six weeks.

- END OF SECTION -

### SECTION 02535

# STRUCTURES

### PART 1 - GENERAL

- 1.01 THE REQUIREMENT
  - A. The Contractor shall construct all precast concrete items as required in the Contract Documents, including all appurtenances necessary to make a complete installation.
- 1.02 RELATED DOCUMENTS
  - A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 General Requirements shall govern the work under this section.
  - B. Section 03400 Precast Concrete, General
- 1.03 WORK INCLUDED
  - A. The work covered by this section shall include the furnishing of all labor, equipment, services, materials, products and tests to perform all operations in connection with the construction of all structures as shown on the plans, defined in these specifications and subject to the terms and conditions of this contract, including, but not limited to, manhole, catch basins, and inlets.
- 1.04 SUBMITTALS
  - A. The Contractor shall furnish the Engineer shop drawings of the precast manholes, endwalls, catch basins, inlets and junctions boxes for approval. Shop drawings should illustrate all dimensions, reinforcements and specifications for the complete manual.

### PART 2 - PRODUCTS

### 2.01 MORTAR

- A. Mortar for use in constructing and plastering sewer structures shall conform to ASTM C-270, "Specifications for Mortar for Unit Masonry". A Portland cement-hydrated lime mixture or a masonry cement may be used provided that the same materials are used throughout the project.
- B. Mortar materials shall be proportioned by volume and shall consist of one part Type II Portland Cement to two parts aggregate (sand). Portland Cement shall conform to ASTM C-150, "Specifications for Portland Cement". Aggregate shall conform to ASTM C-144, "Specifications for Aggregate for Masonry Units."

### STRUCTURES

# 2.02 PRECAST CONCRETE MANHOLE

- A. Precast manhole sections shall conform to the plans or ASTM C-478, Specifications for Precast Reinforced Concrete Manhole Sections as modified thereto whichever is more restrictive. Concrete shall attain a minimum compressive strength of 4,000 psi at 28 days. Minimum wall thickness shall be eight (8") inches. All manholes shall be designed and manufactured for a minimum H-20 traffic loading.
- B. Unless otherwise specified on the plans, all joints shall be made with neoprene or rubber "O" ring compression joints; mastic joint sealing compound, or approved equal. After assembly, all joints shall be filled with mortar and pointed to provide a smooth surface without joint voids.
- C. The base and walls that compose the bottom section of precast manhole shall be of monolithic construction, minimum 8 inches thick, and the edge of the base slab shall project a minimum 4 inches beyond the outside diameter of the wall.
- D. Holes for piping shall be 6 inches larger than the outside diameter of the respective pipe. After the pipe is set, the void space between the pipe and the hole perimeter shall be completely filled with non-shrinking, quick-setting, waterproof cement mortar and struck smooth.
- E. The minimum height of precast base section shall be 36 inches from the bottom of the base slab; however, no holes for piping shall be cast less than 8 inches from the top of the base section or less than 2 inches from the top of the base slab.

### 2.03 ENDWALLS, CATCH BASINS, INLETS AND JUNCTIONS BOXES

- A. Endwalls, catch basins, inlets and junction boxes shall be constructed at the locations shown and to the dimensions indicated on site plans. Unless otherwise specified on the plans, inlets, junction boxes, catch basins, and similar structures may be constructed of brick, concrete block, poured concrete or precast concrete. Precast catch basins shall conform to latest A.C.I. and P.C.A. specifications. Concrete shall have not less than 4,000 psi compressive strength at 28 days. Minimum wall thickness shall be six (6") inches. All structures shall be designed and manufactured for a minimum H-20 traffic loading.
- B. Unless otherwise specified on the plans, all concrete for these structures shall be Class I concrete as specified in the Florida Department of Transportation "Standard Specifications for Road and Bridge Construction", latest revision, Section 345. Mortar for use in constructing and plastering shall be as previously set forth in this section.
- C. Brick shall be solid hard-burned clay conforming to ASTM Serial C-32-93, Grade SM. Concrete brick shall conform to ASTM Serial C-55-75, Grade P-I. Concrete block shall conform to ASTM Serial C-90-78, Grade PI.
- D. All brick or concrete block structures covered in this Section shall be plastered inside and outside with 1/2 inch of cement mortar. Inside surfaces shall be smooth and even.

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- E. Base slabs and walls of concrete structures shall be constructed in a continuous pour between expansion joints.
- F. For each grate type inlet, two layers of Mirafi 140 fabric of "Poly Filter X" polypropylene material or approved equal, shall be sandwiched between 2 x 2 x 10/10 welded wire fabric cut to the grate size and attached to the underside of the grate. The sandwiched filter material shall be wired to the cross members of the grate each way on 4-inch centers. After inlet construction and the roadway construction is completed and the project site work (including landscaping) has been established, the filter material and fabric shall be removed with any retained silt or sand.
- 2.04 CASTINGS (INCLUDING FRAMES, COVERS AND GRATINGS)
  - A. Iron castings shall conform to ASTM A-48, "Specifications for Gray Iron Castings", and shall be Class 30. Frames and grates may be Class 20.
  - B. All castings shall be made of clean, even grain, tough grey cast iron. The castings shall be smooth, true to pattern and free from projections, san holes, warp and other defects. The horizontal surface of the frame cover seats and the under surface of the frame cover seat which rests upon the cover seat shall be machined. After machining, it shall not be possible to rock any after it has been seated in any position in its associated frame. Machining shall be required only on those frames and covers intended for vehicular traffic.
  - C. Bearing surfaces between cast frames, covers and grates shall be machined and fitted together to assure a true and even fit. Within areas of vehicular traffic, the frames, covers and gratings shall be machined-ground so that irregularity of contact will be reduced to a minimum and will be rattle-proof.
  - D. All manhole covers shall be provided with concealed pick holes. Manufacturer's name and catalog number shall be cast on all frames, covers, grates, etc. Covers shall be lettered "Storm" "Storm Drain" or "Storm Sewer" or "Sanitary Sewer" as applicable and shall be plainly visible. The manhole frames and covers shall be flush with finished grade. Sanitary Sewer manhole covers shall bear the City logo as manufactured by US Foundry or approved equal.
  - E. Grates and covers for inlets shall be as shown on the plans, set to the grades indicated and conforming with the requirements of the castings described above. Grates shall be furnished complete with frames specifically constructed to provide full bearing at all points of contract.

# PART 3 - EXECUTION

- 3.01 CHANNELS
  - A. Channels shall be accurately and smoothly formed in accordance with the plans. Channels shall be constructed of concrete with trowel finished surfaces. The upper surface of the manhole shall be sloped toward the channels as shown.

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# STRUCTURES

- B. Drop pipe at sanitary sewer manhole shall be installed when the difference in elevation between the pipe invert and the invert at the center of the manhole exceeds two feet (2'), or where directed by the City. The drop manhole shall be built according to the plans and specifications.
- C. After channels are formed and section joints are pointed, the interior of the manhole shall be painted with two coats of Koppers Bitumastic 300-M (7 mils per coat) or approved equal. The exterior shall be painted in a similar manner, if required by local regulations.

# 3.02 CONCRETE GRADE RINGS

- A. All concrete grade rings shall meet ASTM C478 and shall be a minimum 4,000 psi @ 28 days. Concrete grade rings shall be a minimum thickness of 2 inches and a maximum thickness of 6 inches. No more than 8 inches of concrete grade rings shall be installed on one manhole. Concrete grade rings shall be laid in mortar and all joints shall be finished smooth and not be less than 1/4 inch or more than 1/2 inch in thickness. Concrete grade rings shall be painted with two coats of Koppers Bitumastic 300-M (7 mils per coat) or approved equal.
- 3.03 MANHOLE AND STRUCTURES
  - A. All joints shall be finished water tight, all openings for sewers, frames, etc., in precast manhole and catch basins shall be cast at time of manufacture. Spaces around all piping entering or leaving manhole shall be completely filled with Embeco mortar or equal.
  - B. All manhole shall be set plumb to line and grade and shall rest on a firm carefully graded subgrade which shall provide uniform bearing under base.
  - C. Grout for manhole bottoms shall consist of broken block, brick and 2:1 cement mortar.
- 3.04 CLEANING AND MAINTENANCE
  - A. All structures shall be cleaned and maintained in workable condition until accepted by the City.

- END OF SECTION -

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# STRUCTURES

# SECTION 02630

### STORM DRAINAGE FACILITIES

### PART 1 - GENERAL

#### 1.01 SUMMARY

A. Work under this section shall consist of providing all labor, plant facilities, materials, tools, equipment, shop drawings and supervision necessary and required to install all of the storm drainage facilities, including piping, fittings, structures, bedding, and backfilling, as specified in accordance with the contract documents.

### 1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the Storm Drainage Facilities work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

# 1.03 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
  - 1. A185 Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
  - 2. A615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
  - 3. A760 Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
  - 4. A798 Installation of Corrugated-Steel Pipe for Sewers and Other Applications
  - 5. A929 Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe
  - 6. C76 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
  - 7. C478 Precast Reinforced Concrete Manhole Sections
  - 8. C1479 Installation of Reinforced Concrete Pipe
  - 9. C990-01A Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
  - 10. D2321 Installation of Thermoplastic Pipe for Sewer/Gravity-Flow Applications
  - 11. D3034 Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
  - 12. D3212 Joints for Drain and Sewer Plastic Pipes Using Elastomeric Seals

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STORM DRAINAGE FACILITIES

- 13. F477 Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- 14. F794 Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter
- 15. F949 Poly(Vinyl Chloride) (PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings
- B. American Association of State Highway and Transportation Officials (AASHTO)
  - 1. M198 Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets
  - 2. M252 Corrugated Polyethylene Drainage Tubing
  - 3. M274 Aluminum-Coated (Type 2), for Corrugated Steel Pipe
  - 4. M294 Corrugated Polyethylene Pipe. 12 to 14 inch Diameter
  - 5. M36 Metallic Coated Corrugated Steel Culverts and Underdrains
  - 6. M190 Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches
  - 7. M199 Standard Specification for Precast Reinforced Concrete Manhole Sections
- C. American Water Works Association (AWWA)
  - 1. C110 Ductile-Iron and Gray-Iron Fittings, 3 in through 48 in (75 mm through 1200 mm), for Water and Other Liquids (revision of ANSI/AWWA C110/A21.10-93)
  - 2. C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
  - 3. C151 Ductile-Iron Pipe, Centrifugally Cast, for Water
- D. American Concrete Institute (ACI)
  - 1. 301 Structural Concrete for Buildings, Specifications for
  - 2. 318 Building Code Requirements for Structural Plain Concrete
- 1.04 EXISTING UTILITIES
  - A. Furnish temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, cables, etc., and other obstructions encountered in the progress of the work.
  - B. When the grade of alignment of the pipe is obstructed by existing utility structures, such

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### STORM DRAINAGE FACILITIES

as conduits, ducts, pipes, branch connections to water or sewer mains, and other obstructions, the obstructions shall be permanently supported, relocated, removed or reconstructed by the Contractor in cooperation with the owners of such structures. No deviation shall be made from the required line or grade except as directed in writing by the Engineer.

- C. It shall be the responsibility of the Contractor to notify the owners of existing utilities in the area of construction a minimum of 48 hours prior to any excavation adjacent of such utilities, so that field locations of said utilities may be established.
- D. Temporary relocation of existing utilities (to be removed) to accommodate installation of storm drain pipe shall be the responsibility of the Contractor and approved by the Engineer. No additional payment shall be made for temporary relocation of existing utilities and shall be considered part of the bid item for the pipe.

# 1.05 QUALITY ASSURANCE

A. All costs related to re-inspection due to failures shall be paid for by the Contractor at no additional expense to the City. City reserves the right to direct any inspection that is deemed necessary. Contractor shall provide free access to site for inspection activities.

# PART 2 - PRODUCTS

- 2.01 REINFORCED CONCRETE PIPE (RCP)
  - A. REINFORCED CONCRETE PIPE ASTM C 76
    - 1. Unless noted otherwise, all RCP pipe shall be in accordance with the requirements of "Reinforced Concrete Pipe – ASTM C 76".
    - 2. RCP shall be manufactured in accordance with ASTM C 76, Wall Type B or C, unless otherwise specified herein; and shall be of the class that equals or exceeds the pipe class as specified in the Contract Documents. Minimum pipe laying lengths shall be four (4) feet. Portland cement shall conform to ASTM C 150, Type II.
    - 3. Pipe shall have bell and spigot ends with O-ring rubber gaskets. The gaskets shall be smooth solid rubber of circular and uniform cross section conforming to ASTM C 43. The spigot end of the pipe shall contain a special groove or slot to receive and hold the gasket in position during the joint assembly. The complete joint shall be subjected to hydrostatic tests conforming to ASTM C 443.
    - 4. All pipe and specials shall be aged at the manufacturing plant for at least fourteen (14) days before delivery to the job site.

# B. REINFORCED CONCRETE PIPE – ASTM C361

- 1. Reinforced concrete low-head pressure pipe shall be manufactured in accordance with ASTM C361, and shall be of the class that equals or exceeds the pipe class as specified in the Contract Documents. Minimum pipe laying lengths shall be twelve (12) feet.
- 2. Pipe shall have steel joint rings with O-ring rubber gaskets. The gaskets shall be smooth solid rubber of circular and uniform cross section and shall be confined in an annular space formed by shoulders on the bell and spigot or in a special groove in the spigot to receive and hold the gasket in position during the joint assembly. The complete joint shall be subjected to hydrostatic tests conforming to ASTM C361.
- 3. All pipe and specials shall be aged at the manufacturing plant for at least fourteen (14) days before delivery to the job site.

# C. CONCRETE CULVERT AND DRAIN PIPE

- 1. All reinforced concrete culvert and drain pipe shall be manufactured in accordance with ASTM C76, Wall Type B or C, and shall be of the class that equals or exceeds the pipe class as specified herein or as shown on the Contract Drawings. Minimum pipe laying lengths shall be four (4) feet. Testing shall be in accordance with the Contract Documents. Portland cement shall conform to ASTM C150, Type II.
- 2. Joints for the reinforced concrete culvert and drain pipe shall have bell and spigot ends with flexible plastic gaskets meeting the requirements of AASHTO M198, Type B.
- 3. All pipe shall be aged at the manufacturing plant for at least fourteen (14) days before delivery to the job site.

### 2.02 HIGH PERFORMANCE POLYPROPYLENE PIPE

- 1. High Performance polypropylene storm pipe shall be produced by a reputable manufacturer engaged in the full time business of manufacturing of piping.
- 2. All High Performance polypropylene storm pipe shall have a smooth wall interior and annular exterior corrugations conforming to the requirements of ASTM F2736 and AASHTO M330.
- 3. Joints: Pipe shall be joined with a gasket integral bell and spigot joint meeting the requirements of ASTM F2736. Joint must be completely water tight according to the requirements of ASTM 3212. Spigots shall have gaskets meeting requirements of ASTM F477. The gasket joint on the inside of the bell shall be installed on the pipe at the plant by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint

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### STORM DRAINAGE FACILITIES

lubricant provided from the manufacturer shall be used on the gasket and bell during assembly. All materials and accessories for the gasket joint and the methods of jointing shall be in strict conformance with the pipe manufacturer's direction and recommendation.

- 2.03 HIGH DENSITY POLYETHYLENE PIPE:
  - 1. High Density Polyethylene Pipe (HDPE), shall be corrugated type, smooth interior, conforming to ASTM F2648, ASTM F477, ASTM 3212, AASHTO M252 and AASHTO M294 and shall be smooth interior and annular exterior corrugations with a Manning's "n" value of 0.012I.
  - 2. Basic Material:
    - a. Extruded Pipe and Blow Molded Fittings: Pipe and fittings shall be made of virgin PE compounds which conform with the requirements for Type III, Category 4 or 5, Grade P33, Class C; or Grade P34, Class C, as defined and described in ASTM D 1248.
    - b. Rotational Molded Pipe and Fittings: Pipe and fittings shall be made of virgin PE compounds which conform with the requirements of Type III, Category 3, Grade P33, Class C: or Grade P34, Class C, as defined and described in ASTM D1248.
  - 3. Corrugated Polyethylene Pipe shall meet the requirements as describe in ASTM D 2412 for pipe stiffness.
  - 4. Corrugated Polyethylene Pipe shall be in accordance for brittleness with ASTM D 2444.
- 2.04 PVC CORRUGATED PIPE
  - 1. PVC Corrugated storm pipe shall be produced by a reputable manufacturer engaged in the full time business of manufacturing of piping and conform to the requirements of ASTM F949.
  - 2. PVC Corrugated storm pipe shall have smooth wall interior and annular exterior corrugations. Pipe shall be made of PVC having a minimum cell classification of 12454 per ASTM D1784.
  - 3. Joints: Pipe shall be joined with a gasket integral bell and spigot joint meeting the requirements of ASTM F2736. Joint must be completely water tight according to the requirements of ASTM 3212. Spigots shall have gaskets meeting requirements of ASTM F477. The gasket joint on the inside of the bell shall be installed on the pipe at the plant by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant provided from the manufacturer shall be used on the gasket and bell during assembly. All materials and accessories for the gasket joint and the methods of jointing shall be in strict conformance with the pipe manufacturer's direction and recommendation.

### PART 3 - EXECUTION

#### 3.01 GENERAL

- A. Contractor shall only use the pipe material as specified on the plans. Alternate materials will not be allowed unless approved by the Engineer in writing.
- B. The Contractor shall install all drainage structures and pipe in the locations shown on the drawings and/or as approved by the City. Pipe shall be of the type and sizes specified on the drawings and shall be laid accurately to line and grade. Structures shall be accurately located and properly oriented.
- C. Excavation and Backfilling for Utilities The provisions of the Contract Documents for Excavation and Backfilling shall govern all work under this Section.
- D. Storage and Handling of Pipe All pipe shall be protected against impact, shock and free fall, and only equipment of sufficient capacity and proper design shall be used in the handling of the pipe. Storage of pipe on the job shall be in accordance with the pipe manufacturer's recommendations.
- E. Damage to Pipe
  - 1. Pipe which is defective from any cause, including damage caused by handling, and determined by the City as unrepairable, shall be unacceptable for installation and shall be replaced at no cost to the City and as directed by the City; and,
  - 2. Pipe that is damaged or disturbed through any cause prior to acceptance of the work, shall be repaired realigned or replaced as directed by the City, at the Contractor's expense.
- F. Manholes, catch basins and drain inlets shall be constructed as soon as the pipe laying reaches the location of the structures. Should the Contractor continue his pipe laying without making provisions for completion of the structures, the City shall have the authority to stop the pipe laying operations until the structure is completed.
- G. Any structure, which is mislocated or oriented improperly, shall be removed and re-built in its proper location, alignment and orientation at the Contractor's expense.
- 3.02 EXCAVATION AND BACKFILL
  - A. Excavation and backfill shall be as per the Section entitled "Excavation and Backfill for Utilities".
- 3.03 PIPE INSTALLATION
  - A. Laying Pipe
    - 1. Unloading and Handling: All pipes shall be unloaded and handled with reasonable care. Pipes shall not be rolled or dragged over gravel or rock during

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#### STORM DRAINAGE FACILITIES

handling. The Contractor shall take necessary precautions to ensure the method used in lifting or placing the pipe does not induce stress fatigue in the pipe and the lifting device used uniformly distributes the weight of the pipe along its axis or circumference.

- 2. Each length of pipe shall be inspected for defects and cracks before carefully lowered into the trench. Any damaged or any pipe that has had its grade disturbed after laying shall be removed and replaced. Bituminous coated pipe shall be handled with special care and repair of damaged coating shall conform with AASHTO M190.
- 3. Lay pipe on prepared foundation starting at the downgrade end according to line and grade with the necessary drainage structures, fittings, bends and appurtenances as shown on the drawings. Rigid pipes shall be laid with the bell or groove ends upgrade with the spigot or tongue fully inserted. Reinforced concrete pipe shall be installed in accordance with ASTM C1479.
- 4. Pipe sections shall be firmly joined together with appropriate gaskets or bands.
- 5. Pipe shall be protected during handling against impact shocks and free falls. Pipe shall be kept clean at all times and no pipe shall be used that does not conform to the Specifications.
- 6. The laying of the pipe shall be commenced at the lowest point with spigot ends pointing in the direction of flow. All pipe shall be laid with ends abutting and true to line and grade. They shall be laid in accordance with manufacturer's requirements as approved by the Engineer.
- 7. Pipe shall be laid accurately to the line and grade as designated on the plans. Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed, or of the factory made jointing material, shall be clean and dry. Lubricant, primers, adhesive, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, joined and adjusted in such a manner as to obtain a water tight line. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of pipe off line and grade.
- 8. The exposed ends of all pipe shall be suitably plugged to prevent earth, water, or other substances from entering the pipe when construction is not in progress.

### 3.04 CONCRETE ENCASEMENT OF DRAINAGE PIPE

A. Trenches in which encasement for pipe are to be placed may be excavated completely with mechanical equipment. Prior to formation of the encasement, temporary supports consisting of timber wedges or masonry shall be used to support the pipe in place. Temporary supports shall have minimum dimensions and shall support the pipe at no more than two places, one at the bottom of the barrel of the pipe adjacent to the shoulder of the socket and the other near the spigot end.

### 3.05 DRAINAGE STRUCTURES

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### STORM DRAINAGE FACILITIES

A. All structures shall be built to the line and grade shown on drawings. All reinforced concrete work shall be in strict conformance with the concrete specifications contained herein. After erection of the forms and placing of the steel, the Contractor must have inspection and approval from the Engineer before placing any concrete. After removal of the forms, the Contractor shall backfill around each structure with approved granular fill. The fill shall be placed in layers not exceeding 8 inches in depth measured loose and compacted to 98% of the maximum density as determined by the modified proctor, AASHTO T-180. No defects of any kind in the pipe section will be sealed with a concrete plug, water tight. The ends of the pipes which enter masonry shall be neatly cut to fit the inner face of the masonry. Cutting shall be done before the pipes are built in.

# 3.06 INFILTRATION AND EXFILTRATION TESTS

A. Tests for watertightness shall be made by the Contractor. Leakage of completed storm drainage system shall not exceed 500 U.S. gallons per day per inch diameter per mile of pipe under minimum hydrostatic pressure of 2 feet. Test shall be conducted in a manner satisfactory to the Engineer. Any portion of the project not conforming to the above requirements shall be corrected by the Contractor, at his own expense, prior to acceptance by the Engineer.

# 3.07 PROTECTION AND CLEANING

- A. The Contractor shall maintain all pipe installations and drainage structures in a condition such that they will function continuously and shall be kept clean of silt, debris and other foreign matter from the pipe and drainage structure is installed until the project is accepted.
- 3.08 FINAL INSPECTION
  - A. All storm sewers shall be lamped by the Engineer prior to acceptance of the work. Repairs or misalignment shown necessary by the tests shall be corrected at the Contractor's expense. All sewers shall be thoroughly cleaned before being placed into use and shall be kept clean until final acceptance by the Engineer.
  - B. Upon completion of the work and before final acceptance by the City, the entire drainage system shall be subject to a final inspection in the presence of the City and/or Engineer. The work shall not be considered as complete until all requirements for line, grade, cleanliness, and workmanship have been completed.

- END OF SECTION -

# SECTION 02710

# LIMEROCK BASE

### PART 1 - GENERAL

### 1.01 DEFINITIONS

- A. Completed Course: Compacted, unyielding, free from irregularities, with smooth, tight, even surface, true to grade, line, and cross section.
- B. Completed Lift: Compacted with uniform surface reasonably true to cross-section.

### PART 2 – MATERIALS

### 2.01 LIMEROCK BASE ROCK

- A. The material used in limerock base shall be material classified as Miami Oolite Formation.
- B. The minimum of carbonates of calcium and magnesium in the limerock shall be 70 percent. The maximum percentage of water-sensitive clay material shall be 3.
- C. Limerock material shall be uniform in color and not contain cherty or other extremely hard pieces, or lumps, balls, or pockets of sand or clay size material in sufficient quantities as to be detrimental to the proper bonding, finishing, or strength of the limerock base.
- D. The limerock base shall be uniformly graded from coarse to fine with 97 percent passing a 3-1/2-inch sieve, 80 percent passing a 2-inch sieve. The fine material shall consist entirely of dust of fracture. All crushing or breaking up, which might be necessary in order to meet such size requirements, shall be done before the material is placed on the road.
- E. Physical Qualities:
  - 1. Liquid Limit, AASHTO T89: Maximum 35 percent.
  - 2. Nonplastic.
  - 3. Limerock material shall have an average limerock bearing ratio (LBR) value of not less than 100.

# 2.02 SOURCE QUALITY CONTROL

A. Contractor: Perform tests necessary to locate acceptable source of materials meeting specified requirements.

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### LIMEROCK BASE

- B. Final approval of aggregate material will be based on materials' test results on installed materials.
- C. Should separation of coarse from fine materials occur during processing or stockpiling, immediately change methods of handling materials to correct uniformity in grading.

### PART 3 - EXECUTION

#### 3.01 SUBGRADE PREPARATION

- A. As specified in the Contract Documents.
- B. Obtain City's acceptance of subgrade before placement of limerock base rock.
- C. Do not place base materials on soft, muddy subgrade.

#### 3.02 EQUIPMENT

A. Use mechanical rock spreaders, equipped with a device that strikes off the rock uniformly to laying thickness, capable of producing even distribution. For areas where the use of a mechanical spreader is not practicable, the Contractor may spread the rock using bulldozers or blade graders.

#### 3.03 HAULING AND SPREADING

- A. Hauling Materials:
  - 1. The limerock shall be transported to the point where it is to be used and dumped on the end of the preceding spread.
  - 2. Do not haul over surfacing in process of construction.
  - 3. Loads: Of uniform capacity.
  - 4. Maintain consistent gradation of material delivered; loads of widely varying gradations will be cause for rejection.
- B. Spreading Materials:
  - 1. Distribute material to provide required density, depth, grade and dimensions with allowance for subsequent lifts.
  - 2. Produce even distribution of material upon roadway without segregation.
  - 3. Should segregation of coarse from fine materials occur during placing, immediately change methods of handling materials to correct uniformity in grading.

LIMEROCK BASE

# 3.04 CONSTRUCTION OF COURSES

- A. General: Complete each lift in advance of laying succeeding lift to provide required results and adequate inspection.
- B. Limerock Base:
  - 1. Maximum Completed Lift Thickness: 6 inches or equal thickness.
  - 2. Completed Course Total Thickness: As shown on the Drawings.
  - 3. Spread lift on preceding course to required cross-section.
  - 4. Lightly blade and roll surface until thoroughly compacted.
  - 5. Blade or broom surface to maintain true line, grade, and cross-section.
- C. Gravel Surfacing:
  - 1. Maximum Completed Lift Thickness: 6 inches or equal thickness.
  - 2. Completed Course Total Thickness: As shown on the Drawings.
  - 3. Spread on preceding course in accordance with cross-section shown.
  - 4. Blade lightly and roll surface until material is thoroughly compacted.

# 3.05 ROLLING AND COMPACTION

- A. Commence compaction of each layer of base after spreading operations and continue until density of 98 percent of maximum density has been achieved as determined by AASHTO T 180.
- B. Density tests will be conducted every 500 square yards or as directed by the City.
- C. Roll each course of surfacing until material shall not creep under roller before succeeding course of surfacing material is applied.
- D. Commence rolling at outer edges of surfacing and continue toward center; do not roll center of road first.
- E. When the material does not have the proper moisture content to ensure the required density, wet or dry, as required. When adding water, uniformly mix it in by disking to the full depth of the course that is being compacted. During wetting or drying operations, manipulate as a unit, the entire width and depth of the course that is being compacted.
- F. Place and compact each lift to required density before succeeding lift is placed.

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LIMEROCK BASE

- G. Bind up preceding course before placing leveling course. Remove floating or loose stone from surface.
- H. Blade or otherwise work surfacing as necessary to maintain grade and cross-section at all times, and to keep surface smooth and thoroughly compacted.
- I. Surface Defects: Remedy surface defects by loosening and rerolling. Reroll entire area, including surrounding surface, until thoroughly compacted.
- J. Finished Surface: True to grade and crown before proceeding with surfacing.

### 3.06 SURFACE TOLERANCES

- A. Finished Surface of Base Course and Leveling Course: Within plus or minus 0.04-foot of grade shown at any individual point.
- B. Compacted Surface of Leveling Course: Within 0.04-foot from lower edge of 10-foot straightedge placed on finished surface, parallel to centerline.
- C. Overall Average: Within plus or minus 0.01-foot from crown and grade specified.

### 3.07 GRAVEL DRIVEWAY RESURFACING

- A. Replace gravel surfacing on driveways which were gravel surfaced prior to construction.
- B. Provide compacted gravel surfacing to depth equal to original, but not less than 4 inches.
- C. Leave each driveway in as good or better condition as it was before start of construction.

# 3.08 FIELD QUALITY CONTROL

- A. In-Place Density Tests:
  - 1. Construct base course so areas shall be ready for testing.
  - 2. Allow reasonable length of time for City to perform tests and obtain results during normal working hours.

# 3.09 CLEANING

A. Remove excess material; clean stockpile areas of aggregate.

- END OF SECTION -

# SECTION 02761

### PAVEMENT MARKING

### PART 1 - GENERAL

### 1.01 STANDARD SPECIFICATIONS

A. When referenced in this section, Standard Specifications shall mean Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, current edition. All Pavement Markings and Signage shall conform to the Broward County Traffic Engineering Division (BCTED) Standards, latest revision.

### 1.02 SUBMITTALS

A. The Contractor shall submit all products used for pavement markings in accordance with the Section entitled "Submittals".

### 1.03 DELIVER, STORAGE, AND PROTECTION

- A. Packaging and Labeling: All coatings and traffic marking materials shall be shipped in strong containers plainly marked with the weight in pounds per gallon, the volume of coatings and traffic marking materials content in gallons, the color, user information, date of manufacture, LOT, batch and DOT code number. Each batch manufactured shall have a unique number. A true statement of the percentage composition of the pigment, the proportion of pigment to vehicle, and the name and address of the manufacturer, also shall be shown. The label shall warn the user of any special handling or precautions of the material, as recommended by the manufacturer. Any package not so marked will not be accepted for use under these Specifications.
- B. Storage: Any coatings and traffic marking materials which, although inspected and approved at the point of manufacture, hardens or livers in the containers so that it cannot be readily broken up with a paddle to a smooth, uniform painting consistency, will be rejected. All materials shall have a container storage life of one year from date of manufacture. Any coatings and traffic marking materials not acceptable for proper application will be rejected, even though it conforms to these Specifications in all other respects.
- C. Mixing: All paints except aluminum shall be delivered to the project completely mixed, and ready to be used without additional oil or thinner. Gasoline shall not be used for thinner under any circumstances.

#### PART 2 - MATERIALS

### 2.01 PAINT

- A. Color: White, yellow, or blue traffic striping meeting the requirements of BCTED and the Standard Specifications.
- B. Homogeneous, easily stirred to smooth consistency, with no hard settlement or other objectionable characteristics during a storage period of 6 months.

### 2.02 THERMOPLASTIC STRIPING

- A. White or yellow thermoplastic striping material meeting the requirements of BCTED and the Standard Specifications.
- 2.03 RAISED REFLECTIVE MARKERS
  - A. Metallic or nonmetallic, or prismatic reflector type, of permanent colors retaining color and brightness under action of traffic.
  - B. Rounded surfaces presenting a smooth contour to traffic. The minimum area of each reflective face shall be 2-1/2 inches squared.
  - C. Marker and adhesive epoxy in accordance with ASTM D4280
  - D. Markers shall meet the requirements of BCTED and the Standard Specifications.

### 2.04 GLASS SPHERES

- A. Glass spheres shall be of a composition designed to be highly resistant to traffic wear and to the effects of weathering.
- B. In accordance with AASHTO M247, Type I with moisture resistant coating or a formulation specified by the traffic striping material manufacturer and the BCTED and the Standard Specifications.

### PART 3 - EXECUTION

#### 3.01 SURFACE PREPARATION

- A. Cleaning:
  - 1. Thoroughly clean surfaces to be marked before application of pavement marking material.
  - 2. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water or a combination of these methods.

### PAVEMENT MARKING

- 3. Completely remove rubber deposits, surface laitance, existing paint markings, and other coatings adhering to pavement with scrapers, wire brushes, sandblasting, approved chemicals, or mechanical abrasion.
- 4. Scrub areas of old pavement affected with oil or grease with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application.
- 5. Surfaces shall be completely free of dry dirt and ice, and dry of water at the time of application of any of the materials specified herein.
- 6. Oil-Soaked Areas: After cleaning, seal with cut shellac to prevent bleeding through the new paint.
- 7. Reclean surfaces when Work has been stopped due to rain.
- 8. Existing Pavement Markings:
  - a. Remove existing pavement markings that may interfere or conflict with newly applied marking patterns, or that may result in a misleading or confusing traffic pattern.
  - b. Do not apply thermoplastic markings over existing preformed or thermoplastic markings.
  - c. Perform grinding, scraping, sandblasting or other operations so finished pavement surface is not damaged.
- B. Pretreatment for Early Striping: Where early striping is required on rigid pavements, pretreat with an aqueous solution containing 3 percent phosphoric acid and 2 percent zinc chloride.
- C. New Concrete Pavement:
  - 1. Allow a minimum cure time of 30 days before cleaning and marking.
  - 2. Clean by either sandblasting or water blasting to the following results:
    - a. No visible evidence of curing compound on peaks of textured concrete surface.
    - b. No heavy puddled deposits of curing compound in valleys of textured concrete surface.
    - c. Remaining curing compound is intact, with loose and flaking material completely removed.
    - d. Peaks of textured pavement surface are rounded in profile and free of sharp edges and irregularities.

### PAVEMENT MARKING

3. Allow a minimum drying time of 24 hours after water blasting before applying thermoplastic markings.

### 3.02 ALIGNMENT FOR MARKINGS

A. The Contractor shall be responsible for all measurements, reference points and marks, string lining, and any other steps required in establishing pavement marking locations and alignment. On tangents and on curves up to 1 degree, the alignment of the marking shall not deviate from the string line by more than 1 inch. On curves exceeding 1 degree, the maximum permissible deviation shall be 2 inches. All alignment width and location shall conform to the details shown on the Drawings.

### 3.03 PAINT APPLICATION

- A. General:
  - 1. Thoroughly mix pigment and vehicle together prior to application, and keep thoroughly agitated during application.
  - 2. Do not add thinner.
  - 3. Apply only when air and pavement temperatures are above 40 degrees F and less than 95 degrees F. Maintain paint temperature within these same limits.
  - 4. Apply only when surface is dry.
  - 5. Do not apply when conditions are windy to the point of causing overspray or fuzzy line edges.
  - 6. New Asphalt Pavement: Allow a minimum pavement cure time as recommended by the manufacturer before applying paint.
  - 7. Provide guide lines and templates to control paint application.
  - 8. Take special precautions in marking numbers, letters, and symbols.
  - 9. Sharply outline edges of markings and apply without running or spattering.
- B. Rate of Application:
  - 1. Reflective Markings:
    - a. Paint: Apply evenly, 105 plus or minus 5 square feet per gallon.
    - b. Glass Beads: Apply uniformly, 6 plus or minus 0.5 pounds of glass spheres per gallon of paint.

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### PAVEMENT MARKING

- 2. Nonreflective Markings: Apply paint evenly to pavement surface at a rate of 105 plus or minus 5 square feet per gallon.
- 3. On new pavement or new asphalt surface treatments, apply two coats of paint at a uniform rate of 210 square feet per gallon.
- C. Drying:
  - 1. Provide maximum drying time to prevent undue softening of bitumen and pickup, displacement, or discoloration by traffic.
  - 2. If drying is abnormally slow, discontinue painting operations until cause is determined and corrected.

### 3.04 THERMOPLASTIC MARKING APPLICATION

- A. Following specified surface preparation, prime and apply marking and glass beads to provide a reflectorized strip as shown on Drawings.
- B. The material shall be applied to the pavement by the extrusion method only, wherein one side of extrusion shaping die is the pavement and the other sides are formed by suitable equipment for heating and controlling the flow of the material.
- C. Application Temperatures:
  - 1. Pavement Surface: Minimum 40 degrees F and rising.
  - 2. Thermoplastic: Minimum 375 degrees F, maximum 425 degrees F.
- D. Primer:
  - 1. On portland cement concrete and existing asphalt pavements, apply epoxy resin primer/sealer according to the thermoplastic manufacturer's recommendations.
  - 2. All primer/sealer to dry prior to applying thermoplastic.
- E. Thermoplastic Marking:
  - 1. Extrude in a molten state, free of dirt or tint. at a thickness of 0.10 to 0.15 inch for lane lines and 0.07 to 0.10 inch for edge or other lines in accordance with FDOT Design Standards.
  - 2. Apply centerline, skipline, edgeline, and other longitudinal type markings with a mobile applicator.
  - 3. Apply special markings, crosswalks, stop bars, legends, arrows, and similar patterns with a portable, extrusion-type applicator.
- F. Glass Bead Application:

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### PAVEMENT MARKING

- 1. Immediately after marker application, mechanically apply such that the beads are held by and imbedded in the surface of the molten material.
- 2. Application Rate: One pound per 20 square feet of compound.
- G. Cool completed marking to ambient temperature prior to allowing vehicular traffic.

#### 3.05 INSTALLATION OF RAISED REFLECTIVE MARKERS

- A. Apply markers to the bonding surface using bituminous adhesives only.
- B. Apply the adhesive to the binding surface (not the marker) so that 100 percent of the bonding area of the marker will be covered.
- C. Align markers carefully, projecting no more than 3/4-inch above level of pavement. Reflective face of the marker shall be perpendicular to a line parallel to the roadway centerline. Do not install markers over longitudinal or transverse joints of the bonding surface.
- D. Spacing: As shown on the Drawings or as required by BCTED.
- E. Immediately remove excess adhesive from the bonding surface and exposed surface of the marker.
- F. Use only a mineral spirits meeting Federal Specifications TT-T-291 to remove adhesive from exposed faces of markers.

### 3.06 GLASS BEAD APPLICATION

- A. Apply immediately following application of paint.
- B. Use evenly distributed, drop-on application method.
- C. Rate: 10 pounds per gallon of paint.

### 3.07 PROTECTION

- A. The Contractor shall erect adequate warning signs and/or provide sufficient number of flagmen, and take all necessary precautions for the protection of the materials and safety of the public.
- B. Protect surfaces from disfiguration by paint spatters, splashes, spills, or drips.

#### 3.08 CLEANUP

A. Remove paint spatters, splashes, spills, or drips from Work and staging areas and areas outside of the immediate Work area where spills occur.

- END OF SECTION -

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### PAVEMENT MARKING

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### SECTION 02771

# CONCRETE CURBS AND SIDEWALKS

# PART 1 - GENERAL

# (NOT USED)

### PART 2 - MATERIALS

### 2.01 EXPANSION JOINT FILLER

A. 1/2-inch thick, preformed asphalt-impregnated, expansion joint material meeting AASHTO M153 Type I, II, or III, or AASHTO M213, or cellulose fiber types meeting the requirements of AASHTO M213, except the asphalt content is acceptable provided they contain minimum of 0.2 percent copper pentachlorophenate as a preservative and 1 percent water proofing wax.

### 2.02 CONCRETE

- A. Ready-mixed meeting ASTM C94, Option A, with compressive strength of 3,000 psi at 28 days.
- B. Maximum Aggregate Size: 1-1/2 inch.
- C. Slump: 2 to 4 inches.
- 2.03 CURING COMPOUND
  - A. Liquid membrane-forming, clear or translucent, suitable for spray application and meeting ASTM C309, Type 1.

### PART 3 - EXECUTION

- 3.01 FORMWORK
  - A. Lumber Materials:
    - 1. 2 inch dressed dimension lumber, or metal of equal strength, straight, free from defects that would impair appearance or structural quality of completed curb and sidewalk.
    - 2. 1 inch dressed lumber or plywood may be used where short-radius forms are required.
  - B. Metals: Steel in new undamaged condition.
  - C. Setting Forms:
    - 1. Construct forms to shape, lines, grades, and dimensions.

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CONCRETE CURBS AND SIDEWALKS

- 2. Stake securely in place.
- D. Bracing:
  - 1. Brace forms to prevent change of shape or movement resulting from placement.
  - 2. Construct short-radius curved forms to exact radius.
- E. Tolerances:
  - 1. Do not vary tops of forms from gradeline more than 1/8 inch when checked with 10-foot straightedge.
  - 2. Do not vary alignment of straight sections more than 1/8 inch in 10 feet.

### 3.02 PLACING CONCRETE

- A. Excavate to the required depth, place and compact limerock base rock as specified in the Contract Documents. Compact directly under the area and 1 foot beyond each side of the sidewalk and curb.
- B. Prior to placing concrete, remove water from excavation and debris and foreign material from forms.
- C. Place concrete as soon as possible, and within 1-1/2 hours after adding cement to mix without segregation or loss of ingredients, and without splashing.
- D. Place, process, finish, and cure concrete in accordance with applicable requirements of ACI 304, and this section. Wherever requirements differ, the more stringent shall govern.
- E. To compact, vibrate until concrete becomes uniformly plastic.
- F. All edges shall be smooth and rounded.

### 3.03 CURB CONSTRUCTION

- A. Construct ramps at pedestrian crossings in compliance with FDOT and PROWAG minimum standards. Standards apply to work in the City's Rights of Way.
- B. Expansion Joints: Place at maximum 20-foot intervals and at the beginning and end of curved portions of curb, and at connections to existing curbs. Install expansion joint filler at each joint.
- C. Gutter minimum slope shall be 0.33% unless otherwise approved by the City.
- D. Curb Facing: Do not allow horizontal joints within 7 inches from top of curb.

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CONCRETE CURBS AND SIDEWALKS

- E. All gutters and curb and gutters shall have a minimum 4" think limerock "curb pad" LBR 100.
- F. Contraction Joints:
  - 1. Maximum 10-foot intervals in curb.
  - 2. Provide open joint type by inserting thin, oiled steel sheet vertically in fresh concrete to force coarse aggregate away from joint.
  - 3. Insert steel sheet to full depth of curb.
  - 4. Remove steel sheet with sawing motion after initial set has occurred in concrete and prior to removing front curb form.
  - 5. Finish top of curb with steel trowel and finish edges with steel edging tool.
- G. Front Face:
  - 1. Remove front form and finish exposed surfaces when concrete has set sufficiently to support its own weight.
  - 2. Finish formed face by rubbing with burlap sack or similar device to produce uniformly textured surface, free of form marks, honeycomb, and other defects.
  - 3. Remove and replace *defective* concrete.
  - 4. Apply curing compound to exposed surfaces of curb upon completion of finishing.
  - 5. Continue curing for minimum of 5 days.
- H. Backfill curb with earth upon completion of curing period, but not before 7 days has elapsed since placing concrete.
  - 1. Backfill shall be free from rocks 2 inches and larger and other foreign material.
  - 2. Compact backfill firmly.

### 3.04 SIDEWALK CONSTRUCTION

- A. Thickness:
  - 1. 4 inches thick minimum, 6 inches thick at driveways, extended two feet beyond drive on both sides
- B. Connection to Existing Sidewalk:
  - 1. Remove old concrete back to an existing contraction joint.

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CONCRETE CURBS AND SIDEWALKS

- 2. Clean the surface.
- 3. Apply a neat cement paste immediately prior to placing new sidewalk.
- C. Expansion Joints: Place at maximum 20-foot intervals, at adjacent curb expansion joint, where sidewalk ends at curb, and around posts, poles, or other objects penetrating sidewalk. Install expansion joint filler at each joint.
- D. Contraction Joints:
  - 1. Provide transversely to walks at locations opposite contraction joints in curb.
  - 2. Dimensions: 3/16-inch by 1-inch weakened plane joints.
  - 3. Construct straight and at right angles to surface of walk.
- E. Finish:
  - 1. Broom surface with fine-hair broom at right angles to length of walk and tool at edges, joints, and markings.
  - 2. Ensure that the surface variations are not more than 1/4 inch under a 10-foot straightedge, or more than 1/8 inch on a 5-foot transverse section.
  - 3. Mark walks transversely at 5 foot intervals, or in pattern shown on Drawings, with jointing tool; finish edges with rounded steel edging tool.
  - 4. Apply curing compound to exposed surfaces upon completion of finishing.
  - 5. Protect sidewalk from damage and allow to cure for at least 7 days.
- F. Curb Ramps:
  - 1. All curb ramps and detectable warnings shall comply with the current FDOT Index 304 and the Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way by the United States Access Board.

- END OF SECTION -

# SECTION 02772

### ASPHALT CONCRETE PAVEMENT

### PART 1 - GENERAL

### 1.01 STANDARD SPECIFICATIONS

A. When referenced in this Section, Standard Specifications shall mean Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, current edition.

### 1.02 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Independent Testing Laboratory: In accordance with ASTM E329.
  - 2. Asphalt concrete mix formula shall be prepared by an approved certified independent laboratory under the supervision of a certified asphalt technician.

### 1.03 SUBMITTALS

A. The Contractor shall submit its proposed formula for the asphaltic concrete paving for review in accordance with the Section entitled "Submittals".

#### 1.04 ENVIRONMENTAL REQUIREMENTS

- A. Temperature: Do not apply asphalt materials or place asphalt mixes when ground temperature is lower than 10 degrees C (50 degrees F), or air temperature is lower than 4 degrees C (40 degrees F). Measure ground and air temperature in shaded areas away from heat sources or wet surfaces.
- B. Moisture: Do not apply asphalt materials or place asphalt mixes when application surface is wet.

### PART 2 - MATERIALS

#### 2.01 MATERIALS

- A. Prime Coat: Cut-back asphalt, Grades RC-70 or RC-250 meeting the requirements of the Standard Specifications.
- B. Tack Coat: Emulsified asphalt, Grade RS-2, SS-1, or SS-1H meeting the requirements of the Standard Specifications. The bituminous material shall be heated to a suitable consistency as directed by the City.

- C. Sand (Blotter Material): Clean, dry, with 100 percent passing a 4.75 mm (No. 4) sieve, and a maximum of 10 percent passing a 75 mm (No. 200) sieve.
- 2.02 ASPHALT CONCRETE MIX
  - A. General:
    - 1. Mix formula shall not be modified except with the written approval of City.
    - 2. Source Changes:
      - a. Should material source(s) change, establish a new asphalt concrete mix formula before the new material(s) is used.
      - b. Perform check tests of properties of the plant-mix bituminous materials on the first day of production and as requested by City to confirm that properties are in compliance with design criteria.
      - c. Make adjustments in gradation or asphalt content as necessary to meet design criteria.
  - B. Asphalt Concrete: Type SP meeting the requirements of the Standard Specifications.
  - C. Composition: Hot-plant mix of aggregate, mineral filler, and paving grade asphalt cement. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that the resulting mixture meets the grading requirements of the mix formula.
  - D. Aggregate:
    - 1. The aggregate shall meet the requirements of the Standard Specifications.
    - 2. Mineral Filler shall meet the requirements of the Standard Specifications
  - E. Asphalt Cement: Paving Grade AC-30 meeting the requirements of the Standard Specifications.

#### PART 3 - EXECUTION

- 3.01 GENERAL
  - A. Traffic Control: Minimize inconvenience to traffic, but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt.
  - B. Driveways: Repave driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

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ASPHALT CONCRETE PAVEMENT

# 3.02 LINE AND GRADE

- A. Provide and maintain intermediate control of line and grade, independent of the underlying base to meet finish surface grades and minimum thickness.
- B. Shoulders: Construct to line, grade, and cross-section shown.

# 3.03 PREPARATION

- A. Prepare subgrade as specified in the Contract Documents.
- B. Existing Roadway:
  - 1. Modify profile by grinding, milling, or overlay methods as approved, to provide meet lines and surfaces and to produce a smooth riding connection to existing facility.
  - 2. Resurface entire roadway following adjustment of base and asphalt grades.
  - 3. Paint edges of meet line with tack coat prior to placing new pavement.
- C. Thoroughly coat edges of contact surfaces (curbs, manhole frames) with emulsified asphalt or asphalt cement prior to laying new pavement. Prevent staining of adjacent surfaces.

### 3.04 PAVEMENT APPLICATION

- A. General: Place asphalt concrete mixture on an approved, prepared base in conformance with this Section.
- B. Cold Milling
  - 1. Milling of existing asphalt pavement shall be at the depth and location as indicated on the Construction Drawings or as directed by the City.
  - 2. The milled surface shall be reasonably smooth and free of excessive scarification marks, gouges, ridges, continuous grooves, or other damage. The milled pavement surface shall be thoroughly cleaned of all loose aggregate particles, dust, and other objectionable material by the use of power brooms, power blowers, power vacuums or other means.
  - 3. The Contractor shall coordinate the adjustment of maintenance access structures, meter boxes, drainage inlets, and valve boxes with the milling operation.
  - 4. All milled material shall become the property of the Contractor and shall be disposed of off-site or used in conformance with the Contract Documents, or for utilization as Reclaimed Asphalt Pavement, in

ASPHALT CONCRETE PAVEMENT
conformance with the specification provided above, as approved by the City.

- C. Prime Coat:
  - 1. Heat cut-back asphalt between 100 degrees F and 150 degrees F prior to application.
  - 2. Apply uniformly to clean, dry surfaces. Avoiding overlapping of applications.
  - 3. Do not apply when moisture content of upper 3 inches of base exceeds optimum moisture content of base, or if free moisture is present.
  - 4. Application Rate: Minimum 0.1 gallons per square yard of surface area.
  - 5. Remove or redistribute excess material.
  - 6. Allow a minimum of 5 full days for curing of primed surface before placing asphalt concrete.
- D. Tack Coat:
  - 1. Apply uniformly to clean, dry surfaces. Avoiding overlapping of applications.
  - 2. Do not apply more tack coat than necessary for the day's paving operation.
  - 3. Touch up missed or lightly coated surfaces and remove excess material.
  - 4. Application Rate:
    - a. Minimum 0.05 gallons to maximum 0.12 gallons of asphalt (residual if diluted emulsified asphalt) per square yard of surface area.
    - b. Apply at rate, within range specified, sufficient to assure good bonding, but not so heavy that surplus asphalt flushes into asphalt concrete being placed.
- E. Pavement Mix:
  - 1. Prior to Paving:
    - a. Sweep primed surface free of dirt, dust, or other foreign matter.
    - b. Patch holes in primed surface with asphalt concrete pavement mix.

- c. Blot excess prime material with sand.
- 2. Place asphalt concrete pavement mix in lifts as shown.
- 3. Compacted Lift Thickness:
  - a. Minimum: Twice the maximum aggregate size, but in no case less than 1 inch. Minimum thickness for Type SP-9.5 is 1.0 inches.
  - b. Maximum: 4 inches.
- 4. Total Compacted Thickness: Per Contract Documents.
- 5. Apply such that meet lines are straight and edges are vertical.
- 6. Collect and dispose of segregated aggregate from raking process. Do not scatter material over finished surface.
- 7. Joints:
  - a. Offset edge of each layer a minimum of 6 inches so joints are not directly over those in underlying layer.
  - b. Offset longitudinal joints in roadway pavements, so longitudinal joints in wearing layer coincide with pavement centerlines and lane divider lines.
  - c. Form transverse joints by cutting back on previous day's run to expose full vertical depth of layer.
- 8. Succeeding Lifts: Apply tack coat to pavement surface between each lift.
- 9. After placement of pavement, seal meet line by painting a minimum of 6 inches on each side of the joint with cut-back or emulsified asphalt. Cover immediately with sand.
- F. Compaction:
  - 1. Roll until roller marks are eliminated and compacted to 100 percent of the laboratory compacted mixture.
  - 2. Joint Compaction:
    - a. Place top or wearing layer as continuously as possible.
    - b. Pass roller over unprotected end of freshly laid mixture only when placing of mix is discontinued long enough to permit mixture to become chilled.

- c. Cut back previously compacted mixture when Work is resumed to produce a slightly beveled edge for full thickness of layer.
- d. Cut away waste material and lay new mix against fresh cut.
- G. Tolerances:
  - 1. General: Conduct measurements for conformity with crown and grade immediately after initial compression. Correct variations immediately by removal or addition of materials and by continuous rolling.
  - 2. Completed Surface or Wearing Layer Smoothness:
    - a. Uniform texture, smooth, and uniform to crown and grade.
    - b. Maximum Deviation: 1/8 inch from lower edge of a 12-foot straightedge, measured continuously parallel and at right angle to centerline.
    - c. If surface of completed pavement deviates by more than twice the specified tolerances, remove and replace wearing surface.
  - 3. Transverse Slope Maximum Deviation: <sup>1</sup>/<sub>4</sub> inch in 12 feet from the rate of slope shown.
  - 4. Finished Grade:
    - a. Perform a field differential level survey on a maximum 50-foot grid and along all grade breaks.
    - b. Maximum Deviation: 0.02 foot from the grade shown.
- H. Seal Coat:
  - 1. General: Apply seal coat of paving grade or emulsified asphalt to finished surface at longitudinal and transverse joints, joints at abutting pavements, areas where the asphalt concrete was placed by hand, patched surfaces, and other areas as directed by the City.
  - 2. Preparation:
    - a. Maintain surfaces that are to be sealed free of holes, dry, and clean of dust and loose material.
    - b. Seal in dry weather and when the temperature is above 35 degrees F.
  - 3. Application:
    - a. Fill cracks over 1/16 inch in width with an asphalt-sand slurry or approved crack sealer prior to sealing.

### ASPHALT CONCRETE PAVEMENT

b. When sealing patched surfaces and joints with existing pavements, extend minimum 6 inches beyond edges of patches.

#### 3.05 PAVEMENT OVERLAY

- A. Preparation:
  - 1. Remove fatty asphalt, grease drippings, dust, and other deleterious matter.
  - 2. Surface Depressions: Fill with asphalt concrete mix, and thoroughly compact.
  - 3. Damaged Areas: Remove broken or deteriorated asphalt concrete and patch as specified in Article Patching.
  - 4. Portland Cement Concrete Joints: Remove joint filler to minimum 1/2 inch below surface.
- B. Application:
  - 1. Tack Coat: As specified in this Section.
  - 2. Place and compact asphalt concrete as specified in Article Pavement Application.
  - 3. Place first layer to include widening of pavement and leveling of irregularities in the surface of the existing pavement.
  - 4. When leveling irregular surfaces and raising low areas, the actual compacted thickness of any one lift shall not exceed 2 inches.
  - 5. The actual compacted thickness of intermittent areas of 120 square yards or less may exceed 2 inches, but not 4 inches.
  - 6. Final wearing layer shall be of uniform thickness, and meet grade and cross-section as shown.

### 3.06 PATCHING HOT MIX ASPHALT

- A. Preparation:
  - 1. Remove damaged, broken, or unsound asphalt concrete adjacent to patches. Trim to straight lines exposing smooth, sound, vertical edges.
  - 2. Prepare patch subgrade as specified in the Contract Documents.
- B. Application:
  - 1. Patch Thickness: 3 inches or thickness of adjacent asphalt concrete, whichever is greater.

### ASPHALT CONCRETE PAVEMENT

- 2. Place asphalt concrete mix across full width of patch in layers of equal thickness.
- 3. Spread and grade asphalt concrete with hand tools or mechanical spreader, depending on size of area to be patched.
- C. Compaction:
  - 1. Roll patches with power rollers capable of providing compression of 200 to 300 pounds per linear inch. Use hand tampers where rolling is impractical.
  - 2. Begin rolling top course at edges of patches, lapping adjacent asphalt surface at least 1/2 the roller width. Progress toward center of patch overlapping each preceding track by at least 1/2 the width of roller.
  - 3. Make sufficient passes over entire area to remove roller marks and to produce desired finished surface.
- D. Tolerances:
  - 1. Finished surface shall be flush with and match grade, slope, and crown of adjacent surface.
  - 2. Tolerance: Surface smoothness shall not deviate more than plus 1/4 inch or minus 0 when a straightedge is laid across patched area between edges of new pavement and surface of old surfacing.

## 3.07 FIELD QUALITY CONTROL

- A. General: Provide services of an approved certified independent testing laboratory to conduct tests.
- B. Field Density Tests:
  - 1. Perform tests from cores or sawed samples.
  - 2. Measure with properly operating and calibrated nuclear density gauge.
  - 3. Maximum Density: In accordance with ASTM D2041, using a sample of mix taken prior to compaction from the same location as the density test sample.
- C. Testing Frequency:
  - 1. Quality Control Tests:
    - a. Asphalt Content, Aggregate Gradation: Once per every 500 tons of mix or once every 4 hours, whichever is greater.

### ASPHALT CONCRETE PAVEMENT

- b. Mix Design Properties, Measured Maximum (Rice's) Specific Gravity: Once every 1,000 tons or once every 8 hours, whichever is greater.
- 2. Density Tests: Once every 500 tons of mix or once every 4 hours, whichever is greater.

- END OF SECTION -

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## SECTION 02911

### SOIL PREPARATION

### PART 1 - GENERAL

### 1.01 SEQUENCING AND SCHEDULING

A. Rough grade areas to be planted or seeded prior to performing Work specified under this Section.

### 1.02 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Comply with the following standards and specifications for all materials, methods, and workmanship unless otherwise noted:
  - 1. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition.
  - 2. City of Fort Lauderdale Code of Ordinances.

### PART 2 - PRODUCTS

- 2.01 TOPSOIL
  - A. General: Uniform mixture of 50 percent sand and 50 percent muck in a loose friable condition, free from objects larger than 1-1/2 inches maximum dimension, and free of subsoil, roots, grass, other foreign matter, hazardous or toxic substances, and deleterious material that may be harmful to plant growth or may hinder grading, planting, or maintenance.
  - B. Textural Amendments: Amend as necessary to conform to required composition.
  - C. Source: Import topsoil if onsite material fails to meet specified requirements or is insufficient in quantity.
- 2.02 SOURCE QUALITY CONTROL
  - A. Topsoil Analysis/Testing: Performed by county or state soil testing service or approved certified independent testing laboratory.
  - B. Should soil tests prove the topsoil to alkaline or above the accepted minimum for salt content, the topsoil shall be removed and replaced by acceptable material at Contractor's expense.

### SOIL PREPARATION

#### PART 3 - EXECUTION

#### 3.01 SUBGRADE PREPARATION

- A. The subgrade shall be 4 inches lower than finished grade with 2 inches of topsoil added to sod areas.
- B. Scarify subgrade to minimum depth of 6 inches where topsoil is to be placed.
- C. Remove stones over 2-1/2 inches in any dimension, sticks, roots, rubbish, and other extraneous material.
- D. Limit preparation to areas which will receive topsoil within 2 days after preparation.
- 3.02 TOPSOIL PLACEMENT
  - A. Topsoil Thickness:
    - 1. Sodded Areas: 2 inches.
    - 2. Planting Beds: 6 inches.
  - B. Do not place topsoil when subsoil or topsoil is excessively wet or otherwise detrimental to the Work.
  - C. Mix soil amendments with topsoil before placement or spread on topsoil surface and mix thoroughly into entire depth of topsoil before planting or seeding.
  - D. Uniformly distribute to within 1/2-inch of final grades. Fine grade topsoil eliminating rough or low areas and maintaining levels, profiles, and contours of subgrade.
  - E. Remove stones exceeding 1-1/2 inches, roots, sticks, debris, and foreign matter during and after topsoil placement.
  - F. Remove surplus subsoil and topsoil from site. Grade stockpile area as necessary and place in condition acceptable for planting or seeding.

- END OF SECTION -

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SOIL PREPARATION

### SECTION 02920

# SODDING

### PART 1 - GENERAL

#### 1.01 DEFINITIONS

- A. Maintenance Period: Begin maintenance immediately after each area is planted (sod) and continue for a period of 8 weeks after all planting under this Section is completed.
- B. Satisfactory Stand:
  - 1. Grass or section of grass that has:
    - a. No bare spots larger than 3 square feet.
    - b. Not more than 10 percent of total area with bare spots larger than 1 square foot.
    - c. Not more than 15 percent of total area with bare spots larger than 6 square inches.

### 1.02 DELIVERY, STORAGE, AND PROTECTION

- A. Sod:
  - 1. Do not harvest if sod is excessively dry or wet to the extent survival may be adversely affected.
  - 2. Harvest and deliver sod only after laying bed is prepared for sodding.
  - 3. Roll or stack to prevent yellowing.
  - 4. Deliver and lay within 24 hours of harvesting.
  - 5. Keep moist and covered to protect from drying from time of harvesting until laid.

### 1.03 WEATHER RESTRICTIONS

- A. Perform Work under favorable weather and soil moisture conditions as determined by accepted local practice.
- 1.04 SEQUENCING AND SCHEDULING
  - A. Prepare topsoil as specified in the Contract Documents, before starting Work of this Section.

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### SODDING

- B. Complete Work under this section within ten (10) days following completion of soil preparation.
- C. Notify City at least three (3) days in advance of:
  - 1. Each material delivery.
  - 2. Start of planting activity.
- D. Planting Season: Those times of year that are normal for such Work as determined by accepted local practice. At a minimum, Contractor shall avoid planting in January or February.

### 1.05 MAINTENANCE SERVICE

- A. Contractor: Perform maintenance operations during maintenance period to include:
  - 1. Watering: Keep surface moist.
  - 2. Washouts: Repair by filling with topsoil, and replace sodded areas.
  - 3. Mowing: Mow to 2 inches after grass height reaches 3 inches, and mow to maintain grass height from exceeding 3 1/2 inches.
  - 4. Re-sod unsatisfactory areas or portions thereof immediately at the end of the maintenance period if a satisfactory stand has not been produced, at which time maintenance period shall recommence.
  - 5. Re-sod during next planting season if scheduled end of maintenance period falls after September 15.

### PART 2 – MATERIALS

### 2.01 FERTILIZER

- A. Commercial, uniform in composition, free-flowing, suitable for application with equipment designed for that purpose. Minimum percentage of plant food by weight.
- B. Mix:
  - 1. Nitrogen: Sixteen.
  - 2. Phosphoric Acid: Four.
  - 3. Potash: Eight.

#### 02920

# SODDING

#### 2.02 SOD

- A. Unless a particular type of sod is called for, sod may be of either St. Augustine Floritam, Bahia grass or Seashore Paspalum, in accordance with the following:
  - 1. Use Bahia grass where no irrigation system exists.
  - 2. Use St. Augustine Floritam where an irrigation system is in place. If original sod being replaced is St. Augustine Floritam, replacement sod shall match.
  - 3. Seashore Paspalum sod will be used in areas prone to salt water flooding.
- B. Strongly rooted pads, capable of supporting own weight and retaining size and shape when suspended vertically from a firm grasp on upper 10 percent of pad.
  - 1. Grass Height: Normal.
  - 2. Strip Size: Supplier's standard, commercial size rectangles.
  - 3. Soil Thickness: Uniform; 1-inch plus or minus 1/4-inch at time of cutting.
  - 4. Age: Not less than 10 months or more than 30 months.
  - 5. Condition: Healthy, green, moist; free of diseases, nematodes and insects, and of undesirable grassy and broadleaf weeds. Yellow sod, or broken pads, or torn or uneven ends will not be accepted
  - 6. Any netting contained within the sod shall be certified by the manufacturer to be bio-degradable within a period of 3 months from installation.

### PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Grade Areas to Smooth, Even Surface with Loose, Uniformly Fine Texture:
  - 1. Roll and rake, remove ridges, fill depressions to meet finish grades.
  - 2. Limit such Work to areas to be planted within immediate future.
  - 3. Remove debris, foreign material and stones larger than 1 1/2 inches diameter, and other objects that may interfere with planting and maintenance operations.
- B. Moisten prepared areas before planting if soil is dry. Water thoroughly and allow surface to dry off before seeding. Do not create muddy soil.

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SODDING

- C. Restore prepared areas to specified condition if eroded or otherwise disturbed after preparation and before planting.
- D. Limit preparation to those areas that can be sodded within 72 hours after preparation.

### 3.02 FERTILIZER

- A. Apply evenly over area in accordance with manufacturer's instructions. Mix into top 2 inches of top soil.
- B. Application Rate: 20 pounds per 1,000 square feet (1,000 pounds per acre).

### 3.03 SODDING

- A. Do not plant dormant sod, or when soil conditions are unsuitable for proper results.
- B. Pre-wet the area prior to placing sod. Lay sod to form solid mass with tightly fitted joints; butt ends and sides, do not overlap:
  - 1. Stagger strips to offset joints in adjacent courses.
  - 2. Work from boards to avoid damage to subgrade or sod.
  - 3. Tamp or roll lightly to ensure contact with subgrade; work sifted soil into minor cracks between pieces of sod, remove excess to avoid smothering adjacent grass.
  - 4. Complete sod surface true to finished grade, even, and firm.
- C. Fasten sod on slopes to prevent slippage with wooden pins 6 inches long driven through sod into subgrade, until flush with top of sod. Install at sufficiently close intervals to securely hold sod.
- D. Water sod with fine spray immediately after planting. During first month, water daily or as required to maintain moist soil to depth of 4 inches.

## 3.04 FIELD QUALITY CONTROL

- A. Eight weeks after sodding is complete and on written notice from Contractor, City will, within 15 days of receipt, determine if the sod has been satisfactorily established.
- B. If the sod is not satisfactorily established, Contractor shall replace the sod and repeat the requirements of this Section.

- END OF SECTION -

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SODDING

**DIVISION 3** 

CONCRETE

## SECTION 03100

## CONCRETE FORMWORK

## PART 1 – GENERAL

### 1.01 THE REQUIREMENT

- A. The Contractor shall design and furnish all materials for concrete formwork, bracing, and supports and shall design and construct all falsework, all in accordance with the provisions of the Contract Documents.
- 1.02 RESPONSIBILITY
  - A. The design and engineering of the formwork as well as safety considerations are the responsibility of the Contractor.
- 1.03 RELATED WORK SPECIFIED ELSEWHERE
  - A. Section 01300 Submittals
  - B. Section 03200 Concrete Reinforcement
  - C. Section 03300 Cast in Place Concrete
  - D. Section 03315 Grout
- 1.04 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS
  - A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the requirements of the Building Code and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of this Section.
    - 1. Codes and Standards
      - a. The Building Code, as referenced herein, is the Florida Building Code (FBC).
    - 2. Government Standards
      - a. PS 1U.S. Product Standard for Concrete Forms, Class I.
    - 3. Commercial Standards
      - a. ACI 347 Recommended Practice for Concrete Formwork.
      - b. ACI 318R Building Code Requirements for Reinforced Concrete.
      - c. ACI 350Code Requirements for Environmental Engineering Concrete Structures

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### CONCRETE FORMWORK

## 1.05 QUALITY ASSURANCE

- A. The variation from established grade or lines shall not exceed 1/4 inch in 10 feet and there shall be no offsets or visible bulges or waviness in the finished surface. All tolerances shall be within the "Suggested Tolerances" specified in ACI 347. The Contractor shall grind smooth all fins and projections between formwork panels as directed by the Engineer.
- B. Curved forms shall be used for curved and circular structures that are cast-in-place. Straight panels will not be acceptable for forming curved structures.

### PART 2 – PRODUCTS

### 2.01 FORM MATERIALS

- A. Except as otherwise expressly accepted by the Engineer, all lumber brought on the job site for use as forms, shoring, or bracing shall be new material. All forms shall be smooth surface forms and shall be of the following materials:
  - 1. Footing sides Construction grade Hem Fir or Douglas Fir
  - 2. Walls Steel or plywood panel
  - 3. Columns Steel, plywood or fiber glass
  - 4. Roof and floor Slabs Plywood
  - 5. All other work Steel panels, plywood or tongue and groove lumber
- B. Materials for concrete forms, formwork, and falsework shall conform to the following requirements:
  - 1. Lumber shall be Southern Pine, construction grade or better, in conformance with U.S. Product Standard PS20.
  - Plywood for concrete formwork shall be new, waterproof, synthetic resin bonded, exterior type Douglas Fir or Southern Pine plywood manufactured especially for concrete formwork and shall conform to the requirements of PS I for Concrete Forms, Class I, and shall be edge sealed. Thickness shall be as required to support concrete at the rate it is placed, but not less than 5/8 inch thick.

### 2.02 PREFABRICATED FORMS

A. Form materials shall be metal, wood, plywood, or other acceptable material that will not adversely affect the concrete and will facilitate placement of concrete to the shape, form, line, and grade indicated. Metal forms shall be an acceptable type that will accomplish such results. Wood forms for surfaces to be painted shall be Medium Density Overlaid plywood, MDO Ext. Grade.

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# 2.03 FORMWORK ACCESSORIES

- A. Exterior corners in concrete members shall be provided with 3/4 inch chamfers. Re entrant corners in concrete members shall not have fillets unless otherwise shown.
- B. Form ties shall be provided with a plastic cone or other suitable means for forming a conical hole to insure that the form tie may be broken off back of the face of the concrete. The maximum diameter of removable cones for rod ties, or of other removable form tie fasteners having a circular cross section, shall not exceed 1 1/2 inches; and all such fasteners shall be such as to leave holes of regular shape for reaming.
- C. Form ties for water-retaining structures shall have integral waterstops. Removable taper ties may be used when acceptable to the Engineer. At locations where removable taper ties are acceptable, a preformed mechanical EPDM rubber plug shall be used to seal the hole left after the removal of the taper tie. Plug shall be X-Plug by the Greenstreak Group, Inc., or approved equal. Friction fit plugs shall not be used.
- D. Form release agent shall be a blend of natural and synthetic chemicals that employs a chemical reaction to provide quick, easy and clean release of concrete from forms. It shall not stain the concrete and shall leave the concrete with a paintable surface. Formulation of the form release agent shall be such that it would minimize formation of "Bug Holes" in cast-in-place concrete.

# PART 3 - EXECUTION

# 3.01 EXAMINATION

- A. Forms to confine the concrete and shape it to the required lines shall be used wherever necessary. The Contractor shall assume full responsibility for the adequate design of all forms, and any forms which are unsafe or inadequate in any respect shall promptly be removed from the Work and replaced at the Contractor's expense. A sufficient number of forms of each kind shall be provided to permit the required rate of progress to be maintained. The design and inspection of concrete forms and falsework, shall comply with applicable local, state and Federal regulations. Plumb and string lines shall be installed before concrete placement and shall be maintained during placement. Such lines shall be used by Contractor's personnel and by the Engineer and shall be in sufficient number and properly installed. During concrete placement, the Contractor shall continually monitor plumb and string line form positions and immediately correct deficiencies.
- B. Concrete forms shall conform to the shape, lines, and dimensions of members as called for on the Drawings, and shall be substantially, free from surface defects, and sufficiently tight to prevent leakage. Forms shall be properly braced or tied together to maintain their position and shape under a load of freshly placed concrete.
- C. All forms shall be true in every respect to the required shape and size, shall conform to the established alignment and grade, and shall be of sufficient strength and rigidity to maintain their position and shape under the loads and operations incident to placing and vibrating the concrete. Suitable and effective means shall be provided on all forms for holding adjacent edges and ends of panels and sections tightly together and in accurate alignment so as to prevent the formation of ridges, fins, offsets, or similar surface defects in the finished concrete. Plywood, 5/8 inch and greater in thickness, may be fastened

directly to studding if the studs are spaced close enough to prevent visible deflection marks in the concrete. The forms shall be tight so as to prevent the loss of water, cement and fines during placing and vibrating of the concrete. Specifically, the bottom of wall forms that rest on concrete footings or slabs shall be provided with a gasket to prevent loss of fines and paste during placement and vibration of concrete. Such gasket may be a 1 to 1 1/2-inch diameter polyethylene rod held in position to the underside of the wall form. Adequate clean out holes shall be provided at the bottom of each lift of forms. The size, number, and location of such clean outs shall be as acceptable to the Engineer.

D. Concrete construction joints will not be permitted at locations other than those shown or specified, except as may be acceptable to the Engineer. When a second lift is placed on hardened concrete, special precautions shall be taken in the way of the number, location, and tightening of ties at the top of the old lift and bottom of the new to prevent any unsatisfactory affect whatsoever on the concrete. Pipe stubs and anchor bolts shall be set in the forms where required.

#### 3.02 EARTH FORMS

- A. All vertical surfaces of concrete members shall be formed, except where placement of the concrete against the ground is called for on the Drawings. Not less than 1 inch of concrete shall be added to the thickness of the concrete member as shown where concrete is permitted to be placed against trimmed ground in lieu of forms. Such permission will be granted only for members of comparatively limited height and where the character of the ground is such that it can be trimmed to the required lines and will stand securely without caving or sloughing until the concrete has been placed.
- 3.03 FOOTINGS, SLAB EDGES AND GRADE BEAMS
  - A. Provide wood side forms for all footings, slab edges and grade beams.
- 3.04 APPLICATION FORM RELEASE AGENT
  - A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- 3.05 INSERTS, EMBEDDED PARTS AND OPENINGS
  - A. Embedded Form Ties: Holes left by the removal of form tie cones shall be reamed with suitable toothed reamers so as to leave the surface of the holes clean and rough before being filled with mortar as specified for in Section 03350 entitled "Concrete Finishes". Wire ties for holding forms will not be permitted. No form tying device or part thereof, other than metal, shall be left embedded in the concrete. Ties shall not be removed in such manner as to leave a hole extending through the interior of the concrete members. The use of snap ties which cause spalling of the concrete upon form stripping or tie removal will not be permitted. If steel panel forms are used, rubber grommets shall be provided where the ties pass through the form in order to prevent loss of cement paste. Where metal rods extending through the concrete are used to support or to strengthen forms, the rods shall remain embedded and shall terminate not less than 1 inch back from the formed face or faces of the concrete.

## 3.06 FORM CLEANING

A. Forms may be reused only if in good condition and only if acceptable to the Engineer. Light sanding between uses will be required wherever necessary to obtain uniform surface texture on all exposed concrete surfaces. Exposed concrete surfaces are defined as surfaces which are permanently exposed to view. Unused tie rod holes in forms shall be covered with metal caps or shall be filled by other methods acceptable to the Engineer.

## 3.07 FORMWORK TOLERANCES

- A. Formwork shall be constructed to insure that finished concrete surfaces will be in accordance with the tolerances listed in ACI 347.
  - 1. The following construction tolerances are hereby established and apply to finished walls and slab unless otherwise shown in the Drawings:

Item	Tolerance
Variation of the constructed linear outline from the established position in plan	In 10 feet: 1/4 inch; In 20 feet or more: 1/2 inch
Variation from the level or from the grades shown on the Drawings	In 10 feet: 1/4 inch; In 20 feet or more: 1/2 inch
Variation from the plum	In 10 feet: 1/4 inch; In 20 feet or more: 1/2 inch
Variation in the thickness of slabs and walls	Minus 1/4 inch; Plus 1/2 inch
Variation in the locations and sizes of slab and wall openings	Plus or minus 1/4 inch

## 3.08 FORM REMOVAL

- A. Remove top forms on sloping surfaces of concrete as soon as removal operations will not allow the concrete to sag. Perform any needed repairs or treatments required on sloping surfaces at once, and follow immediately with the specified curing.
- B. The Contractor shall be responsible for the removal of forms and shores. Forms or shores shall not be removed before test cylinders have reached the specified minimum 28 day compressive strength for the class of concrete specified in Section 03300 entitled "Cast-in-Place Concrete", nor sooner than listed below:
  - 1. Grade beam side forms 3 days
  - 2. Wall forms 3 days
  - 3. Column forms 3 days
  - 4. Beam and girder side forms 3 days
  - 5. Beam bottoms and slab forms/shores 14 days

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# CONCRETE FORMWORK

## 3.09 MAINTENANCE OF FORMS

A. Forms shall be maintained at all times in good condition, particularly as to size, shape, strength, rigidity, tightness, and smoothness of surface. Forms, when in place, shall conform to the established alignment and grades. Before concrete is placed, the forms shall be thoroughly cleaned. The form surfaces shall be treated with a nonstaining mineral oil or other lubricant acceptable to the Engineer. Any excess lubricant shall be satisfactorily removed before placing the concrete. Where field oiling of forms is required, the Contractor shall perform the oiling at least two weeks in advance of their use. Care shall be exercised to keep oil off the surfaces of steel reinforcement and other metal items to be embedded in concrete.

- END OF SECTION -

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### CONCRETE FORMWORK

### **SECTION 03200**

### CONCRETE REINFORCEMENT

### PART 1 – GENERAL

#### 1.01 THE REQUIREMENT

- A. The Contractor shall furnish, fabricate and place all concrete reinforcing steel, welded wire fabric, couplers, and concrete inserts for use in reinforced concrete and shall perform all appurtenant work, including all the wires, clips, supports, chairs, spacers, and other accessories and special work necessary to hold the reinforcing steel in place and protect it from injury and corrosion, all in accordance with the Contract Documents.
- 1.02 RELATED WORK SPECIFIED ELSEWHERE
  - A. Section 01300 Submittals
  - B. Section 03100 Concrete Formwork
  - C. Section 03300 Cast in Place Concrete
  - D. Section 03315 Grout
- 1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS
  - A. Without limiting the generality of other requirements of these specifications, all Work specified herein shall conform to or exceed the requirements of the Building Code and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of this Section.
    - 1. Codes and Standards
      - a. The Building Code, as referenced herein, is the Florida Building Code (FBC).
    - 2. Commercial Standards
      - a. ACI 315 Details and Detailing of Concrete Reinforcement.
      - b. CRSI Concrete Reinforcing Steel Institute Manual of Standard Practice
      - c. ACI SP66 ACI Detailing Manual
      - d. ACI 305 Hot Weather Concreting
      - e. ACI 318 Building Code Requirements for Reinforced Concrete.
      - f. ACI 350 Code Requirements for Environmental Engineering Concrete Structures

### CONCRETE REINFORCEMENT

- g. WRI Manual of Standard Practice for Welded Wire Fabric.
- h. ASTM A 1064 Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- i. ASTM A 615 Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

### 1.04 SUBMITTALS

- A. The Contractor shall furnish shop bending diagrams, placing lists, and Drawings of all reinforcing steel prior to fabrication in accordance with the requirements of the Section 01300 entitled, "Submittals." The Contractor shall submit detailed placing and shop fabricating drawings, prepared in accordance with ACI 315 and ACI Detailing Manual (SP66) for all reinforcing steel. These drawings shall be made to such a scale as to clearly show joint locations, openings, the arrangement, spacing and splicing of the bars. Where opening sizes are dependent on equipment selection the Contractor shall indicate all necessary dimensions to define steel lengths and placing details.
- B. Details of the concrete reinforcing steel and concrete inserts shall be submitted by the Contractor at the earliest possible date after receipt by the Contractor of the Notice to Proceed. Said details of reinforcing steel for fabrication and erection shall conform to ACI 315 and the requirements specified and shown. The shop bending diagrams shall show the actual lengths of bars, to the nearest inch measured to the intersection of the extensions (tangents for bars of circular cross section) of the outside surface. The shop Drawings shall include bar placement diagrams which clearly indicate the dimensions of each bar splice.
- C. Where mechanical couplers are shown on the Drawings to be used to splice reinforcing steel, the Contractor shall submit manufacturer's literature which contains instructions and recommendations for installation for each type of coupler used; certified test reports which verify the load capacity of each type and size of coupler used; and shop Drawings which show the location of each coupler with details of how they are to be installed in the formwork.
- D. Requests to relocate any bars that cause interferences or that cause placing tolerances to be violated.
- E. Requests to use splices not shown on the Drawings.
- F. Requests to use mechanical couplers along with manufacturer's literature on the mechanical couplers with instructions for installation, and certified test reports on the coupler's capacity.
- G. Proposed supports for each type of reinforcing.
- H. Certification that all installers of dowel adhesives are certified as Adhesive Anchor Installers in accordance with the ACI-CRSI Anchor Installer Certification Program.
- I. International Code Council-Evaluation Services Evaluation Services Report (ICC-ES ESR) for dowel adhesives.

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CONCRETE REINFORCEMENT

J. Adhesive dowel testing plan.

### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications for Drilled-In Rebar: Drilled-in rebar shall be installed by an Installer with at least three years of experience performing similar installations. Installer shall be certified as an Adhesive Anchor Installer in accordance with ACI-CRSI Adhesive Anchor Installation Certification Program.
- B. Installer Training: Conduct a thorough training with the manufacturer or the manufacturer's representative for the Installer on the project. Training shall consist of a review of the complete installation process for drilled-in anchors, to include but not be limited to the following:
  - 1. Hole drilling procedure.
  - 2. Hole preparation and cleaning technique.
  - 3. Adhesive injection technique and dispenser training/maintenance.
  - 4. Rebar doweling preparation and installation.
  - 5. Proof loading/torquing.
- C. Provide a copy of the current ACI/CRSI "Adhesive Anchor Installer" certification cards for all installers who will be installing adhesive anchors in the horizontal to vertically overhead orientation.
- D. Inspections of the adhesive dowel system may be made by the Engineer or other representatives of the City in accordance with the requirements of the ESR published by the manufacturer. Provide adequate time and access for inspection of products and anchor holes prior to injection, installation, and proof testing.

### PART 2 – PRODUCTS

### 2.01 REINFORCEMENT

- A. All reinforcing steel for all reinforced concrete construction shall conform to the following requirements:
  - Bar reinforcement shall conform to the requirements of ASTM A 615 for Grade 60 Billet Steel Reinforcement, and shall be manufactured in the United States. All reinforcing steel shall have the manufacturer's mill marking rolled into the bar which shall indicate the producer, size, type and grade. All reinforcing bars shall be deformed bars. Smooth reinforcing bars shall not be used unless specifically called for on the Drawings.
  - 2. Welded wire fabric reinforcement shall conform to the requirements of ASTM A 1064 and the details shown on the Drawings; provided, that welded wire fabric with longitudinal wire of W9.5 size wire shall be either furnished in flat sheets or in rolls with a core diameter of not less than 10 inches; and provided further, that welded wire

fabric with longitudinal wires larger than W9.5 size shall be furnished in flat sheets only. All welded wire fabric reinforcement shall be galvanized.

- B. Field welding of reinforcing steel will not be allowed.
- C. Use of coiled reinforcing steel will not be allowed.

### 2.02 ACCESSORY MATERIALS

- A. Accessories shall include all necessary chairs, slab bolsters, concrete blocks, tie wires, dips, supports, spacers and other devices to position reinforcing during concrete placement. Wire bar supports shall be plastic protected (CRSI Class 1).
- B. Tie Wire: Galvanized 16 gauge annealed type.
- C. Concrete blocks (dobies), used to support and position reinforcing steel, shall have the same or higher compressive strength as specified for the concrete in which it is located. Concrete blocks shall only be used bottom mat of reinforcing steel for slabs on grade.

## 2.03 MECHANICAL COUPLERS

- A. Mechanical couplers shall develop a tensile strength which exceeds 100 percent of the ultimate tensile strength and 125 percent of the yield strength of the reinforcing bars being spliced. The reinforcing steel and coupler used shall be compatible for obtaining the required strength of the connection.
- B. Where the type of coupler used is composed of more than one component, all components required for a complete splice shall be supplied.
- C. Hot forged sleeve type couplers shall not be used. Acceptable mechanical couplers are Dayton Superior Dowel Bar Splicer System by Dayton Superior, Dayton, Ohio, or approved equal. Mechanical couplers shall only be used where shown on the Drawings or where specifically approved by the Engineer.
- D. Where the threaded rebar to be inserted into the coupler reduces the diameter of the bar, the threaded rebar piece shall be provided by the coupler manufacturer.

### 2.04 DOWEL ADHESIVE SYSTEM

- A. Where shown on the Drawings, reinforcing bars anchored into hardened concrete with a dowel adhesive system shall use a two-component adhesive mix which shall be injected with a static mixing nozzle following manufacturer's instructions.
- B. All holes shall be drilled in accordance with the manufacturer's instructions except that core drilled holes shall not be permitted unless specifically allowed by the Engineer. Cored holes ,if allowed by the manufacturer and approved by the Engineer, shall be roughened in accordance with manufacturer requirements.
- C. Thoroughly clean drill holes of all debris, drill dust, and water in accordance with manufacturer's instructions prior to installation of adhesive and reinforcing bar.

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- D. Degree of hole dampness shall be in strict accordance with manufacturer recommendations. Installation conditions shall be either dry or water-saturated. Water filled or submerged holes shall not be permitted unless specifically approved by the Engineer.
- E. Injection of adhesive into the hole shall be performed in a manner to minimize the formation of air pockets in accordance with the manufacturer's instructions.
- F. Embedment Depth:
  - 1. The embedment depth of the bar shall be as show on the Drawings. Although all manufacturers listed below are permitted, the embedment depth shown on the Drawings is based on "SET-XP" by Simpson Strong-Tie Co. If the Contractor submits one of the other named dowel adhesives from the list below, the Engineer shall evaluate the required embedment and the Contractor shall provide the required embedment depth stipulated by the Engineer specific to the approved dowel adhesive.
  - 2. Where the embedment depth is not shown on the Drawings, the embedment depth shall be determined to provide the minimum allowable bond strength equal to the tensile strength of the rebar according to the manufacturer's ICC-ES ESR.
  - 3. The embedment depth shall be determined using the actual concrete compressive strength, a cracked concrete state, maximum long term temperature of 110 degrees F, and maximum short term temperature of 140 degrees F. In no case shall the embedment depth be less than the minimum, or more than the maximum, embedment depths stated in the manufacturer's ICC-ES ESR.
- G. Engineer's approval is required for use of this system in locations other than those shown on the Drawings.
- H. The adhesive system shall be IBC compliant for use in both cracked and uncracked concrete, must comply with the latest revision of ICC-ES Acceptance Criteria AC308, and shall have a valid ICC-ES report. The adhesive system shall be "Epcon System C6+ Adhesive Anchoring System" as manufactured by ITW Redhead, " HIT-HY 200 Injection Adhesive Anchor System" as manufactured by Hilti, Inc. "SET-XP" as manufactured by Simpson Strong-Tie Co. or "Pure 110+ Epoxy Adhesive Anchor System" by DeWalt. Fast-set epoxy formulations shall not be acceptable.
- I. All individuals installing dowel adhesive system shall be certified as an Adhesive Anchor Installer in accordance with the ACI-CRSI Anchor Installation Certification Program.

# 2.05 FABRICATION

A. Reinforcing steel shall be accurately formed to the dimensions and shapes shown on the Drawings, and the fabricating details shall be prepared in accordance with ACI 315 and ACII 318, except as modified by the Drawings. Stirrups and tie bars shall be bent around a pin having a diameter not less than 1 1/2 inch for No. 3 bars, 2 inch for No. 4 bars, and 2 1/2 inch for No. 5 bars. Bends for other bars shall be made around a pin having a diameter not less the minimum thickness, except for bars larger than 1 inch, in which case the bends shall be made around a pin of 8 bar diameters. Bars shall be bent cold.

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# CONCRETE REINFORCEMENT

- B. The Contractor shall fabricate reinforcing bars for structures in accordance with bending diagrams, placing lists, and placing Drawings. Said Drawings, diagrams, and lists shall be prepared by the Contractor as specified under Section entitled "Submittals," herein.
- C. Fabricating Tolerances: Bars used for concrete reinforcing shall meet the following requirements for fabricating tolerances:
  - 1. Sheared length: + 1 inch
  - 2. Depth of truss bars: + 0, 1/2 inch
  - 3. Stirrups and ties: + 1/2 inch
  - 4. All other bends: + 1 inch
- 2.06 MINIMUM REINFORCEMENT
  - A. Unless otherwise shown on the Drawings or in the absence of the steel being shown, the minimum cross sectional area of reinforcing steel in the direction of principal reinforcement shall be 0.0033 times the gross concrete area of all concrete members.
  - B. Unless otherwise shown on the Drawings or in the absence of the steel being shown, the minimum cross sectional area of temperature reinforcing steel (reinforcing steel perpendicular to the principal reinforcing steel) shall be as follows:
    - 1. 0.0020 times the gross concrete area in slabs of non-water-bearing structures.
    - 2. 0.0015 times the gross concrete area vertically in walls of non-water-bearing structures.
    - 3. 0.0025 times the gross concrete area horizontally in walls of non-water-bearing structures.
    - 4. 0.0050 times the gross concrete area in slabs of water-bearing structures
    - 5. 0.0030 times the gross concrete area vertically in walls of water-bearing structures.
    - 6. 0.0050 times the gross concrete area horizontally in walls of water-bearing structures.
    - 7. Temperature steel shall not be spaced further apart than five times the slab or wall thickness, nor more than 18 inches.

### PART 3 – EXECUTION

- 3.01 DELIVERY, STORAGE AND HANDLING
  - A. All reinforcing shall be neatly bundled and tagged for placement when delivered to the job site. Bundles shall be properly identified for coordination with mill test reports.
  - B. Reinforcing steel shall be stored above ground on platforms or other supports and shall be protected from the weather at all times by suitable covering. It shall be stored in an orderly manner and plainly marked to facilitate identification.

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### CONCRETE REINFORCEMENT

- C. Reinforcing steel shall at all times be protected from conditions conducive to corrosion until concrete is placed around it.
- D. The surfaces of all reinforcing steel and other metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar and other foreign substances immediately before the concrete is placed. Where there is delay in depositing concrete, reinforcing shall be reinspected and if necessary recleaned.

### 3.02 PLACEMENT

- A. Reinforcing steel shall be accurately positioned as shown on the Drawings, and shall be supported and wired together to prevent displacement, using annealed iron wire ties or suitable clips at intersections. All reinforcing steel shall be supported by concrete, plastic or metal supports, spacers or metal hangers which are strong and rigid enough to prevent any displacement of the reinforcing steel. Where concrete is to be placed on the ground, supporting concrete blocks (or dobies) shall be used, in sufficient numbers to support the bars without settlement, but in no case shall such support be continuous. All concrete blocks used to support reinforcing steel shall be tied to the steel with wire ties which are embedded in the blocks. For concrete over formwork, the Contractor shall furnish concrete, metal, plastic, or other acceptable bar chairs and spacers.
- B. The portions of all accessories in contact with the formwork shall be made of plastic or steel coated with a 1/8 inch minimum thickness of plastic which extends at least 1/2 inch from the concrete surface. Plastic shall be gray in color.
- C. Tie wires shall be bent away from the forms in order to provide the specified concrete coverage.
- D. Bars additional to those shown on the Drawings which may be found necessary or desirable by the Contractor for the purpose of securing reinforcement in position shall be provided by the Contractor at its own expense.
- E. Unless otherwise specified, reinforcement placing tolerances shall be within the limits specified in Section 7.5 of ACI 318 except where in conflict with the requirements of the Building Code.
- F. Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits, or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be as acceptable to the Engineer. Reinforcing bars shall not be cut to place electrical, plumbing or mechanical conduits, piping, ducts, etc. without the expressed written approval of the Engineer of Record.
- G. Welded wire fabric reinforcement placed over horizontal forms shall be supported on slab bolsters spaced not less than 30 inches on centers, extending continuously across the entire width of the reinforcing mat, and supporting the reinforcing mat in the plane shown on the Drawings.
- H. Welded wire fabric placed over the ground shall be supported on wired concrete blocks (dobies) spaced not more than 3 feet on centers in any direction. The construction practice of placing welded wire fabric on the ground and hooking into place in the freshly placed concrete shall not be used.

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### CONCRETE REINFORCEMENT

- I. The clear distance between parallel bars (except in columns and between multiple layers of bars in beams) shall be not less than the nominal diameter of the bars nor less than 1 1/3 times the maximum size of the coarse aggregate, nor less than one inch.
- J. Where reinforcement in beams or girders is placed in 2 or more layers, the clear distance between layers shall be not less than one inch.
- K. In columns, the clear distance between longitudinal bars shall be not less than 1 1/2 times the bar diameter, nor less than 1 1/2 times the maximum size of the coarse aggregate, nor less than 1 1/2 inches.
- L. The clear distance between bars shall also apply to the distance between a contact splice and adjacent splices or bars.
- M. Reinforcing bar splices shall only be used at locations shown on the Drawings. When it is necessary to splice reinforcement at points other than where shown, the character of the splice shall be as acceptable to the Engineer.
- N. The length of lap for reinforcing bars, unless otherwise shown on the Drawings shall be in accordance with ACI 318, Section 12.15.1 for a class B splice.
- O. Laps of welded wire fabric shall be in accordance with the ACI 318. Adjoining sheets shall be securely tied together with No. 14 tie wire, one tie for each 2 running feet. Wires shall be staggered and tied in such a manner that they cannot slip.
- P. Couplers which are located at a joint face shall be a type which can be set either flush or recessed from the face as shown on the Drawings. The couplers shall be sealed during concrete placement to completely eliminate concrete or cement paste from entering. After the concrete is placed, couplers intended for future connections shall be plugged and sealed to prevent any contact with water or other corrosive materials. Threaded couplers shall be plugged with plastic plugs which have an O-ring seal.
- Q. Reinforcing shall not be straightened or rebent in a manner which will injure the material. Bars with kinks or bends not shown on the Drawings shall not be used. All bars shall be bent cold, unless otherwise permitted by the Engineer. No bars partially embedded in concrete shall be field bent except as shown on the Drawings or specifically permitted by the Engineer.
- R. Dowel Adhesive System shall be installed in strict conformance with the manufacturer's recommendations and as required in Article 2.04 above. A representative of the manufacturer must be on site prior to adhesive dowel installation to provide instruction on proper installation procedures for all adhesive dowel installers. Testing of adhesive dowels shall be as indicated below. If the dowels have a hook at the end to be embedded in subsequent work, an approved mechanical coupler shall be provided at a convenient distance from the face of existing concrete to facilitate adhesive dowel testing while maintaining required hook embedment in subsequent work.
- S. All adhesive dowel installations in the horizontal or overhead orientation shall be conducted by a certified Adhesive Anchor Installer as certified by ACI/CRSI per ACI 318-11 9.2.2. Current AAI Certificates must be submitted to the Engineer of Record for approval prior to commencement of any adhesive anchor installations.

### CONCRETE REINFORCEMENT

- T. Adhesive Dowel Testing
  - 1. At all locations where adhesive dowels are shown on the Drawings, at least 5 percent of all adhesive dowels installed shall be tested to the value indicated on the Drawings, with a minimum of one tested dowel per group. If no test value is indicated on the Drawings but the installed dowel is under direct tension, the Contractor shall notify the Engineer to verify the required test value.
  - 2. Contractor shall submit a plan and schedule indicating locations of dowels to be tested, load test values and proposed dowel testing procedure (including a diagram of the testing equipment proposed for use) prior to conducting any testing. The testing equipment shall have a minimum of three support points and shall be of sufficient size to locate the edge of supports no closer than two times the anchor embedment depth from the center of the anchor.
  - 3. Where Contract Documents indicate adhesive dowel design is the Contractor's responsibility, the Contractor shall submit a plan and schedule indicating locations of dowels to be tested and load test values, sealed by a Professional Engineer currently registered in the State of Florida. The Contractor shall also submit documentation indicating the Contractor's testing procedures have been reviewed and the proposed procedures are acceptable.
  - 4. Adhesive Dowel shall have no visible indications of displacement or damage during or after the proof test. Concrete cracking in the vicinity of the dowel after loading shall be considered a failure. Dowels exhibiting damage shall be removed and replaced. If more than 5 percent of tested dowels fail, then 100 percent of dowels shall be proof tested.
  - 5. Proof testing of adhesive dowels shall be performed by an independent testing laboratory hired directly by the Contractor. The Contractor shall be responsible for costs of all testing, including additional testing required due to previously failed tests.

# 3.03 CLEANING AND PROTECTION

- A. Reinforcing steel shall at all times be protected from conditions conducive to corrosion until concrete is placed around it.
- B. The surfaces of all reinforcing steel and other metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar and other foreign substances immediately before the concrete is placed. Where there is delay in depositing concrete, reinforcing shall be reinspected and, if necessary recleaned.

- END OF SECTION -

### **SECTION 03290**

### JOINTS IN CONCRETE

### PART 1 – GENERAL

#### 1.01 THE REQUIREMENT

- A. The Contractor shall construct all joints in concrete at the locations shown on the Drawings. Joints required in concrete structures are of various types and will be permitted only where shown on the Drawings, unless specifically accepted by the Engineer.
- B. Construction joints, expansion joints, contraction joints and control joints shall be provided at the locations shown and formed in accordance with the details shown on the Drawings.
- C. Waterstops shall be provided where shown on the Drawings, and in all waterbearing joints in hydraulic structures.
- 1.02 RELATED WORK SPECIFIED ELSEWHERE
  - A. Section 03100 Concrete Formwork
  - B. Section 03200 Concrete Reinforcement
  - C. Section 03300 Cast in Place Concrete.
  - D. Section 03315 Grout
  - E. Section 03350 Concrete Finishes
  - F. Section 03370 Concrete Curing
- 1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS
  - A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the applicable requirements of the following documents to the extent that the provisions therein are not in conflict with the requirements of this Section.
    - 1. Federal Specifications:
      - a. TT S 00227E(3) Sealing Compound, Elastomeric Type, Multi component (For Caulking, Sealing, And Glazing Buildings And Other Structures).
    - 2. U.S. Army Corps of Engineers Standard Specifications
      - a. CRD C572
    - 3. Commercial Standards:
      - a. ASTM C 920 Specification for Elastomeric Joint Sealants.

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- b. ASTM D 624 Test Method for Rubber Property Tear Resistance.
- c. ASTM D 638 Test Method for Tensile Properties of Plastics.
- d. ASTM D 746Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.
- e. ASTM D 747Test Method for Apparent Bending Modules of Plastics by Means of a Cantilever Beam.
- f. ASTM D 1752 Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- g. ASTM D 2240 Test Method for Rubber Property Durometer Hardness.

### 1.04 TYPES OF JOINTS

- A. <u>Construction Joints</u>: When fresh concrete is placed against a hardened concrete surface, the joint between the two pours is called construction joint. Unless noted otherwise, all joints in water bearing structures shall be provided with a waterstop of the shape specified herein or shown on the Drawings.
- B. <u>Contraction Joints</u>: Contraction joints are similar to construction joints except that the fresh concrete shall not bond to the hardened surface of the first pour, which shall be coated with a bond breaker. The slab reinforcement shall be stopped 4 1/2 inches from the joint; which is provided with a sleeve type dowel, to allow shrinkage of the concrete of the second pour. Waterstop and/or sealant groove shall also be provided when specified on the Drawings.
- C. <u>Expansion Joints</u>: To allow the concrete to expand freely, a space is provided between the two pours, the joint shall be formed as detailed on the Drawings. This space is obtained by placing a preformed joint filler against the first pour, which acts as a form for the second pour. Unless noted otherwise, all expansion joints in water bearing members shall be provided with a 9-inch wide waterstop. Preformed joint filler shall be installed with the edge at the indicated distance below or back from finished concrete surface, and shall have a slightly tapered, dressed, and oiled wood strip secured to or placed at the edge thereof during concrete placement, which shall later be removed to form space for sealing material. The space so formed shall be filled with a joint sealant material as specified herein. The joint sealant shall be isolated from the filler using a bond breaker.
- D. <u>Control Joints</u>: The function of the control joint is to provide a weaker plane in the concrete, where shrinkage cracks will probably occur. A groove, of the shape and dimensions shown on the Drawing, is formed or saw cut in the concrete. This groove shall be filled with a joint sealant.
- 1.05 SUBMITTALS
  - A. <u>Waterstops</u>: Prior to production of the material required under this contract, qualification samples shall be submitted. Such samples shall consist of extruded or molded sections of each size or shape to be used, and shall be accomplished so that the material and workmanship represents in all respects the material to be furnished under this contract. The balance of the material to be used under this contract shall not be produced until after

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### JOINTS IN CONCRETE

the Engineer has reviewed the qualification samples. The samples shall be delivered to a location on site indicated by the Engineer.

- B. <u>Joint Sealant</u>: Prior to ordering the sealant material, the Contractor shall submit to the Engineer for the Engineer's review, sufficient data to show general compliance with the requirements of the Contract Documents.
- C. Contractor shall submit product data sheets of all materials proposed under this section.
- D. <u>Shipping Certification</u>: The Contractor shall provide written certification from the manufacturer as an integral part of the shipping form, to show that all of the material shipped to this project meets or exceeds the physical property requirements of the Contract Documents. Contractor certificates are not acceptable.
- E. The Contractor shall submit placement Shop Drawings showing the location and type of all joints for each structure.
- F. For sawcut contraction joints submit documentation indicating the following:
  - 1. Proposed method of sawcutting indicating early entry or conventional sawing.
  - 2. Description of how work is to be performed including equipment to be utilized, and curing methods.
  - 3. Description of alternate method in case of time constraint issues or failure of equipment.

#### 1.06 QUALITY ASSURANCE

- A. Waterstop
  - 1. <u>Review</u>: It is required that all waterstop field joints shall be subject to review inspection, and no such work shall be scheduled or started without having made prior arrangements with the Engineer to provide for the required reviews. Not less than 24 hours' notice shall be provided to the Engineer for scheduling such reviews.
  - 2. All field joints in waterstops will be subject to rigid review for misalignment, bubbles, inadequate bond, porosity, cracks, offsets, and other defects which would reduce the potential resistance of the material to water pressure at any point. All defective joints shall be replaced with material which will pass said review, and all faulty material shall be removed from the site and disposed of by the Contractor at its own expense.
  - 3. The following defects represent a partial list of defects which shall be grounds for rejection:
    - a. Offsets at joints greater than 1/16 inch or 15 percent material thickness, at any point, whichever is less.
    - b. Exterior crack at joint, due to incomplete bond, deeper than 1/16 inch or 15 percent of material thickness, at any point, whichever is less.

- c. Any combination of offset or exterior crack which will result in a net reduction in the cross section of the waterstop in excess of 1/16 inch or 15 percent of material thickness at any point, whichever is less.
- d. Misalignment of joint which result in misalignment of the waterstop in excess of 1/2 inch in 10 feet.
- e. Porosity in the welded joint as evidenced by visual inspection.
- f. Bubbles or inadequate bonding which can be detected with pen knife test. (If, while prodding the entire joint with the point of a pen knife, the knife breaks through the outer portion of the weld into a bubble, the joint shall be considered defective.)

### 1.07 GUARANTEE

A. The Contractor shall provide a two year written guarantee of the entire sealant installation against faulty and/or incompatible materials and workmanship, together with a statement that it agrees to repair or replace, to the satisfaction of the City, at no additional cost to the City, any such defective areas which become evident within said two year guarantee period.

### PART 2 - PRODUCTS

- 2.01 PVC WATERSTOPS (NOT USED)
  - A. <u>General</u>: Waterstops shall be extruded from an elastomeric polyvinylchloride compound containing the plasticizers, resins, stabilizers, and other materials necessary to meet the requirements of these Specifications. No reclaimed or scrap material shall be used. The Contractor shall obtain from the waterstop manufacturer and shall furnish to the Engineer for review, current test reports and a written certification of the manufacturer that the material to be shipped to the job meets the physical requirements as outlined in the U.S. Army Corps of Engineers Specification CRD C572 and listed in Paragraph C. below.
  - B. <u>Multi Rib Waterstops</u>: All PVC waterstops shall be of Multi rib construction of the following types:
    - 1. Expansion Joints and Control Joints: 9-inches by 3/8-inch minimum thickness, ribbed center bulb. Waterstops for expansion joints and control joints shall be Style 738 by Greenstreak or equal.
    - All other Construction Joints: 6-inches by 3/8-inch minimum thickness, flat ribbed. Waterstops for all construction joints shall be serrated style 732 by Greenstreak or equal.
    - 3. Install Waterstops as shown as manufactured structures .
    - 4. T-type Waterstops installed against existing concrete shall be Style 609 by Greenstreak, or equal. Compatible batten bars and anchor bolts shall be supplied by the same manufacturer.

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- 5. Provide factory made waterstop fabrications for all changes of direction, intersections, and transitions leaving only straight butt joint splices for the field .
- 6. Provide hog rings or grommets spaced at 12 inches on center along length of waterstop.
- C. <u>Waterstop Testing Requirements</u>: When tested in accordance with the specified test standards, the waterstop material shall meet or exceed the following requirements:

	<u>Value</u>	ASTM Std.
Tensile Strength-min (psi)	1750	D 638, Type IV
Ultimate Elongation-min (percent)	350	D 638, Type IV
Low Temp. Brittleness-Max (degrees F)	-35	D 746
Stiffness in Flexure-min (psi)	400	D 747
Accelerated Extraction (CRD-C572)		
Tensile Strength-min (psi)	1500	D 638, Type IV
Ultimate Elongation-min (percent)	300	D 638, Type IV
Effect of Alkalies (CRD-C572)		
Ultimate Elongation-min (percent)	300	D 638, Type IV
Change in Weight (percent)	+0.25/-0.10	
Change in Durometer, Shore A	+5	D 2240
Finish Waterstop		
Tensile Strength-min (psi)	1400	D 638, Type IV
Ultimate Elongation-min (percent)	280	D 638, Type IV

# 2.02 CHEMICAL RESISTANT WATERSTOPS (NOT USED)

A. <u>General</u>: Waterstops shall be manufactured from thermoplastic elastomeric rubber material. The synthetic rubber shall be provide a high resistance to acids, bases, alcohols, oils, solvents or chemicals. No reclaimed material shall be used. The Contractor shall obtain from the waterstop manufacturer and furnish to the Engineer for review, current test reports and a written certification of the manufacturer that the material to be shipped to the job meets the physical requirements outlined herein. Waterstop connections shall be miter cut, heat welded, factory fabricated. Only straight butt splices shall be allowed in the field.

## JOINTS IN CONCRETE

- B. <u>Multi-Rib Waterstops</u>: All chemical resistant waterstops shall be of multi-rib construction. Waterstops for expansion joints shall be 9"x3/16" ribbed with a center bulb. Waterstops for construction joints shall be 6"x3/16" ribbed with a center bulb. Chemical resistant waterstops shall be Westec Type TPE-R synthetic rubber, manufactured by Westec Barrier Technologies, St. Louis, MO, or equal.
- C. <u>Waterstop Physical Properties</u>: When tested in accordance with the specified test standards, the waterstop material shall meet or exceed the following requirements:

Physical Property	Value	ASTM Std.
Tensile Strength	1800 psi	D-412
Ultimate Elongation	450%	D-412
100% Modulus	1000 psi	D-412
Shore A Hardness	85 units <u>+</u> 5 units	D-2240
Brittle Point	-70°F	D-746
Ozone Resistance	450 pphm passed	D-1171

D. <u>Weathering Performance</u>: When tested in accordance with the specified test standards, the waterstop material shall meet or exceed the following requirements:

Physical Property	<u>Value</u>	ASTM Std.
Tensile Strength (% Retention)	87%	D-412
Ultimate Elongation (% Retention)	84%	D-412
Shore A Hardness (units change)	7 units	D-2240

E. <u>Chemical Resistance Properties</u>: When tested in accordance with ASTM D-471 after 166 hours of full immersion at 73.4oF (23oC), the waterstop material shall meet or exceed the following requirements:

(Continued on Next Page)

<u>Fluid</u>	Physical Property	<u>Value</u>
Sulfuric Acid 98%	Ultimate Elongation	77% Retention
	Ultimate Tensile	82% Retention
	100% Modulus	108% Retention
	Hardness Change Shore A	-1 Unit
	Weight Change	2.1%
Sodium Hydroxide 50%	Ultimate Elongation	101% Retention
	Ultimate Tensile	107% Retention
	100% Modulus	104% Retention
	Hardness Change Shore A	-4 Unit
	Weight Change	-0.1%

### 2.03 HYDROPHILIC WATERSTOPS (NOT USED)

- A. Hydrophilic waterstops shall be designed to expand and seal under hydrostatic conditions. At construction joints, the waterstops shall be Adeka Ultraseal MC 2010 M for wall/slab thickness greater than 9 inches, and Adeka Ultraseal KBA-1510FF for wall/slab thickness less than 9 inches or equal. At expansion joints, the waterstops shall be Adeka Ultraseal KM-3030M or equal.
- B. Plate fabrications used to plug flow channels for future expansion or otherwise to close wall openings shall be caulked using hydrophilic waterstops designed for the application. Caulking agents shall be Adeka Ultraseal P201 or equal.
- 2.04 JOINT SEALANT
  - A. Joint sealant shall comply with Section 07920 entitled "Sealants and Caulking".
- 2.05 EXPANSION JOINT MATERIAL
  - A. Preformed expansion joint material shall be non-extruding, and shall be one of the following types:
    - 1. Type I Sponge rubber, conforming to ASTM D1752, Type I
    - 2. Type II Cork, conforming to ASTM D1752, Type II
    - 3. Type III Self-expanding cork, conforming to ASTM D1752, Type III
    - 4. Type IV Bituminous fiber, conforming to ASTM Designation D1752

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#### 2.06 BACKER ROD

A. Backer rod shall comply with Section 07920 entitled "Sealants and Caulking".

### 2.07 BOND BREAKER

A. Bond breaker shall be Super Bond Breaker as manufactured by Burke Company, San Mateo, California; Hunt Process 225 TU as manufactured by Hunt Process Co., Santa Fe Springs, CA; Select Cure CRB as manufactured by Select Products Co., Upland, CA; or equal. It shall contain a fugitive dye so that areas of application will be readily distinguishable.

## 2.08 CONTRACTION JOINT INSERTS

A. Contraction joint inserts shall be Transverse-Control Joints by Greenstreak Plastic Products or equal.

# PART 3 – EXECUTION

- 3.01 GENERAL
  - A. Unless otherwise shown on the Drawings, waterstops of the type specified herein shall be embedded in the concrete across joints as shown. All waterstops shall be fully continuous for the extent of the joint. Splices necessary to provide such continuity shall be accomplished in conformance to printed instructions of manufacturer of the waterstops. The Contractor shall take suitable precautions and means to support and protect the waterstops during the progress of the Work and shall repair or replace at its own expense any waterstops damaged during the progress of the Work. All waterstops shall be stored so as to permit free circulation of air around the waterstop material.
  - B. When any waterstop is installed in the concrete on 1 side of a joint, while the other half or portion of the waterstop remains exposed to the atmosphere for more than 14 days, suitable precautions shall be taken to shade and protect the exposed waterstop from direct rays of the sun during the entire exposure and until the exposed portion of the waterstop is embedded in concrete.

# 3.02 CONSTRUCTION JOINTS

- A. Construction joints shall be as shown on the Drawings. Otherwise, Contractor shall submit description of the joint and its location to Engineer for approval.
- B. Unless noted otherwise on the Drawings, construction joints shall be located near the middle of the spans of slabs, beams, and girders unless a beam intersects a girder at this point. In this case, the joints in the girders shall be offset a distance equal to twice the width of the beam. Joints in walls and columns shall be at the underside of floors, slabs, beams, or girders and the top of footings or floor slabs unless noted otherwise on Drawings. Beams, girders, brackets, column capitals, haunches, and drop panels shall be placed at the same time as slabs. Joints shall be perpendicular to the main reinforcement.

- C. Unless noted otherwise on the Drawings, maximum Maximum1 distance between horizontal joints in slabs and vertical joints in walls shall be 45' 0". For exposed walls with fluid or earth on the opposite side, the spacing between vertical and horizontal joints shall be a maximum of 25'-0" unless noted otherwise on the Drawings1.
- D. All corners shall be part of a continuous placement, and should a construction joint be required, the joint shall not be located closer than five feet from a corner.
- E. All reinforcing steel and welded wire fabric shall be continued across construction joints. Keys and inclined dowels shall be provided as shown on the Drawings or as directed by the Engineer. Longitudinal keys shall be provided in all joints in walls and between walls and slabs or footings, except as specifically noted otherwise on the Drawings. Size of keys shall be as shown on the Drawings.
- F. All joints in water bearing structures shall have a waterstop. All joints below grade in walls or slabs which enclose an accessible area shall have a waterstop.

### 3.03 EXPANSION JOINTS

- A. Size and location of expansion joints shall be as shown on the Drawings.
- B. All expansion joints in water-bearing structures shall have a center-bulb type waterstop. All expansion joints below grade in walls or slabs which enclose an accessible area shall have a center-bulb type waterstop.
- 3.04 CONTRACTION JOINTS
  - A. Location of contraction joints shall be as shown on the Drawings.
  - B. Contraction joints shall be formed either by sawcutting or with contraction joint inserts as specified in paragraph 2.08, A. Sawcutting of joints will not be permitted unless specifically approved by the Engineer.
  - C. If approved by the Engineer, sawcutting of contraction joints in lieu of forming shall conform to the following requirements:
    - 1. Joints shall be sawed as soon as the concrete can support foot traffic without leaving any impression, normally the same day as concrete is placed and in no case longer than 24 hours after concrete is placed.
    - Curing shall be performed using wet curing methods as indicated in Section 03370 Concrete Curing. Curing mats, fabrics or sheeting materials shall remain in place to the extent possible while cutting of joint is being performed. Curing materials shall only be removed as required and shall be immediately reinstalled once cutting of the joint has been completed.
    - 3. Depth of joint shall be as shown on the drawings or noted in these specifications. At locations where the joint cannot be installed to full depth due to curbs or other stopping points hand tools shall be used to complete joints.
    - 4. Saw cut joints shall meet the requirements of ACI 224.3, Section 2.8, Jointing Practice.

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# 3.05 SPLICES IN PVC WATERSTOPS

- A. Splices in waterstops shall be performed by heat sealing the adjacent waterstop sections in accordance with the manufacturer's printed recommendations. It is essential that:
  - 1. The material not be damaged by heat sealing.
  - 2. The splices have a tensile strength of not less than 60 percent of the unspliced materials tensile strength.
  - 3. The continuity of the waterstop ribs and of its tubular center axis be maintained.
- B. Butt joints of the ends of 2 identical waterstop sections may be made while the material is in the forms.
- C. All joints in waterstop involving more than 2 ends to be joined together, and all joints which involve an angle cut, alignment change, or the joining of 2 dissimilar waterstop sections shall be factory fabricated with not less than 24-inch long strips of material beyond the joint. Upon being inspected and accepted, such prefabricated waterstop joint assemblies shall be installed in the forms and the ends of the 24 inch strips shall be butt welded to the straight run portions of waterstop in place in the forms.

# 3.06 JOINT CONSTRUCTION

- A. Setting PVC Waterstops: In order to eliminate faulty installation that may result in joint leakage, particular care shall be taken of the correct positioning of the waterstops during installation. Adequate provisions must be made to support the waterstops during the progress of the Work and to insure the proper imbedment in the concrete. The symmetrical halves of the waterstops shall be equally divided between the concrete pours at the joints. The center axis of the waterstops shall be coincident with the joint openings. Maximum density and imperviousness of the concrete shall be insured by thoroughly working it in the vicinity of all joints.
- B. In placing PVC waterstops in the forms, means shall be provided to prevent them from being folded over by the concrete as it is placed. Unless otherwise shown, all waterstops shall be held in place with light wire ties on 12 inch centers which shall be passed through the hog rings or grommets, and tied to the curtain of reinforcing steel. Horizontal waterstops, with their flat face in a vertical plane, shall be held in place with continuous supports to which the top edge of the waterstop shall be tacked. In placing concrete around horizontal waterstops, with their flat face in a horizontal plane, concrete shall be worked under the waterstops by hand so as to avoid the formation of air and rock pockets.
- C. Joint Location: Construction joints, and other types of joints, shall be provided where shown on the Drawings. When not shown on the Drawings, maximum distance between horizontal joints in slabs and vertical joints in walls shall be 45-feet, and maximum distance between vertical and horizontal joints for earth or water retaining walls shall be 25-feet, unless noted otherwise. The location of all joints, of any type, shall be submitted for review by the Engineer.
- D. Joint Preparation: Special care shall be used in preparing concrete surfaces at joints where bonding between two sections of concrete is required. Unless otherwise shown on the Drawings, such bonding will be required at all horizontal joints in walls. Surfaces shall

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be prepared in accordance with the requirements of Section 03300 entitled "Cast in Place Concrete."

- E. Adequate means shall be provided for anchoring the waterstop in concrete. Waterstops shall be positioned so that they are equally embedded in the concrete on each side of the joint.
- F. Sealant application shall be in accordance with the manufacturer's printed instructions. The surfaces of the groove for the sealant shall not be coated. Concrete next to waterstops shall be placed in accordance with the requirements of Section entitled, "Cast in Place Concrete."
- G. The primer and sealant shall be placed strictly in accordance with the printed recommendations of the manufacturer, taking special care to properly mix the sealant prior to application. All sealant shall cure at least 7 days before the structure is filled with water.
- H. All sealant shall be installed by a competent waterproofing specialty contractor who has a successful record of performance in similar installations. Before work is commenced, the crew doing the Work shall be instructed as to the proper method of application by a representative of the sealant manufacturer.
- I. Thorough, uniform mixing of 2 part, catalyst cured materials is essential; special care shall be taken to properly mix the sealer before its application. Before any sealer is placed, the Contractor shall arrange to have the crew doing the Work carefully instructed as to the proper method of mixing and application by a representative of the sealant manufacturer.
- J. Any joint sealant which, after the manufacturer's recommended curing time for the job conditions of the Work hereunder, fails to fully and properly cure shall be completely removed; the groove shall be thoroughly sandblasted to remove all traces of the uncured or partially cured sealant and primer, and shall be re sealed with the specified joint sealant. All costs of such removal, joint treatment, re sealing, and appurtenant work shall be at the expense of the Contractor.

## 3.07 INSTALLATION OF EXPANSION JOINT MATERIAL AND SEALANTS

- A. Type I, II, or III shall be used in all expansion joints in structures and concrete pavements unless specifically shown otherwise on the Drawings. Type IV shall be used in sidewalk and curbing and other locations specifically shown on the Drawings.
- B. All expansion joints exposed in the finish work, exterior and interior, shall be sealed with the specified joint sealant. Expansion joint material and sealants shall be installed in accordance with manufacturer's recommended procedures and as shown on the Drawings.
- C. Expansion joint material that will be exposed after removal of forms shall be cut and trimmed to ensure a neat appearance and shall completely fill the joint except for the space required for the sealant. The material shall be held securely in place and no concrete shall be allowed to enter the joint or the space for the sealant and destroy the proper functions of the joint.
- D. A bond breaker shall be used between expansion joint material and sealant. The joint shall be thoroughly clean and free from dirt and debris before the primer and the sealant

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are applied. Where the finished joint will be visible, masking of the adjoining surfaces shall be carried out to avoid their discoloration. The sealant shall be neatly tooled into place and its finished surfaces shall present a clean and even appearance.

- E. Type 1 joint sealant shall be used in all expansion and contraction joints in concrete, except where Type 7 or Type 8 is required as stated below, and wherever else specified or shown on the Drawings. It shall be furnished in pour grade or gun grade depending on installation requirements. Primers shall be used as required by the manufacturer. The sealant shall be furnished in colors as directed by the Engineer.
- F. Type 8 joint sealant shall be used in all concrete pavements and floors subject to heavy traffic and wherever else specified or shown on the Drawings.
- G. Type 7 joint sealant shall be used for all joints in chlorine contact tanks and wherever specified or shown on the Drawings.

- END OF SECTION -