

**PROJECT 20-8533  
(Lanzo Construction Company)**

**CITY OF HOLLYWOOD  
CONTRACT DOCUMENTS AND  
SPECIFICATIONS FOR**

**LS A-09 Forcemain Replacement  
Project  
NW 70<sup>th</sup> Ave From Johnson St to  
Arthur St**

**AUGUST 2024**



Prepared by:

**ENGINEERING SUPPORT SERVICES DIVISION**

1621 N 14<sup>th</sup> Avenue  
PO Box 229045  
Hollywood, FL 33022-9045



## **Invitation for Bids**

**IFB-187-24-JJ**

**LS A-09 Forcemain Replacement  
NW 70<sup>th</sup> Ave From Johnson St to  
Arthur St**

**ECSD Project Number 20-8533**

**FOR THE**

**CITY OF HOLLYWOOD, FLORIDA (CITY)**

**IFB Issue Date:** June 4, 2024  
**Questions Due Date:** July 3, 2024  
**Submittal Due Date:** July 16, 2024, at 3 P.M. ET

**CITY OF HOLLYWOOD**  
**IFB-187-24-JJ**  
**LS A-09 Forcemain Replacement**  
**NW 70th Ave From Johnson St to**  
**Arthur St**  
**ESSD Project Number 20-8533**

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## SECTION I – INTRODUCTION

### 1.1 **Purpose**

The City of Hollywood, Florida (City) is seeking bids from qualified and experienced firms, hereinafter referred to as the Contractor or Bidder, to provide Construction Services for the City, in accordance with the terms, conditions, and specifications contained in this solicitation. Responses to this solicitation are due by **July 16, 2024, by 3:00 PM EST**, and will be opened in a virtual public setting on **July 16, 2024, by 3:00 PM EST** at <https://www.opengov.com>.

Submittals shall be considered an offer on the part of the bidder/proposer, which offer shall be deemed accepted upon approval of the City, and in case of default, the City reserves the right to accept or reject any or all bids/proposals, to waive irregularities and technicalities, and request new bids/proposals. The City also reserves the right to award any resulting agreement as it deems will best serve the interests of the city.

**Submission of a bid/proposal shall serve as prima facie evidence that the Bidder/Proposer has examined this solicitation and is fully aware of all conditions affecting the provision of services and the evaluation criteria and scoring methodology as set forth in this solicitation document.**

### 1.2 **Pre-bid Conference and/or Site Visit (Mandatory)**

There will be a non-mandatory pre-bid conference and/or site visit scheduled for this solicitation. Attendance is required if the event is mandatory, and in the event that it is non-mandatory, it is strongly suggested that all Contractors attend the pre-bid conference and/or site visit to receive information that may be critical to their understanding of this solicitation.

The non-mandatory pre-bid conference will be held on:

**November 16, 2024, at 2:00 pm**  
**Southern Regional Wastewater Treatment Plant**  
**1621 N. 14<sup>th</sup> Avenue**  
**Hollywood, Florida 33021 First Floor Conference Room**

### 1.3 **OpenGov**

The City of Hollywood uses OpenGov (<https://procurement.opengov.com/portal/hollywoodfl>) to administer the competitive solicitation process, including but not limited to soliciting bids, issuing addenda, posting results and issuing notification of an intended decision.

### 1.4 **Point of Contact**

For information concerning procedures for responding to this solicitation, contact the Point of Contact within the Office of Procurement and Contract Compliance, Otis J. Thomas, Senior Purchasing Agent at [jjoinville@hollywoodfl.org](mailto:jjoinville@hollywoodfl.org) or by phone at (954) 921-3290, or Staci Alli, Administrative Assistant I at [salli@hollywoodfl.org](mailto:salli@hollywoodfl.org) or by phone at 954-921-3222. Such contact is to be for clarification purposes only. All questions must be submitted in writing via OpenGov by **July 3, 2024, by 3:00 PM EST** in order to receive a response.

Project Manager: Roger Bezerra, Department of Public Utilities, email: [rbezerra@hollywoodfl.org](mailto:rbezerra@hollywoodfl.org) or by phone: (954) 921-3930.

For information concerning technical specifications, please utilize the question / answer feature provided by OpenGov at <https://procurement.opengov.com/portal/hollywoodfl>. Questions of a material nature must be received prior to the cut-off date specified in the solicitation schedule. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. (See addendum section of OpenGov Site). Bidders please note: 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 themselves 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 OpenGov shall become part of any contract that is created from this solicitation.

It is the sole responsibility of the Bidder to ensure that their bid is submitted electronically through OpenGov at <https://procurement.opengov.com/portal/hollywoodfl>.

## **1.5 Cone of Silence**

The City of Hollywood City Commission adopted Ordinance No. O-2007-05, which created Section 30.15(F) imposing a Cone of Silence for certain City purchases of goods and Services.

The Cone of Silence refers to limits on communications held between vendors and vendor's representatives and City elected officials, management and staff during the period in which a Formal Solicitation is open.

The Ordinance does allow potential vendors or vendor's representatives to communicate with designated employees for the limited purpose of seeking clarification or additional information. The names and contact information of those employees that may be contacted for clarification or additional information are included in the solicitation.

The Cone of Silence does not prohibit a vendor or vendor's representative from communicating verbally, or in writing with the City Manager, the City Manager's designee, the City Attorney or the City Attorney's designee on those procurement items to be considered by the City Commission.

The Cone of Silence does not prohibit a vendor or vendor's representative from making public presentations at a duly noticed pre-bid conference or duly noticed evaluation committee meeting or from communicating with the City Commission during a duly noticed public meeting.

The Cone of Silence shall be imposed when a formal competitive solicitation has been issued and shall remain in effect until an award is made, a contract is approved, or the City Commission takes any other action which ends the solicitation.

To view the Cone of Silence, go to the City of Hollywood Code of Ordinance online, and view [Section 30.15F](#).

All communications regarding this bid should be sent in writing to the Procurement Services Division as identified in this bid.

*END OF SECTION*

## **SECTION II - SPECIAL TERMS AND CONDITIONS**

### **2.1 Addenda, Changes, and Interpretations**

It is the sole responsibility of each firm to notify the Point of Contact utilizing the question / answer feature provided by OpenGov and request modification or clarification of any ambiguity, conflict, discrepancy, omission or other error discovered in this competitive solicitation. Requests for clarification, modification, interpretation, or changes must be received prior to the Question and Answer (Q & A) Deadline. Requests received after this date may not be addressed. Questions and requests for information that would not materially affect the scope of services to be performed or the solicitation process will be answered within the question / answer feature provided by OpenGov and shall be for clarification purposes only. Material changes, if any, to the scope of services or the solicitation process will only be transmitted by official written addendum issued by the City and uploaded to OpenGov as a separate addendum to the solicitation. Under no circumstances shall an oral explanation given by any City official, officer, staff, or agent be binding upon the City and should be disregarded. All addenda are a part of the competitive solicitation documents and each firm will be bound by such addenda. It is the responsibility of each to read and comprehend all addenda issued.

### **2.2 Dimensions, Quantities and Subsurface Information**

Dimensions, quantities, and subsurface information supplied by the City are in no way warranted to indicate true amounts or conditions. Bidders/Contractors shall neither plead misunderstanding or deception nor make claims against the City if the actual amounts, conditions, or dimensions do not conform to those stated. Any "Outside" reports made available by the Engineer are neither guaranteed as to accuracy or completeness, nor a part of the Contract Documents.

### **2.3 Trench Safety Form**

The Trench Safety Form included in the Bid Documents must be completed and signed. Noncompliance with this requirement may invalidate the bid.

### **2.4 Changes and Alterations**

Bidder may change or withdraw a Bid at any time prior to Bid submission deadline; however, no oral modifications will be allowed. Modifications shall not be allowed following the Bid deadline.

### **2.5 Bidder's Costs**

The City shall not be liable for any costs incurred by Bidders in responding to this solicitation.

### **2.6 Pricing/Delivery**

All pricing must include delivery and installation and be quoted FOB: Destination, unless specified otherwise in Section III.

### **2.7 Price Validity**

Prices provided in this solicitation shall be valid for at least One-Hundred and Twenty (120) days from time of solicitation opening unless otherwise extended and agreed upon by the City and Bidder.

### **2.8 No Exclusive Contract**

Bidder agrees and understands that the contract shall not be construed as an exclusive arrangement and further agrees that the City may, at any time, secure similar or identical services from another vendor at the City's sole option.

### **2.9 Responsive**

In order to be considered responsive to the solicitation, the firm's bid shall fully conform in all material respects to the solicitation and all of its requirements, including all form and substance.

**2.10 Responsible**

In order to be considered as a responsible firm, firm shall be fully capable to meet all of the requirements of the solicitation and subsequent contract, must possess the full capability, including financial and technical, to perform as contractually required, and must be able to fully document the ability to provide good faith performance.

**2.11 Minimum Qualifications**

To be eligible for award of a contract in response to this solicitation, the Bidder must demonstrate that they have successfully completed services, as specified in Section III of this solicitation, are normally and routinely engaged in performing such services, and are properly and legally licensed (if required) to perform such work. Bidder must possess, and be able to provide the City with any and all required Federal, State, County and/or municipal licenses, and occupational licenses. Bidder must be able to provide proof of valid licensing for all subcontractors and/or material suppliers hired by the contractor, if requested. In addition, the Bidder must have no conflict of interest with regard to any other work performed by the Bidder for the City.

**2.12 Award of Contract**

Award may be in the aggregate, or by line Item, or by group, whichever is determined to be in the best interest of the City.

The Contract will be awarded only to a Bidder, who in the opinion of the **Engineer**, is fully qualified to undertake the work, quoting the lowest price, for that product/service that will best serve the needs of the City. The City reserves the right before awarding the Contract to require a Bidder to submit such evidence of his qualifications as it may deem necessary and may consider any available evidence of his financial status, technical qualifications, and other qualifications and abilities.

The City also 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.

**2.13 Execution of Contract**

The Bidder to whom the Contract is awarded shall, within ten days of the date of award, execute and deliver three (3) copies of the following to the Engineer.

- A. The Contract
- B. Performance and Payment Bond
- C. Evidence of required Insurance
- D. Proof of authority to execute the Contract
- E. Proof of authority to execute the Bond on behalf of the Awardee
- F. List of Subcontractors, estimated Contract Value for each and proof that such subcontractors possess all required Federal, State, County and/or municipality licenses, including but not limited to certified of competency and occupational license

The above documents must be furnished, executed and delivered before the Contract will be executed by the City. The Contract shall not be binding upon the City until it has been executed by the City and a copy of such fully executed Contract is delivered to the Contractor.

**2.14 Failure To Execute Contract. Bid Guaranty Forfeited**

Should the Bidder to whom the Contract has been awarded refuse or fail to complete the requirements of Section 2.13 above within ten (10) days after Notice of Award, the additional time in days (including weekends) required to CORRECTLY complete the documents will be deducted, in equal amount, from the Contract Time, or the City may elect to revoke the Award. The Bid Guaranty of any Bidder failing to execute the awarded Contract shall be retained by the City and the Contract awarded as the Commission desires.

**2.15 Manufacturer/Brand/Model Specific Request**

This is a manufacturer/brand/model specification. No substitutions will be allowed unless specified in Form 3 or Attachment D, – Technical Specifications.

**2.16 Permits and Fees** Refer to Attachment D – Technical Specifications (Section 01025 Basis of Payment)

**2.17 Contract Security**

When the awarded bidder delivers the executed contract to the City, it must be accompanied by the required bonds.

**2.18 Contract Period**

The initial contract term shall commence upon date of award by the City for a 540-day term.

**2.19 Bid Guaranty**

A Bid Guaranty in the form of a Cashier's Check, Certified Check or Bid Bond executed by the Bidder and a qualified Surety in the amount of 5% of the Bid is required for this project.

**2.20 Warranties of Usage**

Any estimated quantities listed are for information and tabulation purposes only. No warranty or guarantee of quantities needed is given or implied. It is understood that the Contractor will furnish the City's needs as they arise.

**2.21 Rules and Submittals of Bids**

The signer of the bid must declare that the only person(s), company or parties interested in the proposal as principals are named therein; that the bid is made without collusion with any other person(s), company or parties submitting a bid; that it is in all respects fair and in good faith, without collusion or fraud; and that the signer of the bid has full authority to bind the principal bidder.

**2.22 Tie Breaker**

In cases where there is a tie for the bid award, the award shall be made by giving preference to the low bidder(s) with the following items (in this order): (1) maintenance of a drug-free workplace in accordance with the requirements of Florida Statutes Section 287.087, (2) local Hollywood vendor preference, (3) closest proximity/location to project site or City Hall, and/or (4) minority-owned or disadvantaged business status. If a tie still exists after the aforementioned tiebreakers are utilized, the Chief Procurement Officer will make a recommendation for award among the tied bidders.

**2.23 Conflict of Interests Prohibited**

Any respondent submitting a response to this solicitation is responsible for being aware of, and complying with [Section 34.02](#) of the City Code of Ordinances. If you have questions concerning whether you may or may not need to comply with the ordinance, please contact the City of Hollywood, City Clerk's Office at 954-921-3211.



## **2.24 Protest Procedure**

Any respondent who is not recommended for award of a contract and who alleges a failure by the City to follow the City's [Procurement Code](#) or any applicable law may protest to the CPO, by delivering a letter of protest to the CPO in accordance with [Section 38.52](#) of the City's [Procurement Code](#) within five days after a notice of intent to award is posted on the City's web site, BIDSYNC, City Clerk's Office, Open Government, and/or City's Sunshine Board (<https://www.hollywoodfl.org/Archive.aspx?AMID=140>).

## **2.25 Insurance Requirements**

Contractor shall maintain, at its sole expense, during the term of this agreement the following insurances:

The insurance required by Article 5.6 of the General Conditions, Public Utilities shall be as follows: Any sub-contractor shall supply such similar insurance required of the Contractor. Such certificates shall name the City as additional insured on the general liability and auto liability policies.

The Contract and Subcontractors shall furnish certificates of insurance to the Risk Management Director for review and approval prior to the execution of this agreement. No failure to renew, material change or cancellation of, the insurance shall be effective without a 30-day prior written notice to and approval by the Owner.

### **1. Commercial General Liability:**

Prior to the commencement of work governed by this contract, the Consultant shall obtain General Liability Insurance. Coverage shall be maintained throughout the life of the contract and include, as a minimum:

- a. Premises Operations
- b. Products and Completed Operations
- c. Personal & Advertising Injury
- d. Damages to rented premises

The minimum limits acceptable shall be:

\$2,000,000 Each Occurrence / \$4,000,000 General Aggregate

The City of Hollywood shall be named as Additional Insured.

### **2. Automobile Liability Insurance:**

Recognizing that the work governed by this contract requires the use of vehicles, the Consultant, prior to the commencement of work, shall obtain Vehicle Liability Insurance. Coverage shall be maintained throughout the life of the contract and include, as a minimum, liability coverage for:

Owned, Non-Owned, and Hired Vehicles

Coverage shall be maintained throughout the life of the contract and include, as a minimum, liability coverage for:

Owned, Non-Owned, and Hired Vehicles

The minimum limits acceptable shall be:

\$1,000,000 Combined Single Limit

If split limits are provided, the minimum limits acceptable shall be:

\$ 500,000 per Person

\$1,000,000,000 per Occurrence

\$ 100,000 property damage

The City of Hollywood shall be named as Additional Insured.

3. **Worker's Compensation Insurance:**

Prior to the commencement of work governed by this contract, the Consultant shall obtain Workers' Compensation Insurance with limits sufficient to respond to the applicable state statutes. In addition, the Consultant shall obtain Employers' Liability Insurance with limits of not less than:  
\$500,000 Bodily Injury by Accident  
\$500,000 Bodily Injury by Disease, policy limits  
\$500,000 Bodily Injury by Disease, each employee

4. **Pollution Liability:** (If applicable) The minimum limits of liability shall be:  
\$1,000,000 each claim / \$2,000,000 aggregate Including non-owned disposal sites.

**2.26 Uncontrollable Circumstances (Force Majeure)**

The City and Contractor will be excused from the performance of their respective obligations under this agreement when and to the extent that their performance is delayed or prevented by any circumstances beyond their control including, fire, flood, explosion, strikes or other labor disputes, acts of God or public emergency, war, riot, civil commotion, malicious damage, act or omission of any governmental authority, delay or failure or shortage of any type of transportation, equipment, or service from a public utility needed for their performance, provided that:

**2.26.1** The nonperforming party gives the other party prompt written notice describing the particulars of the Force Majeure including, but not limited to, the nature of the occurrence and its expected duration, and continues to furnish timely reports with respect thereto during the period of the Force Majeure;

**2.26.2** The excuse of performance is of no greater scope and of no longer duration than is required by the Force Majeure; and

**2.26.3** No obligations of either party that arose before the Force Majeure causing the excuse of performance are excused as a result of the Force Majeure; and

**2.26.4** The non-performing party uses its best efforts to remedy its inability to perform. Notwithstanding the above, performance shall not be excused under this Section for a period in excess of two (2) months, provided that in extenuating circumstances, the City may excuse performance for a longer term. Economic hardship of the Contractor will not constitute Force Majeure. The term of the agreement shall be extended by a period equal to that during which either party's performance is suspended under this Section.

**2.27 Supplier Portal (Oracle) Payment Method**

The City has implemented software that contains a supplier portal allowing suppliers to submit and update their information via the supplier portal. New suppliers will be required to register; and current suppliers will need to confirm and update their information.

Firms are responsible for ensuring that all contact, payment, and general information is updated at all times, and will not hold the City liable for any inaccurate information.

**2.28 Debarred or Suspended Bidders or Proposers**

Firm(s) 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, state, county or municipal department or agency.

**2.29 Payment and Performance Bond**

A Performance Bond and a Payment Bond each equal to 100 percent of the total Bid will be required of the Awardee. The Bond must be written through a company licensed to do business in the State of Florida and be rated at least "A", Class X, in the latest edition of "Best's Key Rating Guide", published by A.M. Best Company. As per Florida Statute Section 255.05, the Contractor shall be required to record the payment and performance bonds in the public records of Broward County

**2.30 Public Records**

**A. Public Records/Trade Secrets/Copyright:**

**All responses will become the property of the City. The Consultant's response to the solicitation is a public record pursuant to Florida law and is subject to disclosure by the City pursuant to Chapter 119.07, Florida Statutes ("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, Florida Statutes.**

Any language contained in the Consultant's response to the solicitation purporting to require confidentiality of any portion of the Consultant'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 Consultant submits any documents or other information to the City that the Consultant claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Consultant shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Consultant 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 Consultant's response to the solicitation constitutes a Trade Secret. The City's determination of whether an exemption applies shall be final, and the Consultant 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 the event of Contract award, all documentation produced as part of the Contract shall become the exclusive property of the City. Proposals purporting to be subject to copyright protection in full or in part will be rejected.

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.

**B. PUBLIC RECORDS GENERAL**

**IF THE CONSULTANT HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONSULTANT'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT: (954-921-3211), pcerny@hollywoodfl.org, CITY CLERK'S OFFICE, 2600 HOLLYWOOD BLVD, HOLLYWOOD, FLORIDA 33020)**

Consultant shall:

1. Keep and maintain public records that ordinarily and necessarily would be 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.

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 contract if the Consultant does not transfer the records to the City.

4. Upon completion of the Contract, transfer, at no cost, to the City all public records in possession of the Consultant or keep and maintain public records required by the City to perform the service. If the Consultant transfers all public records to the City upon completion of this Contract, the Consultant shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Consultant keeps and maintains public records upon completion of this Contract, the Consultant 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. It is solely and exclusively the Contractor's responsibility to familiarize itself with Chapter 119, Florida Statutes, and to ensure compliance with its requirements.

*END OF SECTION*

## SECTION III - SCOPE OF SERVICES

### 3.1 **Project Description**

The project consists of the replacement of an existing 10-inch asbestos force main that extends from Lift Station A-09, west along Arthur Street and south along N 70th Avenue to Johnson Street. The replacement force main is a proposed 12-inch PVC (approximately 1,400 LF) that will extend from the intersection of N 70th Avenue and Johnson Street to just north of Arthur Street where it will reconnect to an existing 8-inch (to be verified by the contractor) force main. An 8-inch PVC force main (branch section) (approximately 120 LF) will also extend east, from the intersection of N 70th Avenue and Arthur Street to an existing 6-inch force main (Approximately 12LF) (to be verified by the contractor) connected to Lift Station A-09. In addition, approximately 36 LF of 18-inch force main (to be verified by the contractor) will be replaced along Johnson Street along with all associated existing and proposed connections. All existing asbestos force mains (approximately 1600 LF) will be grout filled and abandoned in-place.

### 3.2 **Technical Specifications**

Refer to Appendix D.

### 3.3 **Contractor Qualifications**

1. Must provide as part of their references a minimum of three (3) similar projects performed within the last seven (7) years. The projects must be similar in nature with equal or greater linear feet of pipe installed within public right of way. Resumes of individuals (especially Superintendent) performing the work must be provided. The Bidder must also state their proposed project manager by name and list a minimum of two (2) similar projects managed by him/her with references listed on his/her resume. Each project must be under a different contract. It will be the Bidders responsibility to provide accurate contact information for references. References that cannot be contacted to verify project experience based on information provided by the Bidder may result in a non-compliance of this requirement. Only Bidders including their project manager and superintendent with the capabilities and experience on similar projects will be considered qualified for bid consideration. Judgment regarding 'similar projects' is at the sole discretion of the City and Engineer. The successful Bidder will not be allowed to replace their project manager or superintendent without providing a suitable replacement. Judgment regarding "a suitable replacement" will be at the sole discretion of the City.

2. Similar projects are projects that include the following being successfully constructed and commissioned:

- A. Installation of at least 1,400 LF of 12-inch, 36 LF of 18", 120 LF of 8", & 12 LF of 6"
- B. Installation of one or more linestops
- C. Connections and reconnections to existing forcemains
- D. Must demonstrate extensive experience in public outreach and excellent customer service.
- E. Experience in projects that involve the removal or abandoning of asbestos cement pipes.

Form 15 – Information Required from Bidders, shall be completed fully and accurately by the Contractor and submitted with the bid. Information included on the questionnaire will be used in evaluating the qualifications of the Contractor. The City reserves the right to request additional information not identified on the questionnaire.

### 3.4 **Subcontractors**

For the City to be assured that only competent and qualified subcontractors will be employed on this project, each Bidder shall submit in the bid a list of the subcontractors performing work on this project. This subcontractors list shall include each firm's name, address, telephone number, contact person and work to be performed. Subcontractors shall be properly registered or licensed with the State of Florida, Broward County and the City of Hollywood. Subcontractors shall, in the City's opinion, be qualified both technically and financially to perform the work.

The City reserves the right to reject any subcontractor who is deemed by the City to be unacceptable technically or financially, or has previously performed work which the City believes to be unsatisfactory. No change may be made to this list of subcontractors by the Contractor, before or after contract award, without the express written consent of the City.

If, prior to award, the City rejects any subcontractor, the Contractor shall be afforded the opportunity to submit qualifications for an alternate subcontractor with no attendant increase in the base lump sum bid amount, adjustment of contract time or alteration of the bid documents. Such qualifications will be due within ten (10) days of receipt of notification of subcontractor rejection. Failure to submit an acceptable alternate subcontractor may result in rejection of the bid. In this event, the bid bond shall be returned to Contractor without claim by the City and with forfeiture of all claim rights by the Contractor.

**3.5 Deliverables and Objectives**

Refer to Attachment B General Conditions, Attachment C Supplementary General Conditions, Attachment D Technical Specifications and Attachment E Drawings.

**3.6 Project Schedule / Timeline**

Refer to Appendix C, Supplementary conditions, Section 1, Project Schedule.

**3.7 Questions**

Refer to Form 15, Information Required from Bidders.

**3.8 Substantial Completion**

Refer to Appendix C, Supplementary conditions, Section 1, Project Schedule.

*END OF SECTION*

## **SECTION IV – GENERAL TERMS AND CONDITIONS**

### **1.1 INTENT**

It is the policy of the City to encourage full and open competition among all available qualified vendors. All vendors regularly engaged in the type of Work specified in the Bid Solicitation are encouraged to submit bids. To receive notification and to be eligible to bid vendor should be registered with OpenGov. Vendors may register with the OpenGov (registration is free) to be included on a mailing list for selected categories of goods and Services. In order to be processed for payment, any awarded vendor must register with the City by completing and returning a Vendor Application and all supporting documents. For information and to apply as a vendor, please visit our website at [hollywoodfl.org](http://hollywoodfl.org) to download an application and submit it to Procurement Services Division.

It is the intent of the City of Hollywood, FL ("the City"), through this solicitation and the contract conditions contained herein, to establish to the greatest possible extent complete clarity regarding the requirements of both parties to the agreement resulting from this solicitation.

Before submitting a bid, the Vendor shall be thoroughly familiarized with all contract conditions referred to in this document and any addenda issued before the bid/proposal submission date. Such addenda shall form a part of the SOLICITATION and shall be made a part of the contract. It shall be the Vendor's responsibility to ascertain that the bid/proposal includes all addenda issued prior to the bid/proposal submission date. Addenda will be posted on the City's internet site along with the SOLICITATION.

The terms of the SOLICITATION and the selected Vendor's bid and any additional documentation (e.g. questions and answers) provided by the Vendor during the solicitation process will be integrated into the final contract for services entered into between the City and the selected Vendor. The Vendor shall determine, by personal examination and by such other means as may be preferred, the conditions and requirements under which the agreement must be performed.

### **1.2 PROPOSER'S RESPONSIBILITIES**

Proposers are required to submit their bids upon the following express conditions:

- A. Proposers shall thoroughly examine the drawings, specifications, schedules, instructions and all other contract documents.
- B. Proposers shall make all investigations necessary to thoroughly inform themselves regarding delivery of material, equipment or services as required by the SOLICITATION conditions. No plea of ignorance, by the proposer, of conditions that exist or that may hereafter exist as a result of failure or omission on the part of the proposer to make the necessary examinations and investigations, or failure to fulfill in every detail the requirements of the contract documents, will be accepted as a basis for varying the requirements of the City or the compensation due the proposer.
- C. Proposers are advised that all City contracts are subject to all legal requirements provided for in the City of Hollywood Charter, Code of Ordinances and applicable County Ordinances, State Statutes and Federal Statutes.

### **1.3 PREPARATION OF BIDS/PROPOSALS**

Bids/proposals shall be prepared in accordance with the bid/proposal response format. Bids/proposals not complying with this format may be considered non-responsive and may be removed from consideration on this basis. Each proposer, by making a bid/proposal, represents that this document has been read and is fully understood.

Bids/proposals will be prepared in accordance with the following:

- A. The City's enclosed bid/proposal Forms, in their entirety, are to be used in submitting your bid/proposal. **NO OTHER FORM WILL BE ACCEPTED.**
- B. All information required by the bid/proposal form shall be furnished. The proposer shall sign each continuation sheet (where indicated) on which an entry is made.

C. Prices shall be shown and where there is an error in extension of prices, the unit price shall govern.

The City of Hollywood is exempt from payment to its vendors of State of Florida sales tax and, therefore, such taxes should not be figured into the SOLICITATION. However, this exemption does not apply to suppliers to the City in their (supplier) purchases of goods or services, used in work or goods supplied to the City. Proposers are responsible for any taxes, sales or otherwise, levied on their purchases, subcontracts, employment, etc. An exemption certificate will be signed where applicable, upon request. The City will pay no sales tax.

#### **1.4 DESCRIPTION OF SUPPLIES (As Applicable)**

Any manufacturer's names, trade names, brand names, or catalog numbers used in these applications are for the purpose of describing and establishing minimum requirements or level of quality, standards of performance, and design required, and are in no way intended to prohibit the bidding of other manufacturers' items of equal material, unless specifications state "NO SUBSTITUTIONS."

Proposers must indicate any variances to the specifications, terms, and conditions, no matter how slight. If variations are not stated in the bid/proposal, it shall be construed that the bid/proposal fully complies with the Specifications, Terms and Conditions.

Proposers are required to state exactly what they intend to furnish; otherwise they shall be required to furnish the items as specified.

Proposers will submit, with their bid/proposal, necessary data (factory information sheets, specifications, brochures, etc.) to evaluate and determine the quality of the item(s) they are proposing.

The City shall be the sole judge of equality and its decision shall be final.

#### **1.5 ADDENDA**

The Procurement Services Division may issue an addendum in response to any inquiry received, prior to bid/proposal opening, which changes, adds to or clarifies the terms, provisions or requirements of the solicitation. The Proposer should not rely on any representation, statement or explanation, whether written or verbal, other than those made in this solicitation document or in any addenda issued. Where there appears to be a conflict between this solicitation and any addendum, the last addendum issued shall prevail. It is the proposer's responsibility to ensure receipt of all addenda and any accompanying documents. Proposer(s) shall acknowledge receipt of any formal Addenda by signing the addendum and including it with their bid/proposal. Failure to include signed formal addenda in its bid/proposal shall cause the City to deem the bid/proposal non-responsive provided, however, that the City may waive this requirement in its best interest.

#### **1.6 REJECTION OF BIDS/PROPOSALS**

To the extent permitted by applicable state and federal laws and regulations, the City reserves the right to reject any and all bids/proposals, to waive any and all informalities, irregularities and technicalities not involving price, time or changes in the commodities and/or services, and the right to disregard all nonconforming, non-responsive, unbalanced or conditional bids/proposals. Bids/proposals will be considered irregular and may be rejected if they show serious omissions, alterations in form, additions not called for, conditions or unauthorized alterations or irregularities of any kind.

The City also reserves the right to waive minor technical defects in a bid/proposal. The City reserves the right to determine, in its sole discretion, whether any aspect of a bid/proposal satisfies the criteria established in this Solicitation.

The City reserves the right to reject, in whole or in part, the bid/proposal of any Proposer if the City believes that it would not be in the best interest of the City to make an award to that Proposer, whether because the bid/proposal is not responsive or the Proposer is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criterion established by City.

The foregoing reasons for rejection of bids/proposals are not intended to be exhaustive.

The City may reject a bid/proposal if:

A. The Proposer fails to acknowledge receipt of an addendum, or if



- B. The Proposer misstates or conceals any material fact in the bid/proposal, or if
- C. The bid/proposal does not strictly conform to the law or requirements of the SOLICITATION, or if
- D. The City is under a pre- lawsuit claim or current litigation with the proposer.

Additionally, any one of the following causes (not limited to) may be considered as sufficient justification to disqualify a Bidder and reject his/her Bid:

- A. Submission of more than one Bid for the same work by an individual, firm, partnership or corporation under the same or different names.
- B. Evidence of collusion.
- C. Previous participation in collusive Bidding on work for the City of Hollywood, Florida.
- D. Submission of an unbalanced Bid in which the prices Bid for some items are out of proportion to the prices Bid for other items.
- E. Lack of competency. The Engineer may declare any Bidder ineligible, at any time during the process or receiving Bids or awarding the Contract, if developments arise which, in his opinion, adversely affects the Bidder's responsibility. The Bidder will be given an opportunity, by the Engineer, to present additional evidence before final action is taken.
- F. Lack of responsibility as shown by past work judged by the Engineer from the standpoint of workmanship and progress.
- G. Uncompleted work for which the Bidder is committed by Contract, which is in the judgment of the Engineer, might hinder or prevent the prompt completion of work under this Contract

The City may reject all bids whenever it is deemed in the best interest of the City to do so, and may reject any part of a bid unless the bid has been qualified as provided in herein.

#### **1.7 WITHDRAWAL OF BIDS**

- A. Bids may not be withdrawn and shall be deemed enforceable for a period of 180 days after the time set for the SOLICITATION opening.
- B. Bids may be withdrawn prior to the time set for the SOLICITATION opening. Such request must be in writing.
- C. The City will permanently retain as liquidated damages and the bid deposit furnished by any Bidder who requests to withdraw a bid after the SOLICITATION opening.

#### **1.8 BIDS TO REMAIN OPEN**

All bids shall remain open for 180 calendar days after the day of the bid opening, but the City may, at its sole discretion, release any bid and return the bid Security prior to that date.

Extensions of time when bids shall remain open beyond the 180 day period may be made only by mutual written agreement between the City, the successful Bidder and the surety, if any, for the successful Bidder.

#### **1.9 LATE BIDS OR MODIFICATIONS**

Only bids received as of the opening date and time will be considered timely. Bids and modifications received after the time set for the opening will be returned un-opened to the sender and rejected as late.

#### **1.10 CONFLICTS WITHIN THE SOLICITATION**

Where there appears to be a conflict between the General Terms and Conditions, Special Conditions, the Technical Specifications, the SOLICITATION Submittal Section, or any addendum issued, the order of precedence shall be the last addendum issued, the SOLICITATION Submittal Section, the Technical Specifications, the Special Conditions, and then the General Terms and Conditions.

#### **1.11 CLARIFICATION OR OBJECTION TO BID SPECIFICATIONS**

If any person contemplating submitting a bid for this contract is in doubt as to the true meaning of the specifications or other SOLICITATION documents or any part thereof, they may submit requests for clarification to the Procurement Services Division on or before the date specified for a request for clarification. All such requests for clarification shall be made in writing and the person submitting the request will be responsible for its prompt delivery. Any interpretation of the SOLICITATION, if made, will be made only by Addendum duly issued. A copy of such Addendum will be made available to each person receiving a Solicitation. The City will not be responsible for any other explanation or interpretation of the SOLICITATION given prior to the award of the contract. Any objection to the specifications and requirements as set forth in this SOLICITATION must be filed in writing with the Chief Procurement Officer on or before the date specified for a request for clarification.

#### **1.12 COMPETENCY OF PROPOSERS**

Pre-award inspection of the Bidder's facility may be made prior to the award of a contract. Bids will be considered only from firms which are regularly engaged in the business of providing the goods and/or services as described in this SOLICITATION(s); have a record of performance for a reasonable period of time; and have sufficient financial support, equipment and organization to ensure that they can satisfactorily deliver the material and/or services if awarded a Contract under the terms and conditions herein stated. The terms "equipment and organization" as used herein shall be construed to mean a fully equipped and well established company in line with the best business practices in the industry and as determined by the proper authorities of the City.

The City may consider any evidence available to it of the financial, technical and other qualifications and abilities of a proposer, including past performance (experience) in making the award in the best interest of the City. In all cases the City of Hollywood shall have no liability to any proposer for any costs or expense incurred in connection with this SOLICITATION or otherwise.

#### **1.13 QUALIFICATIONS OF PROPOSERS**

No Bid will be accepted from, nor will any contract be awarded to any person who is in arrears to the City upon any debt or contract, or who is a defaulter, as surety or otherwise, upon any obligation to City, or who is deemed responsible or unreliable by the City.

As part of the bid evaluation process, City may conduct a background investigation including a record check by the Hollywood Police Department. Proposer's submission of a bid constitutes acknowledgment of the process and consent to such investigation. City shall be the sole judge in determining a Bidder's qualifications.

#### **1.14 CONSIDERATION OF BIDS**

In cases where an item requested is identified by a manufacturer's name, trade name, catalog number, or reference, it is understood that the Vendor proposes to furnish the item so identified and does not propose to furnish an "equal" unless the proposed "equal" is pre-approved by the City.

References to any of the above are intended to be descriptive but not restrictive and only indicate articles that will be satisfactory. A bid of an "equal" will be considered, provided that the Vendor states in his bid exactly what he proposes to furnish, including sample, illustration, or other descriptive matter which will clearly indicate the character of the article covered by such bid. The designated City representative hereby reserves the right to approve as an "equal", or to reject as not being an "equal", any article proposed which contains major or minor variations from specifications requirements.

#### **1.15 AWARD OF CONTRACT**

If the Contract is to be awarded, it will be awarded, after evaluation by the City, to the responsible and responsive Proposer whom the City determines will be in the best interests of the City and not necessarily to the lowest cost Proposer. Proposers may be invited to an oral interview before the committee. A short list of finalists will be determined and presented to either the City Manager or his/her designee or to the City Commission, in accordance with the applicable City of Hollywood Code of Ordinances, and will make the final ranking for the purposes of negotiating a contract with the top ranked firm. The successful Proposer shall be required to sign a negotiated contract; the refusal or failure of a successful Proposer to execute a contract which contains the mandatory material terms and conditions contained in the SOLICITATION, shall be grounds for deeming the Proposer and/or the Proposer's bid/proposal non-responsive.

If applicable, the Proposer to whom award is made shall execute a written contract prior to award by the City Commission. If the Proposer to whom the first award is made fails to enter into a contract as herein provided, the Contract may be let to the next highest ranked Proposer who is responsible and responsive in the opinion of the City.

#### **1.16 BASIS FOR AWARD, EVALUATION CRITERIA AND QUESTIONS**

The qualification of bid/proposal responders on this project will be considered in making the award. The City is not obligated to accept any bid/proposal if deemed not in the best interest of the City to do so. The City shall make award to a qualified proposer based on fees submitted and responses to this SOLICITATION.

Failure to include in the bid all information outlined herein may be cause for rejection of the bid.

The City reserves the right to accept or reject any and all bids, in whole or in part, as determined to be in the best interest of the City in its sole discretion.

The City reserves the right to waive any informalities or irregularities in bids.

The City reserves the right to negotiate separately the terms and conditions or all or any part of the bids as deemed to be in the City's best interest in its sole discretion.

Information and/or factors gathered during interviews, negotiations and any reference checks, and any other information or factors deemed relevant by the City, shall be utilized in the final award. The final award of a contract is subject to approval by the City Commission.

#### **1.17 AGREEMENT**

An agreement shall be sent to the awarded proposer to be signed, witnessed, and returned to the City for execution. The City will provide a copy of the fully executed agreement to the awarded proposer.

#### **1.18 NOTICE TO PROCEED**

A signed purchase order, blanket purchase order or fully executed agreement will be the Proposer's authorization to proceed and may substitute for a "Notice to Proceed" form.

#### **1.19 BID PROTESTS**

The City shall provide notice of its intent to award or reject to all Proposers by posting such notice on the City's website.

After a notice of intent to award a contract is posted, any actual or prospective proposer who is aggrieved in connection with the pending award of the contract or any element of the process leading to the award of the contract may protest to the Director of Procurement Services. A protest must be filed within five business days after posting or any right to protest is forfeited. The protest must be in writing, must identify the name and address of the protester, and must include a factual summary of, and the basis for, the protest. Filing shall be considered complete when the protest, including a deposit, is received by the Procurement Services Division. Failure to file a protest within the time-frame specified herein shall constitute a full waiver of all rights to protest the City's decision regarding the award.

The written protest shall state in detail the specific facts and law or ordinance upon which the protest of the proposed award is based, and shall include all pertinent documents.

A written protest may not challenge the relative weight of evaluation criteria or a formula for assigning points.

Upon receipt of a formal written protest, the City shall stop award proceedings until resolution of the protest; unless it has been determined that the award of the contract without delay is necessary to protect substantial interests of the City.

Any and all costs incurred by a protesting party in connection with a bid protest shall be the sole responsibility of the protesting party.

Upon receipt of a protest of the pending award of a contract, a copy of the protest shall promptly be forwarded to the City Attorney. The City Attorney shall thereupon review the charge to determine its sufficiency, including whether the protest was timely filed. If upon review the City Attorney determines that the charge is insufficient, the City Attorney may issue a

summary dismissal of the protest. If upon review the City Attorney determines that the charge is sufficient, a hearing of the protest committee shall be scheduled.

A protest committee shall have the authority to review, settle and resolve the protest. The committee shall consist of three members appointed by the City Manager. The committee's review shall be informal.

If the protest committee determines that the pending award of a contract or any element of the process leading to the award involved a significant violation of law or applicable rule or regulation, all steps necessary and proper to correct the violation shall be taken. If the committee determines that the protest is without merit,

The Director shall promptly issue a decision in writing stating the reason for the decision and furnish a copy to the protester and any other interested party, and the process leading to the award shall proceed.

## **1.20 REQUIREMENTS FOR SIGNING BIDS/PROPOSALS**

Requirements for Signing Bid/Proposal:

- A. The bid/proposal must be signed in ink by an individual authorized to legally bind the person, partnership, company, or corporation submitting the bid/proposal. In cases where the bid/proposal is signed by a deputy or subordinate, the principal's proper written grant of authority to such deputy or subordinate must accompany the bid/proposal.
- B. Bids/proposals by corporations must be executed in the corporate name by the President or other corporate officers accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown below the signature.
- C. Bids/proposals by partnerships must be executed in the partnership name and signed by a general partner whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- D. All manual signatures must have the name typed directly under the line of the signature
- E. The above requirements apply to all SOLICITATION addenda.

## **1.21 EXAMINATION OF BID DOCUMENTS**

Before submitting a bid, each Bidder must: examine the bid Documents thoroughly; consider federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress, performance, or provision of the commodities and/or services; study and carefully correlate Proposer's observations with the bid Documents, and notify the City's agent of all conflicts, errors and discrepancies in the bid Documents.

The submission of a bid/proposal will constitute an incontrovertible representation by the Bidder, that the Bidder has complied with every requirement of this SOLICITATION, that without exception, the bid is premised upon performing the services and/or furnishing the commodities and materials in accordance with such means, methods, techniques, sequences or procedures as may be indicated in or required by the bid/proposal Documents, and that the bid Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions of performance and furnishing of the goods and/or services.

## **1.22 PUBLIC RECORDS LAW**

If applicable, for each public agency contract for services, the Proposer is required to comply with F.S. 119.0701, which includes the following:

- A. Keep and maintain public records that ordinarily and necessarily would be required by the public agency in order to perform the service.
- B. Provide the public with access to public records on the same terms and conditions that the public agency would provide the records and at a cost that does not exceed the cost provided in F.S. Chapter 119 or as otherwise provided by law.

- C. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law.
- D. Meet all requirements for retaining public records and transfer, at no cost, to the public agency, all public records in possession of the proposer upon termination of the contract and destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the public agency in a format that is compatible with the information technology systems of the public agency.

Public records may be inspected and examined by anyone desiring to do so, at a reasonable time, under reasonable conditions, and under supervision by the custodian of the public record. Sealed Bids become subject to the public records disclosure requirements of F.S. Chapter 119, notwithstanding a proposers' request to the contrary, at the time the City provides notice of a decision or intended decision, or 30 days after the bid/proposal opening, whichever is earlier.

Financial statements submitted in response to a request by the City may be confidential and exempt from disclosure.

Data processing software obtained under a licensing agreement which prohibits its disclosure may also exempt.

Proposers are hereby notified and agree that all information submitted as part of, or in support of SOLICITATION submittals will be available for public inspection after opening of SOLICITATION in compliance with Chapter 119 of the Florida Statutes. The proposer shall not, unless required as part of this SOLICITATION, submit any information in response to this invitation which the proposer considers to be a trade secret, proprietary or confidential. The submission, not required as part of this SOLICITATION, of any information to the City in connection with this invitation shall be deemed conclusively to be a waiver of any trade secret or other protection, which would otherwise be available to the proposer.

### **1.23 INFORMATION**

For information concerning procedure for responding to this Solicitation (SOLICITATION), contact the Point of Contact in the Section 1.4. Such contact shall be for clarification purposes only. **It is preferred that all other questions be submitted in writing via BidSync at least 10 calendar days prior to the bid/proposal due/opening date.**

### **1.24 N/A – INTENTIONALLY OMITTED**

### **1.25 MODIFICATION AND WITHDRAWAL OF BIDS/PROPOSALS**

Bids must be modified or withdrawn by an appropriate document duly executed in the manner that a bid must be executed and delivered to the place where bids are to be submitted at any time prior to the deadline for submitting bids. A request for withdrawal or a modification must be in writing and signed by a person duly authorized to do so and, in a case where signed by a deputy or subordinate, the principal's proper written grant of authority to such deputy or subordinate must accompany the request for withdrawal or modification. Withdrawal of a bid will not prejudice the rights of a Bidder to submit a new bid prior to the bid date and time. Except where provided in the following paragraph no bid may be withdrawn or modified after expiration of the period for receiving bids.

If, within twenty-four (24) hours after bids are opened, any Bidder files a duly signed written notice with the City and within five (5) calendar days thereafter demonstrates to the reasonable satisfaction of the City by clear and convincing evidence that there was a material and substantial mistake in the preparation of its bid, or that the mistake is clearly evident on the face of the bid but the intended correct bid is not similarly evident, then the Bidder may withdraw its bid and the bid Security will be returned.

### **1.26 N/A – INTENTIONALLY OMITTED**

### **1.27 OPEN END CONTRACT**

No guarantee is expressed or implied as to the total quantity of commodities/services to be purchased under any open end contract. Estimated quantities will be used for bid comparison purposes only. The City reserves the right to issue purchase orders as and when required, or a blanket purchase order and release partial quantities as and when required or any combination of the preceding.

ORDERING: The CITY reserves the right to purchase commodities/services specified herein through Contracts established by other governmental agencies or through separate procurement actions due to unique or special needs. If an urgent

delivery is required within a period shorter than the delivery time specified in the contract, and if the seller is unable to comply therewith, the City reserves the right to obtain such delivery from others without penalty or prejudice to the City or to the Bidder.

### **1.28 AUDIT RIGHTS**

The City reserves the right to audit the records of the successful Bidder for the commodities and/or services provided under the Contract at any time during the performance and term of the Contract and for a period of three (3) years after completion and acceptance by the City. If required by the City, the successful Bidder agrees to submit to an audit by an independent certified public accountant selected by the City. The successful Bidder shall allow the City to inspect, examine and review the records of the successful Bidder in relation to this contract at any and all times during normal business hours during the term of the Contract.

### **1.29 LOCAL, STATE AND FEDERAL COMPLIANCE REQUIREMENTS**

The Bidder shall comply with all local, state and federal directives, orders and laws as applicable to this SOLICITATION and subsequent contract(s) including, but not limited to:

- A. Equal Employment Opportunity (EEO), in compliance with Executive Order 11246 as amended and applicable to this contract.
- B. All manufactured items and fabricated assemblies shall comply with applicable requirements of the Occupation Safety and Health Act of 1970 as amended, and be in compliance with Chapter 442, Florida Statutes. Any toxic substance listed in Section 38F-41.03 of the Florida Administrative Code delivered as a result of this order must be accompanied by a completed Material Safety Data Sheet (MSDS).
- C. The Immigration and Nationality Act prohibits (i) the employment of an unauthorized alien when the employer knows the individual is an unauthorized alien and (ii) the employment of an individual without complying with the requirements of the federal employment verification system. If a proposer commits either of these violations, such violation shall be cause for unilateral cancellation of the contract.
- D. This Section applies only to any contract for goods or services of \$1 million or more: The Proposer 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 (2011), as may be amended or revised. The City may terminate this Contract at the City's option if the Proposer is found to have submitted a false certification as provided under subsection (5) of section 287.135, Florida Statutes (2011), 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 has engaged in business operations in Cuba or Syria, as defined in Section 287.135, Florida Statutes (2011), as may be amended or revised.

### **1.30 FRAUD AND MISREPRESENTATION**

Any individual, corporation or other entity that attempts to meet its contractual obligations with the City through fraud, misrepresentation or material misstatement, may be debarred from doing business with the City. The City as further sanction may terminate or cancel any other contracts with such individual, corporation or entity. Such individual or entity shall be responsible for all direct or indirect costs associated with termination or cancellation, including attorney's fees.

### **1.31 DEBARRED OR SUSPENDED BIDDERS**

The bidder certifies, by submission of a response to this solicitation, that neither it nor its principals and sub bidder are presently debarred or suspended by any Federal department or agency.

### **1.32 COLLUSION**

More than one bid/proposal received for the same work from an individual, firm, partnership, corporation or association under the same or different names will not be considered. Reasonable grounds for believing that any Bidder is interested in more than one bid for the same work will cause the rejection of such bid which the Bidder is interested. If there are reasonable grounds for believing that collusion exists among the Bidder, the bids of participants in such collusion will not be considered.

### **1.33 COPELAND "ANTI-KICKBACK"**

The Bidder and all sub bidders will comply with the Copeland Anti-Kickback Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3).

### **1.34 FORCE MAJEURE**

The Agreement which is awarded to the successful proposer may provide that the performance of any act by the City or Bidder hereunder may be delayed or suspended at any time while, but only so long as, either party is hindered in or prevented from performance by acts of God, the elements, war, rebellion, strikes, lockouts or any cause beyond the reasonable control of such party, provided however, the City shall have the right to provide substitute service from third parties or City forces and in such event the City shall withhold payment due the Bidder for such period of time. If the condition of force majeure exceeds a period of 14 days the City may, at its option and discretion, cancel or renegotiate this Agreement.

### **1.35 PUBLIC ENTITY CRIMES**

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 Bidder, supplier, sub bidder, 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 Florida Statutes, Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

### **1.36 DRUG-FREE WORKPLACE PROGRAM**

Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program.

### **1.37 SOLICITATION, GIVING, AND ACCEPTANCE OF GIFTS POLICY**

Bidder shall sign and submit the attached form indicating understanding and compliance with the City's and State's policies prohibiting solicitation and acceptance of gifts by public officers, employees and candidates. Failure to submit the signed form will result in your bid being declared non-responsive; provided, however, that a responsible Bidder whose bid would be responsive but for the failure to submit the signed form in its bid may be given the opportunity to submit the form to the City within five calendar days after notification by the City, if this is determined to be in the best interest of the City.

### **1.38 CONFLICT OF INTEREST**

The Bidder represents that:

No officer, director, employee, agent, or other consultant of the City or a member of the immediate family or household of the aforesaid has directly or indirectly received or been promised any form of benefit, payment or compensation, whether tangible or intangible, in connection with the grant of this Agreement.

There are no undisclosed persons or entities interested with the Proposer in this Agreement. This Agreement is entered into by the Proposer without any connection with any other entity or person making a bid Bidder for the same purpose, and without collusion, fraud or conflict of interest. No elected or appointed officer or official, director, employee, agent or other consultant of the City, or of the State of Florida (including elected and appointed members of the legislative and executive branches of government), or member of the immediate family or household of any of the aforesaid:

1. Is interested on behalf of or through the Bidder directly or indirectly in any manner whatsoever in the execution or the performance of this Agreement, or in the services, supplies or work, to which this Agreement relates or in any portion of the revenues; or

2. Is an employee, agent, advisor, or consultant to the Proposer or to the best of the Proposer's knowledge, any sub bidder or supplier to the Bidder.

Neither the Bidder nor any officer, director, employee, agent, parent, subsidiary, or affiliate of the Bidder shall have an interest which is in conflict with the Bidder's faithful performance of its obligations under this Agreement; provided that the City, in its sole discretion, may consent in writing to such a relationship, and provided the Bidder provides the City with a written notice, in advance, which identifies all the individuals and entities involved and sets forth in detail the nature of the relationship and why it is in the City's best interest to consent to such relationship.

The provisions of this Article are supplemental to, not in lieu of, all applicable laws with respect to conflict of interest. In the event there is a difference between the standards applicable under this Agreement and those provided by statute, the stricter standard shall apply.

In the event the Bidder has no prior knowledge of a conflict of interest as set forth above and acquires information which may indicate that there may be an actual or apparent violation of any of the above, the Bidder shall promptly bring such information to the attention of the City's ENGINEER. The Bidder shall thereafter cooperate with the City's review and investigation of such information, and comply with the instructions the Bidder receives from the ENGINEER in regard to remedying the situation.

#### **1.39 DISCRIMINATION**

Any entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for 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 award or perform work as a proposer, supplier, sub bidder, or consultant under contract with any public entity, and may not transact business with any public entity.

#### **1.40 ADVICE OF OMISSION OR MISSTATEMENT**

In the event it is evident to a Vendor responding to this SOLICITATION that the City has omitted or misstated a material requirement to this SOLICITATION and/or the services required by this SOLICITATION, the responding Vendor shall advise the contact identified in the SOLICITATION Clarifications and Questions section above of such omission or misstatement.

#### **1.41 CONFIDENTIAL INFORMATION**

Information contained in the Vendor's bid that is company confidential must be clearly identified in the bid/proposal itself. The City will be free to use all information in the Vendor's bid for the City's purposes, in accordance with State Law. Vendor bids shall remain confidential for 30 days or until a notice of intent to award is posted, which is sooner. The Vendor understands that any material supplied to the City may be subject to public disclosure under the Public Records Law.

#### **1.42 GOVERNING LAW**

This Contract, including appendices, and all matters relating to this Contract (whether in contract, statute, tort (such as negligence), or otherwise) shall be governed by, and construed in accordance with, the laws of the State of Florida. This shall apply notwithstanding such factors which include, but are not limited to, the place where the contract is entered into, the place where the accident occurs and notwithstanding application of conflicts of law principles.

#### **1.43 LITIGATION VENUE**

The parties waive the privilege of venue and agree that all litigation between them in the state courts shall take place in Broward County, Florida and that all litigation between them in the federal courts shall take place in the Southern District of Florida.

#### **1.44 SOVEREIGN IMMUNITY**

Nothing in this agreement shall be interpreted or construed to mean that the city waives its common law sovereign immunity or the limits of liability set forth in Section 768.28, Florida Statute.



#### **1.45 SURVIVAL**

The parties acknowledge that any of the obligations in this Agreement will survive the term, termination and cancellation hereof. Accordingly, the respective obligations of the Proposer and the City under this Agreement, which by nature would continue beyond the termination, cancellation or expiration thereof, shall survive termination, cancellation or expiration hereof.

#### **1.46 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT**

The Contractor shall indemnify and hold harmless the City of Hollywood and its officers, employees, agents and instrumentalities from any and all liability, losses or damages. In addition, the City shall be entitled to attorney's fees and costs of defense, which the City of Hollywood, or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of this project by the awarded Bidder or its employees, agents, servants, partners, principals or subcontractors. Furthermore, the awarded Bidder shall pay all claims and losses in connection therewith and shall investigate and defend all claims, suits or actions of any kind of nature in the name of the City of Hollywood, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may issue thereon. The awarded Bidder expressly understands and agrees that any insurance protection required by the resulting agreement or otherwise provided by the awarded Bidder shall cover the City of Hollywood, its officers, employees, agents and instrumentalities and shall include claims for damages resulting from and/or caused by the negligence, recklessness or intentional wrongful misconduct of the Contractor and persons employed by or utilized by the Contractor in the performance of the contract.

#### **1.47 PATENT AND COPYRIGHT INDEMNIFICATION**

The Bidder warrants that all deliverables furnished hereunder, including but not limited to: services, equipment programs, documentation, software, analyses, applications, methods, ways, processes, and the like, do not infringe upon or violate any patent, copyrights, service marks, trade secret, or any other third party proprietary rights.

The Bidder shall be liable and responsible for any and all claims made against the City for infringement of patents, copyrights, service marks, trade secrets or any other third party proprietary rights, by the use or supplying of any programs, documentation, software, analyses, applications, methods, ways, processes, and the like, in the course of performance or completion of, or in any way connected with, the work, or the City's continued use of the deliverables furnished hereunder. Accordingly, the Bidder, at its own expense, including the payment of attorney's fees, shall indemnify, and hold harmless the City and defend any action brought against the City with respect to any claim, demand, and cause of action, debt, or liability.

In the event any deliverable or anything provided to the City hereunder, or a portion thereof, is held to constitute an infringement and its use is or may be enjoined, the Bidder shall have the obligation, at the City's option, to (i) modify, or require that the applicable sub bidder or supplier modify, the alleged infringing item(s) at the Bidder's expense, without impairing in any respect the functionality or performance of the item(s), or (ii) procure for the City, at the Bidder's expense, the rights provided under this Agreement to use the item(s).

The Bidder shall be solely responsible for determining and informing the City whether a prospective supplier or sub bidder is a party to any litigation involving patent or copyright infringement, service mark, trademark, violation, or proprietary rights claims or is subject to any injunction which may prohibit it from providing any deliverable hereunder. The Bidder shall enter into agreements with all suppliers and sub bidder at the Bidder's own risk. The City may reject any deliverable that it believes to be the subject of any such litigation or injunction, or if, in the City's judgment, use thereof would delay the work or be unlawful.

The Bidder shall not infringe any copyright, trademark, service mark, trade secrets, patent rights, or other intellectual property rights in the performance of the work.

#### **1.48 ADVERTISING**

Vendor shall not advertise or publish the fact that the City has placed this order without prior written consent from the City, except as may be necessary to comply with a proper request for information from an authorized representative of a governmental unit or agency.

#### **1.49 DISCLAIMER**

The Hollywood may, in its sole discretion, accept or reject, in whole or in part, for any reason whatsoever any or all bids; re-advertise this SOLICITATION, postpone or cancel at any time this SOLICITATION process; or, waive any formalities of or irregularities in the bid process. Bids that are not submitted on time and/or do not conform to the City of Hollywood's requirements will not be considered. After all bids are analyzed, organization(s) submitting bid that appear, solely in the opinion of the City of Hollywood, to be the most competitive, shall be submitted to the City of Hollywood's City Commission, and the final selection will be made shortly thereafter with a timetable set solely by the City of Hollywood. The selection by the City of Hollywood shall be based on the bid, which is, in the sole opinion of the City Commission of the City of Hollywood, in the best interest of the City of Hollywood. The issuance of this SOLICITATION constitutes only an invitation to make a bid to the City of Hollywood. The City of Hollywood reserves the right to determine, in its sole discretion, whether any aspect of the bid satisfies the criteria established by the City. In all cases the City of Hollywood shall have no liability to any proposer for any costs or expense incurred in connection with this bid or otherwise.

#### **1.50 TRADEMARKS**

The City warrants that all trademarks the City requests the Vendor to affix to articles purchased are those owned by the City and it is understood that the Vendor shall not acquire or claim any rights, title, or interest therein, or use any of such trademarks on any articles produced for itself or anyone other than the City.

#### **1.51 RIGHT TO REQUEST ADDITIONAL INFORMATION**

The City reserves the right to request any additional information that might be deemed necessary during the evaluation process.

#### **1.52 BID PREPARATION COSTS**

The Vendor is responsible for any and all costs incurred by the Vendor or his/her sub bidders in responding to this solicitation.

#### **1.53 DESIGN COSTS (N/A)**

#### **1.54 ADDITIONAL CHARGES**

No additional charges, other than those listed on the price breakdown sheets, shall be made. Prices quoted will include verification/coordination of order, all costs for shipping, delivery to all sites, unpacking, setup, installation, operation, testing, cleanup, training and Vendor travel charges.

#### **1.55 RIGHTS TO PERTINENT MATERIALS**

All responses, inquires, and correspondence relating to this SOLICITATION and all reports, charts, displays, schedules, exhibits and other documentation produced by the Vendor that are submitted as part of the bid shall become the property of the City upon receipt, a part of a public record upon opening, and will not be returned.

#### **1.56 INSURANCE REQUIREMENTS**

See insurance requirements in the main solicitation document.

#### **1.57 NATURE OF THE AGREEMENT**

The Agreement incorporates and includes all negotiations, correspondence, conversations, agreements, and understandings applicable to the matters contained in the Agreement. The parties agree that there are no commitments, agreements, or understandings concerning the subject matter of the Agreement that are not contained in the Agreement, and that the Agreement contains the entire agreement between the parties as to all matters contained herein. Accordingly, it is agreed that no deviation from the terms hereof shall be predicated upon any prior representations or agreements, whether oral or written. It is further agreed that any oral representations or modifications concerning this Agreement shall be of no force or effect, and that the Agreement may be modified, altered or amended only by a written amendment duly executed by both parties hereto or their authorized representatives.

The Bidder shall provide the services set forth in the Scope of Services, and render full and prompt cooperation with the City in all aspects of the services performed hereunder.

The Bidder acknowledges that the Agreement requires the performance of all things necessary for or incidental to the effective and complete performance of all work and services under this Contract. All things not expressly mentioned in the Agreement but necessary to carrying out its intent are required by the Agreement, and the Bidder shall perform the same as though they were specifically mentioned, described and delineated.

The Bidder shall furnish all labor, materials, tools, supplies, and other items required to perform the work and services that are necessary for the completion of this Contract. All work and services shall be accomplished at the direction of and to the satisfaction of the City's ENGINEER.

The Bidder acknowledges that the City shall be responsible for making all policy decisions regarding the Scope of Services. The Proposer agrees to provide input on policy issues in the form of recommendations.

The Bidder agrees to implement any and all changes in providing services hereunder as a result of a policy change implemented by the City. The Bidder agrees to act in an expeditious and fiscally sound manner in providing the City with input regarding the time and cost to implement said changes and in executing the activities required to implement said changes

#### **1.58 AUTHORITY OF THE CITY'S ENGINEER**

The Bidder hereby acknowledges that the City's ENGINEER will determine in the first instance all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Agreement including without limitations: questions as to the value, acceptability and fitness of the services; questions as to either party's fulfillment of its obligations under the Contract; negligence, fraud or misrepresentation before or subsequent to acceptance of the Bid; questions as to the interpretation of the Scope of Services; and claims for damages, compensation and losses.

The Bidder shall be bound by all determinations or orders and shall promptly obey and follow every order of the ENGINEER, including the withdrawal or modification of any previous order and regardless of whether the Bidder agrees with the ENGINEER's determination or order. Where orders are given orally, they will be issued in writing by the ENGINEER as soon thereafter as is practicable.

The Bidder must, in the final instance, seek to resolve every difference concerning the Agreement with the ENGINEER. In the event that the ENGINEER and the Bidder are unable to resolve their difference, the Bidder may initiate a dispute in accordance with the procedures set forth in the section below. Exhaustion of these procedures shall be a condition precedent to any lawsuit permitted hereunder.

In the event of such dispute, the parties to this Agreement authorize the City Manager or designee, who may not be the ENGINEER or anyone associated with this Project, acting personally, to decide all questions arising out of, under, or in connection with, or in any way related to or on account of the Agreement (including but not limited to claims in the nature of breach of contract, fraud or misrepresentation arising either before or subsequent to execution hereof) and the decision of each with respect to matters within the City Manager's purview as set forth above shall be conclusive, final and binding on the parties. Any such dispute shall be brought, if at all, before the City Manager within 10 days of the occurrence, event or act out of which the dispute arises.

The City Manager may base this decision on such assistance as may be desirable, including advice of experts, but in any event shall base the decision on an independent and objective determination of whether the Bidder's performance or any deliverable meets the requirements of this Agreement and any specifications with respect thereto set forth herein. The effect of any decision shall not be impaired or waived by any negotiations or settlements or offers made in connection with the dispute, whether or not the City Manager participated therein, or by any prior decision of others, which prior decision shall be deemed subject to review, or by any termination or cancellation of the Agreement. All such disputes shall be submitted in writing by the Bidder to the City Manager for a decision, together with all pertinent information in regard to such questions, in order that a fair and impartial decision may be made. The parties agree that whenever the City Manager is entitled to exercise discretion or judgment or to make a determination or form an opinion pursuant to the provisions of this Article, such action shall be deemed fair and impartial when exercised or taken. The City Manager shall render a decision in writing and deliver a copy of the same to the Bidder. Except as such remedies may be limited or waived elsewhere in the Agreement, the Bidder reserves the right to pursue any remedies available under law after exhausting the provisions of this Article.

### **1.59 MUTUAL OBLIGATIONS**

This Agreement, including attachments and appendices to the Agreement, shall constitute the entire Agreement between the parties with respect hereto and supersedes all previous communications and representations or agreements, whether written or oral, with respect to the subject matter hereof unless acknowledged in writing by the duly authorized representatives of both parties.

Nothing in this Agreement shall be construed for the benefit, intended or otherwise, of any third party that is not a parent or subsidiary of a party or otherwise related (by virtue of ownership control or statutory control) to a party.

In those situations where this Agreement imposes an indemnity or defense obligation on the Bidder, the City may, at its expense, elect to participate in the defense if the City should so choose. Furthermore, the City may at its own expense defend or settle any such claims if the Bidder fails to diligently defend such claims, and thereafter seek indemnity for costs and attorney's fees from the Bidder.

### **1.60 SUBCONTRACTUAL RELATIONS**

If the Bidder will cause any part of this Agreement to be performed by a sub bidder, the provisions of this Contract will apply to such sub bidder and its officers, agents and employees in all respects as if it and they were employees of the Proposer; and the Proposer will not be in any manner thereby discharged from its obligations and liabilities hereunder, but will be liable hereunder for all acts and negligence of the sub bidder, its officers, agents, and employees, as if they were employees of the Proposer. The services performed by the sub bidder will be subject to the provisions hereof as if performed directly by the Bidder.

The Bidder, before making any subcontract for any portion of the services, will state in writing to the City the name of the proposed sub bidder, the portion of the services which the sub bidder is to do, the place of business of such sub bidder, and such other information as the City may require. The City will have the right to require the Bidder not to award any subcontract to a person, firm or corporation disapproved by the City.

Before entering into any subcontract hereunder, the Bidder will inform the sub bidder fully and completely of all provisions and requirements of this Agreement relating either directly or indirectly to the services to be performed. Such services performed by such sub bidder will strictly comply with the requirements of this Contract.

In order to qualify as a sub bidder satisfactory to the City, in addition to the other requirements herein provided, the sub bidder must be prepared to prove to the satisfaction of the City that it has the necessary facilities, skill and experience, and ample financial resources to perform the services in a satisfactory manner. To be considered skilled and experienced, the sub bidder must show to the satisfaction of the City that it has satisfactorily performed services of the same general type which are required to be performed under this Agreement.

The City shall have the right to withdraw its consent to a subcontract if it appears to the City that the subcontract will delay, prevent, or otherwise impair the performance of the Bidder's obligations under this Agreement. All sub bidder are required to protect the confidentiality of the City and City's proprietary and confidential information. The Bidder shall furnish to the City copies of all subcontracts between the Bidder and sub bidder and suppliers hereunder. Within each such subcontract, there shall be a clause for the benefit of the City permitting the City to request completion of performance by the sub bidder of its obligations under the subcontract, in the event the City finds the Bidder in breach of its obligations, and the option to pay the sub bidder directly for the performance by such sub bidder. The foregoing shall neither convey nor imply any obligation or liability on the part of the City to any sub bidder hereunder as more fully described herein.

### **1.61 PROMPT PAYMENT: LATE PAYMENTS BY BIDDER TO SUB BIDDER AND MATERIAL SUPPLIERS; PENALTY:**

When a Bidder receives from the City of Hollywood any payment for contractual services, commodities, materials, supplies, or construction contracts, the proposer shall pay such moneys received to each sub bidder and material supplier in proportion to the percentage of work completed by each sub bidder and material supplier at the time of receipt. If the Bidder receives less than full payment, then the proposer shall be required to disburse only the funds received on a pro rata basis to the sub bidder and materials Suppliers, each receiving a prorated portion based on the amount due on the payment. If the proposer without reasonable cause fails to make payments required by this section to sub bidder and material suppliers within fifteen (15) working days after the receipt by the Bidder of full or partial payment, the proposer shall pay to the sub bidder and material suppliers a penalty in the amount of one percent (1%) of the amount due, per month, from the expiration of the period allowed herein for payment. Such penalty shall be in addition to actual payments owed. Retainage is also subject to the prompt payment requirement and must be returned to the sub bidder or material

supplier whose work has been completed, even if the prime contract has not been completed. The Bidder shall include the above obligation in each subcontract it signs with a sub bidder or material supplier.

#### **1.62 TERMINATION FOR CONVENIENCE AND SUSPENSION OF WORK**

The City may terminate this Agreement if an individual or corporation or other entity attempts to meet its contractual obligation with the City through fraud, misrepresentation or material misstatement.

The City may, as a further sanction, terminate or cancel any other contract(s) that such individual or corporation or other entity has with the City. Such individual, corporation or other entity shall be responsible for all direct and indirect costs associated with such termination or cancellation, including attorney's fees.

The foregoing notwithstanding, any individual, corporation or other entity which attempts to meet its contractual obligations with the City through fraud, misrepresentation or material misstatement may be debarred from City contracting in accordance with the City debarment procedures. The Bidder may be subject to debarment for failure to perform and any other reasons related to the Bidder's breach or failure of satisfactory performance.

In addition to cancellation or termination as otherwise provided in this Agreement, the City may at any time, in its sole discretion, with or without cause, terminate this Agreement by written notice to the Bidder and in such event:

The Bidder shall, upon receipt of such notice, unless otherwise directed by the City:

1. Stop work on the date specified in the notice ("the Effective Termination Date");
2. Take such action as may be necessary for the protection and preservation of the City's materials and property;
3. Cancel orders;
4. Assign to the City and deliver to any location designated by the City any non-cancelable orders for deliverables that are not capable of use except in the performance of this Agreement and which have been specifically developed for the sole purpose of this Agreement and not incorporated in the services;
5. Take no action which will increase the amounts payable by the City under this Agreement.

In the event that the City exercises its right to terminate this Agreement pursuant to this Article, the Bidder will be compensated as stated in the payment articles herein, for the:

1. Portion of the services completed in accordance with the Agreement up to the Effective Termination Date; and
2. Non-cancelable deliverables that are not capable of use except in the performance of this Agreement and which have been specifically developed for the sole purpose of this Agreement but not incorporated in the services.

All compensation pursuant to this Article is subject to audit.

#### **1.63 EVENT OF DEFAULT**

An Event of Default shall mean a breach of this Agreement by the Bidder. Without limiting the generality of the foregoing and in addition to those instances referred to herein as a breach, an Event of Default, shall include the following:

1. The Bidder has not delivered deliverables on a timely basis;
2. The Bidder has refused or failed, except in any case for which an extension of time is provided, to supply enough properly skilled staff personnel;
3. The Bidder has failed to make prompt payment to sub bidder or suppliers for any services;

4. The Bidder has become insolvent (other than as interdicted by the bankruptcy laws), or has assigned the proceeds received for the benefit of the Bidder 's creditors, or the Bidder has taken advantage of any insolvency statute or debtor/creditor law or if the Bidder 's affairs have been put in the hands of a receiver;
5. The Bidder has failed to obtain the approval of the City where required by this Agreement;
6. The Bidder has failed to provide "adequate assurances" as required under subsection "B" below; and
7. The Bidder has failed in the representation of any warranties stated herein.

When, in the opinion of the City, reasonable grounds for uncertainty exist with respect to the Proposer's ability to perform the services or any portion thereof, the City may request that the Proposer, within the time frame set forth in the City's request, provide adequate assurances to the City, in writing, of the Proposer's ability to perform in accordance with terms of this Agreement. Until the City receives such assurances the City may request an adjustment to the compensation received by the Proposer for portions of the services which the Proposer has not performed. In the event that the Proposer fails to provide to the City the requested assurances within the prescribed time frame, the City may:

1. Treat such failure as a repudiation of this Agreement;
2. Resort to any remedy for breach provided herein or at law, including but not limited to, taking over the performance of the services or any part thereof either by itself or through others.

In the event the City shall terminate this Agreement for default, the City or its designated representatives may immediately take possession of all applicable equipment, materials, products, documentation, reports and data.

#### **1.64 REMEDIES IN THE EVENT OF DEFAULT**

If an Event of Default occurs, the Proposer shall be liable for all damages resulting from the default, including but not limited to:

- A. Lost revenues;
- B. The difference between the cost associated with procuring services hereunder and the amount actually expended by the City for procurement of services, including procurement and administrative costs; and,
- C. Such other damages that the City may suffer.

The Proposer shall also remain liable for any liabilities and claims related to the Proposer's default. The City may also bring any suit or proceeding for specific performance or for an injunction.

#### **1.65 BANKRUPTCY**

The City reserves the right to terminate this contract if, during the term of any contract the Proposer has with the City, the Proposer becomes involved as a debtor in a bankruptcy proceeding, or becomes involved in a reorganization, dissolution, or liquidation proceeding, or if a trustee or receiver is appointed over all or a substantial portion of the property of the Proposer under federal bankruptcy law or any state insolvency law.

#### **1.66 CANCELLATION FOR UNAPPROPRIATED FUNDS**

The obligation of the City for payment to a Proposer 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.**

#### **1.67 VERBAL INSTRUCTIONS PROCEDURE**

No negotiations, decisions, or actions shall be initiated or executed by the Proposer as a result of any discussions with any City employee. Only those communications which are in writing from an authorized City representative may be considered. Only written communications from Proposers, which are signed by a person designated as authorized to bind the Proposer, will be recognized by the City as duly authorized expressions on behalf of the Proposer.

#### **1.68 E-VERIFY**

Proposer acknowledges that the City may be utilizing the Proposer's services for a project that is funded in whole or in part by State funds pursuant to a contract between the City and a State agency. The Proposer shall be responsible for complying with the E-Verify requirements in the contract and using the U.S. Department of Homeland Security's E-Verify system to verify the employment of all new employees hired by the Proposer during the Agreement term. The Proposer is also responsible for e-verifying its bidders, if any, pursuant to any agreement between the City and a State Agency, and reporting to the City any required information. The Proposer acknowledges that the terms of this paragraph are material terms, the breach of any of which shall constitute a default under this Agreement.

#### **1.69 BUDGETARY CONSTRAINTS**

In the event the City is required to reduce contract costs due to budgetary constraints, all services specified in this document may be subject to a permanent or temporary reduction in budget. In such an event, the total cost for the affected service shall be reduced as required. The Proposer shall also be provided with a minimum 30-day notice prior to any such reduction in budget.

#### **1.70 COST ADJUSTMENTS (As Applicable)**

The cost for all items as quoted herein shall remain firm for the first term of the contract. Costs for subsequent years and any extension term years shall be subject to an adjustment only if increases occur in the industry. However, unless very unusual and significant changes have occurred in the industry, such increases shall not exceed 3% per year or, whichever is less, the latest yearly percentage increase in the All Urban Consumers Price Index (CPU-U) (National) as published by the Bureau of Labor Statistics, U.S. Dept. of Labor. The yearly increase or decrease in the CPI shall be that latest index published and available ninety (90) days prior to the end of the contract year than in effect compared to the index for the same month one year prior. Any requested cost increase shall be fully documented and submitted to the City at least ninety (90) days prior to the contract anniversary date. Any approved cost adjustments shall become effective upon the anniversary date of the contract. In the event the CPI or industry costs decline, the City shall have the right to receive from the Proposer a reduction in costs that reflects such cost changes in the industry. The City may, after examination, refuse to accept the adjusted costs if they are not properly documented, increases are considered to be excessive, or decreases are considered to be insufficient. In the event the City does not wish to accept the adjusted costs and the matter cannot be resolved to the satisfaction of the City, the contract can be cancelled by the City upon giving thirty (30) days written notice to the Proposer.

#### **1.71 OSHA STANDARDS**

Proposer acknowledges and agrees that as Contractor for the City of Hollywood, Florida, within the limits of the City of Hollywood, Florida, will have the sole responsibility for compliance with all requirements of the Federal Occupational Safety and Health Act of 1970, and all State and local safety and health regulations, and agrees to defend, indemnify and hold harmless the City of Hollywood, Florida, its officials, employees, service providers, and its agents against any and all legal liability or loss the City of Hollywood, Florida may incur due to the Contractor's failure to comply with such act.

*END OF SECTION*



City of Hollywood  
Public Utilities  
Vince Morello, Director  
2600 Hollywood Boulevard, Hollywood, FL 33020

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[LANZO CONSTRUCTION CO., FLORIDA] RESPONSE DOCUMENT REPORT  
IFB No. IFB-187-24-JJ

Lift Station A-09 Force Main Replacement

RESPONSE DEADLINE: July 16, 2024 at 3:00 pm

Report Generated: Tuesday, August 20, 2024

## Lanzo Construction Co., Florida Response

### CONTACT INFORMATION

Company:

Lanzo Construction Co., Florida

Email:

estimating@lanzo.org

Contact:

Salvatore D'Alessandro

Address:

125 SE 5th Ct  
Deerfield Beach, FL 33441

Phone:

(954) 979-0802

Website:

[www.lanzo.net](http://www.lanzo.net)

Submission Date:

Jul 16, 2024 1:52 PM



## ADDENDA CONFIRMATION

### Addendum #1

*Confirmed Jul 16, 2024 10:52 AM by Salvatore D'Alessandro*

### Addendum #2

*Confirmed Jul 16, 2024 10:52 AM by Salvatore D'Alessandro*

## QUESTIONNAIRE

### 1. VENDOR REFERENCE FORM\*

Please download the below documents, complete, and upload.

- [Vendor Reference Form.pdf](#)

Vendor\_Reference\_Forms.pdf

### 2. HOLD HARMLESS AND INDEMNITY CLAUSE\*

I, an authorized representative, the contractor, shall indemnify, defend and hold harmless the City of Hollywood, its elected and appointed officials, employees and agents for any and all suits, actions, legal or administrative proceedings, claims, damage, liabilities, interest, attorney's fees, costs of any kind whether arising prior to the start of activities or following the completion or acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the contractor, or anyone acting under its direction, control, or on its behalf in connection with or incident to its performance of the contract.

Confirmed

### 3. NON-COLLUSION STATEMENT\*

I, being first duly sworn, depose that:

PROPOSAL DOCUMENT REPORT

IFB No. IFB-187-23-JJ

Lift Station A-09 Force Main Replacement

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- A. He/she is an authorized representative of the Company, the Proposer that has submitted the attached Proposal.
- B. He/she has been fully informed regarding the preparation and contents of the attached Proposal and of all pertinent circumstances regarding such Proposal;
- C. Such Proposal is genuine and is not a collusion or sham Proposal;
- D. Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Proposer, firm or person to submit a collusive or sham Proposal in connection with the contractor for which the attached Proposal has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm or person to fix the price or prices,

profit or cost element of the Proposal price or the Proposal price of any other Proposer, or to secure an advantage against the City of Hollywood or any person interested in the proposed Contract; and

- E. The price or prices quoted in the attached Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

Confirmed

#### 4. CERTIFICATIONS REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS\*

The applicant certifies that it and its principals:

- A. Are not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of Federal benefits by a State or Federal court, or voluntarily excluded from covered transactions by any Federal department or agency;
- B. Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction, violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- C. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and
- D. Have not within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause or default.

Confirmed

#### 5. DRUG-FREE WORKPLACE PROGRAM\*

- A. IDENTICAL TIE PROPOSALS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented

a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie proposals will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employee that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program (if such is available in the employee's community) by, any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of these requirements.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Confirmed

#### 6. SOLICITATION, GIVING, AND ACCEPTANCE OF GIFTS POLICY \*

Florida Statute 112.313 prohibits the solicitation or acceptance of Gifts. "No Public officer, employee of an agency, local government attorney, or candidate for nomination or election shall solicit or accept anything of value to the recipient, including a gift, loan, reward, promise of future employment, favor, or service, based upon any understanding that the vote, official action, or judgment of

the public officer, employee, local government attorney, or candidate would be influenced thereby.” The term “public officer” includes “any person elected or appointed to hold office in any agency, including any person serving on an advisory body.”

The City of Hollywood/Hollywood CRA policy prohibits all public officers, elected or appointed, all employees, and their families from accepting any gifts of any value, either directly or indirectly, from any contractor, vendor, consultant, or business with whom the City/CRA does business.

The State of Florida definition of “gifts” includes the following:

- Real property or its use,
- Tangible or intangible personal property, or its use,
- A preferential rate or terms on a debt, loan, goods, or services,
- Forgiveness of indebtedness,
- Transportation, lodging, or parking,
- Food or beverage,
- Membership dues,
- Entrance fees, admission fees, or tickets to events, performances, or facilities,
- Plants, flowers or floral arrangements
- Services provided by persons pursuant to a professional license or certificate.
- Other personal services for which a fee is normally charged by the person providing the services.
- Any other similar service or thing having an attributable value not already provided for in this section.

Any contractor, vendor, consultant, or business found to have given a gift to a public officer or employee, or his/her family, will be subject to dismissal or revocation of contract.

As the person authorized to sign the statement, I certify that this firm will comply fully with this policy.

Confirmed

7. Certificate of Insurance\*

See requirements in the [#SPECIAL TERM AND CONDITIONS](#) section.

IFB-187-24-JJ\_CERTIFICATE\_OF\_INSURANCE\_LCC.pdf

8. PROOF OF SUNBIZ REGISTRATION\*

Enter company FEIN to be verified in Sunbiz

59-2011933

[Click to Verify](#) *Value will be copied to clipboard*

9. ACKNOWLEDGMENT AND SIGNATURE PAGE

IF CORPORATION - DATE INCORPORATED/ORGANIZED:\*

08/07/1980

STATE INCORPORATED/ORGANIZED:\*

Florida

REMITTANCE ADDRESS\*

125 SE 5th Court, Deerfield Beach, FL 33441

BIDDER/PROPOSER'S AUTHORIZED REPRESENTATIVE'S TYPED FULL NAME\*

Salvatore D'Alessandro, Assistant Secretary

IT IS HEREBY CERTIFIED AND AFFIRMED THAT THE BIDDER/PROPOSER CERTIFIES ACCEPTANCE OF THE TERMS, CONDITIONS, SPECIFICATIONS, ATTACHMENTS AND ANY ADDENDA. THE BIDDER/PROPOSER SHALL ACCEPT ANY AWARDS MADE AS A RESULT OF

THIS SOLICITATION. BIDDER/PROPOSER FURTHER AGREES THAT PRICES QUOTED WILL REMAIN FIXED FOR THE PERIOD OF TIME STATED IN THE SOLICITATION.\*

Confirmed

THE EXECUTION OF THIS FORM CONSTITUTES THE UNEQUIVOCAL OFFER OF BIDDER/PROPOSER TO BE BOUND BY THE TERMS OF ITS PROPOSAL. FAILURE TO SIGN THIS SOLICITATION WHERE INDICATED BY AN AUTHORIZED REPRESENTATIVE SHALL RENDER THE BID/PROPOSAL NON-RESPONSIVE. THE CITY MAY, HOWEVER, IN ITS SOLE DISCRETION, ACCEPT ANY BID/PROPOSAL THAT INCLUDES AN EXECUTED DOCUMENT WHICH UNEQUIVOCALLY BINDS THE BIDDER/PROPOSER TO THE TERMS OF ITS OFFER.\*

Confirmed

BID FORM\*

Please download the below documents, complete, and upload.

- Bid\_Form\_MASTER.docx

IFB-187-24-JJ\_BID\_GUARANTY\_FORM\_LCC.pdf IFB-187-24-JJ\_BID\_FORM\_\$\_LCC.pdf

IFB-187-24-JJ\_LANZO\_BID\_PROPOSAL\$.pdf

10. SWORN STATEMENT PURSUANT TO SECTION 287.133 (3) (a) FLORIDA STATUTES ON PUBLIC ENTITY CRIMES

THIS FORM STATEMENT IS SUBMITTED TO THE CITY OF HOLLYWOOD BY:\*

(Print individual's name and title) (Print name of entity submitting sworn statement)

Salvatore D'Alessandro

SWORN STATEMENT CONTINUATION:\*

Enter business address:

125 SE 5th Court, Deerfield Beach, FL 33441

SWORN STATEMENT CONTINUATION:\*

Enter Federal Employer Identification Number (FEIN) is:

If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement.

59-2011933

SWORN STATEMENT CONTINUATION:\*

I understand that “convicted” or “conviction” as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in an federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

I understand and comply

SWORN STATEMENT CONTINUATION:\*

I understand that “Affiliate,” as defined in paragraph 287.133(1)(a), Florida Statutes, means:

1. A predecessor or successor of a person convicted of a public entity crime, or
2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term “affiliate” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair



PROPOSAL DOCUMENT REPORT

IFB No. IFB-187-23-JJ

Lift Station A-09 Force Main Replacement

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market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

Confirmed

SWORN STATEMENT CONTINUATION:\*

I understand that "person," as defined in Paragraph 287.133(1)(e), Florida Statutes, means any natural person or any entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts let by a public entity, or which otherwise transacts or applies to transact business with a public entity.

The term "person" includes those officers, executives, partners, shareholders, employees, members, and agents who are active in management of an entity

Confirmed

SWORN STATEMENT CONTINUATION:\*

Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies.)

Division of Administrative Hearings, determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (attach a copy of the Final Order).

Neither the entity submitting sworn statement, nor any of its officers, director, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

SWORN STATEMENT CONFIRMATION\*

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER

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Lift Station A-09 Force Main Replacement

FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THAT PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017 FLORIDA STATUTES FOR A CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

Confirmed

PRICE TABLES

BASE BID

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
Bid Items					
1	MOBILIZATION, DEMOBILIZATION, BONDS & INSURANCE	1	LS	\$280,000.00	\$280,000.00
2	ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH ALL PROPOSED CONNECTIONS AND RECONNECTIONS ON JOHNSON STREET AS SHOWN ON PLANS	1	LS	\$130,000.00	\$130,000.00
3	ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH ALL PROPOSED CONNECTIONS AND RECONNECTIONS ON ARTHUR STREET AS SHOWN ON PLANS	1	LS	\$50,000.00	\$50,000.00
4	ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH ALL PROPOSED CONNECTIONS AND RECONNECTIONS ON N 70th AVENUE AS SHOWN ON PLANS	1	LS	\$75,000.00	\$75,000.00
5	REMOVAL AND DISPOSAL OF EXISTING 18" DIP FM	40	LF	\$400.00	\$16,000.00
6	FURNISH, DELIVER & INSTALL 18" DIP FM	40	LF	\$750.00	\$30,000.00

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Lift Station A-09 Force Main Replacement

7	FURNISH, DELIVER & INSTALL 12" PVC C900 (DR 18)	1,400	LF	\$250.00	\$350,000.00
8	FURNISH, DELIVER & INSTALL 8" PVC C900 (DR 18)	120	LF	\$210.00	\$25,200.00
9	FURNISH, DELIVER & INSTALL 6" PVC C900 (DR 18)	20	LF	\$1,100.00	\$22,000.00
10	FURNISH, DELIVER & INSTALL AND SUBSEQUENTLY REMOVE SACRIFICIAL 10 LF OF 10" PVC C900 (DR 18)	20	LF	\$850.00	\$17,000.00
11	FURNISH, DELIVER & INSTALL AND SUBSEQUENTLY REMOVE SACRIFICIAL 12"X10" REDUCER	1	EA	\$2,000.00	\$2,000.00
12	FURNISH, DELIVER & INSTALL 18" x 12" DIP TEE	1	EA	\$12,500.00	\$12,500.00
13	FURNISH, DELIVER & INSTALL 18" x 8" DIP TEE	1	EA	\$12,000.00	\$12,000.00
14	FURNISH, DELIVER & INSTALL 12" x 8" DIP TEE	1	EA	\$2,500.00	\$2,500.00
15	FURNISH, DELIVER & INSTALL 12" x 8" DOMESTIC DIP ECCENTRIC REDUCER	1	EA	\$2,200.00	\$2,200.00
16	FURNISH, DELIVER & INSTALL 8" x 6" DOMESTIC DIP ECCENTRIC REDUCER	1	EA	\$1,000.00	\$1,000.00
17	FURNISH, DELIVER, & INSTALL 12" FOSTER ADAPTOR	2	EA	\$4,000.00	\$8,000.00
18	FURNISH, DELIVER & INSTALL 12" PLUG VALVE	2	EA	\$9,000.00	\$18,000.00
19	FURNISH, DELIVER & INSTALL 8" PLUG VALVE	1	EA	\$6,000.00	\$6,000.00
20	FURNISH, DELIVER & INSTALL ARV ASSEMBLY COMPLETE PER CITY OF HOLLYWOOD DETAIL S-08	2	EA	\$7,000.00	\$14,000.00
21	PRE-TRENCHING ACTIVITIES	1	LS	\$15,000.00	\$15,000.00
22	DOCUMENT PROJECT CORRIDOR – EXISTING CONDITIONS RECORDS	1	LS	\$2,000.00	\$2,000.00
23	CUT, GROUT FILL AND ABANDON EXISTING 6" ACP	30	LF	\$225.00	\$6,750.00
24	CUT, GROUT FILL AND ABANDON EXISTING 8" ACP	110	LF	\$125.00	\$13,750.00
25	CUT, GROUT FILL AND ABANDON EXISTING 10" ACP	1,500	LF	\$40.00	\$60,000.00
26	FURNISH, DELIVER & INSTALL 10" CAP	1	EA	\$2,000.00	\$2,000.00

PROPOSAL DOCUMENT REPORT

IFB No. IFB-187-23-JJ

Lift Station A-09 Force Main Replacement

27	FURNISH, DELIVER & INSTALL 8" CAP	1	EA	\$1,800.00	\$1,800.00
28	FURNISH, DELIVER & INSTALL 6" CAP	1	EA	\$1,200.00	\$1,200.00
29	TRENCH RESTORATION - PAVEMENT (Full Restoration grade Including Stabilized Subgrade, Matching Existing Base Thickness (8-Inch Min), Primer, 2" Type SP 9.5 - Structural Course & Temporary Striping & Markings)	1,300	SY	\$180.00	\$234,000.00
30	1" MILLING AND DISPOSAL OF EXISTING 1" ASPHALT (Includes temporary striping)	7,000	SY	\$4.50	\$31,500.00
31	RESURFACING, PAVEMENT, (1" TYPE SP 9.5) (WEARING COURSE)	7,000	SY	\$11.00	\$77,000.00
32	REFLECTIVE PAVEMENT MARKERS (Class B, mono or bi- directional, all colors)	30	EA	\$30.00	\$900.00
33	PAVEMENT MESSAGE THERMOPLASTIC MARKINGS – "SCHOOL"	1	EA	\$250.00	\$250.00
34	THERMOPLASTIC (White) (Solid) (6")	30	LF	\$2.00	\$60.00
35	THERMOPLASTIC (White) (Solid) (12")	330	LF	\$4.00	\$1,320.00
36	THERMOPLASTIC (White) (Solid) (24")	110	LF	\$7.00	\$770.00
37	THERMOPLASTIC (Yellow) (Solid) (6")	600	LF	\$2.00	\$1,200.00
38	THERMOPLASTIC (Yellow) (Skip) (6")	50	LF	\$2.00	\$100.00
39	FURNISH AND INSTALL STAMPED CONCRETE DRIVEWAY APRON TO MATCH EXISTING	1	EA	\$10,000.00	\$10,000.00
40	FURNISH, DELIVER, AND INSTALL SOD	1,500	SY	\$12.00	\$18,000.00
41	MAINTENANCE OF TRAFFIC	1	LS	\$10,000.00	\$10,000.00
42	ACTIVITIES REQUIRED FOR COMPLIANCE WITH FLORIDA TRENCH SAFETY ACT	1	LS	\$1.00	\$1.00
43	CERTIFIED AS-BUILTS AND RECORD DRAWINGS (BY LICENSED SURVEYOR AND MAPPER)	1	LS	\$25,000.00	\$25,000.00
44	OWNER'S CONTINGENCY	1	AW	\$250,000.00	\$250,000.00
45	CONSIDERATION FOR INDEMNIFICATION	1	AW	\$10.00	\$10.00
46	LANDSCAPING ALLOWANCE	1	AW	\$20,000.00	\$20,000.00
47	ALL PERMITS, LICENSES, FEES, TESTING, ETC. ALLOWANCE	1	AW	\$35,000.00	\$35,000.00

PROPOSAL DOCUMENT REPORT

IFB No. IFB-187-23-JJ

Lift Station A-09 Force Main Replacement

TOTAL						\$1,891,011.00
Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	
Alternative Bid Items						
48	FIELD CREW (SUPERINTENDENT, OPERATOR, PIPE LAYER X2)	10	HR	\$520.00	\$5,200.00	
49	FIELD CREW (OPERATOR, LABORER X2)	10	HR	\$325.00	\$3,250.00	
50	EQUIPMENT, EXCAVATOR, 05 CY	10	HR	\$175.00	\$1,750.00	
51	EQUIPMENT, FLAT BED TRUCK, 12'	10	HR	\$120.00	\$1,200.00	
52	EQUIPMENT, LOADER	10	HR	\$315.00	\$3,150.00	
TOTAL						\$14,550.00

# FORM 4

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: IFB-187-24-JJ - Lift Station A-09 Force Main Replacement  
 Reference for: Lanzo Construction Co., Florida dba Lanzo Construction Company

Organization/Firm Name providing reference: Miami-Dade County Water and Sewer Department  
 Organization/Firm Contact Name: Alexis Valdes Title: Project Manager  
 Email: Alexis.Valdes@miamidade.gov Phone: (786) 552-4364  
 Name of Referenced Project: Install of 4.1 Miles of 54" FM Contract No: \_\_\_\_\_  
 Date Services were provided: Jan 2017 - August 2018 Project Amount: \$20,164,956  
 Referenced Vendor's role in Project:  Prime Vendor  Subcontractor/ Subconsultant  
 Would you use the Vendor again?  Yes  No. Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary):  
 \*\*\*PLEASE SEE ATTACHED PROJECT SHEET DEPICTING DETAILED PROJECT EXPERIENCE\*\*\*

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comments (provide additional sheet if necessary):

****THIS SECTION FOR CITY USE ONLY****				
Verified via:	Email: <input type="checkbox"/>	Verbal: <input type="checkbox"/>	Mail: <input type="checkbox"/>	
Verified by:	Name:			Title:
	Department:			Date:

# MIDWASD

## Owner

Miami Dade Water and Sewer  
Department  
3071 SW 38<sup>th</sup> Ave  
Miami, FL 33146

Alexis Valdes  
(786) 552-4364

[Alexis.Valdes@miamidade.gov](mailto:Alexis.Valdes@miamidade.gov)

**Contract Amount: \$20,164,956**



## Design Engineer

CH2M  
3150 SW 38 Ave  
Suite 700  
Miami, FL 33146

Start Date – January 4, 2017

Completion – Aug 21, 2018

Prime Contractor: Lanzo

Construction

Lanzo Superintendent: Richard  
Kohsman



The location of the proposed 54-inch force main starts at S.W. 127 Avenue and S.W. 280 Street, continuing north along S.W. 127 Avenue, then east along S.W. 268 Street, then north along S.W. 112 Avenue, then east along S.W. 248 Street connecting to the existing 54-inch force main at S.W. 107 Avenue and S.W. 248 Street. The new force main installed for redundancy and will connect to an existing 48-inch force main at S.W. 280 Street and S.W. 127 Avenue, connect to an existing 54-inch force main at S.W. 248 Street and



S.W. 107 Avenue with provisions for a cross connection at S.W. 268 Street and 112 Avenue. The project is located in an urban environment in south Miami Dade County. The scope of work includes, but is not limited to, 5,000 SY of single lane road restoration, 28,485 SY of Type II & Type V paving repairs with 12" Thick Limerock Base & 31,670SY of Subgrade Stabilization (18" Thick). This project also included installation of approximately 23,000 lineal feet of owner furnished 54-inch diameter PCCP force main, the alignment was pre-trenched because of lime rock

conditions, approximately fifteen (15) Department furnished 54-inch plug valves and one (1) 48-inch plug valve; furnishing and installing joint material; making connections to existing mains; constructing a microtunnel force main installation under the Florida Turnpike which was value engineered along with permit revision with the FDOT for open cut installation; constructing a microtunnel force main installation under C-102 Canal also value engineered along with permit revisions with SFWMD and USACE to open cut canal crossing including the installation of 72" Steel Casing pipe which we then installed 54" DIP carrier pipe with spacers inside. DIP was used because of the weight difference being easier to install in the casing pipe.



# FORM 4

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: IFB-187-24-JJ - Lift Station A-09 Force Main Replacement  
 Reference for: Lanzo Construction Co., Florida dba Lanzo Construction Company

Organization/Firm Name providing reference: City of Hallandale Beach, Florida  
 Organization/Firm Contact Name: Manga Ebbe Title: Project Manager  
 Email: MEbbe@HallandaleBeachFL.org Phone: (954) 457-3043  
 Name of Referenced Project: SW Drainage Improvements Contract No: 1609-75-B  
 Date Services were provided: July 2018 - December 2020 Project Amount: \$8,470,312.00  
 Referenced Vendor's role in Project:  Prime Vendor  Subcontractor/ Subconsultant  
 Would you use the Vendor again?  Yes  No. Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary):  
 \*\*\*PLEASE SEE ATTACHED PROJECT SHEET DEPICTING DETAILED PROJECT EXPERIENCE\*\*\*

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comments (provide additional sheet if necessary):

****THIS SECTION FOR CITY USE ONLY****				
Verified via:	Email: <input type="checkbox"/>	Verbal: <input type="checkbox"/>	Mail: <input type="checkbox"/>	
Verified by:	Name:			Title:
	Department:			Date:



# City of Hallandale Beach



Owner  
City of Hallandale Beach  
400 South Federal Highway  
Hallandale Beach FL 33009

Manga Ebbe  
(954) 457-3043  
Construction Program Manager  
[mebbe@hallandalebeachfl.gov](mailto:mebbe@hallandalebeachfl.gov)

Original Contract Amount  
\$11,835,000.00  
Final Project Amount  
\$8,470,312.00



Engineer  
Calvin Giordano & Associates  
1800 Eller Drive, Suite 600  
Ft. Lauderdale, FL 33316

Start Date – July 2018  
Final Completion – December, 2020

This project is Bordered by South Dixie Highway to the East, SW 11<sup>th</sup> Street to the South, SW 4<sup>th</sup> Terrace to the West, and SW 6<sup>th</sup> Street to the North, in the City of Hallandale Beach, Florida. This project was designed to increase the capacity of the Shaffer Canal and limiting its tidal backflow and discharge from Miami Dade County by installing a new 70,000 GPM pump station consisting of commercial building to house (2) 300 HP Vertical Turbine pumps on SW 7<sup>th</sup> Street to pump into 17 injection wells to lower the water level in the canal. This project also includes the installation of a cast-in-place control structure with automated slide gate at SW 11<sup>th</sup> Street and an alternative power supply for the pump station (800kW generator). The scope of work of this project includes underground pressure pipe installation, injections wells installation, construction of stormwater cast-in-place concrete pump station, generator installation, dredging, vertical building constructions, electrical equipment installation, water main relocation, seawall construction, sheet pile and concrete pile installation, preparation and maintenance-of-traffic. A temporary cofferdam, 40'X23' was installed on this project to allow for the cast in place construction of the pump station. The shaft was excavated to 28' feet deep to prepare the bottom for ground water control by tremie plug. A second temporary cofferdam, 51'X28' was installed on this project to allow for the cast in place construction of the south control structure. The shaft was excavated to 25' feet deep to prepare the bottom for ground water control by tremie plug. Road Reconstruction included 0.4 miles of subbase, road base and 2" of asphalt. The rest of the neighborhood received 8,300 SY of Mill and over lay of 1".



Pressure Pipe Stormwater Force Main included 3,472 LF of DIP ranging in size from 24 to 60 inch.

# FORM 4

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: IFB-187-24-JJ - Lift Station A-09 Force Main Replacement  
 Reference for: Lanzo Construction Co., Florida dba Lanzo Construction Company

Organization/Firm Name providing reference: Broward County  
 Organization/Firm Contact Name: Rolando Nigaglioni Title: Project Manager  
 Email: RNigaglioni@Broward.org Phone: (954) 831-0882  
 Name of Referenced Project: Utility Analysis Zone 113A Contract No: PNC2121645C1  
 Date Services were provided: May 2021 - June 2023 Project Amount: \$12,875,437.50  
 Referenced Vendor's role in Project:  Prime Vendor  Subcontractor/ Subconsultant  
 Would you use the Vendor again?  Yes  No. Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary):  
 \*\*\*PLEASE SEE ATTACHED PROJECT SHEET DEPICTING DETAILED PROJECT EXPERIENCE\*\*\*

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comments (provide additional sheet if necessary):

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	<input type="checkbox"/>	Verbal:	<input type="checkbox"/>	Mail:	<input type="checkbox"/>
Verified by:	Name:				Title:	
	Department:				Date:	

# Broward County

**Owner**

Broward County  
2555 W. Copans Road  
Pompano Beach, FL 33069

Rolando Nigaglioni

[RNIGAGLIONI@broward.org](mailto:RNIGAGLIONI@broward.org)

(954) 831-0882

**Original Contract Amount**

**\$12,875,437.50**



**Engineer**

Chen Moore & Associates,  
500 West Cypress Creek Rd, Suite #630,  
Fort Lauderdale, FL 33309

Start Date – May, 2021

Substantial Completion – June, 2023

This project is located in Lauderdale Lakes area, Broward County. The site is situated east of US 441 from Oakland Park Blvd to NW 24<sup>th</sup> Street. The work is within the City of Lauderdale Lakes, FL. Both Broward County and Florida Department of Transportation maintain jurisdiction of the road rights-of-way.



Coordination amongst various stakeholders and public outreach to keep the residents updated on construction phasing and different maintenance of traffic setups was key to this project. Lanzo's reputable public outreach program, Lanzo Cares was utilized to its full potential for the entire duration of the project to ensure minimal disruptions to public; complete understanding of scheduled, sequencing and operations made this project a successfully one with a satisfactory end-product to the owner.

The construction scope included installation of 19,294 LF of 8"-20" PVC gravity sewer, 410 lateral assemblies and piping, 27,560 LF of 4"-12" DIP water main, 292 water services, 4,875 LF of 4"-16" DIP force main, 25 HP Pumps Duplex Lift station(18' Deep), Bypass pumping, 310 LF of 10" pipe bursting, building unilateral gravity sewer, and cleaning and televising existing drainage, 100 LF of 6"-12" aerial crossing, various forms of surface restoration which included 9.8 miles of Roadway reconstruction, concrete flatwork, brick pavers, driveway restoration. Landscaping was also a major part of the scope of work, it included furnishing 114 trees ranging from 4'-24' tall, 108 shrubs, 1,063 hedges, irrigation system restoration, pavement markings and signs, and traffic loop assemblies.



Dewatering, Traffic Control, and existing utility conflicts were the associated challenges to this project. With proper planning, coordination, public outreach, regular progress meetings, experience with local ground conditions and proven construction methods, Lanzo was able to achieve a successful project within schedule and within budget.



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/21/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Guy Hurley, LLC 989 E. South Boulevard Suite 200 Rochester Hills MI 48307	<b>CONTACT NAME:</b> Christine Phillips <b>PHONE (A/C, No, Ext):</b> (248) 519-1400 <b>E-MAIL ADDRESS:</b> cphillips@ghbh.com		<b>FAX (A/C, No):</b> (248) 519-1401
	<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>
<b>INSURED</b> Lanzo Construction Co, Florida; Lanzo Construction Co. 125 S.E. 5th Court Deerfield Beach FL 33441	<b>INSURER A:</b> Valley Forge Insurance Co. A XV		20508
	<b>INSURER B:</b> Continental Insurance Co A XV		35289
	<b>INSURER C:</b> Continental Casualty Co. A XV		20443
	<b>INSURER D:</b> Allied World Assurance Company A XV		19489
	<b>INSURER E:</b>		
	<b>INSURER F:</b>		

**COVERAGES**      **CERTIFICATE NUMBER:** 23-24 Master Poll/Prof      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY			6081795056	10/1/2023	10/1/2024	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000
	<input checked="" type="checkbox"/> XCU Coverage Included						MED EXP (Any one person) \$ 15,000
	<input checked="" type="checkbox"/> Contractual Liability						PERSONAL & ADV INJURY \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$ 2,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG \$ 2,000,000
	OTHER:						\$
B	<b>AUTOMOBILE LIABILITY</b>			6081795073	10/1/2023	10/1/2024	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS	<input type="checkbox"/> SCHEDULED AUTOS					BODILY INJURY (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS	<input checked="" type="checkbox"/> NON-OWNED AUTOS					PROPERTY DAMAGE (Per accident) \$
							\$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB			6081795087	10/1/2023	10/1/2024	EACH OCCURRENCE \$ 5,000,000
	<input type="checkbox"/> EXCESS LIAB	<input checked="" type="checkbox"/> OCCUR					AGGREGATE \$ 5,000,000
	<input type="checkbox"/> DED	<input type="checkbox"/> RETENTION \$					\$
C	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b>			6081795090	10/1/2023	10/1/2024	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	N/A				E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
							E.L. DISEASE - POLICY LIMIT \$ 1,000,000
C	Installation Floater			6082953748	10/1/2023	10/1/2024	\$4,500,000 Limit \$5,000 Ded
D	Pollution & Prof. Liability			03127614	10/1/2023	10/1/2024	\$2,000,000 Limit \$50,000 Ded

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

## CERTIFICATE HOLDER

## CANCELLATION

Evidence of Coverage

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

R McGregor/ALEKSA

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### 3. SPECIAL TERM AND CONDITIONS

#### 3.1. Addenda, Changes, and Interpretations

It is the sole responsibility of each firm to notify the Point of Contact utilizing the question / answer feature provided in the Portal and request modification or clarification of any ambiguity, conflict, discrepancy, omission or other error discovered in this competitive solicitation. Requests for clarification, modification, interpretation, or changes must be received prior to the Question and Answer (Q & A) Deadline. Requests received after this date may not be addressed. Questions and requests for information that would not materially affect the scope of services to be performed or the solicitation process will be answered within the question / answer feature provided in the Portal and shall be for clarification purposes only. Material changes, if any, to the scope of services or the solicitation process will only be transmitted by official written addendum issued by the City and uploaded to OpenGov as a separate addendum to the solicitation. Under no circumstances shall an oral explanation given by any City official, officer, staff, or agent be binding upon the City and should be disregarded. All addenda are a part of the competitive solicitation documents and each firm will be bound by such addenda. It is the responsibility of each to read and comprehend all addenda issued.

#### 3.2. Changes and Alterations

Bidder may change or withdraw a Bid at any time prior to Bid submission deadline; however, no oral modifications will be allowed. Modifications shall not be allowed following the Bid deadline.

#### 3.3. Bidder's Costs

The City shall not be liable for any costs incurred by Bidders in responding to this solicitation.

#### 3.4. Pricing/Delivery

All pricing must include delivery and installation and be quoted FOB: Destination, unless specified otherwise in the #SCOPE OF WORK/SERVICES section.

#### 3.5. Price Validity

Prices provided in this solicitation shall be valid for at least One-Hundred and Twenty (120) days from time of solicitation opening unless otherwise extended and agreed upon by the City and Bidder.

#### 3.6. No Exclusive Contract

Bidder agrees and understands that the contract shall not be construed as an exclusive arrangement and further agrees that the City may, at any time, secure similar or identical services from another vendor at the City's sole option.

### 3.7. Responsive

In order to be considered responsive to the solicitation, the firm's bid shall fully conform in all material respects to the solicitation and all of its requirements, including all form and substance.

### 3.8. Responsible

In order to be considered as a responsible firm, firm shall be fully capable to meet all of the requirements of the solicitation and subsequent contract, must possess the full capability, including financial and technical, to perform as contractually required, and must be able to fully document the ability to provide good faith performance.

### 3.9. Minimum Qualifications

To be eligible for award of a contract in response to this solicitation, the Bidder must demonstrate that they have successfully completed services, as specified in the #SCOPE OF WORK/SERVICES section of this solicitation, are normally and routinely engaged in performing such services, and are properly and legally licensed (if required) to perform such work. In addition, the Bidder must have no conflict of interest with regard to any other work performed by the Bidder for the City.

### 3.10. Award of Contract

Award may be in the aggregate, or by line item, or by group, whichever is determined to be in the best interest of the City. Award will be made to the responsive and responsible bidder, quoting the lowest price, for that product/service that will best serve the needs of the City.

The City also 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.

As applicable, the City shall comply with Section 287.05701, Florida Statutes, in not considering or giving preference for an award based on a vendor's social, political, or ideological interest.

### 3.11. Manufacturer/Brand/Model Specific Request

This is a manufacturer/brand/model specification. No substitutions will be allowed unless specified in **Section: SCOPE OF WORK/SERVICES**.

### 3.12. Contract Period

The initial contract term shall commence upon date of award by the City for a 210-day term.

In the event services are scheduled to end because of the expiration of this contract, the Contractor shall continue the service upon the request of the City as authorized by the awarding authority. The extension period shall not extend for more than 120 days beyond the expiration date of the existing contract. The Contractor shall be compensated for the service at the rate in effect when this extension clause is invoked by the City.

### 3.13. Warranties of Usage

Any estimated quantities listed are for information and tabulation purposes only. No warranty or guarantee of quantities needed is given or implied. It is understood that the Contractor will furnish the City's needs as they arise.

### 3.14. Rules and Submittals of Bids

The signer of the bid must declare that the only person(s), company or parties interested in the proposal as principals are named therein; that the bid is made without collusion with any other person(s), company or parties submitting a bid; that it is in all respects fair and in good faith, without collusion or fraud; and that the signer of the bid has full authority to bind the principal bidder.

### 3.15. Conflict of Interests Prohibited

Any respondent submitting a response to this solicitation is responsible for being aware of, and complying with [Section 34.02](#) of the City Code of Ordinances. If you have questions concerning whether you may or may not need to comply with the ordinance, please contact the City of Hollywood, Procurement Office at 954-921-3299.

### 3.16. Protest Procedure

Any respondent who is not recommended for award of a contract and who alleges a failure by the City to follow the City's [Procurement Code](#) or any applicable law may protest to the CPO, by delivering a letter of protest to the CPO in accordance with [Section 38.52](#) of the City's [Procurement Code](#) within five days after a notice of intent to award is posted on the City's web site, OpenGov, City Clerk's Office, Open Government, and/or City's Sunshine Board (<https://www.hollywoodfl.org/Archive.aspx?AMID=140>).

### 3.17. Insurance Requirements

- A. Contractor shall maintain, at its sole expense, during the term of this agreement the following insurances: The insurance required by Article 5.6 of the General Conditions shall be as follows:

Any Sub-Contractor used by the contractor shall supply such similar insurance required of the contractor. Such certificates shall name the City of Hollywood as an Additional Insured.1. BUILDERS RISK (BR 1) - Installation Floater: (Not Applicable)2. GENERAL LIABILITY (GL3):

Prior to the commencement of work governed by this contract, the Contractor shall obtain General Liability Insurance. Coverage shall be maintained throughout the life of the contract and include, as a  Premises Operations

- Products and Completed Operations
- Blanket Contractual Liability
- Personal Injury Liability
- Expanded Definition of Property Damage The minimum limits acceptable shall

be: □ \$2,000,000 Combined Single Limit (CSL) An Occurrence Form policy is preferred. If coverage is provided on a Claims Made policy, its provisions should include coverage for claims filed on or after the effective date of this contract. In addition, the period for which claims may be reported should extend for a minimum of twelve (12) months following the acceptance of work by the City. The City of Hollywood shall be named as Additional Insured on all policies issued to satisfy the above requirements.

3. GENERAL LIABILITY (GLXCU): Recognizing that the work governed by this contract involves either underground exposures, explosive activities, or the possibility of collapse of a structure, the Contractor's General Liability Policy shall include coverage for the XCU (explosion, collapse, and underground) exposures with limits of liability equal to those of the General Liability Insurance policy.

4. VEHICLE LIABILITY (VL3): Recognizing that the work governed by this contract requires the use of vehicles, the Contractor, prior to the commencement of work, shall obtain Vehicle Liability Insurance. Coverage shall be maintained throughout the life of the contract and include, as a minimum, liability coverage □ Owned, Non-Owned, and Hired Vehicles The minimum limits acceptable shall be:

\$1,000,000 Combined Single Limit (CSL) The City of Hollywood shall be named as Additional Insured on all policies issued to satisfy the above requirements.

5. WORKERS' COMPENSATION (WC2): Prior to the commencement of work governed by this contract, the Contractor shall obtain Workers' Compensation Insurance with limits sufficient to respond to the applicable state statutes. In addition, the Contractor shall obtain Employers' Liability Insurance with limits of not less than:

\$1,000,000 Bodily Injury by Accident

\$1,000,000 Bodily Injury by Disease, policy limits

\$1,000,000 Bodily Injury by Disease, each employee

Coverage shall be maintained throughout the entire term of the contract.

6. POLLUTION LIABILITY INSURANCE The minimum limits of liability shall be: \$1,000,000 per each claim / \$2,000,000 aggregate

Coverage shall be provided by a company or companies authorized to transact business in the state of Florida and the company or companies must maintain a minimum rating of "A" and Class X, as assigned by the A.M. Best Company. The policy must be endorsed to provide the City with (30) days' notice of cancellation. If the Contractor has been approved by the Florida's Department of Labor, as an authorized self-insurer, the City shall recognize and honor the Contractor's status. The Contractor may be required to submit a Letter of Authorization issued by the Department of Labor and a Certificate of Insurance, providing details on the Contractor's Excess Insurance Program. If the Contractor participates in a self-insurance fund, a Certificate of Insurance will be required. In addition, the Contractor may be required to submit updated financial statements from the fund upon request from the City. Any sub-consultant shall supply such similar insurance required of the Consultant. Such certificates shall name the City as additional insured in the general liability and auto liability policies.

***The City of Hollywood needs to be the certificate holder as per the following format:***



### 3.18. Uncontrollable Circumstances (Force Majeure)

The City and Contractor will be excused from the performance of their respective obligations under this agreement when and to the extent that their performance is delayed or prevented by any circumstances beyond their control including, fire, flood, explosion, strikes or other labor disputes, acts of God or public emergency, war, riot, civil commotion, malicious damage, act or omission of any governmental authority, delay or failure or shortage of any type of transportation, equipment, or service from a public utility needed for their performance, provided that:

- A. The non performing party gives the other party prompt written notice describing the particulars of the Force Majeure including, but not limited to, the nature of the occurrence and its expected duration, and continues to furnish timely reports with respect thereto during the period of the Force Majeure;
- B. The excuse of performance is of no greater scope and of no longer duration than is required by the Force Majeure; and
- C. No obligations of either party that arose before the Force Majeure causing the excuse of performance are excused as a result of the Force Majeure; and
- D. The non-performing party uses its best efforts to remedy its inability to perform. Notwithstanding the above, performance shall not be excused under this Section for a period in excess of two (2) months, provided that in extenuating circumstances, the City may excuse performance for a longer term. Economic hardship of the Contractor will not constitute Force Majeure. The term of the agreement shall be extended by a period equal to that during which either party's performance is suspended under this Section.

### 3.19. Supplier Portal (Oracle) Payment Method

The City has implemented software that contains a supplier portal allowing suppliers to submit and update their information via the supplier portal. New suppliers will be required to register; and current suppliers will need to confirm and update their information.

Firms are responsible for ensuring that all contact, payment, and general information is updated at all times, and will not hold the City liable for any inaccurate information.

### 3.20. Debarred or Suspended Bidders or Proposers

Firm(s) 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, state, county or municipal department or agency.

### 3.21. Public Records

#### **A. Public Records/Trade Secrets/Copyright:**

**All responses will become the property of the City. The Consultant's response to the solicitation is a public record pursuant to Florida law and is subject to**

**disclosure by the City pursuant to Chapter 119.07, Florida Statutes (“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, Florida Statutes.**

Any language contained in the Consultant’s response to the solicitation purporting to require confidentiality of any portion of the Consultant’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 Consultant submits any documents or other information to the City that the Consultant claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 (“Public Records Laws”), the Consultant shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Consultant 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 Consultant’s response to the solicitation constitutes a Trade Secret. The City’s determination of whether an exemption applies shall be final, and the Consultant 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 the event of Contract award, all documentation produced as part of the Contract shall become the exclusive property of the City. Proposals purporting to be subject to copyright protection in full or in part will be rejected.

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.

## **B. PUBLIC RECORDS GENERAL**

IF THE CONSULTANT HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONSULTANT’S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT: (954-921-3211), pcerny@hollywoodfl.org, CITY CLERK’S OFFICE, 2600 HOLLYWOOD BLVD, HOLLYWOOD, FLORIDA 33020)

- Consultant shall:
  - Keep and maintain public records that ordinarily and necessarily would be required by the City in order to perform the service.
  - 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.
  - 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 contract if the Consultant does not transfer the records to the City.

- o Upon completion of the Contract, transfer, at no cost, to the City all public records in possession of the Consultant or keep and maintain public records required by the City to perform the service. If the Consultant transfers all public records to the City upon completion of this Contract, the Consultant shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Consultant keeps and maintains public records upon completion of this Contract, the Consultant 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. It is solely and exclusively the Contractor's responsibility to familiarize itself with Chapter 119, Florida Statutes, and to ensure compliance with its requirements.

### 3.22. Tie Breaker

In cases where there is a tie for the bid award, the award shall be made by giving preference to the low bidder(s) with the following items (in this order): (1) maintenance of a drug-free workplace in accordance with the requirements of Florida Statutes Section 287.087, (2) local Hollywood vendor preference, (3) closest proximity/location to project site or City Hall, and/or (4) minority-owned or disadvantaged business status. If a tie still exists after the aforementioned tiebreakers are utilized, the Chief Procurement Officer will make a recommendation for award among the tied bidders.

### 3.23. Local Preference

When the lowest responsive responsible bidder is a non-Hollywood business and a responsive responsible local Hollywood vendor's Bid is within 5% of the Bid submitted by the lowest responsive responsible bidder, the local vendor is allowed to submit a second Bid. The second bid from the local Hollywood bidder must be lower than the bid submitted by the lowest responsive and responsible non-Hollywood bidder by at least 1% in order for the bid to be awarded to the local Hollywood bidder. If more than one responsive and responsible local Hollywood vendor is within 5%, each would be permitted to submit a best and final offer and the local Hollywood vendor submitting the lowest bid will be awarded the contract; provided, however, if none of the local Hollywood vendors bids are lower than the lowest responsive and responsible non-Hollywood bidder by at least 1%, the non- Hollywood bidder will be awarded the contract.

### 3.24. Contracting with Entities of Foreign Countries

By responding to this solicitation, your entity certifies and attests under penalty of perjury to not being a "foreign country of concern" as defined under Sections 287.138 and 692.202, Florida Statutes, and compliance with all regulations within the statutes.

### 3.25. Federal Procurement Standards

This solicitation shall be subject to Federal procurement standards as defined under Sections 200.317 through 200.327 of the Code of Federal Regulations (CFR) if funded by a Federal award, including all contract provisions/clauses under Section 200.327 of the CFR.

## Cover Page

Bid Proposal for: City of Hollywood, Florida  
IFB-187-24-JJ  
Lift Station A-09 Force Main Replacement

Prime Proposer: Lanzo Construction Co., Florida  
dba Lanzo Construction Company


Address: 125 SE 5<sup>th</sup> Court  
Deerfield Beach, FL 33441

Phone: (954) 979-0802 Fax: (954) 979-9897

E-Mail Address: [Estimating@Lanzo.org](mailto:Estimating@Lanzo.org)

Federal ID # 59-2011933

Organization Type: Corporation

Signature:   
Salvatore D'Alessandro, Vice President

Due Date: July 16, 2024

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# FORM 1

## SUBMITTAL CHECKLIST FORM

The items below are required components of your solicitation response in order for your bid/proposal/submittal to be considered responsive and responsible. Please complete and submit this submittal checklist form as the cover page of your submittal with all of the items below in the order listed.

Please indicate Yes or No in the "Submitted (Yes/No)" column below to indicate which required components were provided with your submittal.

Submitted (Yes/No)	Required Bid Components
Yes	This Submittal Checklist Form completed and included as the cover page of your submittal.
Yes	A Table of Contents that clearly identifies each section and page number of your submittal.
Yes	Information and/or documentation that addresses and/or meets the requirements outlined in Section III – Scope of Work/Services, including any procedural or technical enhancements/innovations which do not materially deviate from the objectives or required content of the Scope of Work/Services.
Yes	Forms (Completed) Form 1 Submittal Checklist Form* Form 2 Acknowledgement and Signature Page Form 3 Bid Form* Form 4 Vendor Reference Form* Form 5 Hold Harmless and Indemnity Clause Form 6 Non-Collusion Affidavit Form 7 Sworn Statement...Public Entity Crimes Form 8 Certifications Regarding Debarment... Form 9 Drug-Free Workplace Program Form 10 Solicitation, Giving, and Acceptance... Form 11 W-9 (Request for Taxpayer Identification) Form 12 Trench Safety Form Form 13 Bid Guaranty Form Form 14 List of Subcontractors
Yes	Certificate(s) of insurance that meet the requirements of Section 2.17
Yes	Proof of State of Florida Sunbiz Registration

This checklist is only a guide, please read the entire solicitation to ensure that your submission includes all required information and documentation.

# FORM 2

## ACKNOWLEDGMENT AND SIGNATURE PAGE

This form must be completed and submitted by the date and the time of bid opening.

Legal Company Name (include d/b/a if applicable): Lanzo Construction Co., Florida  
dba Lanzo Construction Company

If Corporation - Date Incorporated/Organized: 8/7/1980 Federal Tax Identification Number: 59-2011933

State Incorporated/Organized: Florida

Company Operating Address: 125 SE 5th Court

City: Deerfield Beach State: Florida Zip Code: 33441

Remittance Address (if different from ordering address):

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Company Contact Person: Salvatore D'Alessandro, VP Email Address: Estimating@Lanzo.org

Phone Number (include area code): (954) 979-0802 Fax Number (include area code): (954) 979-9897

Company's Internet Web Address: www.Lanzo.net

IT IS HEREBY CERTIFIED AND AFFIRMED THAT THE BIDDER/PROPOSER CERTIFIES ACCEPTANCE OF THE TERMS, CONDITIONS, SPECIFICATIONS, ATTACHMENTS AND ANY ADDENDA. THE BIDDER/PROPOSER SHALL ACCEPT ANY AWARDS MADE AS A RESULT OF THIS SOLICITATION. BIDDER/PROPOSER FURTHER AGREES THAT PRICES QUOTED WILL REMAIN FIXED FOR THE PERIOD OF TIME STATED IN THE SOLICITATION.

Bidder/Proposer's Authorized Representative's Signature:  Date: 7/16/2024

Type or Print Name: Salvatore D'Alessandro

THE EXECUTION OF THIS FORM CONSTITUTES THE UNEQUIVOCAL OFFER OF BIDDER/PROPOSER TO BE BOUND BY THE TERMS OF ITS PROPOSAL. FAILURE TO SIGN THIS SOLICITATION WHERE INDICATED BY AN AUTHORIZED REPRESENTATIVE SHALL RENDER THE BID/PROPOSAL NON-RESPONSIVE. THE CITY MAY, HOWEVER, IN ITS SOLE DISCRETION, ACCEPT ANY BID/PROPOSAL THAT INCLUDES AN EXECUTED DOCUMENT WHICH UNEQUIVOCALLY BINDS THE BIDDER/PROPOSER TO THE TERMS OF ITS OFFER.



## 6. PRICING (BID FORM)

The City is seeking bids/proposals from qualified vendors for the items listed below in accordance with the terms, conditions, and specifications contained in this solicitation.

Estimated quantities listed are for information and tabulation purposes only. No warranty or guarantee of quantities needed is given or implied. It is understood that the Contractor will furnish the City's needs as they arise.

### BID ITEMS

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
<b>Bid Items</b>					
1	MOBILIZATION, DEMOBILIZATION, BONDS & INSURANCE	1	LS	\$280,000.00	\$280,000.00
2	ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH ALL PROPOSED CONNECTIONS AND RECONNECTIONS ON JOHNSON STREET AS SHOWN ON PLANS	1	LS	\$130,000.00	\$130,000.00
3	ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH ALL PROPOSED CONNECTIONS AND RECONNECTIONS ON ARTHUR STREET AS SHOWN ON PLANS	1	LS	\$50,000.00	\$50,000.00
4	ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH ALL PROPOSED CONNECTIONS AND RECONNECTIONS ON N 70th AVENUE AS SHOWN ON PLANS	1	LS	\$75,000.00	\$75,000.00
5	REMOVAL AND DISPOSAL OF EXISTING 18" DIP FM	40	LF	\$400.00	\$16,000.00
6	FURNISH, DELIVER & INSTALL 18" DIP FM	40	LF	\$750.00	\$30,000.00
7	FURNISH, DELIVER & INSTALL 12" PVC C900 (DR 18)	1,400	LF	\$250.00	\$350,000.00

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
8	FURNISH, DELIVER & INSTALL 8" PVC C900 (DR 18)	120	LF	\$210.00	\$25,200.00
9	FURNISH, DELIVER & INSTALL 6" PVC C900 (DR 18)	20	LF	\$1,100.00	\$22,000.00
10	FURNISH, DELIVER & INSTALL AND SUBSEQUENTLY REMOVE SACRIFICIAL 10 LF OF 10" PVC C900 (DR 18)	20	LF	\$850.00	\$17,000.00
11	FURNISH, DELIVER & INSTALL AND SUBSEQUENTLY REMOVE SACRIFICIAL 12"X10" REDUCER	1	EA	\$2,000.00	\$2,000.00
12	FURNISH, DELIVER & INSTALL 18" x 12" DIP TEE	1	EA	\$12,500.00	\$12,500.00
13	FURNISH, DELIVER & INSTALL 18" x 8" DIP TEE	1	EA	\$12,000.00	\$12,000.00
14	FURNISH, DELIVER & INSTALL 12" x 8" DIP TEE	1	EA	\$2,500.00	\$2,500.00
15	FURNISH, DELIVER & INSTALL 12" x 8" DOMESTIC DIP ECCENTRIC REDUCER	1	EA	\$2,200.00	\$2,200.00
16	FURNISH, DELIVER & INSTALL 8" x 6" DOMESTIC DIP ECCENTRIC REDUCER	1	EA	\$1,000.00	\$1,000.00
17	FURNISH, DELIVER, & INSTALL 12" FOSTER ADAPTOR	2	EA	\$4,000.00	\$8,000.00
18	FURNISH, DELIVER & INSTALL 12" PLUG VALVE	2	EA	\$9,000.00	\$18,000.00
19	FURNISH, DELIVER & INSTALL 8" PLUG VALVE	1	EA	\$6,000.00	\$6,000.00
20	FURNISH, DELIVER & INSTALL ARV ASSEMBLY COMPLETE PER CITY OF HOLLYWOOD DETAIL S-08	2	EA	\$7,000.00	\$14,000.00

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
21	PRE-TRENCHING ACTIVITIES	1	LS	\$15,000.00	\$15,000.00
22	DOCUMENT PROJECT CORRIDOR – EXISTING CONDITIONS RECORDS	1	LS	\$2,000.00	\$2,000.00
23	CUT, GROUT FILL AND ABANDON EXISTING 6" ACP	30	LF	\$225.00	\$6,750.00
24	CUT, GROUT FILL AND ABANDON EXISTING 8" ACP	110	LF	\$125.00	\$13,750.00
25	CUT, GROUT FILL AND ABANDON EXISTING 10" ACP	1,500	LF	\$40.00	\$60,000.00
26	FURNISH, DELIVER & INSTALL 10" CAP	1	EA	\$2,000.00	\$2,000.00
27	FURNISH, DELIVER & INSTALL 8" CAP	1	EA	\$1,800.00	\$1,800.00
28	FURNISH, DELIVER & INSTALL 6" CAP	1	EA	\$1,200.00	\$1,200.00
29	TRENCH RESTORATION - PAVEMENT (Full Restoration grade Including Stabilized Subgrade, Matching Existing Base Thickness (8-Inch Min), Primer, 2" Type SP 9.5 - Structural Course & Temporary Striping & Markings)	1,300	SY	\$180.00	\$234,000.00
30	1" MILLING AND DISPOSAL OF EXISTING 1" ASPHALT (Includes temporary striping)	7,000	SY	\$4.50	\$31,500.00
31	RESURFACING, PAVEMENT, (1" TYPE SP 9.5) (WEARING COURSE)	7,000	SY	\$11.00	\$77,000.00
32	REFLECTIVE PAVEMENT MARKERS (Class B, mono or bi-directional, all colors)	30	EA	\$30.00	\$900.00

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
33	PAVEMENT MESSAGE THERMOPLASTIC MARKINGS – “SCHOOL”	1	EA	\$250.00	\$250.00
34	THERMOPLASTIC (White) (Solid) (6”)	30	LF	\$2.00	\$60.00
35	THERMOPLASTIC (White) (Solid) (12”)	330	LF	\$4.00	\$1,320.00
36	THERMOPLASTIC (White) (Solid) (24”)	110	LF	\$7.00	\$770.00
37	THERMOPLASTIC (Yellow) (Solid) (6”)	600	LF	\$2.00	\$1,200.00
38	THERMOPLASTIC (Yellow) (Skip) (6”)	50	LF	\$2.00	\$100.00
39	FURNISH AND INSTALL STAMPED CONCRETE DRIVEWAY APRON TO MATCH EXISTING	1	EA	\$10,000.00	\$10,000.00
40	FURNISH, DELIVER, AND INSTALL SOD	1,500	SY	\$12.00	\$18,000.00
41	MAINTENANCE OF TRAFFIC	1	LS	\$10,000.00	\$10,000.00
42	ACTIVITIES REQUIRED FOR COMPLIANCE WITH FLORIDA TRENCH SAFETY ACT	1	LS	\$1.00	\$1.00
43	CERTIFIED AS-BUILTS AND RECORD DRAWINGS (BY LICENSED SURVEYOR AND MAPPER)	1	LS	\$25,000.00	\$25,000.00
44	OWNER'S CONTINGENCY	1	AW	\$250,000.00	\$250,000.00
45	CONSIDERATION FOR INDEMNIFICATION	1	AW	\$10.00	\$10.00
46	LANDSCAPING ALLOWANCE	1	AW	\$20,000.00	\$20,000.00

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
47	ALL PERMITS, LICENSES, FEES, TESTING, ETC. ALLOWANCE	1	AW	\$35,000.00	\$35,000.00
<b>TOTAL</b>					<b>\$1,891,011.00</b>

**ALTERNATIVE BID ITEMS**

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
<b>Alternative Bid Items</b>					
48	FIELD CREW (SUPERINTENDENT, OPERATOR, PIPE LAYER X2)	10	HR	\$520.00	\$5,200.00
49	FIELD CREW (OPERATOR, LABORER X2)	10	HR	\$325.00	\$3,250.00
50	EQUIPMENT, EXCAVATOR, 05 CY	10	HR	\$175.00	\$1,750.00
51	EQUIPMENT, FLAT BED TRUCK, 12'	10	HR	\$120.00	\$1,200.00
52	EQUIPMENT, LOADER	10	HR	\$315.00	\$3,150.00
<b>TOTAL</b>					<b>\$14,550.00</b>

**BID TOTAL: \$1,905,561.00**

# FORM 4

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: IFB-187-24-JJ - Lift Station A-09 Force Main Replacement  
 Reference for: Lanzo Construction Co., Florida dba Lanzo Construction Company

Organization/Firm Name providing reference: Miami-Dade County Water and Sewer Department  
 Organization/Firm Contact Name: Alexis Valdes Title: Project Manager  
 Email: Alexis.Valdes@miamidade.gov Phone: (786) 552-4364  
 Name of Referenced Project: Install of 4.1 Miles of 54" FM Contract No: \_\_\_\_\_  
 Date Services were provided: Jan 2017 - August 2018 Project Amount: \$20,164,956  
 Referenced Vendor's role in Project:  Prime Vendor  Subcontractor/ Subconsultant  
 Would you use the Vendor again?  Yes  No. Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary):  
 \*\*\*PLEASE SEE ATTACHED PROJECT SHEET DEPICTING DETAILED PROJECT EXPERIENCE\*\*\*

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comments (provide additional sheet if necessary):

****THIS SECTION FOR CITY USE ONLY****				
Verified via:	Email: <input type="checkbox"/>	Verbal: <input type="checkbox"/>	Mail: <input type="checkbox"/>	
Verified by:	Name:			Title:
	Department:			Date:

# MIDWASD

## Owner

Miami Dade Water and Sewer  
Department  
3071 SW 38<sup>th</sup> Ave  
Miami, FL 33146

Alexis Valdes  
(786) 552-4364

[Alexis.Valdes@miamidade.gov](mailto:Alexis.Valdes@miamidade.gov)

**Contract Amount: \$20,164,956**



## Design Engineer

CH2M  
3150 SW 38 Ave  
Suite 700  
Miami, FL 33146

Start Date – January 4, 2017

Completion – Aug 21, 2018

Prime Contractor: Lanzo

Construction

Lanzo Superintendent: Richard  
Kohsman



The location of the proposed 54-inch force main starts at S.W. 127 Avenue and S.W. 280 Street, continuing north along S.W. 127 Avenue, then east along S.W. 268 Street, then north along S.W. 112 Avenue, then east along S.W. 248 Street connecting to the existing 54-inch force main at S.W. 107 Avenue and S.W. 248 Street. The new force main installed for redundancy and will connect to an existing 48-inch force main at S.W. 280 Street and S.W. 127 Avenue, connect to an existing 54-inch force main at S.W. 248 Street and



S.W. 107 Avenue with provisions for a cross connection at S.W. 268 Street and 112 Avenue. The project is located in an urban environment in south Miami Dade County. The scope of work includes, but is not limited to, 5,000 SY of single lane road restoration, 28,485 SY of Type II & Type V paving repairs with 12" Thick Limerock Base & 31,670SY of Subgrade Stabilization (18" Thick). This project also included installation of approximately 23,000 lineal feet of owner furnished 54-inch diameter PCCP force main, the alignment was pre-trenched because of lime rock

conditions, approximately fifteen (15) Department furnished 54-inch plug valves and one (1) 48-inch plug valve; furnishing and installing joint material; making connections to existing mains; constructing a microtunnel force main installation under the Florida Turnpike which was value engineered along with permit revision with the FDOT for open cut installation; constructing a microtunnel force main installation under C-102 Canal also value engineered along with permit revisions with SFWMD and USACE to open cut canal crossing including the installation of 72" Steel Casing pipe which we then installed 54" DIP carrier pipe with spacers inside. DIP was used because of the weight difference being easier to install in the casing pipe.



# FORM 4

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: IFB-187-24-JJ - Lift Station A-09 Force Main Replacement  
 Reference for: Lanzo Construction Co., Florida dba Lanzo Construction Company

Organization/Firm Name providing reference: City of Hallandale Beach, Florida  
 Organization/Firm Contact Name: Manga Ebbe Title: Project Manager  
 Email: MEbbe@HallandaleBeachFL.org Phone: (954) 457-3043  
 Name of Referenced Project: SW Drainage Improvements Contract No: 1609-75-B  
 Date Services were provided: July 2018 - December 2020 Project Amount: \$8,470,312.00  
 Referenced Vendor's role in Project:  Prime Vendor  Subcontractor/ Subconsultant  
 Would you use the Vendor again?  Yes  No. Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary):  
 \*\*\*PLEASE SEE ATTACHED PROJECT SHEET DEPICTING DETAILED PROJECT EXPERIENCE\*\*\*

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comments (provide additional sheet if necessary):

****THIS SECTION FOR CITY USE ONLY****				
Verified via:	Email: <input type="checkbox"/>	Verbal: <input type="checkbox"/>	Mail: <input type="checkbox"/>	
Verified by:	Name:			Title:
	Department:			Date:



# City of Hallandale Beach



Owner  
City of Hallandale Beach  
400 South Federal Highway  
Hallandale Beach FL 33009

Manga Ebbe  
(954) 457-3043  
Construction Program Manager  
[mebbe@hallandalebeachfl.gov](mailto:mebbe@hallandalebeachfl.gov)

Original Contract Amount  
\$11,835,000.00  
Final Project Amount  
\$8,470,312.00



Engineer  
Calvin Giordano & Associates  
1800 Eller Drive, Suite 600  
Ft. Lauderdale, FL 33316

Start Date – July 2018  
Final Completion – December, 2020

This project is Bordered by South Dixie Highway to the East, SW 11<sup>th</sup> Street to the South, SW 4<sup>th</sup> Terrace to the West, and SW 6<sup>th</sup> Street to the North, in the City of Hallandale Beach, Florida. This project was designed to increase the capacity of the Shaffer Canal and limiting its tidal backflow and discharge from Miami Dade County by installing a new 70,000 GPM pump station consisting of commercial building to house (2) 300 HP Vertical Turbine pumps on SW 7<sup>th</sup> Street to pump into 17 injection wells to lower the water level in the canal. This project also includes the installation of a cast-in-place control structure with automated slide gate at SW 11<sup>th</sup> Street and an alternative power supply for the pump station (800kW generator). The scope of work of this project includes underground pressure pipe installation, injections wells installation, construction of stormwater cast-in-place concrete pump station, generator installation, dredging, vertical building constructions, electrical equipment installation, water main relocation, seawall construction, sheet pile and concrete pile installation, preparation and maintenance-of-traffic. A temporary cofferdam, 40'X23' was installed on this project to allow for the cast in place construction of the pump station. The shaft was excavated to 28' feet deep to prepare the bottom for ground water control by tremie plug. A second temporary cofferdam, 51'X28' was installed on this project to allow for the cast in place construction of the south control structure. The shaft was excavated to 25' feet deep to prepare the bottom for ground water control by tremie plug. Road Reconstruction included 0.4 miles of subbase, road base and 2" of asphalt. The rest of the neighborhood received 8,300 SY of Mill and over lay of 1".



Pressure Pipe Stormwater Force Main included 3,472 LF of DIP ranging in size from 24 to 60 inch.

# FORM 4

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: IFB-187-24-JJ - Lift Station A-09 Force Main Replacement  
 Reference for: Lanzo Construction Co., Florida dba Lanzo Construction Company

Organization/Firm Name providing reference: Broward County  
 Organization/Firm Contact Name: Rolando Nigaglioni Title: Project Manager  
 Email: RNigaglioni@Broward.org Phone: (954) 831-0882  
 Name of Referenced Project: Utility Analysis Zone 113A Contract No: PNC2121645C1  
 Date Services were provided: May 2021 - June 2023 Project Amount: \$12,875,437.50  
 Referenced Vendor's role in Project:  Prime Vendor  Subcontractor/ Subconsultant  
 Would you use the Vendor again?  Yes  No. Please specify in additional comments

Description of services provided by Vendor (provide additional sheet if necessary):  
 \*\*\*PLEASE SEE ATTACHED PROJECT SHEET DEPICTING DETAILED PROJECT EXPERIENCE\*\*\*

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comments (provide additional sheet if necessary):

****THIS SECTION FOR CITY USE ONLY****						
Verified via:	Email:	<input type="checkbox"/>	Verbal:	<input type="checkbox"/>	Mail:	<input type="checkbox"/>
Verified by:	Name:				Title:	
	Department:				Date:	

# Broward County

**Owner**

Broward County  
2555 W. Copans Road  
Pompano Beach, FL 33069

Rolando Nigaglioni

[RNIGAGLIONI@broward.org](mailto:RNIGAGLIONI@broward.org)

(954) 831-0882

**Original Contract Amount**

**\$12,875,437.50**



**Engineer**

Chen Moore & Associates,  
500 West Cypress Creek Rd, Suite #630,  
Fort Lauderdale, FL 33309

Start Date – May, 2021

Substantial Completion – June, 2023

This project is located in Lauderdale Lakes area, Broward County. The site is situated east of US 441 from Oakland Park Blvd to NW 24<sup>th</sup> Street. The work is within the City of Lauderdale Lakes, FL. Both Broward County and Florida Department of Transportation maintain jurisdiction of the road rights-of-way.



Coordination amongst various stakeholders and public outreach to keep the residents updated on construction phasing and different maintenance of traffic setups was key to this project. Lanzo's reputable public outreach program, Lanzo Cares was utilized to its full potential for the entire duration of the project to ensure minimal disruptions to public; complete understanding of scheduled, sequencing and operations made this project a successfully one with a satisfactory end-product to the owner.

The construction scope included installation of 19,294 LF of 8"-20" PVC gravity sewer, 410 lateral assemblies and piping, 27,560 LF of 4"-12" DIP water main, 292 water services, 4,875 LF of 4"-16" DIP force main, 25 HP Pumps Duplex Lift station(18' Deep), Bypass pumping, 310 LF of 10" pipe bursting, building unilateral gravity sewer, and cleaning and televising existing drainage, 100 LF of 6"-12" aerial crossing, various forms of surface restoration which included 9.8 miles of Roadway reconstruction, concrete flatwork, brick pavers, driveway restoration. Landscaping was also a major part of the scope of work, it included furnishing 114 trees ranging from 4'-24' tall, 108 shrubs, 1,063 hedges, irrigation system restoration, pavement markings and signs, and traffic loop assemblies.



Dewatering, Traffic Control, and existing utility conflicts were the associated challenges to this project. With proper planning, coordination, public outreach, regular progress meetings, experience with local ground conditions and proven construction methods, Lanzo was able to achieve a successful project within schedule and within budget.

**FORM 5**

**HOLD HARMLESS AND INDEMNITY CLAUSE**

Lanzo Construction Co., Florida  
dba Lanzo Construction Company  
Salvatore D'Alessandro, VP

---

**(Company Name and Authorized Signature, Print Name)**

, the contractor, shall indemnify, defend and hold harmless the City of Hollywood, its elected and appointed officials, employees and agents for any and all suits, actions, legal or administrative proceedings, claims, damage, liabilities, interest, attorney's fees, costs of any kind whether arising prior to the start of activities or following the completion or acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the contractor, or anyone acting under its direction, control, or on its behalf in connection with or incident to its performance of the contract.



Salvatore D'Alessandro

---

Signature

Printed Name

Lanzo Construction Co., Florida  
dba Lanzo Construction Florida

---

Vice President

---

Name of Company

Title

**FORM 6**

**NON-COLLUSION AFFIDAVIT**

**STATE OF:** FLORIDA

**COUNTY OF:** BROWARD, being first duly sworn, deposes and says that:

- (1) He/she is Vice President of Lanzo Construction Co., Florida  
dba Lanzo Construction Company, the Proposer that has submitted the attached Proposal.
- (2) He/she has been fully informed regarding the preparation and contents of the attached Proposal and of all pertinent circumstances regarding such Proposal;
- (3) Such Proposal is genuine and is not a collusion or sham Proposal;
- (4) Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Proposer, firm or person to submit a collusive or sham Proposal in connection with the contractor for which the attached Proposal has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm or person to fix the price or prices, profit or cost element of the Proposal price or the Proposal price of any other Proposer, or to secure an advantage against the City of Hollywood or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

Signature

Lanzo Construction Co., Florida  
dba Lanzo Construction Company

Name of Company

Salvatore D'Alessandro

Printed Name

Vice President

Title

## FORM 7

### SWORN STATEMENT PURSUANT TO SECTION 287.133 (3) (a) FLORIDA STATUTES ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS

1. This form statement is submitted to the City of Hollywood by Salvatore D'Alessandro for Lanzo Construction Co., Florida dba Lanzo Construction Company  
(Print individual's name and title) (Print name of entity submitting sworn statement)  
whose business address is  
125 SE 5th Court, Deerfield Beach, FL 33441  
and if applicable its Federal Employer Identification Number (FEIN) is 59-2011933. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement.
- 

2. I understand that "public entity crime," as defined in paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misinterpretation.
3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in an federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that "Affiliate," as defined in paragraph 287.133(1)(a), Florida Statutes, means:
1. A predecessor or successor of a person convicted of a public entity crime, or
  2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

- 5 I understand that "person," as defined in Paragraph 287.133(1)(e), Florida Statutes, means any natural person or any entity organized under the laws of any state or of the

United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies.)

XXX Neither the entity submitting sworn statement, nor any of its officers, director, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

\_\_\_\_\_ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

\_\_\_\_\_ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime, but the Final Order entered by the Hearing Officer in a subsequent proceeding before a Hearing Officer of the State of the State of Florida,

Division of Administrative Hearings, determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (attach a copy of the Final Order).

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THAT PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017 FLORIDA STATUTES FOR A CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.



(Signature)

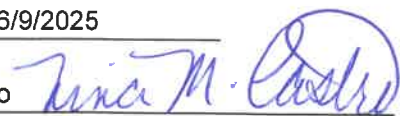
Sworn to and subscribed before me this 16th day of July, 2024.

Personally known personally known

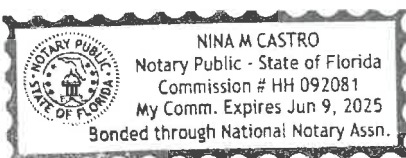
Or produced identification \_\_\_\_\_ Notary Public-State of Florida

personally known to me my commission expires 6/9/2025

(Type of identification)

Nina M. Castro 

(Printed, typed or stamped commissioned name of notary public)



**FORM 8**

**CERTIFICATIONS REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS**

The applicant certifies that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of Federal benefits by a State or Federal court, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction, violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and
- (d) Have not within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause or default.

Applicant Name and Address:

Lanzo Construction Co., Florida, dba Lanzo Construction Company

125 SE 5th Court

Deerfield Beach, FL 33441

Application Number and/or Project Name:

City of Hollywood - Lift Station A-09 Force Main Replacement

Applicant IRS/Vendor Number: 59-2011933



Salvatore D'Alessandro

Signature

Printed Name

Lanzo Construction Co., Florida  
dba Lanzo Construction Company

Vice President

Name of Company

Title



**FORM 9**

**DRUG-FREE WORKPLACE PROGRAM**

IDENTICAL TIE PROPOSALS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie proposals will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employee that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program (if such is available in the employee's community) by, any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of these requirements.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.



Salvatore D'Alessandro

Signature

Printed Name

Lanzo Construction Co., Florida  
dba Lanzo Construction Company

Vice President

Name of Company

Title

# FORM 10

## SOLICITATION, GIVING, AND ACCEPTANCE OF GIFTS POLICY

Florida Statute 112.313 prohibits the solicitation or acceptance of Gifts. "No Public officer, employee of an agency, local government attorney, or candidate for nomination or election shall solicit or accept anything of value to the recipient, including a gift, loan, reward, promise of future employment, favor, or service, based upon any understanding that the vote, official action, or judgment of the public officer, employee, local government attorney, or candidate would be influenced thereby." The term "public officer" includes "any person elected or appointed to hold office in any agency, including any person serving on an advisory body."

The City of Hollywood/Hollywood CRA policy prohibits all public officers, elected or appointed, all employees, and their families from accepting any gifts of any value, either directly or indirectly, from any contractor, vendor, consultant, or business with whom the City/CRA does business.

The State of Florida definition of "gifts" includes the following:

- Real property or its use,
- Tangible or intangible personal property, or its use,
- A preferential rate or terms on a debt, loan, goods, or services,
- Forgiveness of indebtedness,
- Transportation, lodging, or parking,
- Food or beverage,
- Membership dues,
- Entrance fees, admission fees, or tickets to events, performances, or facilities,
- Plants, flowers or floral arrangements
- Services provided by persons pursuant to a professional license or certificate.
- Other personal services for which a fee is normally charged by the person providing the services.
- Any other similar service or thing having an attributable value not already provided for in this section.

Any contractor, vendor, consultant, or business found to have given a gift to a public officer or employee, or his/her family, will be subject to dismissal or revocation of contract.

As the person authorized to sign the statement, I certify that this firm will comply fully with this policy.



Salvatore D'Alessandro

Signature

Printed Name

Lanzo Construction Co., Florida  
dba Lanzo Construction Company

Vice President

Name of Company

Title

# Request for Taxpayer Identification Number and Certification

**Give Form to the  
 requester. Do not  
 send to the IRS.**

▶ Go to [www.irs.gov/FormW9](http://www.irs.gov/FormW9) for instructions and the latest information.

Print or type.  
See Specific Instructions on page 3.

<b>1</b> Name (as shown on your income tax return). Name is required on this line; do not leave this line blank. <b>Lanzo Construction Co., FL</b>	
<b>2</b> Business name/disregarded entity name, if different from above <b>dba Lanzo Construction Company</b>	
<b>3</b> Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only <b>one</b> of the following seven boxes. <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____ <b>Note:</b> Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is <b>not</b> disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner. <input type="checkbox"/> Other (see instructions) ▶ _____	<input type="checkbox"/> C Corporation <input checked="" type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate
<b>4</b> Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>	
<b>5</b> Address (number, street, and apt. or suite no.) See instructions. <b>125 SE 5th Court</b>	Requester's name and address (optional)
<b>6</b> City, state, and ZIP code <b>Deerfield Beach, FL 33441</b>	
<b>7</b> List account number(s) here (optional)	

## Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

**Note:** If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

<b>Social security number</b>									
or									
<b>Employer identification number</b>									
5	9		2	0	1	1	9	3	3

## Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

<b>Sign Here</b>	Signature of U.S. person ▶	Date ▶ <u>7/16/2024</u>
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## General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

**Future developments.** For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to [www.irs.gov/FormW9](http://www.irs.gov/FormW9).

### Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
  - Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
  - Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
  - Form 1099-S (proceeds from real estate transactions)
  - Form 1099-K (merchant card and third party network transactions)
  - Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
  - Form 1099-C (canceled debt)
  - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.
- If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.*

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and

4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

**Note:** If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

**Definition of a U.S. person.** For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

**Special rules for partnerships.** Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

**Foreign person.** If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

**Nonresident alien who becomes a resident alien.** Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

**Example.** Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

## Backup Withholding

**What is backup withholding?** Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

**Payments you receive will be subject to backup withholding if:**

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

## What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

## Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

## Penalties

**Failure to furnish TIN.** If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

**Civil penalty for false information with respect to withholding.** If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

**Criminal penalty for falsifying information.** Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

**Misuse of TINs.** If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

## Specific Instructions

### Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

**Note: ITIN applicant:** Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

### Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

### Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

### Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

#### Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 <sup>1</sup>	Generally, exempt payees 1 through 5 <sup>2</sup>
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

<sup>1</sup> See Form 1099-MISC, Miscellaneous Income, and its instructions.

<sup>2</sup> However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

**Exemption from FATCA reporting code.** The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

**Note:** You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

### Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

### Line 6

Enter your city, state, and ZIP code.

## Part I. Taxpayer Identification Number (TIN)

**Enter your TIN in the appropriate box.** If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

**Note:** See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

**How to get a TIN.** If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at [www.SSA.gov](http://www.SSA.gov). You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at [www.irs.gov/Businesses](http://www.irs.gov/Businesses) and clicking on Employer Identification Number (EIN) under Starting a Business. Go to [www.irs.gov/Forms](http://www.irs.gov/Forms) to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to [www.irs.gov/OrderForms](http://www.irs.gov/OrderForms) to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

**Note:** Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

**Caution:** A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

## Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

**Signature requirements.** Complete the certification as indicated in items 1 through 5 below.

**1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.** You must give your correct TIN, but you do not have to sign the certification.

**2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.** You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

**3. Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.

**4. Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

**5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

<sup>1</sup> List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

<sup>2</sup> Circle the minor's name and furnish the minor's SSN.

<sup>3</sup> You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

<sup>4</sup> List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

**\*Note:** The grantor also must provide a Form W-9 to trustee of trust.

**Note:** If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

### What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account <sup>1</sup>
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor <sup>2</sup>
5. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee <sup>1</sup> The actual owner <sup>1</sup>
6. Sole proprietorship or disregarded entity owned by an individual	The owner <sup>3</sup>
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*

For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity <sup>4</sup>
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

### Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

**Protect yourself from suspicious emails or phishing schemes.** Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to [phishing@irs.gov](mailto:phishing@irs.gov). You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at [spam@uce.gov](mailto:spam@uce.gov) or report them at [www.ftc.gov/complaint](http://www.ftc.gov/complaint). You can contact the FTC at [www.ftc.gov/idtheft](http://www.ftc.gov/idtheft) or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see [www.IdentityTheft.gov](http://www.IdentityTheft.gov) and Pub. 5027.

Visit [www.irs.gov/IdentityTheft](http://www.irs.gov/IdentityTheft) to learn more about identity theft and how to reduce your risk.

## Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.



# FORM 12

## TRENCH SAFETY

This form must be completed and signed by the Respondent.

Failure to complete this form may result in the solicitation being declared non-responsive.

Respondent acknowledges that the Florida Trench Safety Act, Section 553.60 et. seq., which became effective October 1, 1990, shall be in effect during the period of construction of the project. The respondent by signing and submitting the solicitation is, in writing, assuring that it will perform any trench excavation in accordance with applicable trench safety standards. The respondent further identifies the following separate item of cost of compliance with the applicable trench safety standards as well as the method of compliance:

Method of Compliance

Cost

*Box / Slope Method - \$1.50/LF  
(1,600 LF)*

Total \$ 2,400.00

Respondent acknowledges that this cost is included in the applicable items of their submittal and in the Grand Total Solicitation Price. Failure to complete the above will result in the solicitation being declared non-responsive.

The Respondent is, and the Owner and Engineer are not, responsible to review or assess Respondent'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 et. seq. cited as the "Trench Safety Act." Respondent is, and the owner and Engineer are not, responsible to determine if any safety related standards apply to the project, including but not limited to, the "Trench Safety Act."

*Nina M. Castro*

Witness Signature

Nina M. Castro

Witness Printed Name

125 SE 5th Court

Deerfield Beach, FL 33441

Witness Address

July 16, 2024

Date

*Salvatore D'Alessandro*

Contractor's Signature

Salvatore D'Alessandro

Printed Name

Vice President

Title

July 16, 2024

Date

- END OF SECTION -

**Form 13**

**Bid Guaranty Form**

(Construction)

STATE OF FLORIDA

KNOW ALL MEN BY THESE PRESENTS:

That we Lanzo Construction Company, as Principal, and Liberty Mutual Insurance Company, as

Surety, are held and firmly bound unto the City of Hollywood in the sum of Five Percent  
of the Amount of Bid----- Dollars (\$ -----5%-----) lawful money  
of the United States, amounting to 5% of the total SOLICITATION Price, for the payment of said  
sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and  
severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal has submitted the  
accompanying SOLICITATION, dated July 9, 2024 \_\_\_\_\_ 20\_for

**LIFT STATION A-09 FORCEMAIN IMPROVEMENTS**

**IFB-187-24-JJ**

NOW, THEREFORE, if the principal shall not withdraw said SOLICITATION within 90 days after  
date of the same and shall within ten days after the prescribed forms are presented to him for  
signature, enter into a written contract with the CITY, in accordance with the SOLICITATION as  
accepted, and give bond with good and sufficient surety or sureties, and provide the necessary  
Insurance Certificates as may be required for the faithful performance and proper fulfillment of  
such Contract, then this obligation shall be null and void.

Approved SOLICITATION Bond

In the event of the withdrawal of said SOLICITATION within the specified period, or the failure to enter into such contract and give such bond and insurance within the specified time, the principal and the surety shall pay to the City of Hollywood the difference between the amount specified in said SOLICITATION and such larger amount for which the City of Hollywood may in good faith contract with another party to perform the work and/or supply the materials covered by said SOLICITATION.

IN WITNESS WHEREOF, the above bound parties have executed this statement under their several seals this \_\_\_\_\_ 9th \_\_\_\_\_ day of July, 20<sup>24</sup>, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

WHEN THE PRINCIPAL IS AN INDIVIDUAL:

Signed, sealed and delivered in the presence of:

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Signature of Individual

\_\_\_\_\_  
Address

\_\_\_\_\_  
Printed Name of Individual

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Address

Approved SOLICITATION Bond

WHEN THE PRINCIPAL IS A CORPORATION:

Attest:

Asst Secretary Giuseppe D'Alessandro Jr.

Lanzo Construction Company

Name of Corporation

125 SE 5th Court

Business Address

Deerfield Beach, FL 33441

By:

Sal D  
(Affix Corporate Seal)

Salvatore D'Alessandro

Printed Name

VICE PRESIDENT

Official Title

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, Giuseppe D'Alessandro Jr., certify that I am the <sup>Asst.</sup> secretary of the Corporation named as Principal in the attached bond; that Salvatore D'Alessandro who signed the said bond on behalf of the Principal, was then VICE PRESIDENT of said Corporation; that I know his signature, and his signature thereto is genuine and that said bond was duly signed, sealed and attested for and on behalf of said Corporation by authority of its governing body.

(Signature) (SEAL)  
Secretary

Approved SOLICITATION Bond

TO BE EXECUTED BY CORPORATE SURETY:

Attest:

Jill Moore  
Secretary, Jill Moore

Liberty Mutual Insurance Company  
Corporate Surety  
175 Berkeley Street  
Business Address  
Boston, MA 02116

BY: Holly Nichols  
(Affix Corporate Seal)

Holly Nichols  
Attorney-in-Fact  
Guy Hurley, LLC

Name of Local Agency

989 E. South Boulevard, Suite 200, Rochester Hills, MI 48307  
Business Address  
(248) 519-1400

STATE OF ~~FLORIDA~~ MICHIGAN

Before me, a Notary Public, duly commissioned, qualified and acting, personally appeared,  
Holly Nichols to me well known, who being by me first duly sworn upon  
oath says that he is the attorney-in-fact for the Liberty Mutual Insurance Company and  
that the has been authorized by Liberty Mutual Insurance Company to execute the forgoing  
bond on behalf of the CONTRACTOR named therein in favor of the City of Hollywood, Florida.  
Subscribed and sworn to before me this 9th day of July, 2024

[Signature]  
Notary Public, State of ~~Florida~~  
Michigan

My Commission Expires: 11/12/2029

- END OF SECTION-

NICHOLAS ASHBURN  
NOTARY PUBLIC - STATE OF MICHIGAN  
COUNTY OF OAKLAND  
My Commission Expires November 12, 2029





This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: 8198086-013068

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Anne Barick; Holly Nichols; Jason Rogers; Mark Madden; Michael D. Lechner; Nicholas Ashburn; Paul M. Hurlley; Richard S. McGregor; Robert D. Heur

all of the city of Rochester Hills state of MI each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 30th day of November, 2018.



Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company
By: David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

State of PENNSYLVANIA ss
County of MONTGOMERY

On this 30th day of November, 2018 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 9th day of July, 2024.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

# Form 14

## LIST OF SUBCONTRACTORS

The Respondent shall list below the name and address of each Subcontractor who will perform work under this Contract, and shall also list the portion of the work which will be done by such Subcontractor. After the opening of Submittals, changes or substitutions will be allowed with written approval of the City of Hollywood. Subcontractors must be properly licensed.

	<b>Work to be Performed</b>	<b>Subcontractor's Name / Address</b>
1.	<u>Asphalt Milling &amp; Resurfacing</u>	<u>C&amp;R Milling &amp; Paving, Inc., 1 N. Krome Ave Suite 100, Homestead, FL 33030</u>
2.	<u>Quality Assurance &amp; Control Testing</u>	<u>Pacifica Engineering, 601 N. Congress Ave Ste 303, Delray Beach, FL 33445</u>
3.	<u>Trucking &amp; Aggregate Supply</u>	<u>Allied Trucking, 10741-10761 NW 89th Ave Hialeah Gardens, FL 33015</u>
4.	<u>Preconstruction Video &amp; Documentation</u>	<u>Smith Aerial, 4811 Lyons Technology Parkway Suite 17, Coconut Creek, FL 33073</u>
5.	<u>Traffic Control</u>	<u>ACME Barricades, 3400 Burriss Road Davie, FL 33314</u>
6.		
7.		
8.		
9.		
10.		

NOTE: Attach additional sheets if required.

- END OF SECTION -

FORM 15

INFORMATION REQUIRED FROM BIDDERS

GENERAL INFORMATION

The Bidder shall furnish the following information. Failure to comply with this requirement may cause its rejection. Additional sheets shall be attached as required.

1. Contractor's Name/Address: Lanzo Construction Co., Florida  
dba Lanzo Construction Company  
125 SE 5th Court  
Deerfield Beach, FL 33441
  
2. Contractor's Telephone Number: (954) 979-0802  
and e-mail address: Estimating@Lanzo.org
  
3. Contractor's License (attach copy): CGC 036262 & CUC 49468  
Primary Classification: General Contractor & Underground Utility Contractor  
Broward County License Number (attach copy): \*Please see attached Business Tax Receipt
  
4. Number of years as a Contractor in construction work of the type involved in this Contract: 44 YEARS
  
5. List the names and titles of all officers of Contractor's firm:  
\*\*\*SEE ATTACHED CORPORATE RESOLUTION\*\*\*
  
6. Name of person who inspected site or proposed work for your firm:  
Name: Ram Vishal Chilakalapalli  
Date of Inspection: July 1, 2024
  
7. What is the last project of this nature you have completed?  
City of Pompano Beach  
Construction of Airpark Parcel Y Access Road and Utility Service



8. Have you ever failed to complete work awarded to you; if so, where and why?

NO

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9. Name three individuals or corporations for which you have performed work and to which you refer:

Rolando Nigaglioni, Project Manager, Broward County, (954) 831-0882, RNigaglioni@Broward.org

Alexis Valdes, Project Manager, Miami-Dade County Water & Sewer Department, (786) 552-4364, Alexis.Valdes@MiamiDade.gov

Manga Ebbe, Project Manager, City of Hallandale Beach, (954) 457-3043, MEbbe@Hallandalebeachfl.org

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10. List the following information concerning all contracts on hand as of the date of submission of this proposal (in case of co-venture, list the information for all coventures).

Name of Project	City	Total Contract Value	Contracted Date of Completion	% Completion to Date
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\*\*\* SEE ATTACHED PROJECTS ON HAND\*\*\*

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(Continue list on inset sheet, if necessary)

11. What equipment do you own that is available for the work?

\*\*\*SEE ATTACHED EQUIPMENT LIST\*\*\*

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12. What equipment will you purchase for the proposed work?

NONE

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13. List at least three (3) similar projects completed within the last two (2) years by the bidder. For purposes of this requirement, 'similar' projects shall be considered to include experience with cured-in-place pipe lining. Include owner,

project value, completion date; reference contact information and brief project description. The determination of whether a project is sufficiently similar shall be at the sole discretion of the City and the Engineer.

\*\*\*SEE ATTACHED DETAILED PROJECT SHEETS\*\*\*

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(Add sheets as requested.)

- 14. Name the Project Manager proposed for this project. Attach a copy of the project manager's resume.

Ram Vishal Chilakalapalli

NOTE: If requested by CITY, the Bidder shall furnish a notarized financial statement, references and other information, sufficiently comprehensive to permit an appraisal of its current financial condition.

**FORM 16**

**PROPOSAL**

TO THE MAYOR AND COMMISSIONERS  
CITY OF HOLLYWOOD, FLORIDA

SUBMITTED July 16, 2024

Dear Mayor and Commissioners:

The undersigned, as BIDDER, hereby declares that the only person or persons interested in the Proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this Proposal or in the Contract to be entered into; that this Proposal is made without connection with any other person, company or parties making a Bid or Proposal; and that it is in all respects fair and in good faith without collusion or fraud.

The BIDDER further declares that he has examined the site of the Work and informed himself fully in regard to all conditions pertaining to the place where the Work is to be done; that he has examined the Drawings and Specifications for the Work and contractual documents relative thereto, including the Notice to Bidders, Instructions to Bidders, Proposal Bid Form, Form of Bid Bond, Form of Contract and Form of Performance Bond, General, Supplementary and Technical Specifications, Addenda, Drawings, and Local Preference Program, Exhibit A, and has read all of the Provisions furnished prior to the opening of bids; and that he has satisfied himself relative to the work to be performed.

The undersigned BIDDER has not divulged to, discussed or compared his bid with other bidders and has not colluded with any other BIDDER of parties to this bid whatever.

If this Proposal is accepted, the undersigned BIDDER proposes and agrees to enter into and execute the Contract with the City of Hollywood, Florida, in the form of Contract specified; of which this Proposal, Instructions to Bidders, General Specifications, Supplementary Conditions and Drawings shall be made a part for the performance of Work described therein; to furnish the necessary bond equal to one hundred (100) percent of the total Contract base bid, the said bond being in the form of a Cash Bond or Surety Bond prepared on the applicable approved bond form furnished by the CITY; to furnish all necessary materials, equipment, machinery, tools, apparatus, transportation, supervision, labor and all means necessary to construct and complete the work specified in the Proposal and Contract and called for in the Drawings and in the manner specified; to commence Work on the effective date established in the "Notice to Proceed" from the ENGINEER; and to substantially complete all Contract Work within 30 days with final completion within 45 days, and stated in the "Notice to Proceed" or pay liquidated damages for each calendar day in excess thereof, or such actual and consequential damages as may result therefrom, and to abide by the Local Preference Ordinance, Exhibit A.

The BIDDER acknowledges receipt of the following addenda:

No. <u>Addendum #1</u>	Dated <u>6/25/2024</u>
No. <u>Addendum #2</u>	Dated <u>7/03/2024</u>
No. _____	Dated _____

And the undersigned agrees that in case of failure on his part to execute the said Contract and the Bond within ten (10) days after being presented with the prescribed Contract forms, the check or Bid Bond accompanying his bid, and the money payable thereon, shall be paid into the funds of the City of Hollywood, Florida, otherwise, the check or Bid Bond accompanying this Proposal shall be returned to the undersigned.

Attached hereto is a certified check on the

\_\_\_\_\_ Bank of \_\_\_\_\_

or approved Bid Bond for the sum of

5% OF TOTAL BID AMOUNT \_\_\_\_\_ Dollars (\$) according to the conditions under the Instructions to Bidders and provisions therein.

NOTE: If a Bidder is a corporation, the legal name of the corporation shall be set forth below, together with signature(s) of the officer or officers authorized to sign Contracts on behalf of the corporation and corporate seal; if Bidder is a partnership, the true name of the firm shall be set forth below with the signature(s) of the partner or partners authorized to sign Contracts in behalf of the partnership; and if the Bidder is an individual, his signature shall be placed below; if a partnership, the names of the general partners.

WHEN THE BIDDER IS AN INDIVIDUAL:

\_\_\_\_\_  
(Signature of Individual)

\_\_\_\_\_  
(Printed Name of Individual)

\_\_\_\_\_  
(Address)

\*\*\*\*\*

WHEN THE BIDDER IS A SOLE PROPRIETORSHIP OR OPERATES UNDER A TRADE NAME:

\_\_\_\_\_  
(Name of Firm)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Signature of Individual) (SEAL)

\*\*\*\*\*

WHEN THE BIDDER IS A PARTNERSHIP:

\_\_\_\_\_  
(Name of Firm) A Partnership

\_\_\_\_\_  
(Address)

By: \_\_\_\_\_  
(SEAL)  
(Partner)

Name and Address of all Partners:

\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

WHEN THE BIDDER IS A JOINT VENTURE:

\_\_\_\_\_  
(Correct Name of Corporation)

By: \_\_\_\_\_ (SEAL)  
(Address)

\_\_\_\_\_  
(Official Title)

As Joint Venture  
(Corporate Seal)

Organized under the laws of the State of \_\_\_\_\_, and authorized by the law to make this bid and perform all Work and furnish materials and equipment required under the Contract Documents.

\*\*\*\*\*

WHEN THE BIDDER IS A CORPORATION:

Lanzo Construction Co., Florida  
dba Lanzo Construction Company

\_\_\_\_\_  
(Correct Name of Corporation)

By:  \_\_\_\_\_  
(SEAL)

\_\_\_\_\_  
Salvatore D'Alessandro, Vice President



(Official Title)

125 SE 5th Court, Deerfield Beach, FL 33441

(Address of Corporation)

Organized under the laws of the State of Florida, and authorized by the law to make this bid and perform all Work and furnish materials and equipment required under the Contract Documents.

**CERTIFIED COPY OF RESOLUTION OF  
BOARD OF DIRECTORS**

Lanzo Construction Co., Florida dba Lanzo Construction Company  
(Name of Corporation)

RESOLVED that Salvatore D'Alessandro  
(Person Authorized to Sign)

Vice President of Lanzo Construction Co., Florida dba Lanzo Construction Company  
(Title) (Name of Corporation)

be authorized to sign and submit the Bid or Proposal of this corporation for the following project:

**LIFT STATION A-09 FORCEMAIN IMPROVEMENTS  
ECSD Project No. 8533  
Bid No. IFB- 187-24-JJ**

The foregoing is a true and correct copy of the Resolution adopted by  
Lanzo Construction Co., Florida  
dba Lanzo Construction Company at a meeting of its Board of  
(Name of Corporation)

Directors held on the 16th day of July, 2024.

By: 

Giuseppe D'Alessandro Jr.  
Title: Vice President, ASSISTANT SECRETARY

(SEAL)

The above Resolution MUST BE COMPLETED if the Bidder is a Corporation.

- END OF SECTION -



**LANZO CONSTRUCTION CO., FLORIDA  
RESOLUTION OF CORPORATION**

I **HEREBY** certify that I am the duly elected and qualified Secretary of Lanzo Construction Co. Florida, a Florida Corporation and that the following is a true and complete copy of a Resolution duly adopted at a meeting of the Board of Directors of said Corporation, held on the 1st of March 2024 and that such resolution is still in full force and effect.

**RESOLUTION**, that the officers listed below are authorized to sign Contracts, Bids, and any other documents to carry out the business of the Corporation.

Name	Title	Signature
Giuseppe D'Alessandro, Sr.	President	
Chris Peyerk	Executive Vice President	
Kevin Pawlowski	Vice President/Treasurer/Assistant Secretary	
Paul Navetta	Vice President/Secretary	
Matthew P. Tilli	Vice President	
Giuseppe D'Alessandro, Jr.	Vice President/Assistant Secretary	
Salvatore D'Alessandro	Vice President/Assistant Secretary	
Ernest Duncan	Assistant Secretary	

**IN WITNESS WHEREOF**, I have hereunto set my hand as Secretary of said Corporation and affix the Corporate Seal on the 1st of March 2024.

By   
Paul Navetta, Secretary

Attest:   
Kevin Pawlowski, Vice President/Treasurer, Assistant Secretary



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/21/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Guy Hurley, LLC 989 E. South Boulevard Suite 200 Rochester Hills MI 48307	<b>CONTACT NAME:</b> Christine Phillips <b>PHONE (A/C, No, Ext):</b> (248) 519-1400 <b>E-MAIL ADDRESS:</b> cphillips@ghbh.com		<b>FAX (A/C, No):</b> (248) 519-1401
	<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>
<b>INSURED</b> Lanzo Construction Co, Florida; Lanzo Construction Co. 125 S.E. 5th Court Deerfield Beach FL 33441	<b>INSURER A:</b> Valley Forge Insurance Co. A XV		20508
	<b>INSURER B:</b> Continental Insurance Co A XV		35289
	<b>INSURER C:</b> Continental Casualty Co. A XV		20443
	<b>INSURER D:</b> Allied World Assurance Company A XV		19489
	<b>INSURER E:</b>		
	<b>INSURER F:</b>		

**COVERAGES**                      **CERTIFICATE NUMBER:** 23-24 Master Poll/Prof                      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY			6081795056	10/1/2023	10/1/2024	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000
	<input checked="" type="checkbox"/> XCU Coverage Included						MED EXP (Any one person) \$ 15,000
	<input checked="" type="checkbox"/> Contractual Liability						PERSONAL & ADV INJURY \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$ 2,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG \$ 2,000,000
	OTHER:						\$
B	<b>AUTOMOBILE LIABILITY</b>			6081795073	10/1/2023	10/1/2024	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS	<input type="checkbox"/> SCHEDULED AUTOS					BODILY INJURY (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS	<input checked="" type="checkbox"/> NON-OWNED AUTOS					PROPERTY DAMAGE (Per accident) \$
							\$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB			6081795087	10/1/2023	10/1/2024	EACH OCCURRENCE \$ 5,000,000
	<input type="checkbox"/> EXCESS LIAB	<input checked="" type="checkbox"/> OCCUR					AGGREGATE \$ 5,000,000
	<input type="checkbox"/> DED	<input type="checkbox"/> RETENTION \$					\$
C	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b>			6081795090	10/1/2023	10/1/2024	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	N/A				E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
							E.L. DISEASE - POLICY LIMIT \$ 1,000,000
C	Installation Floater			6082953748	10/1/2023	10/1/2024	\$4,500,000 Limit \$5,000 Ded
D	Pollution & Prof. Liability			03127614	10/1/2023	10/1/2024	\$2,000,000 Limit \$50,000 Ded

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

## CERTIFICATE HOLDER

## CANCELLATION

Evidence of Coverage

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

R McGregor/ALEKSA

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### Events

#### LANZO CONSTRUCTION CO., FLORIDA

**Document Number** 681458  
**Date Filed** 08/07/1980  
**Effective Date** None  
**Status** Active

Event Type	Filed Date	Effective Date	Description
AMENDMENT	11/23/2015		
AMENDMENT	11/07/2011		
AMENDMENT	05/23/2011		

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## Detail by Entity Name

Florida Profit Corporation

LANZO CONSTRUCTION CO., FLORIDA

### Filing Information

<b>Document Number</b>	681458
<b>FEI/EIN Number</b>	59-2011933
<b>Date Filed</b>	08/07/1980
<b>State</b>	FL
<b>Status</b>	ACTIVE
<b>Last Event</b>	AMENDMENT
<b>Event Date Filed</b>	11/23/2015
<b>Event Effective Date</b>	NONE

### Principal Address

125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Changed: 02/14/2005

### Mailing Address

125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Changed: 02/14/2005

### Registered Agent Name & Address

D'ALESSANDRO, GIUSEPPE, Sr.  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Name Changed: 01/24/2022

Address Changed: 02/14/2005

### Officer/Director Detail

#### **Name & Address**

Title VP

TILLI, MATTHEW P  
660 UNION AVE  
CRESCENT CITY, FL 32112

Title VP/CFO, Assistant Secretary

Pawlowski, Kevin J  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Title Asst. Secretary

DUNCAN, ERNEST  
521 SE 5TH COURT  
POMPANO BEACH, FL 33060

Title President

D'ALESSANDRO, GIUSEPPE, Sr.  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Title VP, Assistant Secretary

D'ALESSANDRO, GIUSEPPE, Jr.  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Title VP, Assistant Secretary

D'ALESSANDRO, SALVATORE  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Title EXECUTIVE VICE PRESIDENT

PEYERK, CHRIS  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Title VP, Secretary

NAVETTA, PAUL  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

Annual Reports

Report Year	Filed Date
2023	01/19/2023
2024	01/25/2024
2024	02/28/2024

**2024 FLORIDA PROFIT CORPORATION AMENDED ANNUAL REPORT**

DOCUMENT# 681458

**Entity Name:** LANZO CONSTRUCTION CO., FLORIDA

**Current Principal Place of Business:**

125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

**Current Mailing Address:**

125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441 US

**FEI Number:** 59-2011933

**Name and Address of Current Registered Agent:**

D/ALESSANDRO, GIUSEPPE SR.  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441 US

**FILED**  
**Feb 28, 2024**  
**Secretary of State**  
**3990556715CC**

**Certificate of Status Desired:** Yes

*The above named entity submits this statement for the purpose of changing its registered office or registered agent, or both, in the State of Florida.*

**SIGNATURE:** GIUSEPPE D'ALESSANDRO SR

02/28/2024

Electronic Signature of Registered Agent

Date

**Officer/Director Detail :**

Title VP  
Name TILLI, MATTHEW P  
Address 660 UNION AVE  
City-State-Zip: CRESCENT CITY FL 32112

Title VP/CFO, ASSISTANT SECRETARY  
Name PAWLOWSKI, KEVIN J  
Address 125 SE 5TH COURT  
City-State-Zip: DEERFIELD BEACH FL 33441

Title ASST. SECRETARY  
Name DUNCAN, ERNEST  
Address 521 SE 5TH COURT  
City-State-Zip: POMPANO BEACH FL 33060

Title PRESIDENT  
Name D/ALESSANDRO, GIUSEPPE SR.  
Address 125 SE 5TH COURT  
City-State-Zip: DEERFIELD BEACH FL 33441

Title VP, ASSISTANT SECRETARY  
Name D'ALESSANDRO, GIUSEPPE JR.  
Address 125 SE 5TH COURT  
City-State-Zip: DEERFIELD BEACH FL 33441

Title VP, ASSISTANT SECRETARY  
Name D'ALESSANDRO, SALVATORE  
Address 125 SE 5TH COURT  
City-State-Zip: DEERFIELD BEACH FL 33441

Title EXECUTIVE VICE PRESIDENT  
Name PEYERK, CHRIS  
Address 125 SE 5TH COURT  
City-State-Zip: DEERFIELD BEACH FL 33441

Title VP, SECRETARY  
Name NAVETTA, PAUL  
Address 125 SE 5TH COURT  
City-State-Zip: DEERFIELD BEACH FL 33441

*I hereby certify that the information indicated on this report or supplemental report is true and accurate and that my electronic signature shall have the same legal effect as if made under oath; that I am an officer or director of the corporation or the receiver or trustee empowered to execute this report as required by Chapter 607, Florida Statutes; and that my name appears above, or on an attachment with all other like empowered.*

**SIGNATURE:** KEVIN PAWLOWSKI

VP, CFO, ASSISTANT  
SECRETARY

02/28/2024

Electronic Signature of Signing Officer/Director Detail

Date

# *State of Florida*

## *Department of State*

I certify from the records of this office that LANZO CONSTRUCTION CO., FLORIDA is a corporation organized under the laws of the State of Florida, filed on August 7, 1980.


The document number of this corporation is 681458.

I further certify that said corporation has paid all fees due this office through December 31, 2024, that its most recent annual report/uniform business report was filed on February 28, 2024, and that its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

*Given under my hand and the  
Great Seal of the State of Florida  
at Tallahassee, the Capital, this  
the Twenty-eighth day of  
February, 2024*



  
*Secretary of State*

**Tracking Number: 3990556715CC**

**To authenticate this certificate, visit the following site, enter this number, and then follow the instructions displayed.**

**<https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication>**

**APPLICATION FOR REGISTRATION OF FICTITIOUS NAME**

REGISTRATION# G21000070194

**Fictitious Name to be Registered:** LANZO CONSTRUCTION COMPANY

**Mailing Address of Business:** 125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441

**Florida County of Principal Place of Business:** BROWARD

**FEI Number:** 59-2011933

**FILED  
May 24, 2021  
Secretary of State**

**Owner(s) of Fictitious Name:**

LANZO CONSTRUCTION CO., FLORIDA  
125 SE 5TH COURT  
DEERFIELD BEACH, FL 33441  
Florida Document Number: 681458  
FEI Number: 59-2011933

I the undersigned, being an owner in the above fictitious name, certify that the information indicated on this form is true and accurate. I further certify that the fictitious name to be registered has been advertised at least once in a newspaper as defined in Chapter 50, Florida Statutes, in the county where the principal place of business is located. I understand that the electronic signature below shall have the same legal effect as if made under oath and I am aware that false information submitted in a document to the Department of State constitutes a third degree felony as provided for in s. 817.155, Florida Statutes.

KEVIN PAWLOWSKI

05/24/2021

Electronic Signature(s)

Date

**Certificate of Status Requested (X)**

**Certified Copy Requested (X)**

# *State of Florida*

## *Department of State*

I certify from the records of this office that LANZO CONSTRUCTION COMPANY is a Fictitious Name registered with the Department of State on May 24, 2021.

The Registration Number of this Fictitious Name is G21000070194.

I further certify that said Fictitious Name Registration is active.

I further certify that this office began filing Fictitious Name Registrations on January 1, 1991, pursuant to Section 865.09, Florida Statutes.

*Given under my hand and the Great Seal of  
Florida, at Tallahassee, the Capital, this the  
Twenty Fifth day of May, 2021*



*Randy R. ...*  

---

*Secretary of State*

# *State of Florida*

## *Department of State*

I certify that the attached is a true and correct copy of the Application For Registration of the Fictitious Name LANZO CONSTRUCTION COMPANY, registered with the Department of State on May 24, 2021, as shown by the records of this office.

The Registration Number of this Fictitious Name is G21000070194.

*Given under my hand and the Great Seal of  
Florida, at Tallahassee, the Capital, this the  
Twenty Fifth day of May, 2021*



*Randy R. ...*  

---

*Secretary of State*





Ron DeSantis, Governor

Melanie S. Griffin, Secretary



**STATE OF FLORIDA  
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION**

**CONSTRUCTION INDUSTRY LICENSING BOARD**

THE GENERAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE  
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES



**LICENSE NUMBER: CGC036262**

**EXPIRATION DATE: AUGUST 31, 2026**

Always verify licenses online at [MyFloridaLicense.com](http://MyFloridaLicense.com)



ISSUED: 05/24/2024

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.



Ron DeSantis, Governor

Melanie S. Griffin, Secretary



**STATE OF FLORIDA**  
**DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION**

**CONSTRUCTION INDUSTRY LICENSING BOARD**

THE UNDERGROUND UTILITY & EXCAVATION CO HEREIN IS CERTIFIED UNDER THE  
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES



**LICENSE NUMBER: CUC049468**

**EXPIRATION DATE: AUGUST 31, 2026**

Always verify licenses online at [MyFloridaLicense.com](http://MyFloridaLicense.com)



ISSUED: 05/24/2024

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Ron DeSantis, Governor



Melanie S. Griffin, Secretary



# STATE OF FLORIDA

## BOARD OF PROFESSIONAL ENGINEERS

THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES



**LICENSE NUMBER: PE94622**

**EXPIRATION DATE: FEBRUARY 28, 2025**

Always verify licenses online at [MyFloridaLicense.com](http://MyFloridaLicense.com)



Do not alter this document in any form.

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Florida Department of Agriculture and Consumer Services  
Division of Consumer Services  
Board of Professional Surveyors and Mappers  
2005 Apalachee Pkway Tallahassee, Florida 32399-6500  
800HELPFLA(435-7352) or (850) 488-2221

February 3, 2023

LANZO CONSTRUCTION CO FLORIDA  
125 SE 5TH CT  
DEERFIELD BEACH, FL 33441-4749

**SUBJECT: Professional Surveyor and Mapper Business Certificate # LB7329**

Your application / renewal as a professional surveyor and mapper business as required by Chapter 472, Florida Statutes, has been received and processed.

The license appears below and is valid through February 28, 2025.

You are required to keep your information with the Board current. Please visit our website at [www.800helpfla.com/psm](http://www.800helpfla.com/psm) to create your online account. If you have already created your online account, you can use the website to maintain your license. You can also find other valuable information on the website.

If you have any questions, please do not hesitate to call the Division of Consumer Services, Board of Professional Surveyors and Mappers at 800-435-7352 or 850-488-2221.

Detach Here



Florida Department of Agriculture and Consumer Services  
Division of Consumer Services  
Board of Professional Surveyors and Mappers  
2005 Apalachee Pkway Tallahassee, Florida 32399-6500

License No.: **LB7329**  
Expiration Date February 28, 2025

## Professional Surveyor and Mapper Business License

Under the provisions of Chapter 472, Florida Statutes

LANZO CONSTRUCTION CO FLORIDA  
125 SE 5TH CT  
DEERFIELD BEACH, FL 33441

WILTON SIMPSON  
COMMISSIONER OF AGRICULTURE



Florida Department of Agriculture and Consumer Services  
 Division of Consumer Services  
 Board of Professional Surveyors and Mappers  
 2005 Apalachee Pkway Tallahassee, Florida 32399-6500  
 800HELPLFLA(435-7352) or (850) 488-2221

January 26, 2023

ERNEST WAYNE DUNCAN  
 521 SE 5TH CT  
 POMPANO BEACH, FL 33060-8111

Detach Here

SUBJECT: Professional Surveyor and Mapper License # LS5182

Your application / renewal as a professional surveyor and mapper as required by Chapter 472, Florida Statutes, has been received and processed.

The license appears below and is valid through February 28, 2025.

You are required to keep your information with the Board current. Please visit our website at [www.800helpfla.com/psm](http://www.800helpfla.com/psm) to create your online account. If you have already created your online account, you can use the website to maintain your license. You can also find other valuable information on the website.

If you have any questions, please do not hesitate to call the Division of Consumer Services, Board of Professional Surveyors and Mappers at 800-435-7352 or 850-488-2221.



Florida Department of Agriculture  
 and Consumer Services  
 Board of Professional Surveyors  
 and Mappers

LS5182

Professional Surveyor and Mapper  
 ERNEST WAYNE DUNCAN

IS LICENSED under the provisions of Ch. 472 FS  
 Expiration date: February 28, 2025

Detach Here



Florida Department of Agriculture and Consumer Services  
 Division of Consumer Services  
 Board of Professional Surveyors and Mappers  
 2005 Apalachee Pkway Tallahassee, Florida 32399-6500

License No.: LS5182

Expiration Date February 28, 2025

### Professional Surveyor and Mapper License

Under the provisions of Chapter 472, Florida Statutes

ERNEST WAYNE DUNCAN  
 521 SE 5TH CT  
 POMPANO BEACH, FL 33060-8111

WILTON SIMPSON  
 COMMISSIONER OF AGRICULTURE



## Florida Department of Transportation

RON DESANTIS  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.  
SECRETARY

April 22, 2024

LANZO CONSTRUCTION CO FLORIDA  
125 SE 5TH COURT  
DEERFIELD BEACH, FLORIDA 33441

### RE: CERTIFICATE OF QUALIFICATION

The Department of Transportation has qualified your company for the type of work indicated below.

#### **FDOT APPROVED WORK CLASSES:**

DRAINAGE, FLEXIBLE PAVING, GRADING, GRASSING, SEEDING AND SODDING, HOT PLANT-MIXED BITUM. COURSES, MINOR BRIDGES, SIDEWALK, CURB & GUTTERS, LIFT STATION, MILLING, RETAINING WALL, RIP RAP, SEAWALL, UNDERGROUND UTILITIES (WATER & SEWER), CURED-IN-PLACE PIPE LINING & REHABILITATION.

Unless notified otherwise, this Certificate of Qualification will expire **6/30/2025**.

In accordance with Section 337.14(4), Florida Statutes, changes to Ability Factor or Maximum Capacity Rating will not take effect until after the expiration of the current certificate of prequalification (if applicable).

In accordance with Section 337.14(1), Florida Statutes, an application for qualification must be filed within (4) months of the ending date of the applicant's audited annual financial statements.

If the company's maximum capacity has been revised, it may be accessed by logging into the Contractor Prequalification Application System via the following link:

**[HTTPS://fdotwpl.dot.state.fl.us/ContractorPreQualification](https://fdotwpl.dot.state.fl.us/ContractorPreQualification)**

Once logged in, select "View" for the most recently approved application, and then click the "Manage" and "Application Summary" tabs.

The company may apply for a Revised Certificate of Qualification at any time prior to the expiration date of this certificate according to Section 14-22.0041(3), Florida Administrative Code (F.A.C.), by accessing the most recently approved application as shown above and choosing "Update" instead of "View." If certification in additional classes of work is desired, documentation is needed to show that the company has performed such work.

All prequalified contractors are required by Section 14-22.006(3), F.A.C., to certify their work underway monthly in order to adjust maximum bidding capacity to available bidding capacity. You can find the link to this report at the website shown above.

Sincerely,

A handwritten signature in black ink that reads "James E. Taylor II". The signature is written in a cursive style with a large, stylized "A" at the end.

James E. Taylor II, Prequalification Supervisor  
Contracts Administration Office

JTII

# BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-357-4829

**VALID OCTOBER 1, 2023 THROUGH SEPTEMBER 30, 2024**

**Business Name:** LANZO CONSTRUCTION CO FLORIDA

**Receipt #:** 180-6716  
**Business Type:** GENERAL CONTRACTOR (GENERAL CONTRACTOR)

**Owner Name:** MATTHEW P TILLI/QUAL

**Business Opened:** 02/23/2006

**Business Location:** 125 SE 5TH CT  
DEERFIELD BEACH

**State/County/Cert/Reg:** CGC036262

**Business Phone:** 9549790802

**Exemption Code:**

**Rooms**                      **Seats**                      **Employees**                      **Machines**                      **Professionals**  
40

For Vending Business Only						
Number of Machines:			Vending Type:			
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
108.00	10.80	0.00	0.00	0.00	0.00	118.80

Receipt Fee 108.00  
Packing/Processing/Canning Employees 0.00

## THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

### THIS BECOMES A TAX RECEIPT

### WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

### Mailing Address:

LANZO CONSTRUCTION CO FLORIDA  
125 SE 5TH CT  
DEERFIELD BEACH, FL  
33441-4749

**Receipt #** WWW-23-00243313  
**Paid** 04/23/2024 10.80

## 2023 - 2024

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108.00	10.80	0.00	0.00	0.00	0.00	118.80

**Receipt #** WWW-23-00243313  
**Paid** 04/23/2024 10.80

**Business Tax Office**  
150 NE 2nd Ave.  
Deerfield Beach, FL 33441  
Phone: (954) 480-4333  
E-mail: web.btr@deerfield-beach.com



**Business Tax Receipt License**  
2023 - 2024  
License Number: 2024-467330  
Date Issued: 10/4/2023  
Expires: 9/30/2024

LANZO CONSTRUCTION CO FLA  
125 SE 5 COURT  
DEERFIELD BEACH, Florida 33441

Classification: EXCAVATION WORK  
Business Location: 125 SE 5 COURT DFB 33441  
Service(s): OFFICE-UTILY / EXCAV CONTR;  
WHSE

Tax Amount: \$58.80

Add Fees: \$235.20

Penalty: \$0.00

Total Amount Paid: \$294.00

**Notice:** This tax receipt becomes *NULL* and *VOID* if ownership, business name, or address changed.  
Business owner must apply to Business Tax Office for Transfer.

-----  
Detach and retain for your records

- This Business Tax Receipt represents proof of payment of your Business Tax Fee for the period of October 1 to September 30th. Please exercise diligence in maintaining this receipt.
- Once you have obtained a Deerfield Beach Business Tax Receipt, you will be sent a renewal notice each year beginning July 1st, (90 days prior to expiration) to the address listed on the Receipt. Please check all Receipt information and report any errors to us immediately. The City may impose fines and penalties for failure to renew this Receipt.
- Your current Receipt shall be posted so that it is able to be viewed by anyone upon entering your place of business.
- If you change your business name, ownership or location, you must apply for a new Tax Receipt.
- If you have more than one location, you must obtain a Receipt for each location.
- For information on signage regulations, visit the City's website at <http://www.deerfield-beach.com/signage>

**Increase traffic to your business by participating in the City's Recycling Rewards Program!**

Residents who recycle on a regular basis are accumulating points to be redeemed for rewards at participating businesses to claim discounts and gift certificates. Participating businesses see increased traffic from this program and those that have a commercial recycling account serviced by the City receive additional rewards.

To learn how to have your business become a Rewards Partner, please contact Recycling Perks at [ifor@recyclingperks.com](mailto:ifor@recyclingperks.com). For informatoin on how to set up a commercial recycling account, contact the City's Recycling Division at 954-480-4454.

This Receipt does not represent an endorsement or certification of the business listed herein by the City of Deefield Beach.



## Lanzo Active Projects

1	2	3	4	5
LANZO JOB NUMBERS	PROJECTS, OWNER, AND LOCATION OF WORK YOU ARE PERFORMING	CONTRACT AMOUNT	BILLED TO DATE	BALANCE OF CONTRACT AMOUNT
1007	City of Miami - DB Downtown Flagler Street Beautification	\$ 18,368,817.69	\$ 17,344,654.75	\$ 1,024,162.94
1034	Miami-Dade Water & Sewer - Design Build 54" WTM	\$ 24,309,622.34	\$ 10,833,185.23	\$ 13,476,437.11
1037	Miami-Dade Water & Sewer - 72" WM Preston WTP	\$ 9,116,265.32	\$ 7,418,860.06	\$ 1,697,405.26
1038	GLWA, MI Rehab of Woodward Sewer System	\$ 18,695,250.00	\$ 16,022,450.73	\$ 2,672,799.27
1046	Miami-Dade Water & Sewer - WM/FM S-958 NW 22 Ave	\$ 8,007,898.03	\$ 4,078,994.27	\$ 3,928,903.76
1048	City of Boca Raton - Boca Villas Infrastructure Upgrades	\$ 13,328,574.92	\$ 10,695,749.91	\$ 2,632,825.01
1051	Broward County - Utility Analysis Zone 108	\$ 22,610,450.60	\$ 8,228,622.15	\$ 14,381,828.45
1059	City of West Palm Beach - Northwood Hills Utility Improvements	\$ 1,965,656.00	\$ 1,852,154.66	\$ 113,501.34
1063	Miami-Dade Water & Sewer - S-985 Green Tech Basin S-2	\$ 8,782,144.70	\$ 830,310.00	\$ 7,951,834.70
1066	Miami-Dade Water & Sewer - S-16302 Dredging of SW Wellfield	\$ 9,188,599.00	\$ -	\$ 9,188,599.00
1067	Cambridge Company-Waste Management Medley RNG Facility	\$ 7,023,174.50	\$ 2,921,954.44	\$ 4,101,220.06
1069	Fort Lauderdale - Rehab 48"/54" FM Replacement - SE 9th & 10th Ave	\$ 45,987,444.00	\$ -	\$ -
<b>TOTAL BALANCE TO COMPLETE</b>				<b>\$ 61,169,516.90</b>

# Lanzo Construction Company

## Project Currently Under Construction

NAME OF CONTRACT / PROJECT	OWNER	CONTACT NAME	Total Contract Value
Flagler Downtown Beautification 78% Complete	City of Miami, FL 444 SW 2nd Avenue Miami, FL 33130	Hector Badia <a href="mailto:Hbadia@miamigov.com">Hbadia@miamigov.com</a> (305) 416-1236	\$ 18,970,958.00
Drainage Improvements, Streetscaping, Landscaping and Electrical			
Green Technology Corridor WW Collection, Transmission and Water Distribution System Expansion S-2 Basin 10% Complete	Miami-Dade County Water & Sewer 3071 SW 38th Ave Miami, FL 33146	Juan Curiel <a href="mailto:juan.curiel@miamidadade.gov">juan.curiel@miamidadade.gov</a> (786) 552-8399	\$ 8,782,144.70
Gravity Sewer, Force Main, Water Main Installation			
Water Treatment Plant Wastewater Recovery Upgrades 90% Complete	City of Boca Raton 201 West Palmetto Park Road Boca Raton, FL 33432	Brandon Tufts <a href="mailto:btufts@ci.boca-raton.fl.us">btufts@ci.boca-raton.fl.us</a> (561) 239-0969	\$ 4,734,948.00
Construction of 100' Diameter Underground Wastewater Basin with Integral Pump Station & associated Large Diameter yard pipe			
72" Water Main Preston Water Treatment Plant 81% Complete	Miami-Dade County Water & Sewer 3071 SW 38th Ave Miami, FL 33146	Carlos Baro <a href="mailto:Carlos.Baro@miamidadade.gov">Carlos.Baro@miamidadade.gov</a> (786) 552-4366	\$ 7,816,164.00
Installation of 72" PCCP Water Main			
S-16302 Dredging of SW Wellfield South Lagoon 0% Complete	Miami-Dade County Water & Sewer 3071 SW 38th Ave Miami, FL 33146	Guelda Montinard <a href="mailto:Guelda.Montinard@miamidadade.gov">Guelda.Montinard@miamidadade.gov</a>	\$ 9,188,599.00
Preparation of Site and Installation of Building Pad for Waste Management Facility			
Waste Management Medley RNG Facility 40% Complete	Cambridge Company 14201 N. 87th St, Suite 135 Scottsdale, AZ 85260	Bill Barry, PM <a href="mailto:wbarry@cambridgecoinc.com">wbarry@cambridgecoinc.com</a> (219) 292-7339	\$ 7,023,174.50
Preparation of Site and Installation of Building Pad for Waste Management Facility			
Design-Build - 54" Water Main Red Road 47% Complete	Miami-Dade County Water & Sewer 3071 SW 38th Ave Miami, FL 33146	Alexis Valdes <a href="mailto:Alexis.Valdes@miamidadade.gov">Alexis.Valdes@miamidadade.gov</a> (786) 552-4364	\$ 24,309,622.00
Installation of 54" Water Main on Red Road			
WM FM Gravity Sewer S-958 NW 22nd Ave 54% Complete	Miami-Dade County Water & Sewer 3071 SW 38th Ave Miami, FL 33146	Kevin Keane <a href="mailto:kkeane@bndengineers.com">kkeane@bndengineers.com</a> (786) 236-3503	\$ 7,253,128.25
Installation of 9,689 L F of Water Main, 450 LF of Force Main & 11,391 LF Gravity Sewer			
MDWASD S-931 ST-2A Headworks Yard Piping 90% Complete	Poole & Kent Company of Florida 1781 NW North River Drive Miami, FL 33125	Jason Padilla <a href="mailto:jasonp@pkflorida.com">jasonp@pkflorida.com</a> (954) 325-3761	\$ 4,669,000.00
Installation of all Large Diameter Yard Piping (up to 96")			
Broward County UAZ 108 40% Complete	Broward County 2555 W. Copans Road Pompano Beach, FL 33069	Luz Adriana Sanchez <a href="mailto:Lusanchez@broward.org">Lusanchez@broward.org</a> (954) 831-0971	\$ 22,610,450.00
Installation of 19,294 LF of Sanitary Sewer and 27,560 LF of Water Main			
Boca Villas Infrastructure Upgrades 80% Complete	City of Boca Raton 201 West Palmetto Park Road Boca Raton, FL 33432	Edward Galvan <a href="mailto:egalvan@ci.boca-raton.fl.us">egalvan@ci.boca-raton.fl.us</a> (561) 447-7405	\$ 12,854,373.00
Installation of 46,500 LF of new Water Main (2" -16") & Drainage Improvements			

## Experience



## Experience of Bidder



## Experience

### Company Background

Lanzo Construction Company is a Florida Based general contractor and engineering company specializing in infrastructure, construction, and rehabilitation services.

Lanzo Construction Company is a part of the D'Alessandro family of construction companies which are deeply rooted in the history of Florida construction tradition and was established over fifty (50) years ago. Lanzo encompasses a dynamic group of individuals that have come together to form one of the most progressive construction companies in the industry. Lanzo has formed alliances based on quality and integrity with customers throughout the country. Lanzo employs a highly diversified staff of over 160 people and provides a full range of construction services and contracting capabilities.

Lanzo has demonstrated the ability and the resources required for the construction management and successful completion of a variety of construction services including:

- Water Transmission and Wastewater Collection Systems
- Water and Wastewater Treatment Plant Construction
- Roads & Highway Construction
- Site work & Civil Construction
- Marine Construction
- Utility Construction
- Demolition
- Sewer/Watermain Rehabilitation
- HOBAS and HDPE Discrete Slip-lining
- Point Repairs, Emergency Repair Services, and Open-cut Excavation
- Pipe Bursting using fusion weld HDPE or fusion weld PVC liners
- Fully Deteriorated "Stand Alone" Rehabilitation of Pipes using the full range of Trenchless Technologies

Lanzo's staff of experienced professionals and skilled trade people has performed many annual and emergency projects with similar requirements contained within this RFP in various regions throughout the United States. With hundreds of small and large projects successfully completed, Lanzo uses its capabilities and experience to provide innovative solutions for the most complicated projects, and ensures that each project is completed on time, under budget, and built safely to the quality expectations of the customer. Lanzo delivers a multitude of self-perform capabilities, maintains its own local fleet of equipment.

Since 1993 Lanzo Construction Company has provided a cost-effective, less invasive alternative to replacing failing underground infrastructure through a multitude of trenchless methods. They were one of the first companies worldwide to use trenchless methodologies and they continue to lead the industry with innovation in design, expertise, and experience. Lanzo maintains that spirit of innovation by constantly expanding its services, equipment, and methods to deliver high quality and long-term solutions to private and public-sector clients. Time-tested and proven experience in all forms of cured-in-place pipe lining methodologies (CIPP) has established Lanzo as one of the premier lining contractors in the U.S. with a reputation for completing difficult work which has grown worldwide.

To date, Lanzo Construction Company has installed over fifteen million (15,000,000) lineal feet of sanitary sewer, force main, storm drain, NSF 61 potable water transmission, large diameter and non-circular CIPP applications throughout North America including over 4,000,000 LF in wastewater collection systems within the past 5 years.



## Experience

With its local presence, which includes a fully integrated state of the art wet out facility, Lanzo stands ready to meet the challenges posed by any municipality's rehabilitation initiative. Since 1993 this company has been the most responsive rehabilitation contractor capable of reacting in the shortest time to a myriad of needs including sewer breaks, collapses, watermain emergencies, and issues requiring an imminent response.

Lanzo has been instrumental throughout the US with many complex design-build and emergency repairs one example of unique work is the rehabilitation of 22 outfalls in the City of Detroit. These combined sanitary and storm sewer outfalls ranged in size from 36" to 84" diameters that were fully deteriorated and some over 100 years old. This work uniquely demonstrates the complexity and diversity of Lanzo's capabilities with over 20,000 linear feet of lining on this project alone.

Lanzo Construction Company owes its success to an emphasis on safety, consideration of the community, and quality installation by experienced crews. Based upon our conservative design and superior resins utilized, we provide third party testing as well as an unprecedented unconditional five (5) year warranty on all technologies provided herein.

Lanzo Construction Company delivers a multitude of self-perform capabilities, maintains its own local fleet of equipment. Lanzo provides its customers a distinct advantage through operating two state of the art wet out facilities both in Michigan and Florida. The Florida and Michigan facilities have produced over ten million (10,000,000) Lineal feet of CIPP meeting ASTM F-1216 and ASTM F-1743 without failure during these past twenty (24) years.

- **Cured-In-Place Pipe Lining (CIPP):** Lanzo Construction Company is uniquely positioned as one of the most experienced cured-in-place installers in the world. Considered 'pioneers' in the industry, our initial introduction to the trenchless technology industry was during a time when direct inversion methods, as described in the ASTM F-1216, were not "public domain". As one of the industry's original in-liner licensees, Lanzo was actively engaged in the creation and ratification of ASTM F-1743 that describes the pull and invert method. At that time, the pull and invert method was considered an alternate. It has since been specified and utilized successfully by Lanzo Construction Company as well as other contractors in what are now tens of millions of feet of installations.

Today we offer both direct inversion and pull and invert technologies depending on which is best suited for the application. We also offer remote impregnated epoxy, UV light, steam, and ambient cured methods. With millions of feet installation experience in all technologies, Lanzo can offer valuable insight and comparisons while providing solution scenarios to meet your community's environmental, timing, and budget objectives.

- **Large Bore Sewer, Storm Drain & Non-Circular Pipeline Repair:** Lanzo Construction Company has a reputation for taking on and successfully completing the most challenging underground renovation applications like those found in large bore, sewer, and storm drain applications. Large diameter and non-circular installations of CIPP, Carbon Fiber, and Structural Foam materials require a more thorough understanding of project specifics as well as design and application

## Experience

- **NSF 61 Water Main Rehab:** All potable water main repairs must be NSF 61 certified to ensure all products compliance with recognized safety measures. Due to the potential impact to the community, water main rehabilitation projects demand the most experienced installers. Lanzo Construction Company offers several CIPP repair methods that are certified, fully structural, and proven in stand-alone applications for water main renewal or catastrophic repair and rehabilitation.
- **Carbon Fiber:** The most significant advancement in the field of CIPP within the past decade has been the implementation of a space aged technology known as sequential carbon fiber epoxy or “Carbon Fiber Rehabilitation”. This method has been implemented to preempt catastrophic line breaks in PCCP large diameter water and pressure mains throughout the United States. Lanzo remains one (1) of only two (2) companies nationally qualified, licensed, and certified to provide this preemptive rehabilitation method.
- **Segmental and Glass Panel Liners:** Lanzo has extensive experience with both segmental, as well as glass panel liners which allow our CIPP technology to be adapted to applications requiring bends, transitions, and non-circular installation. Our product options include GRP, Cellular Foam, as well as Polymer Concrete. Be assured that we are staffed and ready to provide the turnkey services required on any of the most challenging combinations of shapes and configurations of your fully structural “stand alone” requirements.
- **Slip Lining:** Lanzo Construction Company proudly received an award from for installation of the worlds “Largest application” of HDPE in its eight thousand (8,000) linear foot singular Fusion Weld seventy-two (72”) project for Miami Dade Water and Sewer Department (WASD). Lanzo has enjoyed decades of success including miles of Large Bore HDPE, Hobas, and Fusion Weld products including several projects for DWSD. We remain a licensed installer of Sekisui SPR (spiral wound) PVC, Sekisui Norditube, RS Technic Citiliner and have proprietary access to breaking products such as Fusion Weld PVC among others.
- **Pipe Bursting:** Lanzo has installed over a quarter million (250,000’) linear feet of various Pipe Bursting applications including Sanitary Sewer Laterals, Mainlines, and Watermains.
- **Manhole & Tunnel Renovation:** With over 100 alternative manhole rehabilitation methods available, the common denominators in determining a successful manhole or tunnel rehabilitation include experience and careful analysis of the site-specific criteria. While many materials may prove to be suitable solutions “in a lab”, for the harsh sulfide gas, industrial chemical, and adverse temperature environments, the real test comes in the field where materials, along with Lanzo expertise, and workmanship come together for long term solutions.
- **Pipeline Cleaning & CCTV Video Inspection:** With the advent of the Pipeline Assessment and Certification Program (PACP), along with the established defect classification protocol, we have entered a new era of pipeline inspection. However, before lines can be televised for inspection, they must be properly cleaned. Lanzo Construction Company has been directly involved in the preparation of over 8 million feet of pipeline ranging in size from 4” through 144” in gravity, pressure, municipal, and industrial applications. Whether we are desilting a vitrified clay sewer pipe or de-tuberculating a cast iron water main, the pipe must be made ready for accurate documentation of all defects, anomalies, and services encountered. Lanzo Construction Company is certified and qualified to perform cleaning and PACP certified CCTV-Video inspection services on all infrastructure rehabilitation applications.

**LANZO COMPLETED PROJECTS**  
**Past Five years**

DOLLAR AMOUNT OF WORK PERFORMED	PROJECTS	YEAR COMPLETED
\$ 20,032,834.00	City of Hollywood WM Replacement & Sewer Expansion	2023
\$ 9,001,628.00	Miami-Dade Water & Sewer Regional PS 301 S-940	2023
\$ 3,451,947.00	MI - MDOT Dan's Excavating Mound Road 12 Mile Rd to 19 Mile Rd CIPP	2023
\$ 1,932,875.00	Clinton Township, MI 2022 SS Rehab by CIPP Lining	2023
\$ 486,379.00	City of Pompano Beach Airpark Parcel Y Access Rd	2023
\$ 4,083,120.00	City of Hollywood ER 48-inch Gravity Main Repair SRWWTP	2023
\$ 1,193,275.00	Pompano Aviation Airpark Parcel Y Building Pad	2023
\$ 41,888,720.00	City of Miami Beach, FL Palm and Hibiscus Islands (DB)	2023
\$ 10,222,530.00	BNA Construction USA Gordie Howe Bridge MI	2023
\$ 28,671,076.00	City of Miami Beach, FL Venetian Islands Bid Package 13C-ROW Infrastructure Improvements	2023
\$ 1,100,776.00	Broward County, FL Septic Tank Elimintion	2022
\$ 188,421.54	Broward County BSO BCAD Terminal 1	2022
\$ 3,910,000.00	Miami-Dade Water & Sewer Dept 36" RAS Pipeline	2022
\$ 3,001,350.00	City of Boca Raton, FL SW 12 Ave Improvements	2022
\$ 1,222,253.00	City of Ann Arbor Ann Arbor Trunkline	2022
\$ 622,187.00	Broward County BCWWS District 3A Step Area 3A	2022
\$ 163,545.00	Broward County GSL District 3BC Repump Station	2022
\$ 493,660.00	City of Fort Lauderdale 12 in Gravity Sewer	2022
\$ 3,001,350.00	City of Boca Raton Water Main Installation & Road Construction	2022
\$ 9,794,836.99	Miami-Dade County Water & Sewer Dept Donut Hole Water Service Improvement (DB)	2021
\$ 3,662,716.00	City of Fort Lauderdale Yard Piping, PCCP Pipe CFRP Rehabilitation	2021
\$ 4,259,525.00	Seacoast Utility Authority Water Main & Force Main Installation & Road Construction	2021
\$ 865,355.00	City of Davie Drainage Pipe Installation & Road Construction	2021
\$ 9,150,020.00	City of Sunrise Reuse & Raw Water Main Installation & Road Construction	2020
\$ 8,470,312.00	City of Hallandale Beach Drainage Pipe Installation, Storm Pump Stations & Road Construction	2020
\$ 9,510,202.00	Broward County Sanitary Sewer, Pump Staton Rehab, Road Construction A1A	2020
\$ 27,329,077.00	City of Miami Beach Sunset Harbour Water Main, Drainage & Storm Pump Stations, Rd Construction (DB)	2020
\$ 718,000.00	Florida Keys Aqueduct Authrity Roadway Reconstruction, Restoration, Mill & Overlay	2020
\$ 4,146,270.00	City of Delray Beach Reclaimed Water Main Instllation	2019
\$ 6,498,272.00	Town of Hillsboro Beach Water Main Replacement; Cured-In-Place-Pipe Lining	2019
\$ 1,363,000.00	City of Pompano Beach EM 42-inch Force Main Repair	2019
\$ 14,340,888.00	Miami-Dade County Water & Sewer Dept Shenandoah PH B Replacement of WM & Service Conversions (DB)	2018
\$ 4,295,037.00	So Florida Water Management District S-39A Culvert Replacements and Automation	2018
\$ 1,999,957.00	City of Miami Beach 72-inch RCP 17th Street & Washington Ave	2018



# Executive & Management Resumes

S. No.	Key Personnel
1	Giuseppe D'Alessandro, President
2	Matthew P. Tilli, Vice President
3	Giuseppe D'Alessandro Jr., Vice President, Director of Operations, General Superintendent
4	Salvatore D'Alessandro, Vice President, Senior Project Manager
5	John D'Alessandro, Chief Estimator, Senior Trenchless Project Manager
6	Ram Vishal Chilakalapalli, Estimator / Schedule and Project Controls
7	Robert Bucci, Senior Project Manager
8	Prajwal Aditya, Senior Project Manager
9	Avinash Reddy Sama, Project Manager
10	Paul Wieszorek, Project Superintendent
11	Richard Kohsman, Project Superintendent
12	Ernest Duncan, Survey Director



# GIUSEPPE "JOE" D'ALESSANDRO



## PRESIDENT

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### QUALIFICATIONS

Mr. D'Alessandro, with over 35 years of experience in the construction industry, is responsible for all executive decisions of Lanzo Companies. He has demonstrated excellent management ability to effectively organize and execute multiple projects simultaneously to the full satisfaction of our clients.

Mr. D'Alessandro has been the Principal in Charge for hundreds of projects in the South Florida area for Lanzo Construction Company since 1986. He is well versed and familiar with policies, procedures, requirements, and expectations of South Florida governmental bodies including but not limited to Miami-Dade County, Broward County, Florida Department of Transportation, City of Fort Lauderdale, Hollywood, Miramar, Sunrise, Cooper City, City of Key West and Palm Beach County just to name a few.

Mr. D'Alessandro's supervision of the implementation of industry leading construction methodology and techniques by Lanzo has garnered Lanzo Construction the reputation as an industry leader.

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### EXPERIENCE

#### Lanzo Construction Company

1982 - Present

From 1982 to 1984, Mr. D'Alessandro was the field Superintendent directly responsible for construction of projects in The Lone Star State of Texas. These projects consisted of sanitary sewers, water mains, and storm sewers, large and small, both in the private sector and municipal market.

From 1984 to 1986, Mr. D'Alessandro's responsibilities expanded to General Superintendent directly in charge of construction of projects throughout the state of Florida. These projects included The Town of Medley Sanitary Sewer Collection Contract S-267B for WASD, Wagner Creek and Fairlawn Projects for the City of Miami and others across the state.

From 1986 to the present, Mr. D'Alessandro has been responsible for the management of all aspects of contracting, from bidding to closeout, including all administration, negotiations, and construction. He has been responsible for hundreds of projects throughout his career with the firm.

Mr. D'Alessandro earned the position of President of Lanzo in 2002. With his broad experience on a variety of major projects including water distribution, sanitary sewer collection, storm water treatment, roadway construction and marine construction he was a natural choice for the position.

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### COMPLETED PROJECTS

#### Miami-Dade County Projects:

• Miami-Dade Water & Sewer Dept. S-633 Ph II. (Ocean Outfall) CDWTP Outfall Replacement	\$18,865,505.00
• Miami-Dade Water & Sewer Dept. Donut Hole Water Services Improvement (Design-Build)	\$9,794,836.99
• Miami-Dade Water & Sewer Dept. 36" Water Main on SW 152 <sup>nd</sup> Street	\$10,125,379.00
• Miami-Dade Water & Sewer Dept. Emergency 72" Force Main Slipline w/ 63" HDPE	\$5,796,229.00
• Miami-Dade Water & Sewer Dept. 54" PCCP Force Main Replacement	\$20,164,956.00
• Miami-Dade Water & Sewer Dept. S-828 Site Preparation Blackpoint	\$13,407,485.00

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**Broward County Projects:**

• Broward County Board of County Commissioners – Rock Island – Bid Pack 3	\$26,002,137.00
• City of Coral Springs – Water Treatment Plant & Wastewater Treatment Plant Improvements	\$18,155,000.00
• Broward County Board of County Commissioners – Northwest Quadrant Bid Pack 8	\$16,812,079.00
• Broward County Board of County Commissioners – Broadview Estates Bid Pack 1	\$15,627,945.00
• Broward County Board of County Commissioners – South County Bid Pack 9	\$12,152,903.00
• Broward County Board of County Commissioners – Riverland Bid Pack 2	\$11,571,539.00
• Broward County Board of County Commissioners – Broadview Estates Bid Pack 2	\$11,477,424.00
• Florida Dept. of Transportation – Olive Ave. Lakes to Lakeview	\$11,094,126.00
• Florida Dept. of Transportation – Powerline Road	\$11,069,898.00
• Broward County Board of County Commissioners – West Ken Lark Bid Pack 2	\$10,885,237.00
• Broward County Board of County Commissioners – Cresthaven Bid Pack 3	\$10,822,404.00
• Broward County Board of County Commissioners – UAZ 124 Bid Pack 1	\$10,553,039.00

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**Monroe County Projects:**

• City of Marathon – Area 5 Vacuum Sewer System	\$20,487,925.00
• Florida Keys Aqueduct Authority – 30” Outfall and Pump	\$1,250,734.00
• City of Key West – Pump Assisted Storm Drainage Improvement	\$3,399,128.00

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## QUALIFICATIONS

Matthew Tilli brings over 40 years of construction experience. Over four decades he's been the company's Chief Engineer during that tenure and has been involved in well over 350 different projects the company has undertaken, working in Texas, Ohio, Michigan, and Florida. His work experience has included construction of Wastewater Treatment Plants, Off-Shore Outfall Pipeline, Rapid Infiltration Basins, Canal Crossings, Pump Stations, and a Micro Tunneling Projects. All projects have been of various sizes and capacities, with Pipeline dimensions from 8" to 120".

Prior to joining Lanzo, Mr. Tilli held various positions with other firms from project estimator to project manager for underground utility contractors in Michigan in the 70's. His building experience, has served Lanzo well in the construction of Water Treatment Plants and Wastewater Treatment facilities throughout Michigan and Florida.

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## EXPERIENCE

### Lanzo Construction Company

1980 - Present

As Vice President Mr Tilli shoulders the responsibility for estimating, scheduling and contract administration. He oversees our Project Management staff for all our operations corporate wide.

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## EDUCATION

- Bachelor of Science – Civil Engineering – Michigan Technological University
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## CERTIFICATION

- State of Florida, DBPR Underground Utility & Excavation Contractor CUC049468
- State of Florida, DBPR General Contractor CGC036262
- Broward County – Certificate of Competency – 3A Major Roads (Concrete & Asphalt) Lic. # 87-975
- Broward County - Certificate of Competency – 1A Primary Pipelines (Water, Sewer & Drainage) Lic. # 87-975
- Dade County - Certificate of Competency – Engineering Lic. # E-1233
- City of Boca Raton - Certified General Contractor
- Palm Beach County - Occupation Licensed Underground Contractor, General Contractor
- City of Key West – Licensed Underground Utility Contractor

# GIUSEPPE "JOE" D'ALESSANDRO JR.



**VICE PRESIDENT, DIRECTOR OF OPERATIONS, GENERAL SUPERINTENDENT**

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## QUALIFICATIONS

Mr. D'Alessandro is responsible for all construction activities are well planned, coordinated, prioritized, and makes best use of the available resources. His leadership skills with the ability to make decisions and build effective teams on site is proven. He effectively controls the completion of all his civil construction works / installations. As the Manager the overall responsibility for Safety, Health & Environment is his number one priority. He champions health, safety and zero accident culture and makes this visible and mandatory throughout the project. He is pro-active with his subcontractors to promote safe and hazard free working environment. Joe conducts jobsite coordination meetings, attends the weekly progress meetings with stake holders, and provides guidance, assistance, and advice to the members of the team on all construction matters. He provides direction and support for materials and equipment during the project. Ultimately, he is responsible for all the work and that it is done according to schedule, contract, and budget.

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## EXPERIENCE

### Lanzo Construction Company – Construction Manager

May 2020 – Present

- Director of all Field Operations at Lanzo
- Responsible for Environmental & Safety Compliance
- Review and Approval of All RFQ, RFP, Negotiated Bid Proposals
- Oversees All Hard Dollar Bonded Construction Bidding, Change Orders, and Prequalification
- Oversees Lanzo's Technical Development
- Oversees all Lanzo's Equipment, Labor & Material Procurement

### Danz Contracting – Director of Operations

Feb 2019 – May 2020

Manager, overseeing operations for Dans Contracting in in the state of Florida. Responsible for all construction operations.

### Lanzo Construction – General Superintendent

May 2009 – Feb 2019

Responsible for coordination of all labor and equipment resources to facilitate the successful construction of all active projects.

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## COMPLETED PROJECTS

### Miami-Dade County Projects:

• Miami-Dade Water & Sewer Dept. Installation of 54" PCCP Force Main	\$19,944,957.00
• Miami-Dade Water & Sewer Dept. Contract S-811	\$6,013,237.00
• Miami-Dade Water & Sewer Dept. 36-Inch Water Main on SW 152 <sup>nd</sup> Street	\$10,125,379.00
• Miami-Dade Water & Sewer Dept. Donut Hole Water Services Improvement (Design-Build)	\$9,794,836.99
• City of Miami Beach – Venetian Islands Improvements Package 13C	\$16,087,679.00
• City of Miami Beach – Design-Build Palm & Hibiscus ROW Improvements	\$36,500,000.00
• City of North Miami Beach – Northwood Oeffler Water Treatment Plant VOC Removal	\$6,483,076.00

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### **Broward County Projects:**

- |   |                 |
|---|-----------------|
| • Broward County Board of County Commissioners – Rock Island Bid Pack 3 | \$26,002,137.00 |
| • Broward County Board of County Commissioners – Bid Pack 10            | \$11,083,454.00 |
| • City of Hallandale Beach – Southwest Drainage Improvements 1609-75-B  | \$8,470,312.00  |
- 

### **Palm Beach County Projects:**

- |  |                 |
|--|-----------------|
| • South Florida Water Management District S-39A Culvert Replacement & Automation | \$10,760,850.00 |
|--|-----------------|
- 

### **Monroe County Projects:**

- |  |                |
|--|----------------|
| • City of Key West Patricia and Ashby Street Emergency Installation of 30" Outfall | \$1,250,734.00 |
|--|----------------|
- 

## **CERTIFICATIONS**

- |   |  |
|---|--|
| • FLORIDA CERTIFIED GENERAL CONTRACTOR #<br>1519540 | • Trench & Excavation Competent Person<br>Training           |
| • OSHA Construction Safety & Health                 | • Defensive Driving, Hand Safety & General<br>Jobsite Safety |
| • CPR & First Aid Training & Citation Review        |  |
- 

## **EDUCATION**

BS Business Administration | April 2009 | Western Michigan University

# Salvatore D'Alessandro



## VICE PRESIDENT, SENIOR PROJECT MANAGER

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### QUALIFICATIONS

Mr. D'Alessandro has thirteen years of experience in the Underground Infrastructure Industry. He spent a great deal of time with trenchless rehabilitation of existing utility systems. Sal began working on a CCTV Inspection truck, and over the years progressed from learning and understanding to running his own CCTV crew. This eventually transitioned into running several crews and ultimately running several jobs consisting of Large / Intricate CIPP, Slip line, Neighborhood Improvement, Carbon Fiber Rehabilitation, and Streetscape as a Construction.

Over the course of Sal's tenure, he became skillful in job set ups and execution with respect to scheduling, crew allocation, methodology of job approach, while maintaining the train approach of buttoning up the rear of the project while continuing to build ahead. While working with existing utility systems Sal has become well versed with large intricate bypass set ups to continue working without interrupting flow to the city / neighborhoods. Sal then proceeded to assist and help grow Lanzo Construction Company as a CM for all projects other than trenchless, while heading up the Business Development side to the company as well.

Sal is experienced, as a field supervisor, and project coordinator. Sal has managed a variety of municipal, industrial, and private projects. He has worked on various projects with diameters and sizes from CIPP, Open-Cut, Slip-Line ranging from 4" to 108". Sal is experienced with both circular and non-circular pipelines, pressure lines, water-mains, as well as force-mains.

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### EXPERIENCE

#### Lanzo Construction Company

2009 - Present

- Oversees all Trenchless Pipeline Rehabilitation Projects for Lanzo.
  - Review and Approval of all RFQ, RFP, Negotiated Bid Proposals for Trenchless Pipeline Rehab Bids.
  - Oversees all Hard Dollar Bonded Construction Bidding, Change Orders and Prequalification.
  - Responsible for all Environmental and Safety Compliance.
  - Oversees all Lanzo's Equipment, Labor & Material Procurement for Trenchless Rehab Operations.
  - Responsible for all Licensing, Certifications and Qualification for all Out-Of-State Projects.
  - Responsible for all Business Development, Public Relations, and Negotiations with Clients.
- 

### COMPLETED PROJECTS

#### Florida Projects:

#### Miami-Dade County Projects:

- Miami-Dade Water & Sewer Dept. Donut Hole Water Services Improvement (Design-Build) \$9,794,836.99
- 

#### Broward County Projects:

- Deerfield Beach, Weingarten Realty 72-Inch CIPP Lining Project \$645,000.00
- City of Hollywood, 60-Inch Sanitary Sewer CIPP Rehabilitation \$903,157.00
- Town of Hillsboro Beach, Water Main Replacement Project \$6,498,272.00
- City of Hollywood, Water & Sewer Replacement Program \$22,867,926.25
- City of Hallandale Beach, Southwest Drainage Improvements 1609-75-B \$4,259,525.50
- City of Fort Lauderdale, G.T. Lohmeyer PCCP Sequence B Repair \$3,662,716.65

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### **Palm Beach County Projects:**

• City of West Palm Beach, 48-Inch Force Main CIPP Lining Project	\$6,199,516.28
• City of Boca Raton, Wastewater Collection System Rehabilitation	\$734,085.00
• US Army Corp of Engineers, Herbert Hoover Culvert HP-5 Repair	\$765,000.00
• City of Pensacola (Pensacola County), 60-Inch Stormwater CIPP Rehabilitation	\$903,157.00

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### **Out-Of-State Projects:**

- **Wichita Falls, Texas** - Holliday Creek Trunkline SS Rehab; 12,300 LF of 36"-43" Sanitary Sewer CIPP Rehab  
Amount: \$4,031,096.00
  - **Toledo, OH** – 2018 Sewer Lining Project 12,925 LF of 8"-42" CIPP Lining  
\$948,661.00
  - **Elmhurst, IL** – 2019 Sewer CIPP Lining Project #19-18; 6,768 LF of 8"-30" CIPP Lining  
\$659,888.00
  - **Troy, MI** – 2020 CIPP Program, Contract 20-06; 7,636 LF of 8"-10" CIPP Lining  
\$641,294.00
  - **Douglasville, GA** – Echo Lake Sewer Outfall Rehabilitation; 2,340 LF of 30" DIP Sewer Line CIPP Lining  
\$376,740.00
  - **Dover, DE** – Sanitary Sewer Main Lining (Inflow & Infiltration Removal); 3,406 LF of 15"-30" VCP CIPP Lining  
\$1,327,300.00
- 

## **LICENSES/CERTIFICATES/QUALIFICATIONS**

- First Aid & CPR Certified
- Advanced Confined Space Training and Rescue
- PACP Certified

## CHIEF ESTIMATOR / SENIOR TRENCHLESS PROJECT MANAGER

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### QUALIFICATIONS

Mr. D'Alessandro has forty years of experience in the Heavy-Civil construction & rehabilitation industry. He possesses specific experience with all the different phases of trenchless rehabilitation of existing utility systems. John reviews all wall thickness calculations and evaluations as to materials utilized for each CIPP Liner installation. He is experienced in the management and implementation of quality control measures to insure the highest quality product in every project he is involved in.

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### EXPERIENCE

Lanzo Lining Services, Inc. / Lanzo Construction Company  
Chief Estimator and General Manager

Deerfield Beach 2019-Present

- Estimating and General Manager of all Trenchless Rehabilitation and CIPP operations.

Ric-Man Construction Florida Inc.  
Vice President

Deerfield Beach 2011 – 2019

- Estimating and General Manager of all Trenchless Rehabilitation and CIPP work See Corporate Resume.

Lanzo Construction Company  
Chief Estimator and General Manager

Deerfield Beach 2004-2010

- Utility Company specializing in Rehabilitating Sanitary, Drainage Water and Force main by CIPP (cured in place pipe).
- Responsible for all national bidding and procurement projects.
- Project Manager for all current contracts held in the State of Florida.
- MacDill Air Force Base, Tampa, Florida project. 17,000 LF 14" to 54" CIPP of storm drainage system GPR (Ground penetrating radar) survey. Structure rehabilitation with epoxy coatings and exterior pipeline grouting from surface.
- City of Atlanta, Georgia Watershed Contract 4, 90,000 LF of CIPP 8" to 24" gravity sewer, point repairs, pipe bursting, manhole rehabilitation and related restoration.
- City of Hollywood, Florida, 13,000 LF 48" and 9,000 LF 36" Gravity CIPP, major bypass pumping, manhole rehabilitation, sanitary lateral CIPP.
- Miami Dade Water and Sewer, Annual Contract CIPP of 8" through 21" Sanitary Sewers, 145,000'lf
- City of Ft. Lauderdale Florida, various contracts, combined 175,000 LF 8" to 15" CIPP rehabilitation. 500 each lateral linings and manhole cementitious coatings.
- City of Petersburg, Florida, annual contract for CIPP rehabilitation of mainline sanitary, laterals and manholes.55,000'lf
- Clinton Township, Michigan, 9500 LF 36"gravity sewer rehabilitation and manhole cementitious coatings with related grouting and bypass pumping.
- City of Detroit two year annual sewer rehabilitation projects, gravity sewer CIPP 215,000'lf ranging from 8" to 120" manhole cementitious and related point repairs.

Telcon, Inc.  
Owner

1993-2005

- Utility contractor performing water, sewer and drainage throughout central and southeast Florida public and private sector. Complete site work including utilities, pavement and earthwork.
- Worked directly for FPL and Southern Bell installing concrete duct banks, residential URD and cable, high voltage pipe type transmission and fiber optic cable installation.
- Project experience includes heavy civil pipe installations, sewage pumping stations and treatment plants, earthwork, paving, power and communication utilities, manhole and utility pipeline rehabilitations. Bore and jacking, Micro tunneling and directional boring.

Lanzo Construction Co., Florida,  
Project Manager & Estimator

Pompano Beach, FL 1980-1993

Project Manager for Florida structural Division, direct involvement with all treatment facilities and pump station contracts for Florida, North Carolina and Michigan operations.

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### CERTIFICATIONS

• Utility Contractors License Dade County Florida	• Utility Electrical License Dade County Florida
• Utility and Pavement License Broward County Florida	• Certification for Confined Space Entry
• Certified with FDOT for M.O.T	• Certification for CPR/Medical First Aid



## Ram Vishal Chilakalapalli, EIT

### ESTIMATOR / SCHEDULE & PROJECT CONTROLS

Phone: (954) 979-0802 / Fax: (954) 979-9897

[RamC@Lanzo.org](mailto:RamC@Lanzo.org)

#### QUALIFICATIONS

Ram Chilakalapalli comes from a very strong educational background. He has a master's degree in civil engineering from Syracuse University, NY and is a certified engineer in training (EIT) and is working towards his Professional Engineering License. He has acquired experience in estimating, scheduling, document control and project management for Heavy Civil-Public Infrastructure Construction projects providing services to both public and private sector clients in Palm Beach, Broward, and Miami-Dade counties. He has worked on multiple projects with various project delivery methods, including Design-Build projects. He has been directly involved in preparing Cost Reports, Schedules, Value Engineering Studies, Presentations and Production Reports.

He brings in a unique viewpoint and always comes up with valuable inputs through his skill set and knowledge gained over time through a strong combination of educational/research background and experience working in a professional environment. He is an excellent team member, efficient communicator, and a passionate worker with great attention to detail, and awareness of challenges and has a strong understanding of principles of Construction Design, Costing, Scheduling, Building Codes/Standards and Safety. He is a versatile contributor to a team and thrives in any working environment, adapting to the situation accordingly and continues to meet Lanzo's high standards for quality, safety and constructability.

#### EXPERIENCE

##### Lanzo Construction Co., Florida – Estimator / Asst. Project Manager 2019 – Present

- Estimating, Scheduling, Document Control & Project Management for Underground Utility Construction Projects in Heavy Civil Industry.
  - Permit Applications, Issuance of Purchase Orders, Negotiations with Subcontractors, Shop Drawings Review.
  - Payment Applications, Change Orders, Design & Constructability Review & Production Reporting.
  - Projects include Public Infrastructure Improvements with various municipalities, valuation ranging \$2-\$25 million.
  - Involved in Bid Opportunity Review, Technical Specifications Review, Quantity Takeoff, Vendor Solicitations, Cost Reports and Schedules.
  - Involved in Quality Control, Value Engineering, Project Progress Meetings, Field Operations & Safety Training.
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## **CERTIFICATIONS**

- Engineer In Training (EIT, 17-706-59)
- OSHA 10 Hour Certification (38-006020154)
- Construction Manager in Training (CMIT)
- CPR/AED/First Aid Certification

# **Ram Vishal Chilakalapalli**

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## **COMPLETED PROJECTS**

### **Miami-Dade County Projects**

- Miami-Dade Water & Sewer Dept – ER 36-inch HDD Watson Island (DB) - \$8,151,714
- Miami-Dade Water & Sewer Dept. – Emergency 48” PCCP Repair - \$135,243.00

### **Broward County Projects**

- City of Fort Lauderdale – G.T. Lohmeyer Rehab of PCCP (Sequence B) - \$3,662,716.65
- City of Hollywood – Water Main & Sewer Replacement Program - \$22,867,926.25
- BSO/BCAD–Concourse A Roadway Barriers, Parking Imp, UPS Installation & Bridge Joint Repair \$2,318,896.00
- Broward County Utility Analysis Zone 113A - \$12,875,437.50
- Pompano Beach Parcel Y Access Road Project - \$538,427.00

### **Palm Beach County Projects**

- City of Boca Raton – SW 12th Avenue Infrastructure Upgrades - \$3,001,350.00
- Seacoast Utility Authority – Northlake Blvd./US-1 Water Distribution & FM Replacement Ph 1 - \$4,259,525.50

## **EDUCATION**

- Master of Science – Civil Engineering, Syracuse University, NY
  - Bachelor of Science – Civil Engineering, Manipal Institute of Technology, India
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## QUALIFICATIONS

Mr. Bucci has 25 years of experience in the construction industry. He has worked at levels, ranging from laborer, foreman, production manager and project manager. He understands the challenges this project provides, and he possess the skills & knowledge to provide a quality product. His experience in the construction of major infrastructure projects include lining, distribution & transmission mains, storm water, wastewater, solid waste major pipeline and treatment plant projects. He has experience at the local and regional level for large-scale projects requiring the coordination of various construction disciplines. He has worked in both private and public sector. His responsibilities include daily onsite management of project personnel, including safety meetings, implementation of M.O.T., environmental protection, compliance with permit conditions from all governing agencies, meeting schedule deadlines, coordination with the project manager and the owner representative(s) for all phases of the project to best meet community/public needs.

Mr. Bucci is a Professional Project Manager for Lanzo Construction, experienced in the management and implementation of quality control measures to ensure the highest quality product in every project he is involved in. Mr. Bucci is an expert in clearly communicating the intention of the specification. Mr. Bucci is involved in the technical support of developing product, proposals, design, optimization methods for constructability of both open cut installation and rehabilitation projects. He is an effective communicator who makes decisions on scheduling of crews, equipment & product installation, as required for the project. He has demonstrated excellent management ability to effectively organize and execute multiple projects simultaneously to the full satisfaction of the owners.

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## EXPERIENCE

### Lanzo Construction Company (*Project Manager*)

2013 - Present

- Responsible for coordination and execution of Underground Utility Construction and Trenchless Pipeline Rehab projects
- Issuance of Purchase Orders, Permit Applications, Contracts, Shop Drawings Review, Payment Requisitions and Scheduling
- Change Order Pricing, Negotiations and Coordination with Owner/Engineer
- Involved in Quality Control, Value Engineering, Project Progress Meetings, Field Operations & Safety Training.

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## COMPLETED PROJECTS

### Broward County Projects:

- City of Hollywood – Water & Sewer Replacement Program \$22,867,926.25
- Broward County Board of County Commissioners – Bid Pack 10 \$11,083,454.00
- Broward County Board of County Commissioners – Bid Pack 5 \$2,820,974.00
- Broward County Board of County Commissioners – Bid Pack 2 \$4,834,126.00
- Broward County Board of County Commissioners – Bid Pack 1 \$10,383,436.00

### Palm Beach County Projects:

- City of West Palm Beach – 48-Inch Force Main CIPP Rehabilitation \$7,140,970.19.00
- City of Boca Raton – Wastewater Collection System CIPP Rehabilitation \$734,085.00
- Village of Wellington – Neighborhood Utility Reinvestment – Project 1 \$1,822,917.00

### Volusia County Projects:

- Florida Dept. of Transportation E5T27 CIPP Rehabilitation Project \$1,468,776.50

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## EDUCATION

- High School Diploma

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## **CERTIFICATIONS**

- Certified Quality Control Manager
- Asphalt Paving Technician – Level 1
- Concrete Field Technician – Level 1
- Earthwork Construction Inspection – Level 2
- Advanced MOT Certification
- HAZMAT Certification
- Nuclear Gauge Safety Training
- OSHA 30 Construction

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## QUALIFICATIONS

Prajwal comes with a wealth of knowledge and is well-versed with multiple skills acquired with experience and education. He has a master's degree in Civil Engineering from Florida Institute of Technology and is a licensed engineer in the state of Florida. Prajwal has acquired experience in project management and estimating of Heavy Civil Construction projects providing services to both public and private sector clients in Palm Beach, Broward, and Miami-Dade counties. He has spearheaded projects of various scopes and a variety of project delivery methods including Design-Build, Design-Bid-Build, Construction Manager at Risk, Hard Dollar, Annual Contract (Job Order Contracting) and Negotiated Contracts.

He is detail oriented, and proficient in cost estimating, value engineering, planning, coordination, and project management. The scope of projects he has managed include Water, Sewer, Stormwater, Water & Wastewater Treatment Plants, Trenchless Pipeline Rehabilitation and Roadway Improvements. With great understanding of the unique challenges a project may pose, Prajwal brings a different perspective with his acquired skills and knowledge to deliver a quality and satisfactory product within budget and schedule to his clients.

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## EXPERIENCE

### Lanzo Construction Company (*Senior Project Manager*)

2017-Present

- Estimating, Scheduling & Project Managing Underground Utility Construction Projects in Heavy Civil Industry.
- Permit Applications, Issuance of Purchase Orders, Negotiations with Subcontractors, Shop Drawings Review.
- Payment Applications, Change Orders, Design & Constructability Review & Production & Incident Reporting.
- Projects include Public Infrastructure Improvements with various municipalities, valuation ranging \$2-\$25 million.
- Involved in Quality Control, Value Engineering, Project Progress Meetings, Field Operation & Safety Training.

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## COMPLETED PROJECTS

### Miami-Dade County Projects:

- Miami-Dade Water & Sewer Dept. – Emergency 48" PCCP Repair \$135,243.00

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### Broward County Projects:

- Town of Hillsboro Beach – Water Main Replacement \$6,498,272.00
- City of Fort Lauderdale – G.T. Lohmeyer Rehab of PCCP (Sequence B) \$3,662,716.65
- City of Hallandale Beach – Southwest Drainage Improvements \$8,470,312.00
- City of Hollywood – Water Main & Sewer Replacement Program \$22,867,926.25
- Broward County Board of County Commissioners – Hillsboro Mile Sanitary Sewer Improvements \$9,782,573.00
- BSO/BCAD–ConcourseA Rdwy Barriers, Parking Imp, UPS Installation & Bridge Joint Repair \$2,318,896.00

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### Palm Beach County Projects:

- City of Boca Raton – SW 12th Avenue Infrastructure Upgrades \$3,001,350.00
- Seacoast Utility Authority – Northlake Blvd./US-1 Water Distribution & FM Replacement Ph 1 \$4,259,525.50
- City of Delray Beach – Reuse Water Main 12C \$3,925,271.89

## **EDUCATION**

- Master of Science – Civil Engineering, Florida Institute of Technology
  - Bachelor of Science – Civil Engineering, Visvesvaraya Technological University, India
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## **CERTIFICATIONS**

- Professional Engineers License # PE 94622
- OSHA 30 Hour Construction
- Construction Manager in Training (CMIT)
- Maintenance of Traffic – Advanced
- CPR/AED/First Aid Certification

# AVINASH REDDY SAMA

## PROJECT MANAGER



### QUALIFICATIONS

Avinash Reddy Sama is a seasoned Construction Project Manager/Engineer with 5+ years of experience in leading projects from concept to completion. Proven track record of delivering high-quality performance by developing and executing comprehensive project plans within deadlines and budget constraints. Expertise in Estimating, Scheduling, and Project Management, as well as strong negotiation skills. Known for being even-tempered, a strong communicator and for effectively managing customer relationships.

### EXPERIENCE

#### Lanzo Construction Co. Florida – *Project Manager*

9/2022 - Present

Review and analyze technical documents such as architectural, structural, mechanical, electrical, plumbing, and fire protection plans, blueprints, and specifications to ensure compliance with building codes, regulations, and industry standards. Answer stakeholders' inquiries related to the project scope, timelines, and budgets. Implement quality control protocols during construction to ensure adherence to project specifications, drawings, and industry standards. Conduct regular inspections of materials, equipment, and workmanship, as well as monitor compliance with safety protocols and regulations. Review and evaluate submittals, shop drawings, and material samples for conformance with project specifications and standards. Coordinate with suppliers and vendors to ensure timely delivery of materials and equipment. Manage change order processes by reviewing, evaluating, and documenting changes to the project scope, schedule, and budget. Review, estimate, and track all change order requests, and maintain accurate records of all change order activities. Resolve interface conflicts between the main contractor and subcontractors, and between different subcontractors. Maintain and update project schedules and narratives that provide regular updates on project milestones, timelines, and status. Assist with form detailing and special design, such as creating formwork and shoring plans, and provide guidance on the design of special structures and systems. Provide technical support to field supervisors by interpreting drawings, specifications, and RFIs, and answering questions related to the project. Communicate with architects and engineers to ensure that all project requirements are met.

#### In Land Pipe Rehabilitation Great Lakes, LLC – *Project Manager*

3/2020 – 9/2022

Managed 7 CIPP (7.5M), 3 Geopolymer ECO Cast (2.4M) and 2 Force mains/Siphons/ Sewer mains reconstruction projects S to F. Generated cost proposals for sewer rehabilitation work worth approximately \$15 Million and analyzed pipe damage using PACP Codes and Manhole damage using MACP codes. The proposal included pipe designs, Summary of findings describing the pipe defects, corrective rehabilitation methods and maps along with estimated costs. Tracked, scheduled, designed, and cost estimated more than 250 emergency underground repair jobs across Detroit over the span of 2+ years. Was proficient with Submittals, RFI's, and scraping respective Clients, Owners, Municipalities, MDOT's, INDOT's, ODOT's requirements via E-builder/Procure/PMIS/FTP Portals. Helped problem solve issues and suggested ways to improve the project: Value Engineering/ Proposals/ Change Orders. Prepared Performance Metric reports with the analysis of monthly labor hours against forecast and subcontractor analysis (schedule of values) for all projects. Was wholly responsible for Billings and Pay Applications (AIA) review, approval, payment, and vendor inquiries. Tracked and forecasted project costs to meet quarterly and eventually yearly goals using EBITDA.

### EDUCATION

- Trine University – Master of Business Analytics (2023)
- Lawrence Technological University – Southfield, MI – Master of Construction Engineering Management (2019)
- BIET University – Jhansi, UP, India – Bachelor's in Civil Engineering (2016)

### CERTIFICATIONS

- Confined Spaced Supervisor, 2022
- NASCCO PACP, MACP & LACP, 2021
- Engineering in Training EIT, 2020
- Construction Safety Management
- OSHA, 2019

# PAUL WIECZOREK

PROJECT SUPERINTENDENT



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## QUALIFICATIONS

Paul Wieczorek has nearly 42 years of boots on the ground experience in the heavy construction industry. He possesses experience within all phases of commercial construction, including heavy highway, underground utilities, structural concrete building and subaqueous crossings. Mr. Wieczorek specializes in complicated large diameter pipe installations and repairs. At Lanzo Construction, he is involved in contract interpretation and administration, along with the construction of various construction projects. His experience includes the installation of most forms of pipelines (3'-120"), pump stations (Local & Master), and warehouse facilities. He has been involved with at least 90% of the Miami Dade Water & Sewer projects and our Broward County Projects.

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## EXPERIENCE

Lanzo Construction Company (*Construction Superintendent*)

1980 - Present

Sewer Field Superintendent responsible for the coordination of Subcontractors, Labor, Equipment & Field Operations

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## COMPLETED PROJECTS

### Miami-Dade County Projects:

• Miami-Dade Water & Sewer Dept. S-633 Ph. II Central District WTP Outfall Pipeline Replacement	\$18,865,505.00
• Miami-Dade Water & Sewer Dept. 36" Water Main on SW 152 <sup>nd</sup> Street	\$10,125,379.00
• Miami-Dade Water & Sewer Dept. Contract S-811	\$6,013,237.00
• Miami-Dade Water & Sewer Dept. DERM-01-WASD-NLE Opa-Locka Airport Sewer FM	\$4,301,480.00
• Miami-Dade Water & Sewer Dept. S0-503D Flagler St Sewer Force Main	\$3,246,820.00
• Miami-Dade Water & Sewer Dept. Contract 605A II	\$3,073,460.00
• Miami-Dade Water & Sewer Dept. W-788R 54" PCCP Water Main	\$3,688,337.80
• Miami-Dade Water & Sewer Dept. Emergency Installation of 60" PCCP	\$2,200,000.00

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### Broward County Projects:

• Hollywood Dixie Corridor Septic to Sewer Conversion	\$2,267,706.00
• Pompano Beach Emergency Repair of 42" PCCP	\$1,363,000.00

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## CERTIFICATIONS

- OSHA Construction Safety & Health
- CPR & First Aid Training & Citation Review
- Trench & Excavation Competent Person Training
- Defensive Driving, Hand Safety & General Jobsite Safety



## CONSTRUCTION SUPERINTENDENT

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### QUALIFICATIONS

Richard has over 33 years of experience in the construction industry and is a Master of Communication. He provides clear communication between the owner's representatives who make the decisions and our men with boots on the ground who build the work and is essential to the successful delivery of the Palm and Hibiscus Project. He possesses specific experience in the construction of major infrastructure projects including potable water main, storm water, wastewater, solid waste major pipeline and treatment plant projects. He has experience at the local and regional level for large-scale projects requiring the coordination of various construction disciplines. He is knowledgeable in both private and public sector construction needs. He has been responsible for capital improvement development for potable water distribution projects including sanitary sewer storm water and water systems for Dade, Monroe, Broward, and Palm Beach Counties. His responsibilities include daily onsite management of 60 plus project personnel, coordination with the project manager and the owner representative(s) for all phases of the project to best meet community/public needs..

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### EXPERIENCE

**Lanzo Construction Company** (*Construction Superintendent*) 2009 - Present

Field Superintendent responsible for the coordination of Subcontractors, Labor & Equipment

**DL Higgins** (*Construction Superintendent*) 1997-2008

Field Superintendent responsible for the coordination of Subcontractors, Labor & Equipment

**Giannetti Contracting** (*Foreman & Construction Superintendent*) 1990-1997

Field Superintendent responsible for the coordination of Subcontractors, Labor & Equipment  
Water, Sewer, and Force Main Pipe installation Foreman

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### COMPLETED PROJECTS

#### Broward County Projects:

- |  |                 |
|--|-----------------|
| • City of Hollywood – Water & Sewer Replacement Project                      | \$22,867,926.25 |
| • Broward County Board of County Commissioners – Bid Pack 10                 | \$11,083,454.00 |
| • Broward County Board of County Commissioners – Sanitary Sewer Improvements | \$9,782,573.00  |
| • Broward County Board of County Commissioners – Bid Pack No. 8              | \$16,678,266.90 |
- 

#### Miami-Dade County Projects:

- |   |                 |
|---|-----------------|
| • Miami-Dade Water & Sewer Dept. – Installation of 4.1 Miles of 54" PCCP Force Main | \$19,944,957.00 |
| • City of Miami Beach – Venetian Islands Bid Package 13C                            | \$16,087,679.00 |
- 

#### Monroe County Projects:

- |   |                 |
|---|-----------------|
| • City of Key West – Emergency Outfall                                    | \$1,485,580.00  |
| • City of Marathon – Area 5 Wastewater & Storm Water                      | \$20,487,925.00 |
| • City of Key West – Sanitary Sewer Upgrade                               | \$12,476,000.00 |
| • City of Key West - Sanitary Collection System Rehabilitation District B | \$8,143,883.00  |
-

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## **CERTIFICATIONS**

- Advanced Maintenance of Traffic
- OSHA Construction Safety & Health
- CPR & First Aid Training & Citation Review
- Trench & Excavation Competent Person Training
- Qualified Stormwater Management Inspector

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## QUALIFICATIONS

Mr. Duncan currently is Survey Director for Lanzo Construction Company with 37 years of Land Surveying experience. He is equipped with a thorough knowledge of principles, practices and procedures of all land survey related tasks including but not limited to as-built surveys, ALTA surveys, boundary and topographic surveys, condominium surveys, legal descriptions and easement preparation. He has the ability to synthesize complex and diverse information; collect and research data; use intuition and experience to complement data and design work flows and procedures.

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## EXPERIENCE

### Lanzo Construction Company – Survey Director

2015 - Present

Oversees In-house Survey Department. Formulate, review and analyze work methods to increase efficiency and productivity and provide input into the writing of performance standards. Plan, coordinate and supervise the work of several survey field crews. Coordinate work assignments with the project schedule to ensure a timely completion. Keep detailed and accurate records of crew activities, survey data.

### Baseline Engineering and Land Surveying, Inc. – Vice President

2008 - 2015

Formulate business plan. Coordinate and supervise the work of multiple survey field crews. Served as the liaison between municipalities, contractors, and subcontractors during construction phase to provide continuity in the assignment of survey related tasks. Attended pre-construction conferences to convey information of contractors' intent to field crews. Kept detailed and accurate records of crew activities and survey data.

### Ernest W. Duncan Land Surveying Inc. – President/Owner

1999 - 2008

Plan, coordinate and supervise the work of several field survey crews. Instruct survey crews in the field layout of the more difficult construction projects, in replacing lost survey monuments, in setting property corners from legal descriptions and title information, and in performing other aspects of survey work. Coordinate work assignments with the schedule of the contractor to ensure timely completion of projects. Review and analyze work methods to increase efficiency and productivity and provide input into the writing of performance standards. Review plans and legal documents for survey preparation to survey areas in detail.

### Consul Tech Engineering Inc. – Survey Director

1985 - 1999

Responsible for as many as 18 field crews, multiple survey technicians/draftsmen and direct supervisor for 5 licensed surveyors.

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## EDUCATION/CERTIFICATIONS

- Licensed as Professional Surveyor and Mapper (2/17/1993)
- International Correspondence School Land Surveying Degree (1985 – 1987)
- East Carolina University, Greenville, North Carolina (1981 – 1983)
- Military Occupation Training – Airborne Navigation School, Mather Air Force Base (1979-1982)

# Statements of Policies & Practices

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6	Declaration of Subcontracting Policies & Procedures
7	Procurement Policy Statement
8	Open Door Policy, Equal Employment Opportunity Policy
9-20	Drug Free Workplace Policy
21	Hurricane & Severe Storm Plan



## Florida Department of Transportation

CHARLIE CRIST  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

STEPHANIE C. KOPELOUSOS  
SECRETARY

November 15, 2010

MR ROBERT W BEASLEY  
LANZO CONSTRUCTION CO FLORIDA  
125 SE 5TH CT  
DEERFIELD FIELD BEACH FL 33441-4749

**RE: DBE AFFIRMATIVE ACTION PLAN APPROVAL**

Dear Mr. Beasley:

The Disadvantaged Business Enterprise Affirmative Action Plan submitted by:  
**LANZO CONSTRUCTION CO FLORIDA**  
has been approved for a period of three years. Please update and submit a new plan before the expiration date shown below. If you do not plan to work on any Florida Department of Transportation projects, it will not be necessary for you to submit a new plan.

If you need any additional information, please contact me at (850) 414-4742.

Sincerely,

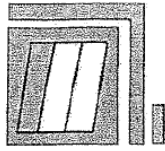
Erica Miller  
Contract Compliance Administrator  
Equal Opportunity Office

EM/clg

**AFFIRMATIVE ACTION PLAN EXPIRATION: November 15, 2013**

**This plan is one of the requirements to bid on contracts for the Florida Department of Transportation. This is not approval for Unified Certification Program Disadvantaged Business Enterprise (UCP/DBE) Certification. For additional information in becoming a DBE contact the Certification Section at (850) 414-4747.**

[www.dot.state.fl.us](http://www.dot.state.fl.us)



LANZO

Construction Co., Florida

275-030-11B  
EQUAL OPPORTUNITY OFFICE  
02/08  
Page 1 of 3

125 S.E. 5<sup>th</sup> Court  
Deerfield Beach, FL 33441-4749  
Office: (954) 979-0802  
Fax: (954) 979-9897  
www.lanzo.net

DBE AFFIRMATIVE ACTION PLAN

POLICY STATEMENT

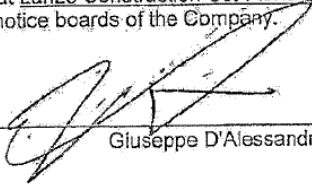
It is the policy of Lanzo Construction Co. Florida that disadvantaged businesses, as defined by 49 CFR Part 26, Subpart D and implemented under Rule Chapter 14-78, F.A.C., shall have the opportunity to participate as subcontractors and suppliers on all contracts awarded by the Florida Department of Transportation.

The requirements of Rule Chapter 14-78, F.A.C., shall apply to all contracts entered into between the Florida Department of Transportation and Lanzo Construction Co. Florida. Subcontractors and/or suppliers to Lanzo Construction Co. Florida will also be bound by the requirements of Rule Chapter 14-78, F.A.C.

Lanzo Construction Co. Florida, and its subcontractors shall take all necessary and reasonable steps in accordance with Chapter 14-78, F.A.C., to ensure that disadvantaged businesses have the opportunity to compete and perform work contracted with the Florida Department of Transportation.

Lanzo Construction Co. Florida, and its subcontractors shall not discriminate on the basis of race, color, religion, national origin, disability, sex, or age in the administration of contracts with the Department of Transportation.

Lanzo Construction Co. Florida, has designated and appointed a Liaison Officer to develop, maintain, and monitor the DBE Affirmative Action Plan implementation. The Liaison Officer will be responsible for disseminating this policy statement throughout Lanzo Construction Co. Florida and to disadvantaged controlled businesses. The statement is posted on notice boards of the Company.

X   
Giuseppe D'Alessandro, President

X 11/15/10  
Date

FLORIDA DEPARTMENT OF TRANSPORTATION  
EQUAL OPPORTUNITY OFFICE  
APPROVED: [Signature]  
DISAPPROVED: \_\_\_\_\_  
DATE: 11/15/10

An Equal Opportunity Employer

November 15, 2010

275-030-118  
EQUAL OPPORTUNITY OFFICE  
02/08  
Page 2 of 3

## I. DESIGNATION OF LIAISON OFFICER

Robert Beaty will aggressively recruit disadvantaged businesses as subcontractors and suppliers for all contracts with the Florida Department of Transportation. The Company has appointed a Liaison Officer to develop and maintain this Affirmative Action Plan in accordance with the requirements of Rule Chapter 14-78, F.A.C.

The Liaison Officer will have primary responsibility for developing, maintaining, and monitoring the Company's utilization of disadvantaged subcontractors in addition to the following specific duties:

- (1) The Liaison Officer shall aggressively solicit bids from disadvantaged business subcontractors for all Florida Department of Transportation contracts;
- (2) The Liaison Officer will submit all records, reports, and documents required by the Florida Department of Transportation, and shall maintain such records for a period of not less than three years, or as directed by any specific contractual requirements of the Florida Department of Transportation.

The following individual has been designated Liaison Officer with responsibility for implementing the Company's affirmative action program in accordance with the requirements of the Florida Department Transportation.

Robert W. Beaty  
Lanzo Construction Co. Florida  
125 SE 5<sup>th</sup> Court  
954-979-0802  
59-2011933

## II. AFFIRMATIVE ACTION METHODS

In order to formulate a realistic Affirmative Action Plan, Robert W. Beraty has identified the following known barriers to participation by disadvantaged subcontractors, before describing its proposed affirmative action methods:

1. Lack of qualified disadvantaged subcontractors in our specific geographical areas of work;
2. Lack of certified disadvantaged subcontractors who seek to perform Florida Department of Transportation work;
3. Lack of interest in performing on Florida Department of Transportation contracts;
4. Lack of response when requested to bid;
5. Limited knowledge of Florida Department of Transportation plans and specifications to prepare a responsible bid.

In view of the barriers to disadvantaged businesses stated above, it shall be the policy of Lanzo Construction Co. Florida to provide opportunity by utilizing the following affirmative action methods to ensure participation on the contracts with the Florida Department of Transportation. Lanzo Construction Co. Florida will:

1. Provide written notice to all certified DBE subcontractors in the geographical area where the work is to be subcontracted by the Company;
2. Advertise in minority focused media concerning subcontract opportunities with the Company;
3. Select portions of work to be performed by DBEs in order to increase the likelihood of meeting contract goals (including, where appropriate, breaking down contracts into economically feasible units to facilitate DBE participation);

• Page 2

4. Provide adequate information about the plans, specifications, and requirements of the contract, not rejecting subcontractors without sound reasons based on a thorough investigation of their capabilities;
5. Waive requirements of performance bonds where it is practical to do so;
6. Attend pre-bid meetings held by the Florida Department of Transportation to apprise disadvantaged subcontractors of opportunities with the Company;
7. Follow up on initial solicitations of interest to DBE subcontractors to determine with certainty whether the DBE company is interested in the subcontract opportunity.

Lanzo Construction Co. Florida understands that this list of affirmative action methods is not exhaustive and will include additional approaches after having established familiarity with the disadvantaged subcontracting community and/or determined the stated approaches to be ineffective.

### III. IMPLEMENTATION

On contracts with specific DBE goals, Lanzo Construction Co. Florida will make every effort to meet contract goals as stated by utilizing its affirmative action methods. On projects with no specific goals, the Company will, as an expression of good faith, seek to utilize DBE subcontractors where work is to be subcontracted.

### IV. REPORTING

Lanzo Construction Co. Florida shall keep and maintain such records as are necessary to determine the Company's compliance with its DBE Affirmative Action Plan.

The Company will design its record keeping system to indicate:

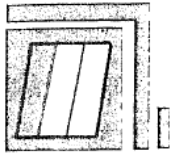
1. The number of DBE subcontractors and suppliers used by the Company; identifying the items of work, materials and services provided;
2. The efforts and progress being made in obtaining DBE subcontractors through local and community sources;
3. Documentation of all contracts, to include correspondence, telephone calls, newspaper advertisements, etc., to obtain DBE participation on all Florida Department of Transportation projects;
4. The Company shall comply with Florida Department of Transportation's requirements regarding payments to subcontractors including DBEs for each month (estimate period) in which the companies have worked.

### V. DBE DIRECTORY

Lanzo Construction Co. Florida will utilize the DBE Directory published by the Florida Department of Transportation.

The Company will distribute Form Number 275-030-01, Schedule A Certification Form Number 1, to potential DBE contractors and assist in their completion.





# LANZO

Construction  
Co., Florida

1900 N.W. 44<sup>th</sup> Street  
Pompano Beach, Florida 33064  
Office: (954) 979-0802  
Fax: (954) 979-9897  
www.lanzo.net

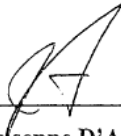
## Declaration of Fair Subcontracting Policies & Procedures

In keeping with our approach to fair practices in awarding subcontractors, Lanzo Lining declares that it has and shall continue to implement procedures, which will promote diversity in the usage of subcontracts. Lanzo believes that these procedures will present opportunities to as many qualified subcontractors as possible.

First, Lanzo's policy and procedures are geared to notify the broadest of local subcontractors of the opportunity to be awarded a subcontract. Second, Lanzo's policy and procedures are crafted in an effort to invite local subcontractors to submit bids in an uncomplicated and expeditious manner. Third, Lanzo's policy seeks to afford subcontractors avenues to procure the necessary information to shape and submit a bid. Fourth, Lanzo's procedures set out to afford subcontractors access to Lanzo personnel so that any questions and clarifications can be addressed. Fifth, Lanzo's procedures seek the ultimate goal of awarding subcontracts to those who have submitted good faith proposals in keeping with the projects goals.

The specific policies and procedures that Lanzo Lining Services, Inc., sets out to implement and exercise are:

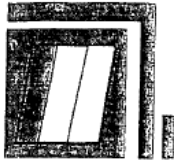
- 1) Contacting Local Trade Associations for listings of firms.
- 2) Contacting local government bodies or owners for any community development program which seeks business development and maintains a register of vendors/subcontractors.
- 3) Advertising in construction trade journals.
- 4) Contacting local chambers of commerce for participating members and listings.
- 5) Faxing or calling identified vendors/subcontractors and provide same with details (as practical) of proposed project/bid and request response by return fax.
- 6) Designating Lanzo staff which will meet with inquiring subcontractors to view scope of work and responsibilities unique to subcontractor's anticipated work.
- 7) Awarding Contracts to the subcontractors which have submitted responsible and low bids consistent with the intentions of the project.



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Giuseppe D'Alessandro  
President

An Equal Opportunity Employer



# LANZO

Construction  
Co., Florida

125 S.E. 5<sup>th</sup> Court  
Deerfield Beach, FL 33441-4749  
Office: (954) 979-0802  
Fax: (954) 979-9897  
www.lanzo.net

## PROCUREMENT POLICY

IT IS THE POLICY OF Lanzo Construction Co. FL and Affiliated companies (Lanzo Lining Services) that in its procurement practices, every effort shall be taken to secure materials, supplies and services from firms which meet the needs of the company in the most cost effective manner. It is our policy that we do not discriminate in our procurement practices and that we seek opportunities to secure commodities and services from as many local sources as is reasonably practical.

As with our company's Declaration of Fair Subcontracting Policies and Procedures, we will continue to implement procedures that will promote diversity in the usage of suppliers. It is expected from all employees involved in the procurement of goods and services that they commit themselves to identify all available resources. This effort will allow Lanzo to meet its goal of securing reliable source of product with a cost-effective result.

Matthew P. Tilli  
Vice President

12/5/02

Date

An Equal Opportunity Employer

## **Open-Door Policy**

In keeping with Lanzo's philosophy of open communication, all employees have the right and are encouraged to speak freely with management about their job-related concerns.

We urge you to go directly to your supervisor to discuss your job-related ideas, recommendations, concerns and other issues which are important to you. If, after talking with your supervisor, you feel the need for additional discussion, you are encouraged to speak with Lanzo's president.

The most important relationship you will develop at Lanzo will be between you and your supervisor. However, should you need support from someone other than your supervisor, the entire management team, including Lanzo's president, is committed to resolving your individual concerns in a timely and appropriate manner.

## **Equal Employment Opportunity**

It's Lanzo's policy to provide equal employment opportunity to all employees and applicants for employment and not to discriminate on any basis prohibited by law, including race, color, sex, age, religion, national origin, disability, marital status or veteran status. It is our intent and desire that equal employment opportunities will be provided in employment, recruitment, selection, compensation, benefits, promotion, demotion, layoff, termination and all other terms and conditions of employment. Lanzo's President and all managerial personnel are committed to this policy and its enforcement.

Employees are directed to bring any violation of this policy to the immediate attention of their supervisor or to Lanzo's president. Any employee who violates this policy or knowingly retaliates against an employee reporting or complaining of a violation of this policy shall be subject to immediate disciplinary action, up to and including discharge. Complaints brought under this policy will be promptly investigated and handled with due regard for the privacy and respect of all involved.

## Drug- Free Workplace

Recognizing substance abuse (including Alcohol) is a detrimental problem facing society, Lanzo will do it's best to actively fight this problem. One of the ways we are addressing this problem is by implementing and maintaining a substance abuse policy to ensure that Lanzo will be a drug-free workplace.

We understand employees and applicants under a physician's care may be required to use prescription drugs; however. Illegal use of prescribed medications is also substance abuse and will be dealt with in the same manner as the abuse of illegal substances. The ultimate goal of this policy is to balance our respect for individual privacy with our need to keep a safe, drug-free environment. We encourage those who abuse drugs and or alcohol to voluntarily seek help. This policy contains an employee assistance resource file which allows employees and their families to find help in dealing with alcohol or drug abuse. However, it is the employee's responsibility to seek help before drug and alcohol problems lead to disciplinary action.

**Legal Drug:** Included prescribed drugs and over the counter medications which have been legally obtained and are being used solely for the purpose for which they were prescribed or manufactured.

**Illegal Drug:** Any drug: (a) which is not legally obtainable; (b) which may be legally obtainable but has not been legally obtained; or (c) which is being used in a manner or for purpose other than as prescribed.

Lanzo's Standard of Conduct requires that employees of this company shall not use illegal drugs or abuse alcohol or prescription medications. Any employee determined to be in violation of this policy is subject to disciplinary action, even for the first offense. In order to maintain this standard, Lanzo shall establish and maintain the program and rules set forth below, under applicable state laws.

- A. **Post-offer job Applicant Screening**  
Lanzo will conduct a post-offer drug test designed to prevent the hiring of individuals who use illegal drugs or abuse prescription medications. If a job applicant refuses to submit the required drug test, tampers with or adulterates a drug test specimen or has a confirmed positive drug result; he/she forfeits his/her eligibility for employment.
- B. **Current Employee Screening**  
Lanzo will conduct drug and or alcohol screens, as outlined in this policy, to identify employees who use illegal drugs or abuse alcohol, etc, either on or off the job. It shall be a condition of employment that all employees submit to a drug and / or alcohol screen in accordance with the provisions listed below. Lanzo may suspend employees without pay, under this policy, pending the results of a drug and / or alcohol test or investigation.

### 1. Reasonable Suspicion Testing

“Reasonable suspicion testing” means drug and/or alcohol testing based on an employer’s belief that an employee is using or had used drugs in violation of the employer’s policy, drawn from specific visual or verbal facts that would lead a reasonable person, without any medical training but normal life experiences, to conclude the possibility of drug and/or alcohol use. Whenever possible, the supervisor who is suspicious of an employee’s behavior should have the suspicious behavior confirmed by another supervisor or manager before requiring the employee to be tested. Employees who refuse to be tested will be terminated.

If there is reasonable suspicion that an employee is under the influence of drugs and/or alcohol, the employee will be required to undergo drug and /or alcohol testing at a laboratory chosen by Lanzo.

Occurrences that may be indicators of substance abuse and are considered grounds for reasonable suspicion are:

- a. Observable phenomena while at work, such as direct observation of drug use or of the physical symptoms or manifestations of being under the influence of a drug.
- b. Abnormal conduct or erratic behavior while at work or a significant deterioration in work performance.
- c. A report of drug use, provided by a reliable and credible source.
- d. Evidence that an individual has tampered with a drug test during his employment with the current employer.
- e. Information that an employee has caused, contributed to, or been involved in an accident while at work.
- f. Evidence that an employee has used, possessed, sold, solicited, or transferred drugs while working or while on the employer’s premises or while operating the employer’s vehicle, machinery, or equipment.

If an employee is arrested for or convicted of a drug-related crime, Lanzo will investigate all of the circumstances, and Lanzo officials may utilize the drug-testing procedure if cause is established by the investigation. An arrest for a drug-related crime constitutes reasonable suspicion of drug use under this policy. As a condition of employment an employee must notify the human resources of any criminal drug statute arrest or conviction within five (5) days of such arrest or conviction.

## **2. Accident and Injury Procedures**

Any employee involved in a work related accident, which requires medical treatment, above and beyond first aid, must first receive treatment. The employee must then submit to a post-accident drug screen. A post accident alcohol test may apply. The employee must report for testing to the designated collection site within 24 hours of the accident, if the drug and/or alcohol collection is not performed following treatment. Failure to do so will be considered a refusal to test, resulting in immediate termination.

## **3. Routine Fitness-for-duty**

Lanzo must require an employee to submit to a drug test **IF** the test is conducted as part of a routinely scheduled employee fitness-for-duty medical examination that is part of Lanzo's established policy **OR** that is scheduled routinely for all members of an employment classification or group. Employees subject to any routine fitness-for-duty testing will be notified in writing and be required to sign a routine fitness-for-duty consent form.

**4. Return to work and Follow-up drug testing**

If an employee in the course of employment voluntarily enters an employee assistance program for drug related problems, or an alcohol/ drug rehabilitation program, this company must require the employee to submit to a drug and / or alcohol test as a follow-up to such program. Advance notice of a follow-up testing date must not be given to the employee to be tested.

**5. Random Testing**

Lanzo may conduct random drug testing, as stated in applicable state laws. A third-party company designated by Lanzo will generate a computerized random list of employees who would be required to submit to a random screen. When an employee is chosen for a random drug screen, their name automatically returns to the pool for future random tests.

**C. Basis for Discipline or Termination**

**1. Illegal Drug Use and Alcohol Abuse**

Any employee using, selling, purchasing, possessing, soliciting or distributing illegal drugs and/or unauthorized alcoholic beverages on company property or company business will be in violation of this policy, resulting in immediate termination of employment. Any employee, who has a confirmed positive drug and/or alcohol test, as determined under applicable state laws as listed below, will be subject to Lanzo's disciplinary action, as outlined in the Employment Acknowledgement Agreement Form.

**Table of Positive Drug Levels in Urine**  
**Drug to be tested for:**

<b><u>Drug</u></b>	<b><u>Initial</u></b>	<b><u>Confirmation</u></b>
Alcohol (blood)	.04 g/dl	0.4 g/dl
Alcohol (breath or Blood)	.08 g/dl	.08 g/dl
Amphetamines	1,000 ng/ml	500 ng/ml
Cannabinoids	50 ng/ml	5 ng/ml
Cocaine	300 ng/ml	150 ng/ ml
Opiates	2000 ng/ml	2000 ng/ ml
Phencyclidine	25 ng/ml	25 ng/ml
Barbiturates	300 ng/ ml	150 ng/ml
Benzodiazepines	300 ng/ml	150 ng/ml
Methaqualone	300 ng/ml	150 ng/ml
Methadone	300 ng/ml	150 ng/ml
Propoxyphene	300 ng/ml	150 ng/ml

Any employee who has a confirmed positive drug and /or alcohol test may forfeit eligibility for medical and indemnity benefits in state’s workers compensation law and may also forfeit unemployment benefits, under state law.

**2. Refusal to Test**

Any employee who refuses to submit to a required drug and/or alcohol test will be subject to immediate termination of employment. A tampered with or an adulterated drug and/or alcohol specimen, will be considered a refusal to test, resulting in termination of employment.

**D. Confidentiality**

1. All information, interviews, reports, statement memoranda and drug test results, written or otherwise, received by the employer through a drug testing program are confidential communications and may not be used or received in evidence, obtained in discovery, or disclosed in any public or private proceedings, except in accordance with this Rule, in determining compensability. Employers, testing laboratories, employee assistance program, drug and alcohol rehabilitation programs and their agents who receive or have access to information concerning drug test results keep all information confidential. Release of such information under any circumstances shall be solely pursuant to a written consent form signed voluntarily by the person tested, unless such release is compelled by a hearing officer or a court of competent jurisdiction, in pursuant to an appeal taken under this section, or unless deemed appropriated by a professional licensing board in related disciplinary proceedings.

**The consent form must contain, at the minimum, the following:**

- a. The name of the person authorized to obtain the information
- b. The signature of the person authorizing release.
- c. The purpose of the disclosure
- d. The duration of the consent
- e. The precise information to be disclosed

**E. Prescription and Non-Prescription Medications**

Lanzo will provide a standard form for the employee to confidentially report the use of prescription or non-prescription medications to the Medical Review Officer both prior to and after the drug or alcohol test. No prescription drug shall be brought upon the premises by any person other than the person for whom the drug is prescribed by a licensed medical practitioner, and shall be used only in the manner so prescribed. Employees must keep all such prescription medicines in the original container which identifies the date of the prescription and the prescribing physician. Employees should report the use of any prescribed medication which may alter the employee's physical or mental ability, prior to commencing work. Lanzo retains the right to change the employee's job assignment during the term of treatment.

**F. Drugs to be Tested for: Common and Chemical Name**

**Over-the-counter and prescriptions drugs which could alter or affect the outcome of a drug test:**

ALCOHOL: (booze, drink, beer, liquor, wine, moonshine) All liquid medications containing ethyl alcohol, Comtrex is 20% (40 proof) and Listerine is 26.9% (54 proof).

AMPHETAMINES: (beanies, black beauties, crystal, speed, uppers, crank) Obetrol, Biphetamine, Desoxyn, Dexedrine, Direx.

CANNABINOIDS: (marijuana, hashish, maryjane, grass, reefer, pot, dope, etc.) Marinol, (Dronabinol, TEC).

COCAINE: (coke, crack, blow, nose candy, toot, snow) Cocaine HCI topical solution (Roxanne)

PHENCYCKIDINE: (PCP, angel dust) Not legal by prescription.

METHAQUALONE: (ludes, qualude, optimal, parest) Not legal by prescription

OPIATES: (heroin, horse, smack, powder) Paregoric, Prepectolin, Donnagel PG, Morphine, Tylenol with Codine, Empirin with Codenie, APAP with Codeine, Aspirin with Codeine, Robitusin AC, Guituss AC, Novahistine DM, Novahistine Expectorant, Dilaudid (Hyfromorphine), M-S Contin and Roxanol (morphine and sulfate), Percodan, Vicodin. Etc.

BARBITURATES: (barbs, rainbow, downers, golfballs, reds, blues).

Penobarbital, Tuinal, Amytal, Nembutal, Seconal, Lotusate, Fiorinal, Fioricet, Esgic, Butisol, Mebaral, Butabital, Butabital, Phrenilin, Triad, etc.

BENZODIAZEPINES: (Ativan, Azene, Clonopin, Dalmane, Diazepam, Librium, Xanax, Serax, Tranxene, Valium, Verstran, Halcion, Paxipam, Restoril, Centrax.

METHADONE: Dolphine, Methadose



PROPOXYPHENE: Darvocet, Darvon N, Dolene, etc.

Lanzo will test for the minimum of drugs which is described as a five (5) panel test (amphetamines, opiates, cocaine, pcp, cannabinoids), but is allowed to test up to all 10 drugs and alcohol, as listed above.

**G. Challenge to Test Results**

1. A requirement of a drug-free workplace program is that within five working days after receiving notice of positive, confirmed test results, the employee must be allowed to submit information to the Medical Review Officer explaining or contesting the test results. If the employee's explanation or challenge of the positive test result is unsatisfactory to the employer, the employee must be notified within fifteen days that the explanation is unsatisfactory and shall be retained by the employer for at least one year.
2. An employee or job applicant may undertake an administrative challenge by filing a claim for benefits with a Judge or Compensation Claims pursuant to state law or if no workplace injury has occurred, the person must challenge the test result in a court of competent jurisdiction.

**H. Employee's Responsibility**

When an employee undertakes a challenge, it shall be the employee's responsibility to notify the Medical Review Officer and the sample shall be retained by the laboratory until the case is settled.

**I. Laboratory Assistance**

The Medical Review Officer, designated by Lanzo shall provide the clinical/technical assistance to the employee for the purpose of interpreting positive, confirmed test results which could have been caused by prescription or non-prescription medication taken by the employee. Additionally, employees and job applicants have the right to consult the laboratory for technical information regarding prescription or non-prescription medications.

**J. Employee Protection**

1. Upon implementation of a drug-free workplace program, the employer shall detail in writing, within seven (7) days after testing an employee who had exhibited suspicious behavior, the circumstances leading to a determination of reasonable suspicion of drug and /or alcohol abuse to warrant the testing. A copy of this documentation shall be given to the employee upon request and the original documentation shall be kept and retained confidentially by the employer for at least one (1) year.
2. During the 180-day period after written notification of a positive test results, the employee or job applicant who has provided the specimen shall be permitted by the employer to have a portion of the specimen re-tested at the employee's expense. Such re-testing shall be done by another AHCA licensed or NIDA approved laboratory chosen by the employee or job applicant. The second laboratory must test for equal or greater sensitivity for the drug in question. The first laboratory is responsible for the transfer of the portion of

the sample to be re-tested, and for the integrity of the chain-of custody during the transfer.

3. The testing laboratory may not disclose any information concerning the health or mental condition of the tested employee.
4. Lanzo may not request or receive from any testing facility any information concerning the personal health, habits or condition of the employee or job applicant, including the presence or absence of HIV antibodies in that persons body fluids.
5. Lanzo may not discharge, discipline, or refuse to hire, discriminate against, or request or require rehabilitation of an employee or job applicant on the sole basis of a positive test result that has not been verified by a confirmation test. All initial positive results are automatically subject to a GC/MS confirmation test before any results are reported to the Medical Review Officer.
6. Lanzo may not discharge or discriminate against an employee solely on the employee's voluntary seeking of treatment while employed by Lanzo for a drug-related incident, if the employee has not previously been tested positive for the drug, entered an employee assistance program for drug-related problems, or entered an alcohol and drug rehabilitation program.

**K. Investigation**

To ensure that illegal drugs and alcohol do not enter or affect the workplace, Lanzo reserves the right to search all vehicles, containers, lockers, or other items on Lanzo's property for visual inspection upon Lanzo's request. Searches will be conducted only where Lanzo has reason to believe that the employee has violated Lanzo's substance abuse policy. Failure to consent to a search or display personal property for visual inspection will be grounds for discharge or denial of access to Lanzo's premises. Searches of an employee's personal property will take place only in the employee's presence, all searches under this policy will occur with the utmost discretion and consideration for the employee involved. Individuals may be required to empty their pockets, but under no circumstance will an employee be required to remove articles of clothing or be physically searched. Because the primary concern is the safety of its employees and their working environment, Lanzo will not normally prosecute the employee in matters involving illegal substances. Further, Lanzo reserves the right to cooperate with or enlist the services of proper law enforcement authorities in the course of any investigation.

**L. Collective Bargaining Right**

This policy does not eliminate the bargaining rights of any employee covered under any collective bargaining agreement between Lanzo and any certified labor organization as provided in the collective bargaining process, if applicable.

**M. AHCA (Agency for Health Care Administration) Certified Testing Laboratories and MRO**

Lanzo uses only AHCA certified testing laboratories and AAMRO Certified Medical Review Officers. For information concerning laboratories and medical review officer services please contact:

Total Compliance Network /South Atlantic Testing Services  
(954) 677-1200  
5440 N.W. 33<sup>rd</sup> Ave. Suite 106

Fort Lauderdale, FL 33309

**N. Employer Protection**

This policy supersedes any information provided to applicants and / or employees, either written or oral. Lanzo reserves the right to change provisions of this policy and testing program at any time in the future.

**O. Drug Referral Services and Support Groups**

Nationwide:

1. Alcohol Hot line: 1-800-ALCOHOL, 24 hour referral line for information on programs designed for alcoholics.
2. Cocaine Hot-Line: 1-800-COCAINE, 24 hour referral line for information on programs designed for cocaine abuse.
3. National Drug & Alcohol Treatment Hot-line: 1-800-662-4357, confidential information on treatment, self-help, and support programs for drug users.

**P. Educational Material On Substance Abuse**

**What is Substance Abuse?**

Substance abuse is the harmful and dangerous use of alcohol and/ or other drugs. It affects all types of workers; male and female, young and old, production workers, executives, supervisors, clerical workers, and maintenance personnel. Anyone can have substance abuse problem. It can be prevented or treated by Substance Abuse Professionals. Alcohol and drugs may give the illusion of freeing you from the fears, responsibility, and petty hassles of everyday life. It can destroy you physically and mentally. Most people abuse drugs and alcohol as an escape from other problems such as families' problems, low self-esteem, financial worries and /or feelings of inadequacy. Many of us enjoy an occasional social drink or take legal drugs under a doctor's supervision. That is okay as long as we don't overdo it and misuse the substances. Various people handle alcohol in different ways. It isn't necessarily how much you drink; it's what happened when you drink; how it affects your life and those around you. Besides harming your body and mind, most abused drugs are illegal. Buying and using them could result in arrest, fines or even jail! The typical reasons given for taking the express train to Utopia with drugs are it helps me relax, it heightens the senses, it expands the mind and or it makes me feel confident. The truth is you can achieve these same feelings naturally without destroying your body and life. A "natural high" is legal. Hiding behind drugs or alcohol could lead to the biggest mistake of your life. Everyone pays for substance abuse. Abusers often have legal or health problems, conflicts at home, accidents on and off the job. Substance abuse is a major factor in half of all divorces. It contributes to domestic violence, child abuse and sexual abuse. Working with substance abusers can be unpleasant and dangerous. Substance abuse destroys work performance, resulting in reduced productivity, motivation, quality of work and increased employee theft.

It is never too late or too soon to change a substance abuse problem. If you suspect that you have a problem, don't think that it will go away if you ignore it. It will only get worse. The first thing you must do is accept the fact that abusing drugs and alcohol is like

playing with fire-it can and will destroy the lives of people just like you everyday. Pushing yourself to the limit with drugs and alcohol will only destroy all that you hope to be. Talk to a close friend about your problem, if your friends keep telling you that you have a problem, listen to them and take a good look at yourself. Sometimes it's not easy to see ourselves clearly.

Many companies have employee assistance program (EAP's) that refer you to professionals and groups to help you with your problem. They also provide information about insurance coverage for treatment. These programs are voluntary and confidential. No one can make you go or hold it against you if you do go. Lanzo realizes that anyone who is willing to seek help deserves Lanzo's support. Another source for help is your phonebook. Look in the yellow pages for health organizations, Social Services and Mental Health Organizations. Since substance abuse harms everyone, join with others to oppose it. Encourage those who need help to get it, at work or in the community. One of the most effective ways to fight substance abuse at work is for employees to unite against it. Make it clear that alcohol or drug use on the job is absolutely unacceptable.

### **THE MOST ABUSED SUBSTANCES AND THEIR EFFECTS ARE:**

**ALCOHOL** – Alcohol is legal, socially acceptable and an inexpensive substance to use. Because it is an accepted part of many occasions, it's hard to recognize when you cross the invisible line from social drinking and abusive drinking.

The following check list may help you determine if you have a drinking problem. **Do You:** \*lose time from work due to drinking? \* want to drink in the morning? \* have trouble sleeping? \* drink to feel more confident or outgoing? \* feel easily frustrated? \* find you are overanxious or oversensitive? \* blame others for your problems? \* drink alone? \* let family or job responsibility slide? \* forget what happened when you're drinking? \*find you have lost weight? \*find your mind is not working quickly \* have violent mood swings.

**If you drink regularly, answering "yes" to any of these questions could indicate that you have a drinking problem.**

*Admitting* that you have a problem is the first step. The best place to start solving it is by contacting **Alcoholics Anonymous**. An AA group is as close as your phone book. Alcohol is a central nervous system depressant and is the most widely abused drug. About half of all auto accidents fatalities in this country are related to alcohol abuse.

**Fact:** A 12-ounce can of beer, a 5-ounce glass of wine and a 1-1/2 ounce shot of hard liquor all contain about the same amount of alcohol. Coffee, cold showers and exercise do not quicken sobriety. Each one-half ounce of alcohol takes the body about one hour to process. Alcohol first acts on those parts of the brain that affect self-control and other learned behaviors. Low self-control often leads to the aggressive behavior associated with some people who drink. In large doses, alcohol can dull sensation and impair muscular coordination, memory and judgment. Taken in larger quantities over a long period of

time alcohol damages the liver and heart and can cause permanent brain damage. On the average, heavy drinkers shorten their life span by about ten years. **Other Effects:**  
**\*greatly impaired driving ability \*reduced coordination and reflex action \*impaired vision and judgment \*inability to divide attention \*lowering inhibitions**  
**\*overindulgence (hangover) can cause: headaches, nausea, dehydration, unclear thinking, unsettled digestion and/or aching muscles.**

**MARIJUANA** – Marijuana is also known as “grass”, “pot”, “weed”, “Mary Jane”, “herb”, “a joint”, and “a roach”, among the other street names.

**Fact:** While alcohol dissipates in a matter of hours, marijuana stays in the body for 28 days. *Marijuana* alters sense of time and reduces the ability to perform tasks requiring concentration, swift reactions and coordination. The drug has a significant effect on judgment, caution, and sensory/motor abilities. **Other Effects:**  
**\*increased pulse rate and blood pressure \*rapidly changing emotions and erratic behavior \*altered sense of identity \*impaired memory \*dulling of attention**  
**\*hallucinations, fantasies and paranoia \*reduction or temporary loss of fertility**

**COCAINE** – is a stimulant drug, which increases heart rate and blood pressure. As a powder, *Cocaine* is inhaled (snorted), ingested, or injected. It is known as “coke”, “snow”, “nose candy”, and “lady”. *Cocaine* is also used in a free-base form known as “crack” or “the rock” which is smoked. It acquired its name from the popping sound heard when it is heated. **Fact:** Many people think that because crack is smoked, it is “safer” than other forms of cocaine use. **It is not.** Crack cocaine is one of the most addictive substances known today. The crack “high” is reached in 4-6 seconds and lasts about 15 minutes. The most dangerous effects of crack are that it can cause vomiting, rapid heartbeat, tremors and convulsive movements. All of this muscle activity increases the demand for oxygen, which can result in a cocaine-induced heart attack. Since the heart regulating center in the brain is also disrupted, dangerously high body temperatures can occur. With high doses, brain functioning, breathing and heartbeat are depressed-leading to death. **Other Effects:**  
**\*impaired driving ability \*anxiety \*reduced sense of humor \*accelerated pulse, blood pressure and respiration mood swings \*heightened, but momentary feeling of confidence, strength and endurance \*paranoia, which can trigger mental disorders in users prone to mental instability \*repeated sniffing/snorting results in irritation of the nostrils and nasal membrane \*compulsive behavior such as teeth grinding or repeated hand washing**

**AMPHETAMINES** – are drugs that stimulate the central nervous system and promote a feeling of alertness and an increase in speech and general activity. Some common street names for amphetamines are “speed”, “uppers”, “black beauties”, “beanies”, “wake ups”, “football”, and “dexies”.

**Fact:** People with a history of sustained low-dose use quite often become dependent and believe they need the drug to get by. These users frequently keep taking amphetamines to avoid the down mood they experience when the high wears off. Even small, infrequent

doses can produce toxic effects in some people. Restlessness, anxiety, mood swings, panic, heartbeat disturbances, paranoid thoughts, hallucinations, convulsions and coma have been reported. **Other Effects:**

**\*loss of appetite \*irritability, anxiety, apprehension \*increased heart rate and blood pressure \*difficulty in focusing eyes \*exaggerated reflexes \*distorted thinking \*perspiration, headaches and dizziness \*short term insomnia**

**OPIATES** – Opiates, including heroin, morphine, and codeine, are narcotics used to relieve pain and induce sleep. Common names are “horse”, “hard stuff”, “M”, “brown sugar”, “Harry” and “Mr. H”.

**Fact:** Heroin, also called “junk”, or “smack”, accounts for 90% of the narcotic abuse in this country. Sometimes narcotics found in medicines are abused. This includes pain relievers containing opium and cough syrups containing codeine. Heroin is illegal and cannot even be obtained with a physician’s prescription. Most medical problems are caused by the uncertain dosage level, use of unsterile needles, contamination of the drug, or combination of a narcotic with other drugs. These dangers depend on the specific drug, its source and the way it is used.

**Other Effects:**

**\*reduced vision, impaired driving ability \*change in sleeping habits, drowsiness followed by sleep \*constipation, decreased physical ability \*short-lived state of euphoria, possible death**

**PHENCYCLIDINE (PCP)** – also called “angel dust”, “rocket fuel”, “super kools”, and “killer weed” was developed as a surgical anesthetic in late 1950’s. Later due to its unusual side effects in humans, it was restricted to use as a veterinary anesthetic and tranquilizer.

**Fact:** *PCP* is a very dangerous drug. It can produce violent and bizarre behavior even in people not otherwise prone to such behavior. More people die from accidents caused by erratic and unpredictable behavior produced by the drug than from the drug’s effect on the body. *PCP* scrambles the brain’s internal stimuli and alters how users see and deal with their environment. Routine activities like driving and walking become very difficult. Low doses of *PCP* produce a rush, sometimes associated with a feeling of numbness. Increased doses produce an excited, confused state including any of the following: muscle rigidity, loss of concentration and memory, visual disturbances, delirium, feelings of isolation and convulsions. **Other Effects:**

**\*impaired driving ability \*drowsiness \*thick, slurred speech \*blank stare \*involuntary eye movement \*perspiration \*repetitive speech patterns \*incomplete verbal responses**

**COMBINATIONS OF DRUGS** – The number of drug variations that can be made, mixed and distributed is almost unlimited. Combining drugs makes physical and mental

effects unpredictable and often much more severe than if the same drugs were taken separately. Combining alcohol with depressants, cocaine, marijuana, etc. can be especially dangerous.

**As long as there is a demand for drugs and alcohol there will be a supply, in ever-changing variations. The solution is preventing the demand for drugs and alcohol.**

# Hurricane & Severe Storm Plan

During such periods of time as are designated by the United States Weather bureau as being a hurricane alert, the Contractor shall undertake all precautions as necessary to safeguard the work and property, including the removal of all small equipment and materials from the site, lashing all other equipment and materials to each other and to rigid construction and any other safety measures as may be directed by the engineer.

In the event of a hurricane warning being issued, the following specific steps will be taken by Lanzo Construction to safe guard the construction work zone:

1. Lanzo will suspend all construction operations
2. Any open priority repairs will be made immediately
3. All open trenches will be backfilled
4. All material and equipment in the right-of-way will be removed
5. Secure any construction material in contractor's staging area
6. Remove all unnecessary traffic barricades and signs
7. Secure remaining barricades by "half burial" or "double sand bags"
8. Evacuate construction work zone.

All additional safety measures as may be directed by contracting agency, department or authority will receive Lanzo Construction's immediate attention.



# Equipment Schedule

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Equipment List



Unit #	Year	Make	Model	Description	Serial #
<b>FLEET TRUCKS / VEHICLES</b>					
	2019	CHEVROLET	TRAVERSE	WHITE PICK UP	1GNERKKW1KJ229378
05-0001	2016	FORD	ESCAPE	FORD ESCAPE (MST KEY TO MARK B 5-23-19)	1FMCU9G99GUB34580
05-0002	2021	FORD	EXPLORER	FORD EXPLORER	1FMSK7DH6MGB12337
05-0003	2021	CHEVROLET	TRAVERSE	WHITE PICK UP	1GNEVKKW3MJ238243
05-0004	2022	CHEVROLET	COLORADO	COLORADO EXT CAB	1GCH1CEA9N1260590
05-0005	2023	CHEVROLET	TAHOE	SUV	1GNSKPKDXPR460971
05-1000	2019	CHEVROLET	SILVERADO 1500LD	SILVERADO 1500LD	3GCPWCED2KG114218
05-1001	2019	FORD	F150 M 4 X 4 RAPTOR	F150 M 4 X 4 RAPTOR	1FTFW1RG9KFA71731
05-1003	2015	FORD	F-150	FORD F-150 PICKUP	1FTEX1CF6FKE81098
05-1004	2018	FORD	F-150	FORD F-150 4X2 SUPERCAB	1FTEX1CB1JKC44007
05-1005	2016	FORD	F-150	FORD F-150 PICKUP (MST KEY TO FRED 5-24-19 FEDEX)	1FTFX1EGXGFB68575
05-1007	2019	FORD	F-150	FORD F-150 PICKUP	1FTEW1C53KF858740
05-1008	2015	FORD	F150	FORD F150	1FTEX1E8XFFB60303
05-1010	2020	CHEVROLET	SILVERADO 1500	SILVERADO 1500	1GCPYFEL1LZ350167
05-1012	2023	CHEVROLET	SILVERADO 1500	SILVERADO 1500	1GCRDBEK1PZ102267
05-1013	2023	GMC	SIERRA 1500	GMC SIERRA 1500	3GTUUGEL4PG152001
05-2000	2019	CHEVROLET	SILVERADO 2500 HD	SILVERADO 2500 HD	2GC2CREG6K1167822
05-2001	2019	CHEVROLET	SILVERADO 2500	SILVERADO 2500	2GC2CREG3K1208813
05-2003	2019	CHEVROLET	SILVERADO 2500	SILVERADO 2500	2GC2CREG9K1230055
05-2004	2019	CHEVROLET	SILVERADO 2500 HD	SILVERADO 2500 HD	2GC2CREG9K1230427
05-2005	2015	FORD	F-250 XLT	FORD F-250 XLT PICK-UP	1FT7X2A6XFEB67082
05-2007	2015	FORD	F-250 XL	F-250 XL SUPERCAB	1FT7X2A69FEC50163
05-2008	2015	FORD	F-250 XL	FORD F-250 XL PICK-UP	1FT7X2A61FEC31056
05-2009	2015	FORD	F-250 XL	FORD F-250 XL 4X2 PICKUP	1FT7X2A62FED25172
05-2010	2016	FORD	F-250 XL	F-250 XL	1FT7X2A65GEA23442
05-2011	2015	FORD	F-250 XL	F-250 XL SUPERCAB	1FT7X2A60FED36557
05-2012	2015	FORD	F-250 XLT	FORD F-250 XLT PICK-UP	1FT7X2A60FED50006
05-2013	2015	FORD	F-250 XLT	FORD F-250 XLT PICK-UP SUPER CAB	1FT7X2A62FED50007
05-2014	2016	FORD	F-250 XL	F-250 XL (MST KEY TO MARK B 5-22-19)	1FT7X2A67GEA23443
05-2015	2016	FORD	F-250 XL	F-250 XL	1FT7X2A64GEA23447
05-2016	2016	FORD	F-250 XL	PICK UP	1FT7X2A69GEA23444
05-2017	2016	FORD	F-250 XL	PICK UP	1FT7X2A60GEA23445
05-2018	2016	FORD	F-250 XL	PICK UP	1FT7X2A62GEA23446
05-2020	2015	FORD	F-250 XL	FORD-250XL 4X4 SUPERCAB	1FT7X2B60FED03797
05-2021	2015	FORD	F250	FORD F250	1FT7X2B68FED37700
05-2022	2013	FORD	F-250	FORD F250	1FT7W2B65DEB13607
05-2023	2013	FORD	F-250	FORD 250	1FT7W2B61DEB15760
05-2025	2016	FORD	F 250 XL	FORD F-250XL	1FT7X2A66GEA23448
05-3000	2019	FORD	F350 UTILITY BODY	F350 UTILITY BODY	1FDRF3G62KEG79515
05-4000	2017	FORD	F-450	F-450 UTILITY TRUCK	1FD0W4GY5HED65480
05-5000	2005	FORD	F550XL	MECHANICS TRUCK WITH CRANE 6.0 engine	1FDAF56PX5ED05547
<b>COMMERCIAL / HEAVY TRUCKS</b>					
10-1001	2016	PETERBILT	LOWBOY TRAILER	TRACTOR TRUCK (LOWBOY)	1XPCP4E4GD352599
10-3000	2007	FORD	FORD F750	2000 GAL - WATER TRUCK	3FRFP75EX7V485083
10-3001	2006	INTERNATIONAL	4200	WATER TRUCK	1HTMPAFP96H351154
10-3002	2006	INTERNATIONAL	4200	WATER TRUCK	1HTMPAFP26H344630
10-3004	2010	INTERNATIONAL	4300	WATER TRUCK	1HTMMAAN9AH280917
10-3201	2000	FORD	F-650	F-650 FLATBED TRUCK	3FDNF6512YMA34292
10-3202	1995	GMC	TOP KICK	TOPKICK FLAT BED	1GDL7H1J1S515287
10-4000	2019	PETERBILT	MODEL 348	MODEL 348 DUMP TRUCK	2NP3XJ0XMM733797
10-4001	2007	MACK	CV713	MACK GAR-P 16' DUMP TRUCK	1M2AG11CX7M047498
10-4002	2007	MACK	CV713	MACK GAR-P 16' DUMP TRUCK	1M2AG11C17M047499
10-4003	2007	MACK	CV713	MACK GAR-P 16' DUMP TRUCK	1M2AG11C87M047497
10-4004	2007	MACK	CV713	MACK GAR-P 16' DUMP TRUCK	1M2AG11C67M047501
10-5001	1997	INTERNATIONAL	4700	INTL. FLATBED BOILER	1HTSCAAN4VH496111
10-5008	2007	PETERBILT	340	BOOM TRUCK W/NATIONAL 900A 26 TON BOOM TRUCK	2NPRL20X17M732773
<b>TRAILERS</b>					
15-1005	2015	PACE AMERICAN	CS7X14TA	PACE AMERICAN TRAILER - SAFETY TRAILER	53BPTEA20FU013501
15-1006				SECA EASEMENT TRAILER	6524
15-1008	2016	YONGQIANG	4X8 UTILITY TRAILER	48X96 FOLDING TRAILER (ORIG #363 ERROR)	L4WC1H811GA093989
15-1009	2017	PACE AMERICAN	JV85X20TE3	PACE AMERICAN TRAILER - TOOL TRAILER	53BPTEB26HU023578
15-1014	2008	UTILITY	HOMEMADE	TRAILER W/ 500 FUEL TANK	NOVIN0200710402
15-1019	2000	TRAILING	TK110HDG-493 / 55 TON	Lowboy Trailer #1	1TKJ04935YB089713
15-1020	2002			CONCRETE SCREED	4427187
15-1021	2017	BRIMAR	EH-20	TRAILER 14 TON	58CB1EF20HC003143
15-1022	1973	FERR	Trailer	FERR Tag-a-long Trailer (RED) 2-AXEL	734239
15-1023	2001	MILLER	CURBUILDER	Curb machine with Mold & Trailer	J12818
15-1024	1965	STRICK	40' TRAILER	STRICK 40' STORAGE TRAILER	300-07
15-1026	1997	HUDSON	10 TON	TRAILER - 10T ELEC BRAKES	10HHTD1D6V1000658
15-1027	2016	HOMEMADE	HOMEMADE JOHN BOAT TRAIL	HOMEMADE TRACKER MARINE BOAT TRAILER	NOVIN0201118363
15-1028	2018	MAULDIN	MT 300	HOT TACK SPRAYER 300GAL	#4C9MT3017JG229702/EQP#702RT3GPY03
15-1031				TRAILER W/ WELDER	811054237
15-1033	2003	KENDALL	BOX TRAILER	CARGO TRAILER	KT7X1641LK2003167
15-1037		Asphalt Zipper Trailer		Asphalt Zipper Trailer	109FS10172U021248
15-1039	2023	CARRY-ON TRAILER	5.5X10GWHDP 1358304	UTILITY LANDSCAPE	4YMBU1011PG022874
15-1040	2024	CARRY-ON TRAILER	6X8GW2KPT	UTILITY LANDSCAPE	4YMBU0811RG005171
15-2000	2020	AARDVARK	TILT BED 16K	TILT BED TRAILER	421HD2022L.S001399

# Equipment List



15-200C		Containers	20' Steel	STORAGE CONTAINER	N/A
15-201C		Containers	20' Steel	STORAGE CONTAINER	N/A
15-202C		Containers	20' Steel	STORAGE CONTAINER	N/A
15-203C		Containers	20' Steel	STORAGE CONTAINER	N/A
15-400C		Containers	40' Steel	STORAGE CONTAINER	N/A
15-401C		Containers	40' Steel	STORAGE CONTAINER	N/A
15-6000				MOBILE OFFICE TRAILER	
<b>HEAVY EQUIPMENT</b>					
20-0001	2017	TAKEUCHI	TB240R	COMPACT EXCAVATOR /BKT SER#193175 /COUPLR SER#189009	124000548
20-0003	2016	CATERPILLAR	304E2CR	Mini Excavator	CAT0304EPME402072
20-0004	2016	CATERPILLAR	304E2CR	Mini Excavator	CAT0304EPME401956
20-0005	2019	BOBCAT	E42	HYDRAULIC EXCAVATOR	B2VW15308
20-0006	2017	BOBCAT	E35I	HYDRAULIC EXCAVATOR	B3Y211579
20-0100	2015	CATERPILLAR	308E	EXCAVATOR	CAT0308EJTMX01255
20-0101	2011	CATERPILLAR	308DCRSB	COMPACT EXCAVATOR	FYC01855
20-0102	2013	JOHN DEERE	85D	Midi Excavator	1FF085DXHCG017072
20-0103	2012	JOHN DEERE	85D	Midi Excavator	FF085DX016967
20-0300	2016	CATERPILLAR	311F	EXCAVATOR	CAT0311FALZ00314
20-0301	2019	CATERPILLAR	315F	EXCAVATOR	CAT0315FKTDY12678
20-0302	2014	CATERPILLAR	312E	312E HYDRAULIC EXCAVATOR	CAT0312EJPZL00506
20-0303	2015	JOHN DEERE	135G	EXCAVATOR W/ 36" BUCKET	EE400869
20-0500	2019	CATERPILLAR	325F	EXCAVATOR	CAT0325FENDJ20875
20-0501	2019	CATERPILLAR	325F	EXCAVATOR	CAT0325FLNDJ21053
20-0502	2013	JOHN DEERE	245G	HYDRAULIC EXCAVATOR	FF245GXJDE600201
20-0503	2014	CATERPILLAR	321DLCR	321DLCR EXCAVATOR	MPG00881
20-0701	2012	CATERPILLAR	328DLCR	328DLCR EXCAVATOR	RMX00332
20-0702	2013	KOMATSU	PC360LC	10 Excavator sn- A33101	
20-0800	2019	CATERPILLAR	335FL	HYDRAULIC EXCAVATOR	SGJ20585
20-0801	2016	CATERPILLAR	335FL	EXCAVATOR	KNE00489
20-0802	2015	CATERPILLAR	336FL	336FL EXCAVATOR	TZA00340
20-1100	2016	CATERPILLAR	349FL	HYDRAULIC EXCAVATOR	HPD00770
20-1101	2015	CATERPILLAR	349FL	HYDRAULIC EXCAVATOR	EZ200244
20-1500	2001	CATERPILLAR	365BL	CAT365BL EXCAVATOR TRACKHOE	9TZ00451
20-1900	2015	CATERPILLAR	390FL	390FL EXCAVATOR	MGFC0187
22-0002	2008	CATERPILLAR	430EIT	CAT 430EIT 4X4 LOADER BACKHOE	CAT0430ECCDDT00844
22-0005	2008	CAT	430	CAT 430E 4X4 LOADER BACKHOE	CAT0430EVEATO1226
25-0100	2015	CATERPILLAR	914K W/FORKS	914K LOADER WITH FORKS	CAT0914KKCC200378
25-0200	2018	CATERPILLAR	926M	926M LOADER	CAT0926MTE05581
25-0201	2018	CATERPILLAR	926M	926M LOADER	CAT0926MKTTE05597
25-0205	2014	JOHN DEERE	524k Loader	JOHN DEERE 524K LOADER	1DW524KZCEE663892
25-0209	2000	CATERPILLAR	938G	Wheel Loader / AC Cab	6WS01660
25-0210	2011	JOHN DEERE	544K	544K WHEEL LOADER	1DW544KZVB0634744
25-0211	2003	JOHN DEERE	444H	WHEEL LOADER	DW444HX588741
25-0212	2005	JOHN DEERE	544J	WHEEL LOADER	DW544JZ592858
25-0213	2015	KOMATSU	WA270	WHEEL LOADER SN - A27428	
25-0400	2015	JOHN DEERE	644K	644k LOADER	1DW644KJED664907
25-0401	2015	CAT	950M	950M LOADER	CAT0950MHEMB01198
25-0500	2014	CAT	972M	972M LOADER	ABP00215
30-1000	2019	CATERPILLAR	D3K LGP	D3K LGP DOZER	CAT0D3KL207501
30-3000	2014	CAT	D6N LGP	D6N LGP DOZER	PBA01861
35-1000	2000	LEE-BOY	685	Motor Grader	386
35-3000	2003	CATERPILLAR	12H	Motor Grader	4XM02925
40-1000	2016	VERMEER	RTX 450 TRENCHER	RTX450 RIDE ON TRENCHER	1VR4080U0F1003325
40-2000	LOST	YAMAHA		GOLF CART	
40-2001	LOST	JOHN DEERE	HPX 4X4 DIESEL	GATOR UTILITY VEHICLE	M0HP4DX043615
45-0100	2017	CATERPILLAR	CB14B	CB14B ROLLER	47301544
45-0101	2003	SUPERTRACK	S3-12	3 WHEEL STATIC ROLLER	05A10367
45-0105		1999		WALK BEHIND ROLLER	63947-00008A
45-0106		DUO PAC		DUO PAC WALK ROLLER	50151
45-0107		WACKER		WACKER VIBRATOR PLATE COMPACTOR	640813507
45-0108	1995	BOMAG	BW85T	BOMAG BW 85 T TRENCH ROLLER	101720021000
45-0200	2019	CATERPILLAR	CD22B	CD22B ROLLER	2B200359
45-0201	2009	CATERPILLAR	CB24	TANDEM VIBRATORY ROLLER	CAT0CB24C24000560
45-0202	2007	CATERPILLAR	CB224E	TANDEM VIBRATORY ROLLER	CATCB224L22402666
45-0400	2016	CATERPILLAR	CB36B	DOUBLE DRUM ROLLER	M3600103
45-0500	2007	DYNAPAC	CA134D	VIBRATORY ROLLER	81270505
45-0600		DYNAPAC	CC21	DYNAPAC CC21 ROLLER	CD42390746457
45-0700	2008	INGERSOL RAND	DD70HF	DD70HF TANDEM VIBRATORY ROLLER	197141
45-0800	2010	VOLVO	SD 77 DX	SD 77 DX ROLLER	VCE00S77COS225218
45-1200	1998	CATERPILLAR	CS563C	CAT CS-536C ROLLER	04KN01268
50-1000	2017	LAYMOR	SWEEPMASTER 300	LAYMOR SWEEPMASTER 300	38204
50-1001	2014	LAYMOR	SWEEPMASTER 300	LAYMOR SWEEPMASTER 300	35027
50-1002	2015	LAYMOR	SWEEPMASTER 300	LAYMOR SWEEPMASTER 300	35941
50-1003	2007	LAY-MOR	8HC BROOM	8HC BROOM	32075
50-1004	2013	LAY-MOR	SM300-8	8' RIDE ON SWEEPER	34163
50-1005		LAYMOR	SM300	BROOM SWEEPER	35035
50-1007	2019	JOHN DEERRE	BA72C	SWEEPER BROOM	1TOBA72CLK0000109
55-0200	2018	VERMEER	S450TX	S450TX W BKT	1VRD060BOK1000941
55-0700	2019	JOHN DEERE	324G	324G CAB A/C SKID STEER WITH FORK	1T0324GLEKJ366299
55-0701	2019	JOHN DEERE	324G	324G CAB A/C SKID STEER WITH FORK	1T0324LKKJ366258

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55-0800	2017	CATERPILLAR	272D2	SKID STEER LOADER	CAT0272DVBL200756
55-0800A	2021	SJ210	HYDRAULIC HAMMER	HYDRAULIC HAMMER Y21 K 108 W SKIDSTEER HEAD BRACKET	Y21 K 108 (SJ210)
55-0900	2018	CATERPILLAR	272D2XHP	SKID STEER LOADER W/72" BKT / FORKS	MD200758
55-1002A	2018	BOBCAT	COLD PLANER	BOBCAT 18" QUIK CUT COLD PLANER ATTACHMENT	AKS203850
55-8000	2020	CATERPILLAR	289 D3	289 D3 SKIDSTEERS	JX901716
55-8001	2017	CATERPILLAR	289 D3	289 D3 SKIDSTEERS	TAW07096
<b>AIR COMPRESSORS</b>					
60-1000	2007	INGERSOLL	P185WIR	INGERSOLL AIR COMPRESSOR	343329/NOVIN0200661278
60-1001	2006	SULLAIR	210HDPQ	SULLAIR 210HDPQ AIR COMPRESSOR	004-152104
60-1002	2006	SULLAIR	210HDPQ	SULLAIR 210HDPQ AIR COMPRESSOR	152096
60-1005	2007	ROL-AIR	7722HK28	8hp Gas Compressor (Honda) w/Regulator	07071549
60-1006				GASOLINE COMPRESSOR	30T-758278
60-1007		INGERSOLL RAND		IR 1200 CFM AIR COMPRESSOR	56822
60-1008	1993	INGERSOLL RAND	IR175	IR 175 AIR COMPRESSOR	217113U1B324
60-1009				GASOLINE COMPRESSOR	30T-791845
60-1010		INGERSOLL RAND	IR175	IR175 AIR COMPRESSOR	87113
60-1012	1997	INGERSOLL RAND	P185WJD	AIR COMPRESSOR	278032UFH221
60-1013	2012	SULLAIR	185	AIR COMPRESSOR	T04045D739631
60-1014	1998	INGERSOLL RAND	AIR COMP	INGERSOLL RAND AIR COMP	281406U11221
60-1016	1998	SULLAIR	184 DPQ	SULLAIR 184 DPQ AIR COMP.	004-124326
60-1017	2017	BROWNIES	390	390 DIVE COMPRESSOR	21907
60-1018	2017	YANMAR	325LS DUEL CT	AIR COOLED DIESEL DIVE COMPRESSOR	ENG#W04107/COMPRS#UTY157299
60-1019	2017	Atlas Copco	400 CFM	AIR COMPRESSOR - 400CFM TRLR MOUNTED	#HOP074915/TRLR SER#4500B1313ER074915
60-1020	1997	INGERSOLL	185 CFM	AIR COMPRESSOR	2720960AH221
60-1021		SULLAIR	185 CFM	AIR COMPRESSOR	19671A
60-1022	2012	Atlas Copco	CPS375PDTBV	375 CFM Portable Air Compressor	4500B1313CR073292
60-1023	1997	Atlas Copco	185 CFM	185 CFM Portable Air Compressor	663573
60-1024	2023	BROWNIES	The Monster-CTD290	DIVE COMPRESSOR Honda GX120	GCCJT-1232494
<b>DEWATERING / TEST PUMPS</b>					
65-0100				GORMAN-RUPP 10" PUMP	2292
65-0101				THOMPSON 10" VACUM	V329
65-0120				12" THOMPSON WELLPOINT	V-403
65-0121				12" THOMPSON WELLPOINT	V-523
65-0122	2001	THOMPSON		12" THOMPSON WELLPOINT	V-777
65-0123			Vacuum Pump	12" THOMPSON VACUM PUMP	V-467
65-0124	2001	DEUTZ	WELL POINT PUMP	12" THOMPSON WELLPOINT	V-776
65-0125		THOMPSON	Well Point Pump	12" Well Point Pump	V-868
65-0126		THOMPSON	Well Point Pump	12" Well Point Pump	V-844
65-0127		THOMPSON	WELL POINT PUMP	12" Well Point Pump	V860
65-0128	2016	THOMPSON	WELLPOINT	12" ROTARY WELLPOINT/SOCK	V-1222
65-0129	2016	THOMPSON	WELLPOINT	12" ROTARY WELLPOINT/SOCK	V-1223
65-0130	2016	THOMPSON	WELLPOINT	12" ROTARY WELLPOINT/SOCK	V-1224
65-0131	2016	THOMPSON	WELLPOINT	12" ROTARY WELLPOINT/SOCK	V-1225
65-1031	2019	TSURUMI		SUBMERSIBLE PUMP, 1HP,115V	
65-1032	2019	TSURUMI		SUBMERSIBLE PUMP, 1HP,115V	
65-1033				GROUT PUMP	901869500A
65-1034	1987			TEST PUMP HMDE TL	NOVIN000081442594
65-1035		SLOAN		SLOAN TEST PUMP MYERS	DZ461149
65-1036		VERSA-MATIC	SMA3-A	SLUDGEMASTER SMA3-A PUMP	1654830
65-1037	2001	HURRICAN	Test Pump	HURRICAN TEST PUMP	10610
65-1038	2016	WHEELER REX	465010	HYDROSTATIC TEST PUMP (500PSI)	11983
65-1039	2019	WHEELER REX	W465210	HYDROSTATIC TEST PUMP COMET W/CART	14003 (ENG#4017259)
65-1040	2016	WHEELER REX	465010	HYDROSTATIC TEST PUMP	12031
65-1041				GRIFFIN WELLPOINT	300
65-1042		KAPPA 75-VA	TEST PUMP	TEST PUMP W/ HONDA	
65-1043	2019	WHEELER REX	465210	HYDROSTATIC TEST PUMP - 500 PSI	14222
65-1044	2007	MATSUKI		SUBMERSIBLE PUMP	N/A
65-1045	2007	MATSUKI		SUBMERSIBLE PUMP	N/A
65-1046	2007	MATSUKI		SUBMERSIBLE PUMP	N/A
65-2000	2001			2" AIR OPERATED PUMP	J9266172
65-2001				2" PACER PUMP	93147
65-2002	2002			2" WATER PUMP	33632
65-2003	2004			2" WATER PUMP	TAI44097
65-2004		TSURUMI	GC01	2" WATER PUMP (Honda Engine)	GC01-4357611
65-2005		HONDA	GX120	2" WATER PUMP (Honda Engine)	0001-4325864
65-2006		HONDA	WB20X	2" WATER PUMP (Honda Engine S/N:GCAAT-1530018)	WABT-1164810
65-2007	2001			WACKER 2" WATER PUMP	5255445
65-2008		HONDA	WB30X	2" PUMP	4036086
65-2012		HONDA	WB20X/WB30X	Honda 2" Water Pump	1259219
65-2014	2000	THOMPSON	26 HPU	Hydraulic Pump Power Unit	26 HPU 64
65-2015		TSURUMI	GC01	2" TRASH PUMP - TE250HA WKTZ	4357811
65-2016		WACKER	PT2A	2" WATER PUMP WACKER PT2A	5191993
65-2017	2008	HONDA	WB20XT	2" Water Pump (Honda) / REPLACES UNIT #941	CBNT-1067306
65-2018	2005	HONDA	WB20X	2" Water Pump (Honda)	GCAAT-1529760
65-2019	2016	HONDA	GX120	2" WATER PUMP	GCBNT-1233725
65-2020				2" WATER PUMP TE250HA	219300
65-2021	2016	HONDA	GX160	GX160 2" WATER PUMP	GOBRT-1552154
65-2022	2012	HONDA	WB20X	2" CENTRIFUGAL PUMP - HONDA GX120	WABT-1650759
65-2023	2021	HONDA	WT20XK4AC	HONDA 2" 185 GAL/MIN TRASH PUMP	WAAJ-1204889
65-2024	2021	HONDA	WT20XK4AC	HONDA 2" 185 GAL/MIN TRASH PUMP	GCBRT-319251

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65-2025	2012	THOMPSON	JSCD-DJDST-45H	PUMP 5X3 VAC ASSIST - DIESEL	6.JSCD-226
65-3000	2019	WACKER	PT3A PUMP 3"	PT3A PUMP 3"	24476347
65-3001	2005	MULTIQUIP	QP3TH	3" Trash Pump (Honda)	3TH-5255
65-3002	2006	MULTIQUIP	QP3TH	3" Trash Pump (Honda)	3TH-5212
65-3003	2007	HONDA	WT30X	3" Trash Pump (Honda) IN SVC NOV 2011	1122831
65-3004	2007	MULTIQUIP	QP3TH MQ	3" Trash Pump	11899
65-3005		WACKER	PT3A	3" PUMP, ENG PA2X/GBJT S/N 10865244	112114063
65-3006	2008	HONDA	WT30X	3" TRASH PUMP	1122842
65-3007	2005	MULTIQUIP	QP3TH	3" Trash Pump (Honda)	3TH-4212
65-3008	2006	HONDA		3" Water pump	WACT1175752
65-3009		WACKER	PT3A 3" PUMP	3" Water pump	5482834
65-3010	USED	WACKER	PT3A 3" PUMP	3" Water pump	20178504
65-3011		WACKER	PT3A 3" PUMP	WACKER 3" GAS TRASH PUMP	5706668
65-3012	2016	HONDA	HONDA 270	3" Trash Pump (Honda)	AY1XGCBHT115927
65-3013		WACKER	PT-3	3" TRASH PUMP PT3	122A3305
65-3014		WACKER	PT3 PUMP	WACKER 3" PUMP (HONDA GX240)	ENG SN#GEAKK-11214063
65-3015	2018	WACKER	PT3	3" TRASH PUMP	24431179
65-3016	2018	WACKER	PT3	3" TRASH PUMP	24430179
65-3017		WACKER	PT-3	3" TRASH PUMP	
65-3020	2006	WACKER	PDT3A	3" DIAPHRAGM PUMP	5650613
65-3021		TSURUMI	GCARK	3" TRASH PUMP - WKT2	1005083
65-3022		TITAN		3" TRASH PUMP ON WHEELS	196L55/43550P
65-3023		HONDA	WB30X	3" CENTRIFUGAL PUMP	WACT-1659069
65-3024	2005	MULTIQUIP	QP3TH	3" Trash Pump (Honda)	3TH-3824
65-3025		MULTIQUIP	QP-3TH	3X3 PUMP	3TH-3467
65-3026	2021	HONDA	WT30XK4A	HONDA 3" 8HP/GAS TRASH PUMP	WAWJ-1107439
65-3027	2021	HONDA	WT30XK4A	HONDA 3" 8HP/GAS TRASH PUMP	GCBHT-207200
65-3028	2023	HONDA	WT30XK4A	HONDA 3" 8HP/GAS TRASH PUMP	WAWJ-1124357
65-4000	2019	WACKER	PT4A	PT4A	24480991
65-4001	2005	HONDA	WT40X	4" Trash Pump (Honda)	WT40XK2 GX340K1
65-4002	2006	MULTIQUIP	QP4TH	4" Trash Pump (Honda)	4TH-0370
65-4003	2006	MULTIQUIP	QP4TH	4" Trash Pump (Honda)	4TH-0709
65-4004	2007	HONDA	WT40X	4" Trash Pump (Honda)	1106061
65-4005		HONDA	WT40X	4" TRASH PUMP - ATTACHED UNIT 225	
65-4006	2008	TSURUMI	EPT3100HA	4" PUMP	03166
65-4007	2010	HONDA	WT40X	4" TRASH PUMP	1114990
65-4008	2010	HONDA	WT40X	4" TRASH PUMP	1114993
65-4009	2010	HONDA	WT40X	4" TRASH PUMP	1111670
65-4010	2011	GORMAN R	14C1-GX30	4" GAS TRASH PUMP	1482897
65-4011		GORMAN RUPP	PA4A60-4045DSH	4" DIESEL SELF-PRIME PUMP	1284077
65-4012	2006	MULTIQUIP	QP3TH	4" Trash Pump (Honda)	3TH-8710
65-4013	2016	WACKER	PUMP PTS4V	4" TRASH PUMP W/WANGUARD (GAS ENGINE)	20280919
65-4014	2016	WACKER	PUMP PTS4V	4" TRASH PUMP W/WANGUARD (GAS ENGINE)	20280918
65-4015	2016	WACKER	PUMP PTS4V	4" TRASH PUMP W/WANGUARD (GAS ENGINE)	20280916
65-4016	2018	MULTIQUIP		4" Trash Pump Model QP-4TH	6175
65-4017	2018	MULTIQUIP	MQ CONTRACTOR	4" Trash Pump	4TH6345
65-4018	2018	WACKER	PTS4V	WACKER 4" TRASH PUMP	
65-4019	2017	WACKER	PTS4V	WACKER 4" TRASH PUMP	24452629
65-4020	2018	WACKER	PTS4V	WACKER 4" TRASH PUMP	24450486
65-4021	2019	MULTIQUIP	QP4TH	4" TRASH PUMP W/WHEEL KIT	4TH-7250
65-4022	2019	MULTIQUIP	QP4TH	4" TRASH PUMP W/WHEEL KIT	4TH-7256
65-4023	2020	WACKER	PT4A	4" TRASH PUMP - HONDA ENGINE 541GPM	24518763
65-4024	2002			4" TRASH PUMP	36991
65-4025	1994			4-INCH THOMPSON PUMP / TRAILER MTD.	NOVINO200076813
65-4026	2001			4" TRASH PUMP	33606
65-4027	2001			4" TRASH PUMP	28525
65-4028				4" SLOAN PUMP	PU406D
65-4029	2001			4" TRASH PUMP	15307
65-4030	2001			4" TRASH PUMP	28525
65-4031	2007	HONDA	WT40X	4" Trash Pump (Honda)	1109641
65-4032				4" WATER PUMP	GC05-2793665
65-4033	2000			4" WATER PUMP WACKERPTS4V	5168547
65-4034	2000			4" WATER PUMP HONDA WT40X	GC05-2409257
65-4035	2000			4" WATER PUMP HONDA WT40X	GC05-2879649
65-4036	2000			4" WATER PUMP PACER ZULEC5	112839
65-4037	2001			4" WATER PUMP HONDA WT40X	807500
65-4038	2019	NORTH STAR	109183	4" SEMI-TRASH PUMP	11184266
65-4039	2019	NORTH STAR	109183	4" SEMI-TRASH PUMP	11184264
65-4040	2019	MULTIQUIP	QP4TH	4" TRASH PUMP W/WHEEL KIT	4TH-7237
65-4041	2019	MULTIQUIP	QP4TH	4" TRASH PUMP W/WHEEL KIT	4TH-7239
65-4042	2003	SMALLLINE	4 INCH	4 INCH DIAPHRAM PUMP	LG5090303
65-4043		WACKER	PTS4-V	4" TRASH PUMP	5681503
65-4044		WACKER	PTS4	4" PUMP TWIN ENG MODEL 375440	5681503
65-4045		TSURUMI	GOMAR	4" TRASH PUMP - P.K.12	1017682
65-4046		HONDA	GX340	HONDA GX340 4" PUMP	ENG SER#1094426
65-4047				4" HYD PUMP HEAD	40-49
65-4048		THOMPSON	HOMEMADE	4" JET PUMP TRAILER MOUNT	TRLR SER #NOVINO201094835
65-4049		MULTIQUIP	OF-40TH 4" PUMP	4" Water Pump	40TH-
65-4050	2023	HONDA	WT40 423 GAL	4" Water Pump	
65-5000	2019	RUSH-OVERLAND		SUBMERSIBLE PUMP	
65-5001	2019	RUSH-OVERLAND		SUBMERSIBLE PUMP	

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65-6000	2016	THOMPSON	6JSVEE-DIS-4LE2T-MC	6" VAC ASSISTED HIGH PRESS PUMP SKID MOUNTED	6JSVEE-021
65-6001	2020	THOMPSON	6H-DIS-4LE2T, 6"	6H-DIS-4LE2T, 6"	6HT.2360
65-6002	1996/1978	THOMPSON	TRAILER/PUMP	TRAILER VAC-ASST PUMP AND 6" SLOAN PUMP	TPM41011J1566V393/570C
65-6003				6" THOMPSON HYDRAULIC PUMP	35 HPU-196
65-6004				6" THOMPSON HYDRAULIC PUMP	35 HPU-196
65-6005		THOMPSON	60HST	6" HYDRAULIC SUBMESIBLE PUMP	60-128
65-6005A	2001	THOMPSON	6 HPU	Hydraulic Pump Power Unit	26 HPU 65
65-6006		THOMPSON	6" Trash	THOMPSON 6" TRASH	6V85
65-6007		THOMPSON	6" Trash	THOMPSON 6" TRASH	6V79
65-6008	1998	THOMPSON	6" Hydraulic Pump Head	6" THOMPSON HYDRAULIC PUMP	60-251
65-6009	1998	THOMPSON	6" Hydraulic Pump Head	6" THOMPSON HYDRAULIC PUMP	60-250
65-6010		THOMPSON		6" PUMP HEAD	40104
65-6011		THOMPSON	cuuum Pump (ENG MOD #F3L9	6"VACUUM-ASSISTED PUMP(ENG SER#8712444)	6V-994
65-6012	2016	THOMPSON	6JSVEE-DIST-4LE2T-MC	6" VAC ASSISTED HIGH PRESS PUMP TRAILER MOUNTED	1T9PH1417GP634224
65-6013	2016	THOMPSON	PUMP SER #6JSVEE-022	6" VAC ASSISTED HIGH PRESS PUMP TRAILER MOUNTED	1T9PH1415GP634223
65-6016	2019	THOMPSON	6HT-DIST-4LE2T	6HT-DIST-4LE2T	6HT.2355
65-7000		THOMPSON	WELLPOINT 12" PUMP	WELLPOINT 12" PUMP	V-1464
65-7001		THOMPSON	WELLPOINT 12" PUMP	WELLPOINT 12" PUMP	W-853
65-8000				8" THOMPSON HYDRAULIC PUMP	35 HPU-221
65-8001	1980			IRRIGATOR 8" HYD PUMP	1PT102
65-8002				GRIFFIN WELLPOINT 8"	1909
65-8003	2019	RICE-HYDRO	DROSTATIC TEST PUMP 550	HYDROSTATIC TEST PUMP 550 PSI	52450
65-8004	2021	GLOBAL PUMP	8GETAPIKT4T10P	8" PUMP	2158103
65-8005	2021	GLOBAL PUMP	8GETAPIKT4T10P	8" PUMP	2158203
<b>MISCELLANEOUS SMALL ENGINE</b>					
70-0001	2019	WACKER	WP 1550AW Plate Tamper	WP 1550AW Plate Tamper	11071346
70-0002	2019	WACKER	WP 1550AW Plate Tamper	WP 1550AW Plate Tamper	11071347
70-0003	2007	WACKER	VP 1340AW	VIBRATORY PLATE 3400LB IMPACT	6616663/ENG#GCAGT1098671
70-0004	2008	WACKER	WP-1550A	VIBRATORY PLATE COMPACTOR 3400LB	6667703
70-0005	2019	WACKER	WP1550AW	VIBROPLATE COMPACTOR - VERSION 103	11071346
70-0006	2007	WACKER	WP1550AW	WACKER PLATE COMPACTOR 200LB	6600094
70-0007		PREDATOR	179 COMPACTOR	179 COMPACTOR	R180-3II
70-0008	2021	BOMAG	BVP 18/45	BOMAG VIBRATORY PLATE COMPACTOR	101630162649
70-0040	2006	WACKER	RAMMER BS60-2I	WACKER RAMMER	5625567
70-1000	2019	WACKER	BPU 4045A Plate Tamper	BPU 4045A Plate Tamper	10855493
70-1001	2005	WACKER	BPU 3345A	WACKER Plate Compactor BPU3345A	1531669
70-1002		WACKER	BPU3545A	PLATE COMPACTOR WC056	1521370
70-1003		WACKER	BPU3545A	PLATE COMPACTOR WC0071	1511065
70-1004	2007	WACKER	WP1550A	Plate Compactor / Honda Gas Engine	6612885
70-1005	2007	DYNAPAC	LH300	Plate Compactor / Gas	30031892
70-1006	2005	DYNAPAC	LH300HZSE	Plate Compactor / Diesel	30031756
70-1007	2005	DYNAPAC	LF62	Plate Compactor / HONDA / Gas	26203558
70-1008	2005	DYNAPAC	LF62	Plate Compactor / HONDA / Gas	26203559
70-1009	2005	DYNAPAC	LH300HZSE	Plate Compactor / Diesel	30031575 (1012304032360)
70-1010		WACKER	WP1135AW	Wacker Plate Compactor	6523031
70-1011	2002	WACKER		WACKER Plate Compactor	727433960
70-1012		ROBIN	W1-280	ROBIN Plate Compactor W1-280	300642
70-1013		WACKER	WP1550AW	WACKER Plate Compactor WP1550AW	5033287
70-1014		WACKER	BPU 3345A	WACKER Plate Compactor BPU3345A	725339602
70-1015	2001	WACKER	BPU 3345A	WACKER Plate Compactor BPU 3345A	725333833
70-1016	1999	WACKER		WACKER Plate Compactor	1157138
70-1017	1999	WACKER		WACKER Plate Compactor	667801519
70-1018	1999	WACKER	DPU-5045	WACKER PLATE COMP. Model # DPU-5045	1144750
70-1019	2005	WACKER	VP1135AW	WACKER Plate Compactor (Water Tank not Installed)	6531948
70-1020		WACKER	DPU-6055	WACKER Plate Compactor DPU 6055	727432390
70-1022		WACKER	BPU-3545A	WACKER PLATE COMPACTOR	1494912
70-1023	2017	WACKER	BPU5545A	GAS REVERSIBLE VIBRATORY PLATE	10659974
70-1024	2016	WACKER	BPU-4045A	24" PLATE COMPACTOR 700LB REVERSIBLE	10609408
70-1025	2016	WACKER	BPU-4045A	24" PLATE COMPACTOR 700LB REVERSIBLE	10597903
70-1026	2016	WACKER	BPU-4045A	24" PLATE COMPACTOR 700LB REVERSIBLE	10597697
70-1027	2017	WACKER	BPU-4045A	24" PLATE COMPACTOR 700LB REVERSIBLE	10698731
70-1028	2017	WACKER	BPU-4045A	24" PLATE COMPACTOR 700LB REVERSIBLE	10685425
70-1029		MIKASA	TM3	PLATE COMPACTOR	
70-1030		PLATE COMPACTOR	BPU3545A	PLATE COMPACTOR	
70-1031		WACKER	BTU-3545A	PLATE COMPACTOR	no serial #
70-1032	2018	GROUND HOG	T-4	T-4 SMALL TRENCHER	16472
70-1033	2017	WACKER	WPVP	WACKER PLATE COMPACTOR	10750976/ENG GX 160
70-1034	2023	WACKER	NEUSON BPU5545A	WACKER PLATE COMPACTOR	11623361
70-5000	2022	TAPMATE	XL-424	DRILLING MACHINE	SP-R366-00
70-5001	2022	VERMEER	VPT400	PIERCING TOOL	410701
70-6000	2019	HUSQVARNA	FS 400 LV 18" Street saw	FS 400 LV 18" Street saw	20191500387
70-6001	2019	EDCO	GX390 HONDA	EDCO 18" WALK BEHIND STREET SAW	180310301
70-6002	2018	HITACHI	C15FB	15" MITER SAW	170015
70-6003	2019	EDCO	HONDA	18" WALK BEHIND STREET SAW/HONDA ENGINE GX390	
70-6004	2019	EDCO	HONDA	18" WALK BEHIND STREET SAW/HONDA ENGINE GX390	
70-6005	2008	STOW	CD6CE13H18	18" STREET SAW	Y110308110
70-6006	2022	STOW	FS 400 LV	18" STREET SAW	20221200998
70-7000	2019	HUSQVARNA	K770 14" Cut Off Saw	K770 14" Cut Off Saw	1501636
70-7001	2019	HUSQVARNA	K770 14" Cut Off Saw	K770 14" Cut Off Saw	1501634
70-7002	2019	HUSQVARNA	K770 14" Cut Off Saw	K770 14" Cut Off Saw	1501487

# Equipment List



70-7003	2016	STIHL	TS420	14" CUT OFF SAW	181894907
70-7004	2015	STIHL	TS420	14" STIHL SAW	179250081
70-7005	2017	STIHL	TS420	TS420 STIHL 14" CUTQUIK SAW	182976693
70-7006	2015	STIHL	TS420	STIHL 14" SAW	179851678
70-7007	2017	STIHL	TS-420	TS420 STIHL 14" CUTQUIK SAW	182172120
70-7008	2017	STIHL	TS-420	TS420 STIHL 14" CUTQUIK SAW	182871260
70-7009	2017	STIHL	TS-420	TS420 STIHL 14" CUTQUIK SAW	42380112821
70-7010	2017	STIHL	TS-420	TS420 STIHL 14" CUTQUIK SAW	183125541
70-7011	2017	STIHL	TS-420	TS420 STIHL 14" CUTQUIK SAW	183260689
70-7012	2017	STIHL	TS-420	TS420 STIHL 14" CUTQUIK SAW	88373688
70-7013	2018	STIHL	TS420	TS420 STIHL 14" CUTQUIK SAW	183060059
70-7014	2018	STIHL	TS420	14" Cut off Saw	183063855
70-7016	2018	STIHL	TS420	14" CUT-OFF SAW 66.7 CC	184437418
70-7017	2018	STIHL	TS420	14" CUT-OFF SAW 66.7 CC	184753819
70-7018	2018	STIHL	TS420	14" CUT-OFF SAW 66.7 CC	185209886
70-7019	2011	STIHL	TS420	14" CUT-OFF SAW	17065137
70-7020	2019	STIHL	TS420	14" CUT-OFF SAW	82841214
70-7021	2019	STIHL	TS420	14" TS420 CUTOFF SAW	185795528
70-7022	2019	STIHL	TS420	14" CUT-OFF SAW 66.7 CC	185583957
70-7024	2019	STIHL	TS420	14" CUT-OFF SAW 66.7 CC	185795438
70-7026	2020	STIHL	TS420	14" CUTOFF SAW	187359607
70-7027	2020	STIHL	TS420	14" CUTOFF SAW	187359635
70-7028	2020	STIHL	TS420	14" CUTOFF SAW	187960326
70-7029	2020	STIHL	TS420	14" CUTOFF SAW	187960343
70-7030	2020	STIHL	TS420	14" CUTOFF SAW	187961252
70-7031	2020	STIHL	TS420	14" CUTOFF SAW	187961268
	2020	STIHL	TS420	14" CUTOFF SAW	188409279
70-7032	2002			PARTNER K-700 CUT OFF SAW	023400291
70-7033	2007	STIHL	MS200T	14" CHAIN SAW	164677109
70-7034	2007	STIHL	TS400	Cut off Saw	166644774
70-7035	2008	STIHL	TS420	TS420 STIHL SAW	158955551
70-7036	2008	STIHL	TS420	14" CUTQUIK SAW	166392018C
70-7037	2018	STIHL	TS420	14" STIHL SAW	186227873
70-7038	2016	STIHL SAW	TS420	14" CUT OFF SAW	181782583
70-7039		TARGET		Street Saw	1717706582
70-7040	2021	STIHL	TS420	14" PIPE SAW	189050202
70-7041		REMANN		REIMANN GEORGE 14" HYD SAW	78722
70-7042	2017	STIHL SAW	TS420	14" CUT OFF SAW	182186883
70-7043	2021	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	189725338
70-7044	2021	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	189391591
70-7045	2021	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	189585715
70-7046	2021	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	190039976
70-7047	2021	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	190412924
70-7048	2022	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	1041040-102606-1
70-7049	2022	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	1041040-102606-2
70-7050	2022	STIHL SAW	4238 011 2821	14" CUT OFF SAW 66.7CC	1041040-90958026
70-7051	2022	STIHL SAW	4238 011 2821	14" CUT OFF SAW 66.7CC	192358384
70-7052	2022	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	192470028
70-7053	2022	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	192466101
70-7054	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	193001551
70-7055	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	192499805
70-7056	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	192973449
70-7057	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	192911434
70-7058	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	192911568
70-7059	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	193566677
70-7060	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	193760420
70-7061	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	193774042
70-7062	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	193126603
70-7063	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	193338544
70-7064	2023	HILTI	DHS 600-22	Cordless Power Saw	19849
70-7065	2023	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	194740596
70-7066	2024	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	193875668
70-7067	2024	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	194934188
70-7068	2024	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	194977794
70-7069	2024	STIHL SAW	TS420	14" CUT OFF SAW 66.7CC	194933744
70-8000	2005	VERMEER	RT60	Trencher - Walk Behind	1VRX051J221000369
70-8001	2018			18" HONDA SHARK TRENCHER	
70-8002	2024	JET BAND SAW	B6 TO 260 SFPM	Item# 42W918 - MANUFACTURER # 413451	413451
<b>MISCELLANEOUS ATTACHMENTS</b>					
75-1000	2016	TRACKER MARINE BO	TRACKER TOPPER14	TRACKER MARINE JOHN BOAT	HULL SN#BUJ07191G516-MTR SN#0R638025
75-1001	2012	DAWSON	EMV 450	450D VIBRATORY HAMMER W/ACCESSORIES	60-152
75-1002		PIRANHA	ROOT GRAPPLE	72" ROOT GRAPPLE - MACHINE ATTACHMENT	
75-1003		RINEER	MO37 ROTARY DRILL	ROTARY DRILL HEAD ASSY - CAT 308C ATTACHEMNT	43154353
75-1004			SJ400	SJ400 Hydraulic Hammer for CAT 420	Y40 K 018
<b>CRANES</b>					
80-0600	1998	GROVE	RT640C	HYDRAULIC CRANE 40TON	220481
80-0800	1995	GROVE	RT745-50	HYDRAULIC CRANE 50TON	82737
80-0900	2018	CATERPILLAR	AP255E	ASPHALT PAVER 47"-8'6" WIDTH	D8A00430
80-1000	1968	PETTIBONE	30	MULTI CRANE	761A1621
80-6000	2009	CATERPILLAR	PM200	MILLING MACHINE	P1C00389

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80-7000	1997	POWERSCREEN	CHIEFTAN	CHIEFTAN TURBO POWERSCREEN	6500946/REGIST#6599046
80-7001	1997	POWERSCREEN	M70	POWERSCREEN M70	5420003
<b>WELDERS</b>					
85-1002		MILLER		MILLER WELDER	JG151356
85-1003		STOW		STOW Concrete MIXER	9210805
85-1004		STOW		STOW 3 BAG MIXER	9503458
85-1005	2006	MULTIQUIP	MC-94S	Concrete Mixer (Towable) Honda 8hp w-lift hooks	AG752739
85-1006	2008	ROADHOG	RH48200	ROADHOG ASPHALT MILLING MACHINE	0811001RH48200TLT
85-1007	2002	ASPHALT ZIPPER		Asphalt Zipper	100796
85-2000		MILLER	TRAILBLAZER 251	TRAILBLAZER 251 WELDER	KH340882
85-2001		MILLER	225G	MILLER BOBCAT 225G WELDER	KE664955
85-2002		MILLER	BOBCAT 225NT	WELDER	KJ056379
85-2003		MILLER	BOBCAT 250	AC/DC WELDER - GENERATOR	NA070140R
85-3000	2003	LINCOLN	K1585-2	COMMANDER 300 WELDER	U1030207647
85-3001	2003	LINCOLN	K1585-2	COMMANDER 300 WELDER	U1030612673
85-3002	2006	LINCOLN	K2409-1	VANTAGE 300 WELDER	U1060916439
85-3004	2001	LINCOLN	K1643-1	CLASSIC 300D WELDER	C1010800479
85-4000		MILLER	T140	MILLER BIG T40 WELDER	LA085879
85-4001	2001			SAE 400 WELDER	C1010800678
85-4002		MILLER	400D	BIG BLUE 400D- UNIT 05-3000	KF978355
85-8000		STONE	88	88 STONE MIXER	258594
85-8001		ESSICK	560H	ESSICK 560 H MIXER	828-01444
85-9000		STONE	90	90 STONE MIXER	439542
85-9001		STOW	9CM	9 CM CONCRETE MIXER	3441054
<b>GENERATORS &amp; LIGHTS PLANTS</b>					
90-1000	2020	WACKER NEUSON	GP5600A	GP5600A GENERATOR	
90-1001		HONDA	EB5000X	HONDA GENERATOR	GC05-3872817
90-1002	2006	POWER PRO	3500	GENERATOR - 3500	ENG #HY168FB/B2017299
90-1003	2006	POWER PRO	3500	GENERATOR - 3500	ENG #HY168FB/B2017370
90-1004		NORTH STAR	13000 PPG	GENERATOR (HONDA ENGINE)	8050059
90-1005	2006	HONDA	EM2500	GENERATOR - (Honda)	ENG #GC02-5669839
90-1006		HONDA	GX270	HONDA 4500W ELECTRIC GENERATOR	GCALK-1040115
90-1007	2016	HONDA	EU2000	HONDA GENERATOR - 2K WATT	EACT-1392652
90-1008	2016	HONDA	EU2000	HONDA GENERATOR - 2K WATT	EACT-1336892
90-1009	2016	RYOBI	RY903600	RYOBI 3600 GENERATOR	DB16233D030366
90-1010	2017	KABUTO	SEP-01-E	20KW GENERATOR	9179
90-1011	1997			Newage Generator	CO83704/05
90-1012	1997	NEWAGE		Newage Generator	CO83704/06
90-1013	2006	POWER PRO	3500	3500 WATT GENERATOR	YX168FB-06076402
90-1014	1997	NEWAGE		Newage Generator	009627/03
90-1015	2006	POWER PRO	3500	3500 WATT GENERATOR	YX168FB-06066495
90-1016		V-WEIN POWER	5500	GAS GENERATOR	HY-88E 89018732
90-1017	2018	WACKER	GP5600A	WACKER GENERATOR	20287541
90-1018		YOKOHAMA	8500W	GENERATOR	18CF*0026124329*
90-1019	2005	PROFORCE	PM0102500	GENERATOR 2500 Watt (POWERMATE )	D22400082C
90-1020	2005	PROFORCE	PM0102500	GENERATOR 2500 Watt (POWERMATE )	D22500567C
90-1021	2005	POWERMATE	PM116000	GENERATOR 7500 WATT	D31610302
90-1022	2007	POWERPRO	3500D	GENERATOR 3500 Watt (PowerPro) (Pep Boys)	6068603
90-1023	2016	WACKER	G 5.6	G 5.6 GENERATOR	5571775
90-1024		GUARDIAN	OHV1 GENERATOR	1500 GUARDIAN OHV1 GENERATOR	ENG SN#4457003
90-1025		POWERMATE	PM060110	POWERMATE PRO1100 GENERATOR-HONDA ENGINE	C27310536
90-1026		ALL POWER	6.5 HP GENERATOR	ALL POWER 3250 WATT GENERATOR APG3012	20010V300755
90-1027	2018	HONDA	EU2200	HONDA GENERATOR	EAMT1399918
90-1028		ALL POWER	APG3001	ALL POWER 3500 WATT GENERATOR APG3001	200122250066.00
90-1029	2008	KUBOTA	SEP-21.0	INDUSTRIAL GENERATOR - ATTACHED TO U#212	0235531/002
90-1030		BURCO		BURCO GENERATOR 15KW	7035119
90-1031		HOOD		HOOD GENERATOR SETS	8344
90-1033		WACKER	CS5.6	WACKER GENERATOR CS5.6	LCF000777
90-1034		WACKER	CS5.6	WACKER GENERATOR CS5.6	5103261
90-1035	2015	GENERAC	Portable Light Tower	Portable Light Tower	1510581
90-1036	2016	TEREX	RL4	LIGHT TOWER - KOHLER 3 CYL	1416
90-1037	2016	MULTIQUIP	LT6KV	LIGHT TOWER - KOHLER 3 CYL	41134
90-1038	2007	YOKOHAMA	YK8500E	GENERATOR SET	235
90-1039	2007	YOKOHAMA	YK8500E	GENERATOR SET	253
90-1040	2003	INGERSOL RAND	G5H	GENERATOR SET ON WHEELS	0008343UA01
90-1041		COLEMAN	POWERMATE PM0601100	POWERMATE GENERATOR-HONDA ENGINE	C27310544
90-1042	2021	Ryobi	RY906500VNM	6500 Watt Generator with Co Detect	NQ21175D034680
90-1043	2021	HONDA	EU3000S1AN	HONDA 120V 3000 WATT INVERTER GENERATOR	00X31Z59611
90-1044	2021	HONDA	EU2200ITAN	HONDA 2200W INVERTER GENERATOR	EAMT-2451751
90-1045					
90-1046	2022	DEWALT	PMC168000.03	DEWALT PORTABLE GENERATOR 8000W	3008358441
90-1047	2019	LEROY	404D-22TG	Generator 30KW - NO 726824 004	2201-190403101 36
90-1048	2023	HONDA	EU2200ITAN	HONDA 2200W INVERTER GENERATOR	EAMT-2757954
90-1049	2023	HONDA	EU2200ITAN	HONDA 2200W INVERTER GENERATOR	664240
90-1050	2023	HONDA	EU2200ITAN	HONDA 2200W INVERTER GENERATOR	EAMT- 2929689
90-1051	2023	HONDA	EU2200ITAN	HONDA 2200W INVERTER GENERATOR	EAMT- 2899529
90-1052	2024	HONDA	EU2200ITAN	HONDA 2200W INVERTER GENERATOR	EAMT-2879870
90-2000	1994	TAYLOR	TE155S	TAYLOR FORKLIFT TE155S	S-B5-21221
90-2001	2001	TAYLOR	THD610	TAYLOR FORKLIFT THD610	29911
90-2002	2010	NISSAN	MCU1F2A25LV	NISSAN FORKLIFT	CU1F2-9Q0942



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90-3000	2001	CATERPILLAR	TH63	TELEHANDLER / HIGHLIFT	5WM03918
90-3001	2016	SKYTRAK	6036	TELESCOPIC FORKLIFT	150074325
90-4000	2017	TK	CM9	TK CEMENT MIXER	3A9S38M11H1168066
<b>BUCKETS / FROST TEETH</b>					
95-1000	2019	CAT / JD / CASE / HYD	20" DIGGING BUCKET	FOR 311/315F	1 U3252 TEETH + 65 MM PINS
95-1001	2019	CAT / JD / CASE / HYD	24" DIGGING BUCKET	FOR 311/315F	1 U3252 TEETH + 65 MM PINS
95-1002	2019	CAT / JD / CASE / HYD	42"	FOR 311/315F	
95-1004					
95-1003	2019	CAT / JD / CASE / HYD	72"	FOR 311/315F	
95-1020	2019	CATERPILLAR	42"	FOR 311/315F	Currently w/311F
95-1005	2019	CAT / JD / KOM	30" DIGGING BUCKET	FOR 325F	1 U3352 TEETH + 80 MM PINS
95-1006	2019	CAT / JD / KOM	36"	FOR 325F	
95-1007	2019	CAT / JD / KOM	48"	FOR 325F	
95-1008					
95-1033	2019	CAT / JD / KOM	54"	FOR 325F	
95-1009	2019	CAT / JD / KOM	84"	FOR 325F	
95-1010		WAIN-ROY	BKTECR58	24" HDM 30 BUCKET	185414
95-1011	1995			4 CUBIC CLAMSHELL BUCKET	RH-1257
95-1012	2011	CAT	30" DIGGING	308D/85D	
95-1013	2018	TERAN	38" DIGGING	308D/85D	
95-1014	2022	TERAN	18" DIGGING	311F-312E-315F	
95-1015	2020	CAT	48" DITCHING	308D/85D	306-5664
95-1016	2011	WORK BRAU	32" DIGGING	308D/85D	
95-1017	2012	CP	18" DIGGING	308D/85D	
95-1018	2019	CENTRAL FAB.	72" DITCHING	311F-312E-315F	219421
95-1019	2019	STRICKLAND	42" DIGGING	311F-312E-315F	5002979-109
95-1020	2016	STRICKLAND	42" DIGGING	311F-312E-315F	
95-1021	2014	ESCO	44" DIGGING	321D-325F/245G	RH106283
95-1022	2019	CAT	83" DITCHING	321D-325F/245G	
95-1023	2019	CENTRAL FAB.	85" DITCHING	321D-325F/245G	219354
95-1024	2015	CAT	48" DIGGING	336FL	332-4840
95-1025	1996	WORK BRAU	20" DIGGING	311F-312E-315F	
95-1026	2012	CAT	30" DIGGING	328D-335F	346-0878
95-1027	2001	WORK BRAU	63" DIGGING	365BL	FX93860
95-1028	2014	TERAN	18" DIGGING	308D/85D	
95-1029	2019	CAT	40" DIGGING	328D-335F	
95-1030	2014	CAT	24" DIGGING	321D-325F/245G	
95-1031	2014	STRICKLAND	83" DITCHING	321D-325F/245G	500279-25
95-1032	2014	DEISAL EQUIP.	18" DIGGING	308D/85D	
95-1033	2014	EMAQ/TERAN	54" DIGGING	328D-335F	MZ1Z11276318
95-1034	2012	CAT	36" DIGGING	328D-335F	
95-1035	2015	JOHN DEER	48" DIGGING	350JD	00068167-1
95-1036	2014	CAT	30" DIGGING	321D-325F/245G	
95-1037	2012	TERAN/EMAQ	24" DIGGING	308D/85D	
95-1038	2019	CAT	54" DIGGING	328D-335F	346-0842
95-1039	2011	WORK BRAU	18" DIGGING	308D/85D	
95-1040	2013	HENSLEY	32" DIGGING	321D-325F/245G	42492
95-1041	2012	CAT	24" DIGGING	328D-335F	3460877
95-1042	2014	STRICKLAND	30" DIGGING	308D/85D	5005734-29
95-1043	2015	CAT	84"	390FL	
95-1044	2014	DEISAL EQUIP.	30" DIGGING	311F-312E-315F	GA2020030
95-1045	2015	CAT	30" DIGGING	336FL	443-6086
95-1046	2001	CAT	72" DIGGING	365BL	
95-1047	2016	CAT	18" DIGGING	304E	
95-1048	2016	CAT	18" DIGGING	304E	
95-1049	2000	HENDRIX	34" DIGGING	328D-335F	
95-1050	2000	GEITH	24" DIGGING	321D-325F/245G	
95-1051	2001	HOME MADE	40" DIGGING	365BL	
95-1052	1990	UNKNOWN	84" DITCHING	336FL	
95-1053	2015	WRXLS	12" DIGGING	230TB-240TB	
95-1054	2015	WRXLS	18" DIGGING	230TB-240TB	
95-1055	2022	TERAN	24" DIGGING	312E	243214
<b>FORKS</b>					
96-0001		ERSKINE		FORK FOR 55-0700	JF10045
96-0100		CATERPILLAR	914	FORKS	Fusion 96" x 57"
96-0200			926		2.7 cy
96-0201			926		2.7 cy
96-0202				FORK FOR 25-0213	JF08557
96-5100			914		Forks
96-5200			926		Forks
96-5201			926		Forks
<b>TRENCH / STONE BOXES</b>					
100-1000				Cleanout/Night box with adapters, Atfm 4'x4'x24'	C6M0624B
100-1001		MABEY		8'x26' WALL TRENCH BOX, MABEY BRIDGE	14352
100-1002		MABEY		8'x26' WALL TRENCH BOX, MABEY BRIDGE	14353
100-1003				10X27'8" EFF STEEL TRENCH BOX (HT8-1027)	
100-1004		Located 504		6'X10'X3" STEEL TRENCH BOX	
100-1005				8'X10'X1" STEEL TRENCH BOX	
100-1006				8'X24'X8" STEEL TRENCH BOX	
100-1007				8'X26'X8" STEEL TRENCH BOX	

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100-1008				8'X26'X8" STEEL TRENCH BOX	
100-1009				8'X26'X8" STEEL TRENCH BOX	
100-1010				8'X28'X8" STEEL TRENCH BOX	
100-1011				8'X28'X8" STEEL TRENCH BOX	
100-1012				7'X24'X6" STEEL TRENCH BOX	
100-1013				6'X10'X3" STEEL TRENCH BOX	
100-1014				6'X10'X3" STEEL TRENCH BOX	
100-1015				6'X10'X3" STEEL TRENCH BOX	
100-1016				6'X10'X3" STEEL TRENCH BOX	
100-1017				6'X24'X8" STEEL TRENCH BOX	
100-1018				6'X24'X8" STEEL TRENCH BOX	
<b>GAS MONITORS (AIR DETECTION)</b>					
150-0001	2007	MSA	SOLARIS	MULTIGAS DETECTOR (P/N10047226)	A5-76789
150-0002	2007	MSA	SOLARIS	MULTIGAS DETECTOR (P/N10047226)	A5-76788
150-0003	2007	MSA	SOLARIS	MULTIGAS DETECTOR (P/N10047226)	A5-74599
150-0004	2006	MSA	SOLARIS	MULTIGAS DETECTOR (P/N10047226)	A5-45079
150-0005	2006	MSA	SOLARIS	MULTIGAS DETECTOR (P/N10047226)	A5-45083
150-0006	2011	MSA	ALTAIR 4X	ALTAIR 4X MULTIGAS DETECTOR	
150-0007	2012	MSA	ALTAIR 4X	ALTAIR 4X MULTIGAS DETECTOR	138298
150-0008	2012	MSA	ALTAIR 4X	ALTAIR 4X MULTIGAS DETECTOR	138299
150-0009	2010	RKI	GX-2001 (N)	MULTIGAS DETECTOR (RED)	9Y4020012
150-0010	2009	RKI	GX-2001 (N)	MULTIGAS DETECTOR (RED)	8X3020450
150-1000	2006	M S A	SOLARIS	Multigas Detector (P/N 10047226)	A5-49223
150-1001	2006	M S A	SOLARIS	Multigas Detector (P/N 10047226)	A5-49224
150-1002	2010	M S A	ALTAIR 4X	Multigas Detector	00081224
<b>SMALL HANDHELD EQUIPMENT</b>					
A-001A				BROWNIES THIRD LUNG-C260X	
A-002A	2007	SCHONSTEDT	GA-5Z-CX	METAL DETECTOR - REBAR LOCATOR	235068
A-003A	2008		PPT265	26CC POWER PRUNER/POLE SAW	11006153
A-004A	2010			AIR IMPACT WRENCH 11IN	
A-005A		MAKITA	DCS-6401	MAKITA CHAIN SAW	508847562
A-006A		STIHL	STIHC-039	STIHL CHAIN SAW	1127-021-0600
A-007A		POULAN PRO	PP4218A	42CC POULAN CHAIN SAW	13296N200425-1
A-008A		STIHL	MS290	STIHL CHAIN SAW	287250125
A-009A	2015	TORPEDO HEATER		OIL FIRED TORPEDO HEATER - 170,000 BTUH	3VE51
A-010A	2019	UNITEC	5-1027-0010	PNEUMATIC CHAIN SAW WITH BRAKE	
A-011A	2016	IT-RD62-78314	ROCK DRILL	IT-RD62-78314 ROCK DRILL 7/8 X 3-1/4 30LB	N/A
A-012A	2016	IT-RD62-78314	ROCK DRILL	IT-RD62-78314 ROCK DRILL 7/8 X 3-1/4 30LB	N/A
A-013A	2016	SUNITEC/SPITZNAS	CS213350010	HAND HELD CORE DRILL, WET PNEUMATIC 3.8HP	16121
A-014A	2016	SUNITEC/SPITZNAS	CS213350010	HAND HELD CORE DRILL, WET PNEUMATIC 3.8HP	16122
A-015A	2016	SUNITEC/SPITZNAS	CS213350010	HAND HELD CORE DRILL, WET PNEUMATIC 3.8HP	
A-016A	2001			AIR RACHET 1"(IMPACT GUN)	N/A
A-017A	2001	DEWALT	DW236	DEWALT DW236 DRILL	76680
A-018A	2001	DEWALT	DW236	DEWALT DW236 DRILL	76748
A-019A	2001			1/2IMPACT WRENCH W/DETE	167618
A-020A	2001			1/2IMPACT WRENCH W/DETE	299612
A-021A	2009	INGERSOL RAND	IR2141	3/4" IMPACT WRENCH GUN	A09F
A-022A	2001			1/2"IMPACT WRENCH W/DETE	299615
A-023A	2001			CP-9 AIR GUN	CA 144007
A-024A	2001	MILWAUKEE		MILWAUKEE HOLE SHOOTER	567B100342356
A-025A	2001	DEWALT	DW236	DEWALT DW236 DRILL	319721
A-026A	2001			1" IMPACT WRENCH	PAUL W
A-027A	2001			1/2"COMPACT DRILL W/RACHET	719-B-401190370
A-028A	2001			4"HORIZONTAL GRINDER W/	105029
A-029A	2016	MILWAUKEE	MODEL #1854-1	3/4" DRILL	567D316510034
A-030A	2018	STIHL	220	20" CHAINSAW	11230210802A
A-031A	2005	DeWalt	DW296	IMPACT WRENCH	4005
A-032A	2005	MAKITA	DA301	Angle Drill 3/8" Chuck	9451E
A-033A	2007	MAKITA	JR3050T	Recipro Saw	0150137Y
A-034A	2007	MAKITA	JR3050T	Recipro Saw	0150139Y
A-035A	2011	DeWalt	3/4" IMPACT WRENCH	3/4" IMPACT WRENCH	10432
A-036A	2019	BOSCH	11255VSR	ROTARY HAMMER D-HANDLE 7.2 AMP	
A-037A		PLUNGE CUT	890	CONCRETE CHAIN SAW	14185
A-076A		MI-T-M	HSP-3504-MGH	PRESSURE WASHER	15032096
A-078A		STEALTH	HP404-HTD	PRESSURE WASHER (HONDA GX390 ENG. ENG S/N:GCAA-3074973)	21321
A-079A	2021	NORTH STAR	2750 PSI - 2.5 GPM	LECTRIC WET STEAM AND HOT WATER PRESSURE WASHER 230 VOLT	09211213
A-088A		REED	UPC636	REED PIPE CUTTER MODEL UPC636	475B
A-090A		JETAWAY		JETAWAY STEAM CLEANER	16684
A-092A		MIGHTY MITE		MIGHTY MITE 516 PIPE PUSHER	516R
A-093A				V5 DRIVER/EXTRACTOR	25932
A-094A				HOE HAND	HH249360892M
A-095A				35 LB PAVEMENT BREAKER	SSK2652C
A-096A		KOERING	HP105VIBST	KOERING MODEL#HP105VIBST	1751104P
A-097A	2000			4"PIERCE AIRROW PIERCE TOOL	9T0096
A-098A	2007	RIDGID	600 COMLPETE	TAPPING MACHINE W/CRADLE	07F1136998
A-099A		REED	TAPPING MACHINE	TAPPING MACHINE / PIPE TAP 3/4 - 2"	
A-100A		OPTIMA	OP-923	PORTABLE AXLE WEIGH SCALE	PENDING
A-101A		RIDGID	RT3422	RIGID Taping Tool System Kit	LANZO 802
A-102A		KABUTO	DIVE COMPRESSOR	DIVE COMPRESSOR TESTING ; OSHA SEMI ANNUAL	9-N-001827
A-103A	2001	MAGNA-TRAK		MAGNA-TRAK METAL DETECTOR	

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A-104A	2001	MAGNA-TRAK		MAGNA-TRAK METAL DETECTOR	450210480
A-105A	2001			CORE DRILL	8823168
A-106A	2001			30 GAL. VOLUMN TANK	349183
A-107A	2001	DESCO		DESCO COMMERCIAL MASK	59069C
A-108A	2001	MUELLER		MUELLER TAPPING MACHINE	BRET
A-109A	2001			WELL POINT BOX	SHOP
A-110A	2001	LETZ	300	LIETZ 300 LEVEL	2581
A-111A	2001	PENTAX	PAL-5C	PENTAX LEVEL	PAL-5C-232486
A-112A	2001			REMOTE CONTROL	MODEL-1166-SPY-1166B
A-113A	2001	HEATH	2923754	AQUASCOPE WATER LEAK DETECTOR	2831-4714
A-114A	2001			WATER LEAK DETECTOR	
A-115A	2001			UMBILICAL, MASK, COMMUNIC	BOX 21912
A-116A	2001			UMBILICAL, MASK, COMMUNIC	BOX 21870
A-117A	2001			UMBILICAL, MASK, COMMUNIC	BOX 21869
A-118A	2002			MAN HOLE BLOWER	64146
A-119A	2001			TOP CON PIPE LAZER	VC0313
A-120A	1997			PRESSURE WASHER/MEDLEY	1573701-0299-7870
A-121A	2002	MAGNA-TRAK		MAGNA-TRAK METAL DETECTOR	450210559
A-122A	2002	RIDGID	RT-1000	MINI TAPPING TOOL	MODEL# RT-1000
A-123A	2003	MAKETA	6906	MAKETA 6906 ANCOR SETTER	15109E
A-124A	2003	GENERAL	GP8H	MAN HOLE BLOWER	H31701
A-125A		HYDROTECK	HX35005	PRESSURE WASHER - SHOP YARD	200501174
A-126A		LEICA	NA824	LEICA Model NA824 Level	5009573
A-127A	2004			GTS-226 TAPCON TTL STATION	UN5657
A-128A	2004			AT-G2 AUTOMATIC LEVEL	TG 5257
A-129A	2004			CAD EQUIPMENT	341-323794988341-32379597
A-130A	2005	SPECTRA	TR AL124	Transit Level	811942
A-131A	2010	SPECTRA	TRIMBLE AL228	28X AUTO LEVEL	827094
A-132A	2006	SPECTRA	TR AL224	Transit Level	817763
A-133A		STIHL	BT45	Drill "Gas Powered"	25498197
A-134A		STIHL	BT45	Drill "Gas Powered"	
A-135A	2006	BOSCH	11304	Demolition Hammer (Electric 15. A / 120.V)	591 001367
A-136A	2012	HYDROTEK	HP30004E2	PRESSURE WASHER - 3000PSI	201201096
A-137A		RGF	ULTRASORB	INDUSTRIAL SM PRESSURE WASHER W/500G TANK	8-1259
A-138A	2010	TRIMBLE	AL228	28X AUTO LEVEL	826643
A-139A	2016	EICA GEOSYSTEMS	DIGICAT 550I 60HZ	UNDERGROUND UTILITY LOCATER	323022
A-140A	2016	EICA GEOSYSTEMS	ATEX 100T SIGNAL TRANSMIT	UNDERGROUND UTILITY LOCATER TRANSMITTER	506772
A-141A	2016	EICA GEOSYSTEMS	DIGICAT 550I 60HZ	UNDERGROUND UTILITY LOCATER	321214
A-142A	2016	EICA GEOSYSTEMS	ATEX 100T SIGNAL TRANSMIT	UNDERGROUND UTILITY LOCATER TRANSMITTER	909036
A-143A	2016	EICA GEOSYSTEMS	DIGICAT 550I 60HZ	UNDERGROUND UTILITY LOCATER	319633
A-144A	2016	EICA GEOSYSTEMS	ATEX 100T SIGNAL TRANSMIT	UNDERGROUND UTILITY LOCATER TRANSMITTER	908441
A-145A	2003	TOPCON	TP-L44V	PIPE LASER	VE0258
A-146A	2003	TOPCON	TP-L44V	PIPE LASER	VE0255
A-147A	2002			CST 24X AUTO LEVEL DEGREE	A63786
A-148A		LIETZ	200	LIETZ MOD.200 TRANSIT	404117
A-149A		LEICA		LEICA PIPE LEVEL WILD NA20	683243
A-150A		DIAL-A-GRADE	1165	DIAL-A-GRADE MOD.1165	2203
A-151A		ACCUBEAM	MODEL 6	ACCUBEAM MODEL 6	
A-152A				LASER BEAM ALIGNER	47-1927
A-153A		LEICA		LEICA PIPE LEVEL MOD.NA720	5115897
A-154A			SPY1250HP	LASER-SPY1250HP DIALGRADE	11307
A-155A	2003			TROXLER Model # 3440	34378
A-156A	2001			3"PIPE MOLE W/4"EXPANDER	95147
A-157A	2005	SPECTRA LASER	DG711	Pipe Laser	7730
A-158A	2005	SPECTRA LASER	DG711	Pipe Laser	9375
A-159A	2006	SPECTRA LASER	DG711	TRIMBLE SPECTRA DG711 PIPE LASER	13428
A-160A		APACHE	ARROW 2	APACHE ARROW 2 LASER	10929
A-161A	2018	TRIMBLE	DG613 SPECTRA	PIPE LASER	18046651
A-162A	2008	SPECTRA	DG711	SPECTRA DG711 PIPE LASER	15937
A-164A	USED	ISCO	6"-18" IPS BUTT FUSION MA	IPS BUTT FUSION MACHINE	512460-3 / T-T0666934-1
A-165A	USED	ISCO	DBGA-80	6"-8" POLYETHYLENE PIPESQUEEZE TOOL	N/A
A-166A	2017	RTH AMERICAN SIG	RCF 2.4 AFAD	AUTOMATED FLAGGER ASSISTANCE MACHINE	VIN#2F9TSA1A0HP084424/UNIT# RCF2-4424
A-167A	2017	RTH AMERICAN SIG	RCF 2.4 AFAD	AUTOMATED FLAGGER ASSISTANCE MACHINE	VIN#2F9TSA1A2HP084425/UNIT# RCF2-4425
A-168A	2018		RCF 2.4	AUTOMATED FLAGGER ASSISTANCE MACHINE	UNIT#RCF2-4427
A-169A	2018		RCF 2.4	AUTOMATED FLAGGER ASSISTANCE MACHINE	UNIT#RCF2-4426
A-170A	2013	SULLAIR	MPB-90A	AIR #90 PAVEMENT BREAKER	174297
A-171A	2019	FLORIDA CIVIL		SEDIMENT TANK 4 - 1500 GAL'S	N/A
A-172A	2019			20' CONTAINER	
A-173A	2000	Genie	GS2032	SCISSORLIFT	GS818
A-174A	2000	Genie	GS2032	SCISSORLIFT	GS32819
A-180A		INGERSOL RAND	80 LB JACK HAMMER	INGERSOLL RAND 80 LB JACK HAMMER	A05L01307
A-181A		Sandblasting Machine w/ Att	30 LB	SANDBLASTING MACHINE	
A-182A	2007	AQUABLAZE	AB4040DGF120V	4000 PSI CLEANING SYSTEM	61074
A-183A	2006	MOUNTING PLATE		MOUNTING PLATE	
A-184A	2006	MOUNTING PLATE		MOUNTING PLATE	
A-185A	N/A	HOMEMADE	40'X20'	SECTIONAL PIN BARGE	
A-186A	N/A	HOMEMADE	40'X20'	SECTIONAL PIN BARGE	
A-193A		EX-CELL	HONDA GX SERIES	2500 PSI PRESSURE WASHER 6.5HP	N/A
A-196A	2001			PRO CUT 80 PLASMA CUTTER	U1010820972
A-198A	2001			LN-25 WIREFEEDER	U1011018254
A-199A	2013	TOPCON	AUTOMATIC LEVEL	AT-B3/AT-B4 AUTOMATIC LEVEL	JZ0240

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A-200A	2009	TOPCON	AT-G6	TOPCON AT-G6 AUTO LEVEL	B33937
A-201A	2009	YORK		PORTABLE LINE BORING MACHINE	231840
A-202A	2019	TOPCON	AT-B4A	TOPCON AT-B4A AUTO LEVEL	WP077786
A-203A		MILLER	MR40K	MIGHTY EVAC WINCH-SELF RETRACT LIFE LINE	303440
A-204A		MILLER	MR40K	MIGHTY EVAC WINCH-SELF RETRACT LIFE LINE	303439
A-205A	2018	BOSCH	BRUTE	ELECTRIC JACK HAMMER	708000158
A-206A	2015	RYOBI	RY80940B	RECON 3100 PSI HONDA POWER WASHER	DA15515D040073
A-207A	2019	SNAP ON	PART #TIG90150	HEAVY DUTY KING PIN PRESS PART	N/A
A-208A	2019	WESTWARD	22XP38, 22XP39	DRAIN CLEANING MACHINE	
A-209A	2016	NORTH STAR	PCO SPRAYER	100 GAL SKID SPRAYER #268177D	0516-4929
A-210A	2017	DEWALT	HONDA	4200 PSI POWER WASHER	
A-211A	2021	MILWAUKEE	2767-20	1/2 SQUARE - RING IMPACT WRENCH	H96AF212407002
A-212A	2021	MILWAUKEE	2854-20	3/8 SQUARE - COMPACT IMPACT WRENCH	L57AF211700304
A-213A	2021	Chicago Pneumatic	CP4133 3R	Concrete Chipping Hammer .680	804056-3
A-214A	2021	Chicago Pneumatic	CP4133 3R	Concrete Chipping Hammer .680	5817A3
A-215A	2021	TAYLOR	T-8796	1" IMPACT WRENCH	T0003688
A-216A	2021	MILWAUKEE	2801-20	1/2 IN. COMPACT BRUSHLESS DRILL DRIVER	J86AH213602803
A-217A	2021	MILWAUKEE	2850-20	1/4 IN. COMPACT BRUSHLESS HEX IMPACT DRIVER	J55AH213708094
A-218A	2020	MATCO TOOLS	AC438	A/C RECOVERY, RECYCLING AND RECHARGING MACHINE	438000-041021-074
A-219A	2019	RYOBI	RY25AXB	FULL CRANK 2 CYCLE BLOWER	EU19424D011212
A-220A	2022	NORTH STAR	49430	4000 PSI SURFACE CLEANER	N/A
A-221A	2022	HILTI	DD 250-CA	CORE DRILL	103847
A-222A	2021	HILTI	DD-HD 30	CORE DRILL STAND	925337
A-223A	2022	Chicago Pneumatic	4133	2023	804033-3
A-224A	2022	VIAIR	400P	400P AUTOMATIC PORTABLE COMPRESSOR	210315901
A-225A	2022	Simpson	PS4240H	4200 PSI PRESSURE WASHER W/ HONDA ENGINE & COMET	05218537797
A-226A	2023	VIBROTHERM	1778-WXL	3/4" IMPACT WRENCH	KENNY
A-227A	2023	VIBROTHERM	1778-WXL	3/4" IMPACT WRENCH	KENNY
A-228A	2023	Chicago Pneumatic	CP4133 3R	3" STROKE CHIPPIN HAMMER	7201A3
A-229A	2023	Chicago Pneumatic	CP4133 3R	3" STROKE CHIPPIN HAMMER	
A-230A	2023	Chicago Pneumatic	CP1210	1" 40LB Pneumatic Breaker Hammer	PUN 933725
A-231A	2023	Chicago Pneumatic	CP1260	1 1/8" 60LB Pneumatic Breaker Hammer	PUN 828138
<b>LINING</b>					
L-001A	2015	ARIES	TR2000	TR2000 TRACTOR, 6-15IN PIPE KIT / FRAME SPREADER	TR2000-15016248
L-002A	2016	AGINEERED SOLUTIONS		12" SHOOTER WITH SLIDE GATE	ESI-S12RB-U-5127-N
L-003A	2016	AGINEERED SOLUTIONS		12" SHOOTER WITH SLIDE GATE	ESI-S12RB-U-5128-N
L-008A		WINCH	PORTABLE	POWER WINCH W/MOTOR AND 1000' OF 3/16"SS CABLE	
L-009A	2014	CIPP	8 - 18 BASIC	CIPP SVC MODEL 8-18 AIR INVERTER / SHOOTER	
L-010A	2015	NozzTeq	LJ300C	24" TORQUE MULTI PURPOSE CUTTER	
L-011A	2004			Rotating Chain Cutter 8"-16" Pipes	10.200R
L-012A	2005	ENZ	EU10200RS	Rotating Chain Cutter 8"-16" Pipes	
L-013A	2009	TURBO II	CHAIN CUTTER	FLEXIBLE 6" - 12" CHAIN CUTTER	P/N 1-0403
L-014A	2005	FLOW-TEK	LJ300C	8"21" Lumberjack 300 Series	
L-015A	2007	NozzTeq	LJ300C	8"21" Lumberjack 300 Series	
L-016A	2015	PROTEUS	MINI CAM	PROTEUS INSPECTION SYSTEM BY MINICAM	PCU-0121
L-017A	2016	KOHLER	CH 1000	9085 PRESSURE WASHER 7000PSI	16-11216
L-018A	2016	CHEMGROUT	708354-7112	TRAILER MOUNT AIR POWERED GROUT MACHINE W/DBL HOPPER	16131225D02C6GH
L-019A	1999			36 X 60 DOME HEAD PLUG	
L-020A		LUMBERJACK	200 SERIES	LUMBERJACK 200 FULL KIT SERIES	
L-021A	2017	MP PLUS SYSTEM	SR300	AUTO UPRIGHT CAMERA W/SONDE	CAMERA SER#16070701
L-022A	2017	HP PROBOOK 450	G4 NOTEBOOK	LAPTOP COMPUTER W/DOCKING STATION	LAPTOP SER#0020170030416
L-023A	1997			STANLEY HYDRAULIC UNIT-PORTABLE	
L-024A	2000			HYD.POWER UNIT W/PUMP10209	7907
L-025A		NJR	PINCH ROLLERS	OVER-THE-HOLE ROLLER & CONVEYOR	
L-026A		COMMERCILA ICE		INDUSTRIAL ICE MACHINE	
L-035A	2016	NJR	TITAN SERIES 160 INCH	PORTABLE WET-OUT CONVEYOR W/RESIN MIXING SYSTEM	N/A
L-036A	2018	NJR	SCRM-Gen 3-7.1	PORTABLE SKID MOUNT STATICE RESIN MIXING SYSTEM (BACK-UP)	N/A
L-037A	2018	HAMMERHEAD - PICOTE		MAXI MILLER SYSTEM	
L-038A	2019	NJR INDUSTRIES	-	160" WET-OUT CONVEYOR / POWERED IN-FEED SYSTEM	PENDING 4-12-2019
L-039A				PROSCOUT COLOR CAMERA	03021601
L-040A		GENERAL	GPS	BLOWER - GPS	H30671
L-041A	2006	ALLEGRO	9504	Manhole Blower (Electric Motor)	1899
L-042A	2006	ALLEGRO	9504	Manhole Blower (Electric Motor)	1898
L-043A	1999	ALLEGRO		ALLEGRO MANHOLE BLOWER 9505	56282
L-044A	2004			ALUMINUM SHOOTER FOR CIPP	
L-045A	2012	ECKO	Air MOVER	Reversible 8" Confined Space Blower with Hose	0003576
L-046A	2012	FRENCH CREEK	TF7	7' Adjustable Aluminum Tripod	19176
L-047A	2012	FRENCH CREEK	R50G	3 Way Rescue Unit	19045
L-048A	2012	FRENCH CREEK	MW50G	Work Winch	19077
L-049A	2016	SOLER & PALAU	CTB42	INDUSTRIAL TUBULAR CENTRIFUGAL BLOWER	SN579371-1
L-050A	2016	SOLER & PALAU	CTB42	INDUSTRIAL TUBULAR CENTRIFUGAL BLOWER	SN579371-2
L-051A		SEWER PLUG		24"X48" SEWER PLUG WITH "4 FLOW THRU AND 24" SLEEVE	
L-052A		SEWER PLUG		24"X48" SEWER PLUG WITH "4 FLOW THRU AND 24" SLEEVE	
L-053A		SEWER PLUG		24"X48" SEWER PLUG WITH "4 FLOW THRU AND 24" SLEEVE	
L-054A		SEWER PLUG		36"X60" SEWER PLUG WITH 36" SLEEVE	
L-055A		DOMEHEAD	2/1/2017	6" X 10" DOMEHEAD PLUG	
L-056A		DOMEHEAD	2/1/2017	12" X 18" DOMEHEAD PLUG	
L-057A		6" FLOW THROUGH	2/1/2017	10" X 16" - 6" FLOW THROUGH PLUG	
L-058A		6" FLOW THROUGH	2/1/2017	20" X 40" - 6" FLOW THROUGH PLUG	
L-059A		DOMEHEAD	2/1/2017	24" X 48" DOMEHEAD PLUG'S @ 3PCS	

# Equipment List



L-060A		DOMEHEAD	2/1/2017	48" X 32" DOMEHEAD PLUG	
L-061A		4" FLOW THROUGH	2/1/2017	12" X 18" - 4" FLOW TROUGH PLUG	
L-062A		4" FLOW THROUGH	2/1/2017	10" X 16" - 4" FLOW THROUGH PLUG	
L-063A		2" FLOW THROUGH	2/1/2017	8" - 2" FLOW THROUGH W/HIGH PRESSURE PLUG	
L-064A		2" FLOW THROUGH	2/1/2017	24" - 2" FLOW THROUGH W/HIGH PRESSURE PLUG	
L-065A		DOMEHEAD	2/1/2017	20" X 36" DOMEHEAD PLUGS @ 2PCS	
L-066A		2" FLOW THROUGH	2/1/2017	15" X 30" - 2" FLOW THROUGH PLUG	
L-067A		4" FLOW THROUGH	2/1/2017	8" X 12" - 4" FLOW THROUGH PLUG	
L-068A		6" FLOW THROUGH	2/1/2017	12" X 18" - 6" FLOW THROUGH PLUG	
L-069A	2017	PROTEUS	MINI CAM INSPECTION SYSTEM	Camera Control Unit (Rent to Own)	00320
L-070A		TROPICOL	TC500	TROPICOL TC500 LINER WATER CHILLER BATH	1219408-A18
L-071A	2018	LUMBERJACK	300 SERIES	LUMBERJACK 300 CUTTER 8-21"	992
L-072A	2018	HURRICANE	BR 3500	HEATED POWER WAHSEY-SKID MOUNTED	21809 / 18-05715
L-073A	2019	NJR INDUSTRIES		5HP VACUUM BUDDY	
L-074A	2019	UNITED SURVEY	DTS SYSTEM	FIBER OPTIC CIPP TEMP MONITOR SYSTEM	DE 47502356
L-075A	2015			COMMUNICATION SYSTEM - OMID 5B	MULTIPLE
L-076A	2020	EXAS UNDERGROUND	TVT-150 / TVT-300	TVT-150 PIPE INSPECT SYSEM W/FULL TRIO-VISION CRAWLER SYS	PENDING 3-10-20
L-077A	2020	JDC EASEMENT		EASEMENT UNIT	2030
L-078A	2021	SCHWALM	TALPA FSR 2060	TALPAFSR2060 DIG 12PIN CUES	2060-6D-399 CUES
L-079A	2022	CUES	MZ330-2	OZ 3 PAN AND TILT CAMERA	22061435

# Past Project Experience Listing

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Work Performed List

**Section**

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
P014	Miami Beach, Storm Water Pump Stations,18-09/10 Cntl. BayshoreA/Lake Pancoast/ C	Florida	Miami Beach, City of	\$2,250,000.00	TBD	TBD	Joe B	Steve Bone
P015	NSID Chemical Storage Facility, Change Order	Florida	North Springs Improvements District	\$1,053,987.00	TBD	\$1,053,987.00	Mike G.	Steve Bone
P013	NSID Chemical Storage Facility	Florida	North Springs Improvements District	\$1,350,000.00	TBD	TBD	Joe B.	TBD
P012	North Miami Beach Norwood Oeffler WTP VOC Removal Phase 2	Florida	North Miami Beach, City of	\$6,543,000.00	TBD	\$6,517,264.00	Mike G.	TBD
P011	Miami Beach, Sunset Harbour Pump Sta and Drainage Improvements	Florida	Miami Beach, City of	\$1,854,963.00	TBD	TBD	Joe B.	Steve Bone
P010	Lake Clarke Shores Pump Station 5 for Lanzo Trenchless	Florida	Lake Clarke Shored, The City of	\$83,149.00	08/30/13	\$83,149.00	Mike G.	Steve Bone
P009	ER Pump Station Rehab	Florida	Miami Dade Water and Sewer Dep.	\$942,610.00	10/17/12	\$1,752,216.00	Joe B.	Paul W.
P008	NSID RO Improvements Project	Florida	North Springs Improvements District	\$19,450,000.00	TBD	TBD	Joe B.	Steve Bone
P007	Key West, Patricia and Ashby Stormwater Emergency Outfall	Florida	Key West, City of	\$1,485,580.00	12/27/12	\$1,250,734.00	Mark G.	Phil
P006	NSID Parkland, Decorative Fountains	Florida	North Springs Improvements District	\$2,875,000.00	05/18/12	\$2,722,510.00	Mike B.	Tom
P005	City of Miami Beach, Storm Pump Sta Cntl. BayshoreA/Lake Pancoast/ C	Florida	Miami Beach, City of	\$2,405,819.00	TBD	TBD	Joe B.	Steve Bone
P004	Waste Water Treatment Plant Service Area 7	Florida	Marathon, City of	\$2,327,662.00	01/13/12	\$2,342,298.00	Joe B.	Mark G.
P003	Waste Water Treatment Plant Service Area 3	Florida	Marathon, City of	\$2,061,000.00	05/11/12	\$1,445,703.00	Joe B.	Mark G.
P002	Broward Cty - Broadview Estates BP No. 2	Florida	Broward County	\$785,000.00	02/10/13	\$785,000.00	Joe B.	Steve Bone
P001	CSID WTP & WWTF Improvements	Florida	Coral Springs Improvement District	\$17,600,000.00	08/15/12	\$18,155,000.00	Joe B.	Steve Bone
459	Hollywood WM Replacement & Sewer Expansion	Florida	City of Hollywood, FL	\$22,879,526.25	TBD	TBD	Bobby B.	Richie K.
458	Pompano EM Repair 42" PCCP for Prince	Florida	City of Pompano Beach	\$1,363,000.00	02/07/19	\$2,204,428.00	Jorge V.	Paul W.
457	Sunrise Sawgrass Reuse and Raw Water Mains	Florida	City of Sunrise, FL	\$9,315,000.00	TBD	TBD	Mark G.	Paul W.
456	Broward County - Hillsboro Mile	Florida	Broward County	\$9,782,573.00	TBD	TBD	Pablo R.	Richie K
455	Hallandale SW Drainage Improvements	Florida	Hallandale Beach	\$11,835,000.00	TBD	\$11,835,000.00	Daniel M.	TBD
452	MDWASD DB Donut Hole Small WM	Florida	MDWASD	\$8,265,000.00	TBD	\$8,265,000.00	Jorge V.	TBD
451	Delray Reclaimed Water Main Area 12C	Florida	Delray Beach	\$4,146,270.00	03/08/19	\$4,146,270.00	Mark G.	Joe Jr.
450	MDWASD EM Repair 96" Raw WM NW 74 St	Florida	MDWASD	\$542,000.00	TBD	\$542,000.00	Jorge V.	Joe Jr.
449	Miami Flagler Downtown Beautification	Florida	City of Miami	\$20,495,752.00	07/26/17	\$20,495,752.00	Daniel M	JC
448	Miami Dade Hurricane Irma Debris Removal	Florida	Miami-Dade County, FL	\$583,200.00	02/07/18	TBD	Mark G.	Joe Jr.
447	SFWMD S-39A Culvert Replacement	Florida	SFWMD	\$4,295,037.00	12/14/18	\$4,295,037.00	Daniel M	Dale H.
446	Miami Beach 72" RCP along Washington and 17th St	Florida	Miami Beach, City of	\$2,000,000.00	07/26/17	\$2,168,900.00	Daniel M	JC
445	Miami Beach 36" Slip-line Chase & 34th	Florida	Miami Beach, City of	\$240,000.00			Daniel M	Joe Jr.
444	MDWASD 48" Slip Line Support for LTT	Florida	MDWASD	\$1,035,420.00			Jorge V.	Joe Jr.
443	West Palm Beach 48" FM CIPP, Shafts for Lining	Florida	West Palm Beach, FL	\$1,048,750.00			Mike G.	Joe Jr.
442	MDWASD 54" FM Homestead	Florida	MDWASD	\$19,070,058.00		\$19,070,058.40	Mark G.	Paul W
441	Town of Hillsboro Beach	Florida	Town of Hillsboro Beach	\$6,498,272.00			Mike G.	Joe Jr.
440	City of Hollywood Bypass	Florida	City of Hollywood	\$305,642.00	07/29/16		Mike G.	Joe Jr.
439	Miami Beach Design Build Sunset Harbour Ph 3	Florida	Miami Beach, City of	\$7,036,600.00		\$8,234,118.00	Daniel M	J C
438	MDWASD W-931 36in WM SW 152 St	Florida	MDWASD	\$10,760,850.00		\$10,760,850.00	Mark G	Paul W
437	Hollywood Shaft Excavation for LTT	Florida	Hollywood, City of	\$192,164.00			Mike G.	Joe Jr.
436	MDWASD EM 54in Carbon Fiber WM Repair	Florida		\$494,543.00	05/03/15	\$494,543.00	Jorge V.	Ron M.
435	MDWASD SW Wellfield Removal of Carbonate	Florida	MDWASD	\$12,772,258.00			Mark G	Miguel V
434	Hialeah WTP Mixer Repair for AECOM	Florida	Hialeah, FL	\$11,000.00			Jorge V.	Jorge V.
433	FDOT EST27 Volusia Lining Project for LCC	Florida	FDOT	\$1,414,360.00	09/29/15	\$1,468,777.00	LTTs	
432	MDWASD Shenandoah Area (Phase B) Design Build	Florida	MDWASD	\$9,756,995.00		\$8,257,000.00	Mike G.	N/A
431	MDWASD EM 36in Repair 10 Locations	Florida	MDWASD	\$811,169.00	01/12/15	\$850,612.00	Jorge V.	Ron M.
430	Miami Beach, Palm & Hibiscus Islands Design Build	Florida	Miami Beach, City of	\$599,464.00		\$37,423,720.00	Robert B.	Richie K

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
429	Miami Beach, Sunset Harbour Water Main and Drainage Design Build	Florida	Miami Beach, City of	\$9,840,718.00		\$10,610,597.00	Daniel M.	Ron M.
428	MDWASD EM 36" WM & Valve Replacement	Florida	MDWASD	\$194,095.00	07/24/14	\$194,095.00	Jorge V.	Ron M.
427	MDWASD EM Hialeah WTP 30" BV AECOM	Florida	MDWASD				Jorge V.	Jorge V.
426	Hollywood Dixie Corridor Septic to Sewer Conversion	Florida	Hollywood, FL	\$2,267,706.00	04/30/15	\$1,797,709.00	Mike G.	Paul W.
425	City of Miami Beach 18-09/10 Cntl. Bayshore/Lake Pancoast/ C 14_04.16	Florida	Miami Beach, FL	\$3,437,488.00	10/01/14	\$3,437,488.00	Robert B.	Ron M.
424	MDWASD EM 48in FM Repair Medley	Florida	MDWASD	\$168,878.00	03/21/14	\$135,952.00	Jorge V.	Ron M.
423	Delray Highpoint HOA Lining Support	Florida	Hollywood, FL				Jorge V.	Paul W.
422	MDWASD Emergency Repair to 48" PCCP WM at 2 Locations	Florida	MDWASD	\$215,767.00	02/10/14	\$155,994.50	Jorge V.	Ron M.
421	FDOT EST07 Orange County Lining of Storm Drains,	Florida	FDOT	\$1,066,532.00	TBD	TBD	TBD	TBD
420	Miami Beach, Work Order Repair Annual	Florida	Miami Beach	Work Order	TBD	TBD	TBD	TBD
419	Sunshine Water Control District Coral Springs Canal Z	Florida	SWCD	\$1,378,543.00	TBD	TBD	Mike G.	Steve B.
418	Boca Raton Hills Wastewater Infrastructure Imp	Florida	Boca Raton, FL	\$3,522,600.00	TBD	TBD	Mark G.	Joe D. Jr
417	MDWASD Emergency Man Hole Installation on 36" WM	Florida	Miami Dade Water and Sewer Dep.	\$674,728.00	TBD	TBD	Jorge V.	Jack R.
416	South Martin Regional Utility Annual Repair Contract	Florida	Jupiter Island, Town of	Work Order	TBD	TBD	TBD	TBD
415	Miami Beach, Venetian Islands Improvements	Florida	Miami Beach	\$10,640,993.00	TBD	TBD	Jorge V.	Jack R.
414	Delray Beach Reuse Water Mains	Florida	Delray Beach	\$1,470,000.00	10/03/13	\$1,252,762.00	Mark G.	Joe D. Jr
413	Tampa Wastewater Lining Support Project	Florida	Tampa, City of	\$239,353.00	10/22/13	\$323,856.00	Mark G.	Fred S.
412	Emergency Repair Calais Dr & Marseille Dr	Florida	Miami Beach, City of	\$29,721.00	01/14/13	\$29,721.00	Jorge V.	Jack R.
411	Volusia County Lining of Storm Pipes	Florida	FDOT	\$1,693,300.75	09/06/13	\$1,643,300.75	Curt M.	Neil S.
410	Town of Davie Design-Build Water & WW System Expansion	Florida	Davie, Town of	\$2,248,782.00	TBD	TBD	Pablo R.	Ron M.
409	MDWASD Emergency Carbon Fiber Rehab of 48" Transmission WM	Florida	Miami Dade Water and Sewer Dep.	\$327,060.00	12/19/12	\$295,500.00	Jorge V.	Stan K.
408	County Line Road 12" and 6" Force Main	Florida	North Springs Improvement District	\$297,000.00	07/26/13	\$335,232.00	Joe Brown	Joe D. Jr
407	Hallandale Beach, NE Quadrant Drainage	Florida	Hallandale Beach	\$8,074,323.00	TBD	TBD	Robert B.	Jack R.
406	Martin Co. Underground Utility Cont & Maint	Florida	Martin County	Work Order	TBD	TBD	TBD	TBD
405	MDWAS 42in EM Repair on Bird Road	Florida	Miami Dade Water and Sewer Dep.	\$290,070.00	TBD	TBD	Jorge V.	Jack R.
404	MDWASD Emergency Installation of 4 Access Man Holes in Bird Road	Florida	Miami Dade Water and Sewer Dep.	\$142,461.00	09/14/12	\$128,400.00	Jorge V.	Jack R.
403	MDWASD Emergency Carbon Fiber Repair	Florida	Miami Dade Water and Sewer Dep.	\$201,300.00	07/15/12	\$183,000.00	Jorge V.	Stan K.
402	MDWASD Emergency Installation of 60" PCCP in Miami Beach	Florida	Miami Dade Water and Sewer Dep.	\$2,200,000.00	05/25/13	\$2,651,037.03	Jorge V.	Paul W.
401	MDWASD Emergency Repair to Pump Station 348 in Hialeah - Bypass	Florida	Miami Dade Water and Sewer Dep.	\$942,610.00	10/17/12	\$1,752,216.00	Joe B.	Paul W.
400	Key West Patricia and Ashby St Emergency 30" Outfall (Pipe Work)	Florida	Key West, City of	\$1,485,580.00	12/27/12	\$1,250,734.00	James T.	Mark G.
399	LLS - Taft Street Bypass	Florida	Hollywood, FL	\$550,000.00	06/07/12	\$611,097.00	Pablo R.	Ron M.
398	Broward Cty North County Bid Pack 10	Florida	Broward Cty., FL	\$10,558,209.00	TBD	TBD	Pablo R.	Ron M.
397	MDWASD Emergency Installation of 12 Access Man Holes in Red Road	Florida	Miami Dade Water and Sewer Dep.	\$272,011.00	10/25/11	\$227,338.00	Iliia L.	Jack R.
396	City of Oakland Park - Lloyd Estates Residential & Industrial Imp	Florida	Oakland Park, FL	\$2,737,998.00	09/25/12	\$2,610,344.00	Robert B.	Ron M.
395	MDWASD Emergency 48" WM Repair, Miller Rd - RQWS1100012	Florida	Miami Dade Water and Sewer Dep.	\$269,000.00	05/07/11	\$323,143.00	Iliia L.	Jack R.
394	MDWASD 72" Emergency FM Repair Slipline - PO# APWS1100004	Florida	Miami Dade Water and Sewer Dep.	\$4,616,050.00	05/25/12	\$5,526,039.00	Robert B.	Jack R.
393	Envirowaste Services Group 16-inch WM	Florida	Miami Beach, FL	\$92,000.00	05/09/12	\$92,000.00	Robert B.	Jack R.
392	Broward Cty-Multi-District Inflow & Infiltration (I&I)	Florida	Broward Cty., FL	Work Order	TBD	\$33,403.00	Pablo R.	Ron M.
391	City of Miami Beach 18-09/10 Cntl. Bayshore/Lake Pancoast/ C	Florida	Miami Beach, FL	\$16,740,740.50	TBD	TBD	Robert B.	Jack R.
390	City of Oakland Park - Water Main Replacement - OPBWMR92010	Florida	Oakland Park, FL	\$1,371,930.00	04/01/11	\$1,041,001.00	Robert B.	Jack R.
389	City of Marathon Little Venice Phase IA Stormwater Proj.	Florida	Marathon, FL	\$138,760.00	12/21/10	\$137,200.00	James T.	Jack R.
388	Broward Cty - Broadview Estates BP No. 2	Florida	Broward Cty., FL	\$10,905,530.00	#REF!	\$11,477,424.00	Pablo R	Ron M.
387	Hallandale Beach 20" Force Main Emergency Repair	Florida	Hallandale Beach, FL	T & M	08/14/10	\$570,866.74	Pablo R	Ron M.
386	MDWAS 72" Emergency FM Repair	Florida	Miami Dade Water and Sewer Dep.	\$370,000.00	07/24/10	\$606,536.18	Pablo R	Ron M.



Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
385	Broward Cty-Rock Island BP No.5	Florida	Broward Cty., FL	\$2,820,974.00	08/23/12	\$2,858,794.00	Pablo R.	Ron M.
384	Broward Cty- UAZ 124 BP No. 2	Florida	Broward Cty., FL	\$4,834,126.00	03/16/12	\$4,635,729.00	Pablo R.	Ron M.
383	MDWASD Red Road Canal Repair	Florida	Miami Dade Water and Sewer Dep.	\$115,000.00	03/21/10	\$139,085.00	Pablo R.	Michelle
382	MDWASD 54" WM Repair-Red Road E9332-WS	Florida	Miami Dade Water and Sewer Dep.	\$534,000.00	03/29/10	\$594,475.92	Pablo R.	Ron M.
381	Skanska-MDWASD S-819, Chlorine Building	Florida	Miami Dade Water and Sewer Dep.	\$100,200.00	01/08/10	\$100,200.00	Robert B.	Ron M.
380	Broward Cty- UAZ 124 BP No. 1	Florida	Broward Cty., FL	\$10,383,436.00	08/08/11	\$10,553,039.00	Pablo R.	Ron M.
379	Coral Springs WTP and WWTF Improvements	Florida	Coral Springs, FL	\$17,600,000.00	08/15/12	\$18,155,000.00	Joe B.	Steve B.
378	Hollywood 60" Repair, 09-8525A	Florida	Hollywood, FL	T & M	03/31/09	\$975,247.73	Pablo R.	Ron M.
376	City of Marathon-Area 5	Florida	Marathon, FL	\$19,126,494.00	07/08/11	\$20,487,925.73	James T.	Jack R.
375	Skanska-MDWASD S-811	Florida	Miami Dade Water and Sewer Dep.	\$6,013,237.00	01/15/12	\$6,992,567.00	Robert B.	Paul W.
374	Suffolk BBB-1 Demolition Project #207134	Florida	West Palm Beach, FL	\$585,000.00	NA	\$585,000.00	NA	NA
373	City of Deerfield Beach-Force Main, PO023510	Florida	Deerfield Beach, FL	\$96,000.00	06/13/08	\$96,000.00	Pablo R.	Ron M.
372	Village of Wellington-Water Transmission Main Ext. 3	Florida	Wellington, FL	\$2,766,730.00	11/04/08	\$2,527,418.50	Robert B.	Jack R.
371	Broward Cty-North Andrews Gardens BP No. 9	Florida	Broward Cty., FL	\$2,838,241.40	05/31/09	\$2,979,640.59	Pablo R.	Ron M.
370	MDWASD-Emergency 36" Repair, E8583-0/08	Florida	Miami Dade Water and Sewer Dep.	\$832,000.00	02/11/08	\$832,000.00	James T.	Ron M.
368	Limestone Creek Phase II-B #2002055	Florida	Palm Beach, FL	\$1,728,863.50	07/31/08	\$1,880,598.15	Robert B.	Jack R.
367	City of Marathon-Service Areas 4 & 6	Florida	Marathon, FL	\$14,154,000.00	09/06/09	\$8,192,808.00	Joe B.	Steve B.
366	MDWASD S-828 Site Preparation Blackpoint	Florida	Miami Dade Water and Sewer Dep.	\$14,471,955.00	11/12/08	\$13,407,485.78	Robert B.	Jack R.
365	Suffolk BBB-1 Demolition Project #207134	Florida	West Palm Beach, FL	\$565,452.00	NA	\$565,452.00	NA	NA
364	Broward Cty.-Ncnip Rock Island Bp No. 3	Florida	Broward Cty., FL	\$21,160,995.75	09/30/11	\$26,002,137.00	Pablo R.	Ron M.
363	Broward Cty.-Nenip Nw Quadrant Bp No. 8	Florida	Broward Cty., FL	\$16,678,266.90	07/08/09	\$16,812,079.77	Pablo R.	Ron M.
362	Palm Beach County-Northern Region WUD 05-061	Florida	Palm Beach, FL	\$5,632,296.93	10/15/07	\$5,861,972.00	James T.	Jack R.
361	Ch2M Hill-Sunrise Water Treatment Plant	Florida	Sunrise, FL	\$560,000.00	02/06/07	\$472,274.85	RWB/JMT	Paul W.
360	City Of Boca Raton-42" Emergency Repair, PO 032947	Florida	Boca Raton, FL	T & M	07/25/06	\$116,764.00	MPT	Paul W.
359	Village Of Wellington WM Extension Phase 2 Project No. 17-06/BMA	Florida	Wellington, FL	\$1,486,500.00	01/26/07	\$996,648.50	RWB/JMT	Jack R.
358	City Of Oakland Park-Kimberly Lake Basin	Florida	Oakland Park, FL	\$5,728,370.00	09/10/07	\$5,499,238.00	RWB/JMT	Ron M.
357	Hurricane Wilma	Florida	Ft. Lauderdale, FL	Work Order	NA	\$552,428.00	RWB/JMT	Ron M.
356	City Of Ft. Lauderdale-E. Las Olas-Seven Isles No. 10751	Florida	Ft. Lauderdale, FL	\$0.00	NA	NA	NA	NA
355	Broward Cty.-Broadview Estates Bp No. 1	Florida	Broward Cty., FL	\$13,897,356.20	08/15/08	\$15,627,945.71	Pablo R.	Ron M.
354	City Of Fort Lauderdale- Septic Area 12 And 17	Florida	Ft. Lauderdale, FL	\$0.00	NA	NA	NA	NA
353	MDWASD-ER 47609, 24" Force Main	Florida	Miami Dade Water and Sewer Dep.	\$1,141,090.00	12/28/05	\$1,097,478.24	James T.	Jorge G.
352	FDOT-Orange 41394815201	Florida	FDOT	\$331,000.00	NA	\$314,000.00	Frank K.	Jorge G.
351	City Of Miramar-South Service Area 5	Florida	Miramar, FL	\$11,740,791.00	08/31/07	\$12,373,000.00	James T.	Jorge G.
350	PBS&J S608B	Florida	Miami Dade Water and Sewer Dep.	\$188,450.00	04/13/05	\$181,597.04	Matt T.	Ron M.
349	The City Of West Palm Beach-Dixie Hwy Wm Repl	Florida	West Palm Beach, FL	\$162,500.00	03/14/05	\$167,500.00	Robert B.	Bob B.
348	City Of Fort Lauderdale-River Oaks/Jacobs Landing	Florida	Ft. Lauderdale, FL	\$576,481.21	05/05/06	\$533,673.00	Robert B.	Gary D.
347	City Of Ft. Lauderdale-Shady Banks	Florida	Ft. Lauderdale, FL	\$2,582,609.69	05/26/06	\$1,268,549.00	Robert B.	Gary D.
347	City Of Ft. Lauderdale-Annual	Florida	Ft. Lauderdale, FL	\$0.00	NA	NA	NA	NA
346	Broward Cty West Ken Lark No. 2	Florida	Broward Cty., FL	\$10,439,066.90	09/27/07	\$10,885,237.90	Pablo R.	Ron M.
345	MDWASD, JO 8605, 60" FM Repair	Florida	Miami Dade Water and Sewer Dep.	\$87,331.00	04/02/04	\$76,919.00	Matt T.	Jorge G.
344	MDWASD, W-849 W.M. IN Miami River	Florida	Miami Dade Water and Sewer Dep.	\$2,766,246.78	01/13/05	\$2,759,174.91	Matt T.	Joe D.
343	MDWASD, JO 8336, 96" Repair	Florida	Miami Dade Water and Sewer Dep.	\$58,100.00	12/14/04	\$77,030.88	Matt T.	Joe D.
342	Broward Cty North Andrews No. 6	Florida	Broward Cty., FL	\$9,074,190.17	09/25/06	\$9,071,312.13	Pablo R.	Jorge G.
341	LLS-Fpl Cooling Ponds Sliplining	Florida	FPL	\$168,550.00	05/25/04	\$343,945.00	Scott S.	Glen S.

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
340	Nova High School Point Repair	Florida	Nova	\$31,500.00	NA	\$31,500.00	Scott S.	Ron M.
339	BND MDWAS S-784 DERM EAST 54" FM Design Build	Florida	Miami Dade Water and Sewer Dep.	\$4,301,480.00	05/01/07	\$5,072,126.17	Matt T.	Paul W.
338	Hemispheres Condominium	Florida	Home Owner Association	\$0.00	NA	NA	NA	NA
337	Broward Cty Cresthaven Bp No.3	Florida	Broward Cty., Fl.	\$10,681,664.00	04/04/06	\$10,822,404.84	Pablo R.	Jorge R.
336	MDWASD, S-737, FM&WM , SW184 STREET	Florida	Miami Dade Water and Sewer Dep.	\$2,489,736.59	06/07/04	\$2,434,285.52	Scott S.	Jorge R.
335	MDWASD PS#1003 ER47383 S-700A-6B	Florida	Miami Dade Water and Sewer Dep.	\$356,183.00	01/27/04	\$245,345.20	Matt T.	Joe D.
334	City Of Key West Pump Station	Florida	Key West, Fl.	\$3,399,125.00	01/20/04	\$3,354,476.14	Mike B.	Steve B.
333	MDWASD PS #135 ER 47351-S-700A-6A	Florida	Miami Dade Water and Sewer Dep.	\$458,740.00	07/25/03	\$442,676.32	Matt T.	Ed Doty
332	MDWASD Miami River Crossing -S-718-9 W/O A	Florida	Miami Dade Water and Sewer Dep.	\$952,486.00	03/25/04	\$964,491.32	Matt T.	Ron M.
331	FDOT-Olive Ave PB Lakes To Lakeview	Florida	FDOT	\$7,772,813.00	08/21/06	\$11,094,126.12	Robert B.	Glenn
330	MDWSD, S-751 54" Rehabilitation	Florida	Miami Dade Water and Sewer Dep.	\$1,630,655.18	08/30/03	\$1,620,401.88	Matt T.	Ron M.
329	LLS-Broward County Intraoastal	Florida	Broward Cty., Fl.	\$161,060.63	06/30/03	\$62,148.94	Matt T.	Ron M.
328	Fort Lauderdale, Progresso A	Florida	Ft. Lauderdale, Fl.	\$1,433,915.00	07/09/03	\$1,567,115.00	Scott	Ron M.
327	FDOT-Dixie PB Lakes To Northwood	Florida	FDOT	\$6,741,714.80	09/26/05	\$6,957,980.70	Robert B.	Glenn
325	LLS-City Of Opa Locka	Florida	Opa Locka, Fl.	\$160,372.66	09/20/02	\$162,372.66	Jim L.	Ron M.
324	Broward Cty Package No. 7	Florida	Broward Cty., Fl.	\$10,172,038.39	09/29/04	\$10,157,670.73	Dave M.	Jorge G.
323	LLS-Hollywood	Florida	Diplomat-Hotel, Hollywood, Fl	\$366,620.00	04/12/02	\$390,606.45	Matt T.	Ron M.
322	Miami-Dade County Col-Derm-Ecc	Florida	Miami Dade Water and Sewer Dep.	\$0.00	NA	NA	Jim L.	Jim L.
321	Palm Beh, Atlantic Ave 42" WM,24" RC	Florida	Palm Beach, Fl.	\$2,292,596.17	01/31/04	\$2,235,206.27	Robert B.	Paul W.
320	"Antares" Tugboat	Florida		\$0.00	NA	NA	NA	NA
319	FDOT-Powerline Road	Florida	FDOT	\$10,234,000.00	01/15/04	\$11,069,898.00	Scott	Jorge R.
318	Broward Cty 42" Cleaning	Florida	Broward Cty., Fl.	\$0.00	02/15/01	NA	Jim	Bob F.
317	Broward Cty Package No. 2 Riverland	Florida	Broward Cty., Fl.	\$10,411,585.00	03/10/05	\$11,571,539.00	Scott S.	Jorge R.
316	Broward Cty Package No. 9 South County	Florida	Broward Cty., Fl.	\$12,318,400.00	09/30/03	\$12,152,903.00	Dave M.	Jorge G.
315	MDWASD, S-700A-6, P.S. Blanket	Florida	Miami Dade Water and Sewer Dep.	\$0.00	NA	NA	NA	NA
314	MDWASD, S-718-9, Pipe Blanket	Florida	Miami Dade Water and Sewer Dep.	\$0.00	NA	NA	NA	NA
M314	Lansing CSO Remediation Interceptor Sewer	Michigan	Lansing, City of	\$9,200,000.00	01/01/03	\$9,293,057.00	Gary D. Jr	Mark K
313	MDWASD, W-788R 54" PCCP WM	Florida	Miami Dade Water and Sewer Dep.	\$3,688,337.80	02/06/02	\$3,686,051.47	Matt T.	Paul W.
312	FDOT-SR NO. 5, US 1, Broadway	Florida	FDOT	\$13,897,008.52	12/04/03	\$15,349,801.52	Robert B.	Glenn
311	MDWASD , 54" FM Emergency Repairs	Florida	Miami Dade Water and Sewer Dep.	\$1,112,000.00	07/08/00	\$1,112,000.00	Jim	Bob F.
310	MPSIP Remedial Repairs	Florida		\$0.00	NA	NA	Joe	Joe
309	MDWASD, W-789 54" PCCP WM	Florida	Miami Dade Water and Sewer Dep.	\$1,849,637.00	09/30/01	\$1,945,759.13	Matt T.	Paul S.
308	Palm Beh, Sr No. 7 42" Water Main	Florida	Palm Beach, Fl.	\$3,186,020.00	10/23/00	\$1,605,689.52	Robert B.	Paul W.
307	Key West, Dist Da San Rehab	Florida	Key West, Fl.	\$5,010,379.00	01/14/02	\$5,010,379.00	Scott	Glenn
306	PAWA, MDWASD S-728 NW 7 TH AVE.	Florida	Miami Dade Water and Sewer Dep.	\$6,149,700.00	09/25/01	\$6,232,975.00	Matt T.	Jorge G.
305	City Of Miramar-Intrastate	Florida	Miramar, Fl.	\$980,000.00	11/22/00	\$1,052,864.74	Jim	Jorge G.
304	35 Avenue Box Culvert & Fm	Florida	Broward Cty., Fl.	\$4,852,765.00	06/01/01	\$5,112,791.80	Jim	Paul
303	City Of Hialeah Emergency Repair	Florida	Hialeah, Fl.	\$21,941.85	NA	\$21,941.85	Jim	Jorge G.
302	FDOT-Cleveland Rd Bridge	Florida	FDOT	\$812,749.75	09/08/00	\$761,894.10	Masood	George
301	MDWASD, 54" Emergency Repair	Florida	Miami Dade Water and Sewer Dep.	\$199,633.10	NA	\$199,633.10	Jim	Jorge
M301	PC-732 Leib Screening And Disinfection Facility	Michigan	Detroit, City Of	\$24,700,000.00	12/01/03	\$24,739,648.00	Dan Sand	Jack P.
300	FDOT-Sample Road	Florida	FDOT	\$6,426,550.30	09/09/00	\$7,558,687.13	Robert B.	Miguel
299	MDWASD, ER 46676 & ER 15085 SR NO. 5	Florida	Miami Dade Water and Sewer Dep.	\$1,871,442.50	01/24/00	\$1,725,597.84	Jim	Paul W.
298	Key West, Dist B San Rehab	Florida	Key West, Fl.	\$8,143,883.00	09/22/00	\$7,649,040.59	Scott	Glenn
297	MDWASD, ER 46694-FM SL 844	Florida	Miami Dade Water and Sewer Dep.	\$258,815.50	2/31/00	\$265,236.86	Jim	Jorge

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
296	MDWASD, ER 67150-PS 838	Florida	Miami Dade Water and Sewer Dep.	\$465,770.00	08/04/99	\$375,635.75	Jim	Jorge
295	MDWASD, S 684, Annual R&R	Florida	Miami Dade Water and Sewer Dep.	\$5,518,290.00	02/24/00	\$4,863,504.77	Jim	Jorge
294	MDWASD, ER 67218-Direct Drill	Florida	Miami Dade Water and Sewer Dep.	\$354,073.00	04/02/99	\$295,837.74	Jim	Chuck
293	MDWASD SL 502-Country Walk	Florida	Miami Dade Water and Sewer Dep.	\$1,282,915.00	04/23/99	\$1,147,078.03	Jim	Glen
292	City Of Hollywood	Florida	Hollywood, Fl.	\$100,000.00	NA	\$100,000.00	Jim	Jorge
291	Miami Intl Airport Dead#A073A	Florida	Miami Int'l. Airport	\$200,000.00	NA	\$200,000.00	Jim	Jorge
290	MDWASD ER 46545, Carol Aerial	Florida	Miami Dade Water and Sewer Dep.	\$162,000.00	06/04/99	\$179,723.56	Mark	Chuck
289	Boca Raton Manhole Repl	Florida	Boca Raton, Fl.	\$78,801.50	11/20/98	\$78,801.50	Jim	Paul
288	Hurricane George Clean Up	Florida	Various Local Governments	\$165,513.25	NA	\$181,353.25	Scott	Scott
287	MDWASD, Golden Beach	Florida	Miami Dade Water and Sewer Dep.	\$72,000.00	09/18/98	\$92,146.90	Jim	Glen
286	MDWASD, ER 15220-54" PCCP	Florida	Miami Dade Water and Sewer Dep.	\$2,493,272.00	05/18/99	\$2,281,099.45	Jim	Glen
285	LLLS, Linabond	Florida	Lanzo Lining Services	\$113,050.00	NA	\$131,278.43	Joe	Joe
284	Key West, Dist A San Rehab	Florida	Key West, Fl.	\$5,149,890.00	09/11/00	\$7,464,895.51	Scott	Jorge
283	Broward Cty , Terminal Area No. 2	Florida	Broward Cty., Fl.	\$1,224,725.00	02/12/99	\$1,143,509.84	Jim	Glen
282	MDWASD, ER 15115	Florida	Miami Dade Water and Sewer Dep.	\$280,500.00	05/01/98	\$280,500.00	Jim	Jorge
280	MDWASD S-633 PHASE 2 (Ocean Outfall)	Florida	Miami Dade Water and Sewer Dep.	\$18,865,505.00	09/29/00	\$18,764,485.25	Matt T.	George
279	MDWASD S-642 SLIPLINE	Florida	Miami Dade Water and Sewer Dep.	\$3,411,315.00	09/11/98	\$3,106,745.00	Jim	Glen
278	MDWASD FM CL 102 PBS&J	Florida	Miami Dade Water and Sewer Dep.	\$184,764.00	12/01/97	\$193,175.00	Jim	Jorge
277	Metro Dade T01366B Brickell	Florida	Metro Dade, Fl.	\$398,000.00	02/01/98	\$336,757.00	Jim	Chuck
276	Metro Dade #T01366B Blanket	Florida	Metro Dade, Fl.	\$350,000.00	03/01/98	\$918,871.10	Jim	Jorge
275	MDWASD PS 805 PBS&J	Florida	Miami Dade Water and Sewer Dep.	\$243,455.00	12/01/97	\$245,338.75	Jim	Jorge
274	MDWASD S-664 72" REHAB	Florida	Miami Dade Water and Sewer Dep.	\$671,600.00	01/01/98	\$671,261.50	Mark	Chuck
273	M&E-Biscayne Interceptor Design Build M&E	Florida	Metro Dade, Fl.	\$2,192,000.00	12/01/97	\$2,387,000.00	John	Jorge
272	MDWASD S-633 PH 1 REV	Florida	Miami Dade Water and Sewer Dep.	\$3,591,420.00	06/15/98	\$2,629,054.09	John	Chuck
271	MDWASD PS/FM 834 PBS&J	Florida	Miami Dade Water and Sewer Dep.	\$548,634.00	12/01/97	\$545,637.25	Jim	Jorge
270	MDWASD PS/FM 646 PBS&J	Florida	Miami Dade Water and Sewer Dep.	\$320,837.50	06/01/97	\$93,720.17	Mark	Jorge
269	MDWASD S-650 48" F.M.	Florida	Miami Dade Water and Sewer Dep.	\$1,893,064.50	12/01/97	\$1,545,852.62	John	Glen
268	Dixie Hwy 8" Wm - Urban	Florida	Urban	\$566,292.50	10/01/97	\$383,975.00	Mark	Subet
267	Hollywood 36" Rehab	Florida	Hollywood, Fl.	\$144,121.00	03/01/97	\$119,803.00	Mark	Jorge
266	MDWASD PS/FM 753 PBS&J	Florida	Miami Dade Water and Sewer Dep.	\$380,272.00	06/01/98	\$370,261.50	Jim	Jorge
265	Cooper City - S&W	Florida	Cooper City, Fl.	\$1,080,000.00	12/31/97	\$1,118,516.00	Jim	Paul
264	MDWASD W-732 24" DI W.M.	Florida	Miami Dade Water and Sewer Dep.	\$1,351,340.00	08/15/98	\$1,345,790.00	John	Glen
263	Sunrise - Indian Trace	Florida	Sunrise, Fl.	\$5,066,470.00	12/01/97	\$5,816,336.00	Robert B.	Glen
262	MDWASD S608A-LT	Florida	Miami Dade Water and Sewer Dep.	\$946,640.00	12/01/96	\$1,345,420.00	John	
261	MDWASD PS657-PBSJ	Florida	Miami Dade Water and Sewer Dep.	\$485,700.00	09/01/96	\$450,968.45	Mark	
260	MDWASD PS410-LT	Florida	Miami Dade Water and Sewer Dep.	\$283,800.00	08/01/96	\$305,682.50	Mark	
259	MDWSD PS 310-LT	Florida	Miami Dade Water and Sewer Dep.	\$253,193.00	07/01/96	\$259,989.00	Mark	
258	MD ER44680 NW 97A/25S-LT	Florida	Miami Dade Water and Sewer Dep.	\$253,075.00	08/01/96	\$253,075.00	Mark	
257	MDWSD S-503R	Florida	Miami Dade Water and Sewer Dep.	\$2,517,762.00	11/01/97	\$3,894,555.10	John	Jorge
256	Palm Beh D-14 Stormwater	Florida	Palm Beach, Fl.	\$691,962.00	08/01/97	\$703,177.74	Mark	
255	MDWSD PS 20-LT	Florida	Miami Dade Water and Sewer Dep.	\$312,485.00	05/01/96	\$292,134.40	Mark	
254	MDWASD PS 947-LT	Florida	Miami Dade Water and Sewer Dep.	\$382,200.00	02/01/96	\$367,546.00	Fred	
253	MDWSA PS 962-PMT	Florida	Miami Dade Water and Sewer Dep.	\$224,000.00	03/01/96	\$224,000.00	Mark	
252	MDWASD ER 48"	Florida	Miami Dade Water and Sewer Dep.	\$1,185,000.00	01/01/96	\$1,231,087.00	Fred	
251	MDWSA S-503D 1	Florida	Miami Dade Water and Sewer Dep.	\$3,246,820.00	06/01/96	\$3,137,263.00	John	

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
250	MDWASD S-627 1&2	Florida	Miami Dade Water and Sewer Dep.	\$2,861,320.00	06/01/96	\$2,152,719.10	Fred	
249	MDWSA ER13594	Florida	Miami Dade Water and Sewer Dep.	\$637,180.00	07/01/96	\$637,180.00	Mark	
248	MDWASD S-625	Florida	Miami Dade Water and Sewer Dep.	\$4,840,995.00	09/15/97	\$5,555,995.00	Mark	
246	MDWASD S-503D 3	Florida	Miami Dade Water and Sewer Dep.	\$4,070,130.00	06/01/96	\$4,644,852.50	Fred	
245	MDWSA W-723	Florida	Miami Dade Water and Sewer Dep.	\$1,491,682.00	12/01/96	\$1,691,493.00	John	
244	RFQ0001 Misc Pump Station Construction Contract	Florida	Miami Dade Water and Sewer Dep.	\$27,500,000.00		Various		
243	MDWSA S-605A II	Florida	Miami Dade Water and Sewer Dep.	\$3,073,460.00	06/20/95	\$3,208,964.98		
242	Holiday Colony, Ocean Lane And Sunrise	Florida	Key Biscayne, Fl.	\$1,975,104.00	04/08/96	\$1,974,349.98		
241	Miramar #2/4B	Florida	Miramar, Florida	\$3,108,625.00	01/19/96	\$3,075,214.34		
240	Hollywood	Florida	Hollywood, Florida	\$1,386,010.00	01/05/96	\$1,598,780.45		
239	MDWSA S-464	Florida	Miami Dade Water and Sewer Dep.	\$989,196.00	02/01/95	\$876,876.00		
238	Miramar #3	Florida	Miramar, Florida	\$2,421,490.00	10/01/95	\$2,583,451.61		
237	MDWSA S-503ABC	Florida	Miami Dade Water and Sewer Dep.	\$9,752,571.52	03/01/95	\$9,752,571.52		
236	MDWASD S-500	Florida	Miami Dade Water and Sewer Dep.	\$887,611.00	11/01/94	\$878,688.00		
235	Broward #13	Florida	Pembroke Pines, Florida	\$3,084,563.65	10/04/95	\$3,357,893.39		
234	MDWASD S-497	Florida	Miami Dade Water and Sewer Dep.	\$1,930,372.00	08/01/94	\$2,514,213.00		
233	MDWASA S-391D	Florida	Miami Dade Water and Sewer Dep.	\$1,263,615.00	04/01/94	\$1,320,815.77		
230	MDWASD S-391B	Florida	Miami Dade Water and Sewer Dep.	\$1,565,097.00	06/01/94	\$1,643,278.80		
229	MDWSA S-490	Florida	Miami Dade Water and Sewer Dep.	\$7,358,139.00	08/01/95	\$6,341,573.24		
228	Hollywood Wastewater Collection System Rehab Pro No. 937025	Florida	Hollywood, Florida	\$1,387,365.00	10/01/94	\$1,387,365.00		
226	MDWASD W-661	Florida	Miami Dade Water and Sewer Dep.	\$1,077,818.00	01/01/94	\$961,110.00		
225	MDWSA S-464	Florida	Miami Dade Water and Sewer Dep.	\$989,196.00	08/07/93	\$989,124.00		
224	MDWASD S-442	Florida	Miami Dade Water and Sewer Dep.	\$370,387.80	01/01/94	\$324,829.40		
223	MDWSA S-363	Florida	Miami Dade Water and Sewer Dep.	\$2,926,492.00	11/01/93	\$3,438,395.00		
222	West Miami	Florida	West Miami, Fl.	\$3,349,612.00	11/01/93	\$3,453,254.00		
221	Dade 629905	Florida	Miami Dade Water and Sewer Dep.	\$327,000.00	01/01/93	\$327,000.00		
220	URBAN/LANZO - Florida City Homestead	Florida	Homestead, City of					
219	Allied/Lanzo/Urban - North Miami	Florida	North Miami, City of					
218	Gilbert Southern - Suniland/Country Walk	Florida	Corp of Engineer					
217	Hurricane Andrew - Private Property Owners	Florida	Corp of Engineer					
216	Miami Dade Water & Sewer Authority / S-355	Florida	Miami Dade Water and Sewer Dep.	\$1,452,577.00				
215	City of Sunrise / 1535 - 01 .81	Florida	Sunrise, Fl.	\$1,029,205.00				
214	Miami Dade Water & Sewer Authority / W - 699	Florida	Miami Dade Water and Sewer Dep.	\$697,719.00				
213	Miami Dade Water & Sewer Authority / S - 399	Florida	Miami Dade Water and Sewer Dep.	\$780,954.00				
212	Silver Lakes Partnership	Florida	Pembroke Pines, Florida	\$452,179.00				
211	Miami Dade Water & Sewer Authority S-397	Florida	Miami Dade Water and Sewer Dep.	\$2,514,957.00				
210	Silver Lakes Partnership Phase 1C	Florida	Pembroke Pines, Florida	\$272,242.50				
209	Leomar Subdivision	Florida	Pembroke Pines, Florida	\$150,000.00				
208	Modification of Sanitary S-291	Florida	Miami Dade Water and Sewer Dep.	\$93,750.00				
207	Pembroke Pines Century Village Phase 3	Florida	Century Village	\$553,700.00				
206	Opa - Locka Airport Pump Station	Florida	Dade County Aviation Dep	\$129,000.00				
205	Water Conser. I, Inveterceptor System	Florida	Local Government	\$1,557,418.00				
204	South Distriet Wastewater Treatment S-249	Florida	Miami Dade Water and Sewer Dep.	\$1,183,000.00				
203	City of Pembroke Pines - Sanitary Sewer Work	Florida	Pembroke Pines, Florida	\$176,500.00				

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
202	City of Plantation South Area	Florida	Plantation, City of	\$806,375.00				
201	City of St. Petersburg Albert Whitted	Florida	St. Petersburg	\$586,985.00				
200	City of Pembroke Pines - FPL Drainage	Florida	Pembroke Pines, Florida	\$65,932.00				
199	City of Pembroke Pines - Utility System Upgrade	Florida	Pembroke Pines, Florida	\$396,260.00				
198	Smith Storm	Florida	Local Government	\$45,000.00				
197	Fort Lauderdale Project 8834 - A	Florida	Ft. Lauderdale, FL	\$1,084,990.00				
196	Fort Lauderdale Project 8833 - A	Florida	Ft. Lauderdale, FL	\$676,000.00				
195	Silver Lakes Partnership Pod D	Florida	Pembroke Pines, Florida	\$306,966.00				
194	Silver Lakes Partnership	Florida	Pembroke Pines, Florida	\$71,300.00				
193	Silver Lakes Partnership Pod A	Florida	Pembroke Pines, Florida	\$421,000.00				
192	Jones Edmunds - 60" Cross Bar Ranch	Florida	West Coast Regional	\$125,000.00				
191	City of Coral Gables - 36" Force Main	Florida	Coral Gables, City of	\$854,904.00				
190	Palm Beach County - 87 - 35	Florida	Palm Beach, FL	\$5,580,864.00				
189	City of Fort Lauderdale - 42" Raw Water Main Project #8362F	Florida	Ft. Lauderdale, FL	\$475,380.00				
188	Silver Lakes Partnership Phase 1B	Florida	Pembroke Pines, Florida	\$660,884.00				
187	West Coast Regional Water Supply Authority	Florida	West Coast Regional	\$279,162.00				
186	Miami Dade Water & Sewer Authority S-376	Florida	Miami Dade Water and Sewer Dep.	\$1,238,955.00				
185	Royal Palm Beach	Florida	Royal Palm Beach, City of	\$163,939.00				
184	Cortez road Sewer System Rehabilitation / 415-5388 - 537	Florida	Braedon, Florida	\$878,151.00				
183	Miami Dade Water & Sewer Authority / S - 386	Florida	Miami Dade Water and Sewer Dep.	\$688,257.00				
182	Hallandale Raw Water Pipeline BP 1 #P-12-89-4-of	Florida	Broward Cty., FL	\$1,438,745.00				
181	Hallandale Raw Water & Supply Carver Ranches	Florida	Broward Cty., FL	\$1,081,945.00				
180	Pembroke Commons - Home/Property Systems	Florida	Pembroke Pines, Florida	\$550,000.00				
179	Holly Lakes Water Improvements Phase 1	Florida	Pembroke Pines, Florida	\$227,400.00				
178	Miami Dade Water & Sewer - #4 - 94169	Florida	Miami Dade Water and Sewer Dep.	\$18,300.00				
177	Silver Lakes Master Pump Station	Florida	Pembroke Pines, Florida	\$1,197,000.00				
176	Silver Lakes Partnership Pods F&J	Florida	Pembroke Pines, Florida	\$675,283.40				
175	Silver Lakes Partnership Phase 1A	Florida	Pembroke Pines, Florida	\$855,562.00				
174	City of Ft. Lauderdale / P# - 8362 - E	Florida	Ft. Lauderdale, FL	\$1,577,300.00				
173	Country Lakes - Miramar	Florida	Miramar, Florida	\$667,128.00				
172	MDWSA -W - 635	Florida	Miami Dade Water and Sewer Dep.	\$172,010.00				
171	MDWSA - S - 384	Florida	Miami Dade Water and Sewer Dep.	\$224,000.00				
170	Arvida - Sector 6, Parcel C - Broward City	Florida	Broward Cty., FL	\$552,983.80				
169	Country Walk - Arvida/JMB Partners	Florida	Local Government	T&M				
168	Hookers Point WWTP - Phase I Division 5H1	Florida	Tampa, Florida	\$1,997,000.00				
167	City of Pembroke Pines - Booster Pumping Station	Florida	Pembroke Pines, Florida	\$2,197,000.00	07/01/90			
166	Cortez village Plaza	Florida	Braedon, Florida	\$920,000.00				
165	City of Key West - Flagler Avenue Interceptor	Florida	Key West, FL	\$1,770,860.00				
164	City of Miami - NW 36th Street	Florida	Miami, City of	\$1,084,790.00				
163	FDOT #3521, Dixie Highway - State Paving	Florida	FDOT	\$1,993,705.00				
162	MDWSA - Contract S-374, Div. 3	Florida	Miami Dade Water and Sewer Dep.	\$978,317.40				
161	MDWSA - Contract S-374	Florida	Miami Dade Water and Sewer Dep.	\$393,660.00				
160	City of Lake Worth - Sanitary Sewer Rehab, Phase I	Florida	Lake Worth, City of	\$217,163.00				
159	City Of Pembroke Pines - Sludge Facility B&C 85-05-03	Florida	Pembroke Pines, Florida	\$1,771,000.00	06/01/90			

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158	MDWSA - Contract S-344	Florida	Miami Dade Water and Sewer Dep.	\$1,924,839.00				
157	MDWSA - Contract S-337C, Div. 2	Florida	Miami Dade Water and Sewer Dep.					
156	MDWSA - Contract S-337C, Div. 1	Florida	Miami Dade Water and Sewer Dep.	\$2,387,690.50				
155	City of Pembroke Pines - Pembroke Bay Pumping Station	Florida	Pembroke Pines, Florida	\$69,917.50				
154	Town of Davie - Water Distribution System B&C 85-079	Florida	Davie, Town of	\$821,140.00				
153	General Crane Water & Sewer	Florida	Pompano Beach, Florida	\$92,500.00				
152	MDWSA - Palmetto - Phoenix Farms	Florida	Miami Dade Water and Sewer Dep.	\$1,290,255.00				
151	Coral Ridge Pump Station - Ft. Lauderdale	Florida	Ft. Lauderdale, FL					
150	MDWSA - Sanitary Sewer Restoration S - 319B	Florida	Miami Dade Water and Sewer Dep.	\$1,290,400.00				
149	MDWSA - Sanitary Sewer Restoration S - 319D	Florida	Miami Dade Water and Sewer Dep.	\$1,735,545.00				
148	MDWSA - Sanitary Sewer Restoration S - 319C, Div. 2	Florida	Miami Dade Water and Sewer Dep.	\$353,200.00				
147	MDWSA - Sanitary Sewer Restoration S - 319C, Div. 1	Florida	Miami Dade Water and Sewer Dep.	\$1,439,570.00				
146	MDWSA - South District Wastewater Transmission System	Florida	Miami Dade Water and Sewer Dep.	\$3,933,773.50				
145	Water and Wastewater Transmission Mains	Florida	Local Government	\$3,004,249.88				
144	South District Wastewater / Transmission System S-311	Florida	Miami Dade Water and Sewer Dep.	\$1,424,329.00				
143	Fairlawn South Sanitary Sewer - City of Miami	Florida	Miami, City of	\$1,696,293.70				
142	Lithia Pumping Station - MCI	Florida	Bradon, Florida	\$542,778.00				
141	Tampa International Airport	Florida	Tampa, Florida	\$823,887.00				
140	Project 8683 - Replace 54" Water Main	Florida	Ft. Lauderdale, FL	\$2,280,198.00				
139	Tanglewood Force Main Extension	Florida	Local Government	\$35,815.00				
138	South Central Hillsborough / Transmission Mains	Florida	Local Government	\$9,570,040.00				
137	Seacrest Boulevard from Boynton Canal	Florida	Palm Beach, FL	\$3,759,212.73				
136	Gore Street Trunk Sewer Bypass	Florida	Orlando, City of	\$1,077,534.00				
134	City of Hialeah / Diversion Force Main	Florida	Hialeah, FL	\$755,505.00				
133	Davie - Cooper City / Effluent Transmission Force Main	Florida	Davie, Town of	\$1,193,725.00				
132	20" Water Main, Sw 67th Ave, Sw 40th Street	Florida	Local Government	\$418,017.50				
131	Orlando Easterly Effluent Transmission Main / Iron Bridge	Florida	Orlando, City of	\$8,236,389.00				
130	Raw Water Transmission Main & Construction	Florida	Local Government	\$733,194.99				
129	Citywide Sanitary Service - City of Miami	Florida	Miami, City of	\$265,191.00				
128	Eastern Service Area Wastewater Facilities Program	Florida	Orlando, City of	\$3,182,515.00				
127	City of Pembroke Pines / Tanglewood Force Main	Florida	Pembroke Pines, Florida	\$81,070.00				
125	City of Tamarac - Turnpike Utility Relocation	Florida	Tamarac, City of	\$40,000.00				
124	City of Miami - Fairlawn North Sanitary Sewer Improvements	Florida	Miami, City of	\$1,901,829.00				
123	Washington Park/Boulevard Gardens	Florida	Broward Cty., FL	\$624,070.00				
121	City of Plantation Gulfstream Force Main	Florida	Plantation, City of	\$1,382,875.00				
120	Wagner Creek Renovation - City of Miami	Florida	Miami, City of	\$757,320.00				
118	City of Orlando - Water Conser. I	Florida	Orlando, City of	\$883,430.00				
117	Jog Road Water Transmission	Florida	Palm Beach, FL	\$1,214,737.50				
116	Town of Medley, Florida - Sanitary Sewer Facilities	Florida	Medley	\$2,276,984.50				
115	Orange County - Rapid Infiltration Basins (RIBS)	Florida	Orange County	\$11,787,570.00				
114	City of Hialeah - Sanitary Sewage Collection System	Florida	Hialeah, FL	\$1,989,312.50				
113	Pembroke Public Safety Building / Pembroke Lakes Florida	Florida	Pembroke Pines, Florida					
112	City of Orlando, Distribution Network Pipeline	Florida	Orlando, City of	\$4,701,695.00				
111	City of Homestead - Krome Avenue Sewer Rehabilitation Pro.	Florida	Homestead, City of	\$1,549,998.00				
110	Miami Dade Water & Sewer Authority - Installation 24" WM	Florida	Miami Dade Water and Sewer Dep.	\$685,740.00				

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
109	City of Pembroke Pines - 20" Force Main	Florida	Pembroke Pines, Florida					
108	Holly Lakes Repairs	Florida	Local Government	\$29,400.00				
107	Century Village Pipe Crossings	Florida	Century Village	\$30,650.00				
106	Broward County - Water Transmission Main& Drainage Cul.	Florida	Broward Cty., FL	\$686,853.00				
105	Edwin B. Stimpson - Job No. F6158	Florida	Local Government	\$54,225.00				
104	City of Miami, Dept. of Public Works - Job No. B - 5495	Florida	Miami, City of	\$371,465.00				
103	City of Hialeah Gardens, Dade County - Wastewater Improv.	Florida	Hialeah, FL	\$1,239,571.50				
102	Sanitary Sewer Facilities, Town of Medley - Ph 1. SCS	Florida	Medley	\$5,070,447.50				
101	Woodbridge at Pembroke Lakes South	Florida	Pembroke Lakes, City of	\$346,609.63				
99	City of Plantation Gulfstream Master - Pump Station	Florida	Plantation, City of	\$1,446,000.00				
97	Manatee Co. North Subregional Wastewater	Florida	Manatee County	\$814,000.00				
96	City of St. Petersburg N.E. Interceptor	Florida	St. Petersburg	\$1,985,800.00				
95	City of Hialeah Gardens Wastewater - Improv. Pro.	Florida	Hialeah, FL	\$1,239,571.50				
94	Town of Medley, Ph. 1, Sanitary	Florida	Medley	\$1,747,850.00				
93	Delray Beach Water Treatment - Plant Expansion	Florida	Delray Beach	\$743,500.00				
64	Snapper Creek Canal Crossing	Florida	Miami Dade Water and Sewer Dep.	\$927,630.00				
63	Kendall-South District Wastewater Transmission System	Florida	Miami Dade Water and Sewer Dep.	\$1,249,395.00				
62	Lynwood Sanitary Sewer Improvement	Florida	Local Government	\$1,463,177.00				
61	Pembroke Lakes South - Water Distribution System	Florida	Pembroke Lakes, City of	\$2,354,158.15				
60	Kinloch Sanitary Sewer Job No. B - 5485	Florida	Local Government	\$703,418.00				
59	Washington Park/Boulevard Gardens	Florida	Washington Park	\$566,834.00				
58	City of West Palm Beach	Florida	West Palm Beach, FL	\$508,513.35				
57	Washington Park/Boulevard Gardens	Florida	Washington Park	\$590,572.40				
56	Pompano Business Park	Florida	Pompano	\$451,350.00				
55	York Cahse, Ph. 1 - Ronto Development, Florida	Florida	Local Government					
54	Water Distribution City Pro. No. 406	Florida	Local Government	\$854,264.00				
51	Construction Ph. 1, Wasterwater System Additions	Florida	Local Government	\$982,549.80				
48	Central Sanitary Sewers, Job No. B - 5481	Florida	Local Government	\$639,026.75				
43	Job No. B - 5477 C&S Koubeck Sanitary	Florida	Local Government	\$1,009,235.00				
39	Pro. No. 7910 - City of Ft. Lauderdale, Florida	Florida	Ft. Lauderdale, FL	\$13,815.00				
38	Completion of Contract S - 195 for USF & G	Florida	Local Government	\$247,680.00				
37	Completion of Contract S - 188 for USF & G	Florida	Local Government					
36	Contract No. 7894 - City of Ft. Lauderdale	Florida	Ft. Lauderdale, FL	\$175,000.00				
35	Water & Sewer Construction South Half Section 34, T525, R40E	Florida	Local Government	\$597,969.50				
34	Miami - Dade Contract #449, Division A & B, Install 48" WM	Florida	Local Government	\$577,000.00				
33	1980 Sanitary Sewer Improvements - City of Dania	Florida	Dania, City of	\$437,260.00				
32	City of Ft. Lauderdale Pro. No. 1534	Florida	Ft. Lauderdale, FL					
31	Cit of Ft. Lauderdale Pro. No. 7725	Florida	Ft. Lauderdale, FL					
30	NW 31st Avenue Watermains & Drainage	Florida	Local Government	\$1,700,000.00				
29	Paradise Palms Sanitary Sewer	Florida	Paradise Palms	\$976,530.00				
28	1981 Storm Drainage Improvement	Florida	Local Government	\$428,000.00				
27	1981 Sanitary Effluent System, Contract S - 156	Florida	Local Government	\$2,967,000.00				
26	1981 Raw Water Transmission Main, Contract No. 419 Div. A & B	Florida	Local Government	\$1,405,899.00				
25	1980 Forcemain Improvement Pro. No. 10389 - P	Florida	Local Government	\$804,195.51				
24	1980 Riverview Storm Sewer Ph. 1	Florida	Local Government	\$2,190,000.00				

Lanzo Job #	Project Name	State	Owner	Contract Amount	Completion Date	Final Contract Amount	Project Manager	Super
23	1980 Storm Drainage Improvement Area D - 10	Florida	Local Government	\$1,639,924.50				
22	1980 Storm Drainage Improvement Area D - 9	Florida	Local Government	\$1,170,556.49				
21	1979 Interceptor Forcemain Pro. No. 3574	Florida	Local Government	\$6,784,000.00				
20	1979 Interceptor Forcemain N - 16, Contract S -181	Florida	Miami Dade Water and Sewer Dep.	\$885,770.00				
19	1980 Forcemain and Transmission Mains, Sec. V, Div. 2,3,5,7,9,11 & 12	Florida	Local Government	\$1,938,244.00				
18	1979 Raw Water Transmission Mains and Pump Station # 240	Florida	Local Government	\$500,000.00				
17	1980 Forcemains, Transmissions Mains and Pump # 240	Florida	Local Government	\$1,658,485.00				
16	1979 Interceptor Forcemain N - 13, Contract S - 175	Florida	Miami Dade Water and Sewer Dep.	\$1,612,485.00				
15	1979 Interceptor Forcemain Pr. No. 3572	Florida	Local Government	\$2,800,000.00				
14	1980 Wastewater System Addition and Pump Station, Dis. 32	Florida	Local Government	\$683,075.00				
13	1980 Wastewater System Improvement with Pump Station, Dis. 28	Florida	Local Government	\$672,196.00				
12	1979 Liberia Sanitary Sewer System	Florida	Local Government	\$735,875.00				
11	1979 Sun Garden Isles Sanitary Sewer, Paving and Drainage	Florida	Sun Garden Isles	\$794,000.00				
10	1979 Cordova Island Watermain Improvements	Florida	Local Government	\$22,000.00				
9	1979 Watermain Improvements, Pro. 10389 - P	Florida	Local Government	\$766,000.00				
8	1978 Water and Waterwater System Improvement with Pump Station	Florida	Local Government	\$5,974,000.00				
7	1978 Storm Sewer Replacement	Florida	Local Government	\$367,000.00				
6	1977 Gravity Sewers and Forcemains, Part F, Sec. IV	Florida	Local Government	\$3,200,000.00				
5	1977 Gravity Sewers and Forcemains, Part F, Sec. I	Florida	Local Government	\$2,909,000.00				
4	1975 Wastewater System and Forcemain	Florida	Local Government	\$700,000.00				
3	1976 Utilities District No. One Watermain	Florida	Local Government	\$897,000.00				
2	1975 Forcemain and Pump Station Modifications	Florida	Local Government	\$693,000.00				
1	1973 through 1975 Gravity Sewers and Forcemains	Florida	Local Government	C1 4,500,000 / C2 4,600,000				





## **Financial Statements**

**Only Available If Apparent Low**

**Bidder and Upon Written Request that**

**Assures Confidentiality.**

**Fiscal Year End December 31, 2022**

**Section 9**

ATTACHMENT A  
CONTRACT

THIS AGREEMENT, made and entered into, this \_\_\_\_ day of \_\_\_\_\_, A.D., \_\_\_\_\_, by and between the CITY OF HOLLYWOOD, Florida, a municipal corporation of the State of Florida, part of the first part, (hereinafter sometimes called the "CITY"), and

**Lanzo Construction Co., Florida**

party of the second part (hereinafter sometimes called the "CONTRACTOR").

WITNESSETH: The parties hereto, for the considerations herein-after set forth, mutually agree as follows:

Article 1. Scope of Work: The CONTRACTOR shall furnish all labor, materials, and equipment and perform all work in the manner and form provided by the Contract Documents, for:

**Lift Station A-09 Force Main Replacement  
Project No. 20-8533 / Bid No. IFB-187-24-JJ**

Article 2. The Contract Sum: The CITY shall pay to the CONTRACTOR, for the faithful performance of the Contract, in lawful money of the United States of America, and subject to additions and deductions as provided in the Contract Documents, as follows:

Based upon the prices shown in the Proposal heretofore submitted to the CITY by the CONTRACTOR, a copy of said Proposal being a part of these Contract Documents, the aggregate amount of this Contract being the sum of **One Million Nine Hundred Five Thousand Five Hundred and Sixty-One Dollars and Zero Cents (\$1,905,561.00)**.

Article 3. Partial and Final Payments: In accordance with the provisions fully set forth in the "General Conditions" of the "Specifications", and subject to additions and deductions as provided, the CITY shall pay the CONTRACTOR as follows:

- (a) On the 15th day, or the first business day thereafter, of each calendar month, the CITY shall make partial payments to the CONTRACTOR on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the CONTRACTOR, less five percent (5%) of the amount of such estimate which is to be retained by the CITY until all work has been performed strictly in accordance with this Agreement and until such work has been accepted by the CITY. The parties' rights and obligations regarding retainage are further specified in Florida Statute Section 218.735.
- (b) Upon submission by the CONTRACTOR of evidence satisfactory to the CITY that all payrolls, material bills and other costs incurred by the CONTRACTOR in connection with the construction of the WORK have been paid in full, and also, after all guarantees that may be required in the Specifications have been furnished and are found acceptable by the CITY, final payment on account of this Agreement shall be made within sixty (60) days after

completion by the CONTRACTOR of all work covered by this Agreement and acceptance of such work by the ENGINEER and approved by the CITY.

Article 4. Time of Completion: The CONTRACTOR shall commence work to be performed under this Contract within ten (10) consecutive calendar days after date of written Notice To Proceed and shall fully complete the Contract in accordance within the Contract Documents and meet all intermediate milestone completion dates required after said date of written notice as set forth in the Proposal, as may be modified by Instructions to Bidders, and stated in the Notice to Proceed.

It is mutually agreed between the parties hereto, that time is the essence, and in the event that construction of the WORK is not completed within the Contract Time and per intermediate dates, as may have been modified solely in accordance with the General Conditions of this Contract, that from the compensation otherwise to be paid to the CONTRACTOR, the CITY is authorized and shall retain, for each day thereafter, Sundays and holidays included, the sum set forth in the Supplementary General Conditions of this Contract as liquidated damages sustained by the CITY in the event of such default by the CONTRACTOR, or shall withhold such compensation for actual and consequential damages as may be stated therein or contemplated therefrom.

Article 5. Additional Bond: It is further mutually agreed between the parties hereto, that if, at any time after the execution of this Agreement and the Payment and Performance Bonds required herein for the express purpose of assuring the faithful performance of the Contractor's work hereto attached, the CITY shall deem the surety or sureties' to be unsatisfactory, or, if for any reason, said bonds cease to be adequate to cover the performance of the work, the CONTRACTOR shall, at his expense, within five (5) days after receipt of notice from the CITY furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the CITY. In such event, no further payment to the CONTRACTOR shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the CITY.

Article 6. Contract Documents: All of the documents hereinafter listed form the Contract and they are as fully a part of the Contract as if hereto attached, or repeated in this Agreement:

1.	Introduction	15.	General Terms and Conditions
2.	Special Terms and Conditions	16.	Scope of Services
3.	Submittal Checklist Form	17.	Contract
4.	Acknowledgement and Signature Page	18.	Drug-Free Workplace Program
5.	Bid Form	19.	Solicitation, Giving, and Acceptance...
6.	Vendor Reference Form	20.	W-9 (Request for Taxpayer Identification)
7.	Hold Harmless and Indemnity Clause	21.	Performance Bond
8.	Proposal	22.	Payment Bond
9.	Non-Collusion Affidavit	23.	General Conditions, Public Utilities
10.	Sworn Statement...Public Entity Crimes	24.	Supplementary General Conditions
11.	Information Required from Bidders	25.	Addenda
12.	Certifications Regarding Debarment...	26.	Specifications

13.	Trench Safety Form	27.	Drawings
14.	Bid Guaranty Form	28.	List of Subcontractors

Article 7. The rate of wages and fringe benefits, or cash equivalent, for all laborers, mechanics and apprentices employed by any contractor or subcontractor on the work covered by the contract shall be not less than the prevailing rate of wages and fringe benefit payments or cash equivalent for similar skills or classifications of work as established by the General Wage Decision by the United States Department of Labor for Broward County, Florida that is in effect prior to the date the city issues its invitation for bids. If the General Wage Decision fails to provide for a fringe benefit rate for any worker classification, then the fringe benefit rate applicable to the worker classification shall be the fringe benefit rate applicable to the worker classification with a fringe benefit rate that has a basic hourly wage closest in dollar amount to the worker classification for which no fringe benefit rate has been provided.

Article 8. No additional work or extras shall be performed unless the same be duly authorized by appropriate action of the City.

Article 9. That in the event either party brings suit for enforcement of disagreement, the prevailing party shall be entitled to attorney's fees and court costs in addition to any other remedy afforded by law.

Article 10. The Contractor shall guarantee the complete project against poor workmanship and faulty materials for a period of twelve (12) months after final payment and shall immediately correct any defects which may appear during this period upon notification by the City or the Engineer.

Article 11. The making and acceptance of the final payment shall constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

\*\*\*\*\*

IN WITNESS WHEREOF the parties hereto have executed this Agreement on the day and date first above written in three (3) counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original contract:

THE CITY OF HOLLYWOOD, FLORIDA  
Party of the First Part

By: \_\_\_\_\_ (SEAL)  
JOSH LEVY, MAYOR

ATTEST:

\_\_\_\_\_  
PATRICIA A. CERNY, MMC  
City Clerk

\*\*\*\*\*

CONTRACTOR  
Party of the Second Part

WHEN THE CONTRACTOR IS AN INDIVIDUAL:

Signed, sealed and delivered in the presence of:

\_\_\_\_\_  
(Witness) \_\_\_\_\_ (Signature of Individual) (SEAL)

\_\_\_\_\_  
(Witness) \_\_\_\_\_ (Signature of Individual)

\*\*\*\*\*

WHEN THE CONTRACTOR IS A SOLE PROPRIETORSHIP OR OPERATES UNDER  
A TRADE NAME:

Signed, sealed and delivered in the presence of:

\_\_\_\_\_  
(Witness) \_\_\_\_\_ (Name of Firm)

\_\_\_\_\_  
(Witness) \_\_\_\_\_ (Signature of Individual) (SEAL)

\*\*\*\*\*

WHEN THE CONTRACTOR IS A PARTNERSHIP:

\_\_\_\_\_  
(Witness) \_\_\_\_\_ (Name of Firm) a Partnership

\_\_\_\_\_  
(Witness) BY: \_\_\_\_\_ (Partner) (SEAL)

\*\*\*\*\*

WHEN THE CONTRACTOR IS A CORPORATION:

Attest:

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
(Correct Name of Corporation)

BY: \_\_\_\_\_ (SEAL)  
President

\*\*\*\*\*

APPROVED AS TO FORM :

APPROVED AS TO FINANCE:

By \_\_\_\_\_  
DOUGLAS R. GONZALES  
City Attorney

By \_\_\_\_\_  
STEPHANIE TINSLEY  
Financial Services Director

CERTIFICATE

**STATE OF FLORIDA)  
COUNTY OF BROWARD)**

***I HEREBY CERTIFY*** that a meeting of the Board of Directors of \_\_\_\_\_,  
a corporation under the laws of the State of \_\_\_\_\_, was held on \_\_\_\_\_,  
20 \_\_, and the following resolution was duly passed and adopted:

"RESOLVED, that \_\_\_\_\_ as \_\_\_\_\_ President of the corporation,  
be and he is hereby authorized to execute the contracts on behalf of this  
corporation, and that his execution thereof, attested by the Secretary of  
the corporation and with corporate seal affixed, shall be the official act and  
deed of this corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of  
the corporation, this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_.

\_\_\_\_\_  
Secretary (SEAL)

- END OF SECTION -

ATTACHMENT A  
PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we \_\_\_\_\_,  
Name Address Tel. No.

as Principal, and \_\_\_\_\_,  
Name Address Tel. No.

as Surety, are held and firmly bound unto the City of Hollywood in the sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_),

for the payment of said sum we bind ourselves, our heirs, executors, administrators and assigns, jointly and severally, for the faithful performance of a certain written contract, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ entered into between the Principal and the City of Hollywood, Florida, for the installation of **Lift Station A-09 Force Main Replacement, Project No. 20-8533 / Bid No. F-4697-21-OT.**

A copy of said Contract, **No. 20-8533** is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH, that if the Principal shall in all respects comply with the terms and conditions of said Contract and his obligations thereunder, including all of the Contract Documents (that include the Introduction, Special Terms and Conditions, Scope of Services, General Terms & Conditions, Submittal Checklist Form, Instructions to Bidders, Proposal, Proposal Bid Form, Basis of Payment, Bid Guaranty Form , Trench Safety Form, Information Required from Bidders, Vendor Reference Forms, Hold Harmless and Indemnity Clause, Non-Collusion Affidavit, Sworn Statement...Public Entity Crimes, Certifications Regarding Debarment... , Drug-Free Workplace Program, Solicitation, Giving, and Acceptance..., Contract, Performance Bond, Payment Bond, General and Supplementary General Conditions, Technical Specifications, Addenda and Drawings), therein referred to and made a part thereof, and such alterations as may be made in said Drawings and Specifications as therein provided for, and shall indemnify and save harmless the City of Hollywood against and from all expenses, damages, injury or conduct, want of care of skill, negligence or default, including patent infringement on the part of said Principal, his agents or employees, in the execution or performance of said Contract, including errors in the Drawings furnished by said Principal, and further, if the Principal shall promptly make payments to all who supply him, with labor and/or materials, used directly or indirectly by the Principal in the prosecution of the work provided for in said Contract, then this obligation shall be null and void; otherwise, the Principal and Surety, jointly and severally, agree to pay the City of Hollywood any difference between the sum that the City of Hollywood may be obliged to pay for the completion of said work, by Contract or otherwise, and the sum that the City of Hollywood would have been obliged to pay for the completion said work had the Principal properly executed all of the provisions of said Contract, and any damages, whether direct, indirect, or consequential, which the City of Hollywood may incur as a result of the failure of the said Principal to properly execute all of the provisions of said Contract.



AND, the said Principal and Surety hereby further bind themselves, their successors, executors, administrators and assigns, jointly and severally, that they will amply and fully protect the City of Hollywood against, and will pay any and all amounts, damages, costs and judgments which may be recovered against or which the Owner may be called upon to pay to any person or corporation by reason of any damage arising from the performance of the said work, repair or maintenance thereof, or the manner of doing the same, or his agents or his servants, or the infringements of any patent rights by reason of the use of any material furnished or work done, as aforesaid or otherwise.

AND, the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications and Drawings accompanying the same, shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications and Drawings.

WHEN THE PRINCIPAL IS AN INDIVIDUAL:

Signed, sealed and delivered in the presence of:

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Signature of Individual)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Printed Name of Individual)

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Address)

WHEN THE PRINCIPAL IS A SOLE PROPRIETORSHIP OR OPERATES UNDER A TRADE NAME:

Signed, sealed and delivered in the presence of:

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Name of Firm)

\_\_\_\_\_  
(Address)

By: \_\_\_\_\_(Seal)  
(Signature of Individual)

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Address)

\*\*\*\*\*

WHEN THE PRINCIPAL IS A PARTNERSHIP:

Signed, sealed and delivered in the presence of:

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Name of Partnership)

\_\_\_\_\_  
(Address)

By: \_\_\_\_\_  
(Seal)  
(Partner)

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Printed Name of Partner)

\_\_\_\_\_  
Address

\*\*\*\*\*

WHEN THE PRINCIPAL IS A CORPORATION:

Attest:

\_\_\_\_\_  
(Secretary)

\_\_\_\_\_  
(Name of Corporation)

By: \_\_\_\_\_ (Seal)  
(Affix Corporate Seal)

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Official Title)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, \_\_\_\_\_, certify that I am the Secretary of the corporation named as Principal in the within bond; that \_\_\_\_\_, who signed the said bond on behalf of the Principal was then \_\_\_\_\_ of said corporation; that I know his signature, and his signature thereto is genuine; and that said Bond was duly signed, sealed and attested for and on behalf of said corporation by authority of its governing body.

\_\_\_\_\_  
Secretary (SEAL)

TO BE EXECUTED BY CORPORATE SURETY

Attest:

\_\_\_\_\_  
(Secretary)

\_\_\_\_\_  
(Corporate Surety)

\_\_\_\_\_  
(Business Address)

By: \_\_\_\_\_  
(Affix Corporate Seal)

\_\_\_\_\_  
(Attorney-In-Fact)

\_\_\_\_\_  
(Name of Local Agency)

\_\_\_\_\_  
(Business Address)

STATE OF FLORIDA

Before me, a Notary Public, duly commissioned, qualified and acting, personally appeared, \_\_\_\_\_ to me well known, who being by me first duly sworn upon oath, says that he is the attorney-in-fact for the \_\_\_\_\_ and that he has been authorized by \_\_\_\_\_ to execute the foregoing bond on behalf of the CONTRACTOR named therein in favor of the City of Hollywood, Florida.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public, State of Florida

My Commission Expires:

\*\*\*\*\*

APPROVED AS TO FORM:

APPROVED AS TO FINANCE:

By \_\_\_\_\_  
Douglas R. Gonzales  
City Attorney

By \_\_\_\_\_  
Stephanie Tinsley  
Financial Services Director

- END OF SECTION -

ATTACHMENT A  
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_  
Name Address Tel. No.

As Principal and \_\_\_\_\_  
Name Address Tel. No.

as Surety, are held and firmly bound to the CITY OF HOLLYWOOD, FLORIDA herein called the City, in the sum of \_\_\_\_\_

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_) for the payment of said sum we bind ourselves, our heirs, executors, administrators and assigns, jointly and severally, for the faithful performance of a certain written contract dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, entered into between the Principal and the City of Hollywood, Florida for the **Lift Station A-09 Force Main Replacement, Project No. 20-8533 / Bid No. F-4697-21-OT.**

Which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

THE CONDITION of this bond is that if Principal promptly makes payments to all claimants defined in Section 255.05 (1), F.S., supplying Principal with labor, materials or supplies used directly or indirectly by principal in the prosecution of the work provided for in the Contract, then this bond shall be null and void and of no further force and effect; otherwise to remain in full force and effect.

Said surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or any other changes in or under contract documents and compliance or noncompliance with any formalities connected with the contract does not affect Surety's obligation under this bond and Surety waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or any other changes, compliance, or noncompliance to the terms of the Contract or to the Work or to the Specifications.

This bond is furnished pursuant to the statutory requirements for bond on public works projects being Florida Statute 255.05. Claimants are hereby notified that the Statute 255.05(2) specifically requires that notice be given to Contractor within 45 days after beginning to furnish labor, materials or supplies for the prosecution of the work that claimants intends to look to the bond for protection. Further notice is hereby given claimants that written notice of nonpayment within ninety (90) days after performance of the labor or after complete delivery of the materials or supplies must be delivered to the Contractor and to the Surety. Further notice is hereby given that no action for labor, materials or supplies may be instituted against the Contractor or the Surety on the bond after one year for the performance of the labor or completion of delivery of the materials or supplies.

Without modifying the foregoing, this bond shall be construed as requiring of the principal and surety no more and no less than is specified in F.S. 255.050.

SIGNED AND SEALED, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**PRINCIPAL:**

ATTEST:

\_\_\_\_\_

\_\_\_\_\_  
(Signature)

\_\_\_\_\_

\_\_\_\_\_  
(Title)

(SEAL)

**SURETY:**

\_\_\_\_\_  
(Surety)

ATTEST:

\_\_\_\_\_

\_\_\_\_\_  
(Signature)

\_\_\_\_\_

\_\_\_\_\_  
(Attorney-in-Fact)

\*\*\*\*\*

APPROVED AS TO FORM:

APPROVED AS TO FINANCE:

By \_\_\_\_\_  
Douglas R. Gonzales  
City Attorney

By \_\_\_\_\_  
Stephanie Tinsley  
Financial Services Director

- END OF SECTION -

ATTACHMENT B  
GENERAL CONDITIONS, PUBLIC UTILITIES

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**ATTACHMENT B  
GENERAL CONDITIONS, PUBLIC UTILITIES**

**CITY OF HOLLYWOOD, FLORIDA  
GENERAL CONDITIONS  
FOR CONSTRUCTION CONTRACTS**

ARTICLE 1 - DEFINITIONS

In the interpretation of these Contract Documents the following terms shall have the meaning indicated:

**ADDENDA** - Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Contract Documents.

**CHANGE ORDER** - A written order to **CONTRACTOR** executed in accordance with City procurement procedures, as amended authorizing an addition, deletion or revision in the work, or an adjustment in the Contract Price or the Contract Time, issued after the date of Award.

**CITY (OWNER)** - The City of Hollywood, Florida.

**COMMISSION** - The City Commission of the City of Hollywood, Florida, being the legislative body of the CITY as set forth in the City of Hollywood Charter.

**CONTRACT** - The written agreement between the CITY and the **CONTRACTOR** covering the work to be performed in accordance with the other Contract Documents which are attached to the Contract and made a part thereof.

**CONTRACTOR** - The person, firm, or corporation with whom the CITY has entered into the Contract.

**CONTRACT DOCUMENTS** - The Notice to Bidders, Instruction to Bidders, Proposal, Information Required of Bidders, all Bonds, Agreement, and all supporting documents, these General Requirements and Covenants, the Specifications, Drawings and Permits, together with all Addenda and Change Orders issued with respect thereto.

**CONTRACT PRICE** - Total monies payable by the CITY to the **CONTRACTOR** under the terms and conditions of the Contract Documents.

**CONTRACT TIME** - The number of days agreed to in the Proposal, commencing with the date of the Notice to Proceed for completion of the work.

**CONTROL** - shall mean having the primary power, direct or indirect, to influence the management of a business enterprise. The controlling party must have the demonstrable ability to make independent and unilateral business decisions on a day-to-day basis, as well as the independent and unilateral ability to make decisions which may influence and chart the future course of the business.

**DATE OF SUBSTANTIAL COMPLETION** - The date when the work on the project, or specified part thereof, is substantially completed in accordance with the Contract Documents, such that

the CITY can occupy or utilize the project or specified part thereof for the use and purpose for which it was intended as determined and accepted by the Engineer.

DAYS - Calendar days of 24 hours measured from midnight.

DRAWINGS - The drawings which show the character and scope of the work to be performed and which have been prepared by the DESIGN ENGINEER approved by ENGINEER and are referred to in and are a part of the Contract Documents.

ENGINEER - The Director of Public Utilities of the CITY of Hollywood, Florida, or his authorized designee.

EXCUSABLE DELAY - Delay caused by the CITY, hurricane, tornadoes, fires, floods, epidemics or labor strikes.

GENERAL CONDITIONS - That segment of the Contract Specifications incorporating the Provisions common to all CITY Construction Contracts.

INEXCUSABLE DELAY - Any delay caused either (i) by events or circumstances within the control of the CONTRACTOR not specified in the definition of excusable delay.

INSPECTOR - The authorized field representative of the ENGINEER.

LIQUIDATED DAMAGES - The amount prescribed in the General Requirements to be paid the CITY, or to be deducted from any payments due the CONTRACTOR for each day's delay in completing the whole or any specified portion of the work beyond the Contract Time.

NOTICE OF AWARD - The written notice by the CITY to the successful Bidder stating that upon his execution of the Agreement and other requirements as listed therein within the time specified the CITY will sign and deliver the Agreement.

NOTICE TO PROCEED - A written notice by the ENGINEER to the CONTRACTOR fixing the date on which the Contract Time will commence to run and on which the CONTRACTOR shall start to perform his obligation under the Contract Documents.

"OR EQUAL" - Equivalent or superior in construction, efficiency and effectiveness to a type, brand, model or process called out in the Contract Documents to establish a basis of quality as determined by the ENGINEER.

SHOP DRAWINGS - All certified affidavits, drawings, diagrams, illustrations, schedules and other data which are specifically prepared by CONTRACTOR, a Subcontractor, manufacturer, fabricator, supplier or distributor to illustrate some portion of the work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a manufacturer, fabricator, supplier or distributor and submitted by CONTRACTOR to illustrate material or equipment for some portion of the WORK.

SPECIFICATIONS - Division 1 through 17 of these Contract Documents, consisting of administrative details and written technical descriptions of materials, equipment, standards and workmanship.

SUPPLEMENTARY CONDITIONS - Division 1 of the Contract Specifications incorporating the provisions peculiar to a specific project.

SUBCONTRACTOR - An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the work

SURETY - The person, firm or corporation responsible for the Bidder's acts in the execution of the Contract, or which is bound to the CITY with and for the CONTRACTOR to insure performance of the Contract and payment of all obligations pertaining to the work.

WORK - All the work materials or products specified, indicated, shown or contemplated in the Contract Documents to construct and complete the improvement, including all alterations, modifications, amendments or extension thereto made by Change Orders.

## ARTICLE 2 - ORGANIZATIONAL ABBREVIATIONS

Abbreviations of organizations which may be used in these Specifications are:

AASHTO:	American Association of State Highway and Transportation Officials
ACI:	American Concrete Institute
AIA:	American Institute of Architects
AISC:	American Institute of Steel Construction
AITC:	American Institute of Timber Construction
ANSI:	American National Standards Institute
APWA:	American Public Works Association
ASTM:	American Society for Testing and Materials
ASCE:	American Society of Civil Engineers
ASME:	American Society of Mechanical Engineers
ASHRAE:	American Society of Heating, Refrigerating and Air Conditioning Engineers
AWPA:	American Wood Preservers Association
AWWA:	American Water Works Association
AWS:	American Welding Society
BCEQCB:	Broward County Environmental Quality Control Board
CRSI:	Concrete Reinforcing Steel Institute
FDEP:	Florida Department of Environmental Protection
FDNR:	Florida Department of Natural Resources
FDOT:	Florida Department of Transportation
FPL:	Florida Power and Light
IEEE:	Institute of Electrical and Electronic Engineers
NACE:	National Association of Corrosion Engineers
NCPI:	National Clay Pipe Institute

NEC: National Electrical Code

NEMA: National Electrical Manufacturers Association

NFPA: National Fire Protection Association

OSHA: Occupational Safety and Health Act

PCI: Prestressed Concrete Institute

SFBC: South Florida Building Code, Broward Edition, Latest Revision

SFWMD: South Florida Water Management District

SSPC: Structural Steel Painting Council

UL: Underwriters' Laboratories, Inc.

UNCLE: Utility Notification Center for Location before Excavation (1-800-432-4770)

USEPA: United States Environmental Protection Agency

USGS: United States Geological Survey

WWEMA: Water and Wastewater Equipment Manufacturers Association

## ARTICLE 3 - MISCELLANEOUS PRELIMINARY MATTERS

### 3.1 Contract Document Discrepancies:

Any discrepancies, conflicts, errors or omissions found in the Contract Documents shall be promptly reported to the ENGINEER who will issue a correction, if necessary, in writing. The CONTRACTOR shall comply with any corrective measures regarding the same as prescribed by the ENGINEER.

### 3.2 Submissions:

Unless indicated otherwise in the Contract Documents, within seven days subsequent to the CONTRACTOR executing and submitting the required documents of Article 2.13 in Section II - Special Terms and Conditions, the CONTRACTOR shall submit to the ENGINEER an estimated progress schedule indicating the starting and completion days of the various stages of the work. A preliminary Schedule of Values and a preliminary schedule of Shop Drawing submissions may also be required by Section 01300 of Division 1 - General Requirements.

### 3.3 Pre-construction Conference:

The Contractor will be required to attend a mandatory Pre- Construction Conference for review of the above schedules, establishing procedures and establishing a working understanding among the parties as to the work.

### 3.4 Contract Time:

The Contract Time will commence on the date of the Notice to Proceed and shall exist for the total number of days as specified in Attachment C – Supplementary General Conditions, Section 1, Project Schedule as modified by any subsequent Change Orders, Unless the CONTRACTOR fails to complete the requirements of Section II - Special Terms and Conditions, the additional time in days (including weekends) required to correctly complete the documents will be deducted by CITY from the Contract Time specified by the CONTRACTOR in this Proposal.

### 3.5 Computation of Time:

When any period of time is referred to the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a legal holiday, such day shall be omitted from the computation.

### 3.6 Commencement of Work:

The CONTRACTOR shall not perform work at the site prior to the date of the Notice to Proceed.

### 3.7 Extension of Contract Time:

Extensions of time shall be based solely upon the effect of delays to the work as a whole. Extensions of time shall not be granted for delays to the work, unless the CONTRACTOR can clearly demonstrate, through schedule analysis, that the delay to the work as a whole arose in accordance with Article 11, Changes in Contract Time and that such delays did or will, in fact, delay the progress of work as a whole. Time extensions shall not be allowed for delays to parts of the work that are not on the critical path of the Project schedule. Time extensions shall not be granted until all float or contingency time, at the time of the delay, available to absorb specific delays and associated impacts, is used.

3.8    Notice and Service Thereof:

All notices, demands, requests, instructions, approvals and claims shall be in writing. Notices, demands, etc. shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the business address as defined at the Pre-Construction Conference.

3.9    Separate Contract:

The CITY reserves the right to let other Contracts in connection with this Project. The CONTRACTOR shall afford other Contractors reasonable opportunity for the introduction and storage for their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

3.10    Assignments of Contract:

No assignment by the CONTRACTOR of the Contract or of any part thereof, or any monies due or to become due thereunder shall be made.

3.11    Patents:

It is mutually understood and agreed that without exception, Contract prices are to include all royalties and costs arising from patents, trademarks, and copyrights in any way involved in the work. It is the intent that whenever the Contractor is required or desired to use any design, device, material or process covered by letters, patent, or copyright, the right for such use shall be provided for by suitable legal agreements with the Patentee or Owner and a copy of this agreement shall be filed with the ENGINEER. However, whether or not such an agreement is made or filed as noted, the CONTRACTOR and the Surety in all cases shall indemnify and save harmless the CITY from any and all claims for infringement by reason of the use of any such patented design, device, material or process, to be performed under the Contract, and shall indemnify the said CITY from any costs, expenses, and damages which it may be obliged to pay, by reason of such infringement, at any time during the prosecution or after the completion of the work.



### 3.12 Federal Excise Tax:

The forms needed for applying for exemption certificates for materials and equipment, normally subject to the Federal Excise Tax, may be obtained from the Director of Internal Revenue, Jacksonville, Florida.

The CONTRACTOR is solely responsible for obtaining the desired exemption certificate from the Federal Government.

### 3.13 Savings Due to Excise Tax Exemptions:

The Bidder shall include in the Bid price the estimated cost of all goods, supplies and equipment which will be incorporated in the Work and the taxes that the Bidder would be required to pay if the Bidder were to purchase such goods, supplies or equipment. By subsequent Change Order(s), the parties shall reduce the Bid price to reflect any goods, supplies and equipment purchased directly by City and the resulting tax savings due to City's exemption from Excise Taxes.

CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the laws and regulations of the State of Florida and its political subdivisions. Consistent with the tax exemption for municipalities provided by state law, CITY and CONTRACTOR shall jointly operate so that CITY may purchase directly, goods, supplies and equipment which will be incorporated into the Work. The goods, supplies and equipment that will be purchased by CITY shall be approved in advance by the parties.

With respect to all goods, supplies and equipment to be purchased by CITY, CONTRACTOR shall, on behalf of CITY, take all actions necessary and appropriate to cause all purchases to be made and shall be responsible for delivery of all such goods, supplies and equipment, including verification of correct quantities and documents or orders, coordination of purchases and delivery schedules, sequence of delivery, unloading, handling and storage through installation, obtaining warranties and guarantees required by the Contract Documents, inspection and acceptance of the goods, supplies and equipment at the time of delivery, and other arrangements normally required for the particular goods, supplies or equipment purchased. Unless otherwise directed by CITY, such actions shall also include taking the lead in efforts to resolve any and all disputes with the vendor. CONTRACTOR shall ensure that each vendor of goods, supplies and equipment purchased by CITY agrees in writing to the terms and conditions contained in CITY'S standard purchase order, which terms and conditions are set forth in Attachment C - Supplementary General Conditions of the Contract Documents. Even though CITY may purchase such goods, supplies and equipment, the goods, supplies and equipment shall be stored at the site in the same manner as goods, supplies and equipment purchased by CONTRACTOR.

CONTRACTOR shall hold CITY harmless from delays in manufacturing, delivery, and other unforeseen conditions that may arise as part of the procurement of CITY- purchased goods, supplies and equipment.

### 3.14 Overtime Work:

The CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of eight hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing. Additional compensation will be paid the CONTRACTOR for overtime work only in the event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime work of a similar nature in the same locality.

### 3.15 Inspections and Testing during Overtime:

The CONTRACTOR shall establish a normal work schedule which does not exceed eight hours per day in a normal work day nor 40 hours per week in a normal work week. Normal work days shall be Monday through Friday. Whenever CONTRACTOR's work requires scheduled overtime, unless such overtime work is specifically required by the Contract Documents, CONTRACTOR shall reimburse the CITY for the extra costs incurred for providing Inspectors. Overtime shall be scheduled only after CONTRACTOR obtains written permission from the CITY. A change order shall be prepared to cover the CITY costs. Inspector costs shall be charged to the CONTRACTOR at a rate of \$80.00 per hour with a minimum of four hours charged for weekends and holidays. If the CONTRACTOR has an overtime work force size of fifty or more persons a second Inspector will be required and the costs for two Inspectors will be \$160.00 per hour.

### 3.16 Nights, Sunday or Holiday Work:

Except upon specific permission of the ENGINEER, the CONTRACTOR shall not perform any work on Sundays or on legal State or Municipal holidays. In accordance with City of Hollywood Code of Ordinances, Section 21.49, no work between 6:00 p.m. and 8:00 a.m. will be permitted, except in case of an emergency, that violates Section 21.49 concerning noise levels. All costs of testing and inspection performed during night, Sunday or holiday work shall be borne by the CONTRACTOR. The CONTRACTOR shall notify all regulatory agencies, including but not limited to the City Police Department, Fire Department, and Code Enforcement Department.

### 3.17 Injury or Damage Claims:

Should CITY or CONTRACTOR suffer injury or damage to their person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim shall be made in writing to the other party within a reasonable time of the first observance of such injury or damage. However, nothing herein shall be deemed to affect the rights, privileges and immunities of City as are set forth in Section 768.28, Florida Statutes.

## ARTICLE 4 - CONTRACT DOCUMENTS

### 4.1 Intent:

The Contract Documents comprise the entire Agreement between the CITY and CONTRACTOR concerning the work. The Contract Documents can be altered only by Change Order. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. It is the intent of the Contract Documents that the CONTRACTOR, for due consideration, shall furnish all equipment, material, supervision and labor, (except as may be specifically noted otherwise) required or necessary to complete the work in total accordance with said Documents. It is the intent of the Drawings and Specifications to describe the Project to be constructed in accordance with the Contract Documents. Any work that may reasonably be inferred from the Drawings or Specifications as being required in order to produce the intended result shall be supplied whether or not it is specifically called for.

### 4.2 Order of Precedence of Contract Documents:

In resolving differences resulting from conflicts, errors or discrepancies in any of the following Contract Documents, the order of precedence shall be as follows:

1. Permits
2. Change Orders
3. Contract Agreement
4. Specification
5. Drawings

Within the Specifications the order of precedence is as follows:

1. Addenda
2. Section I - Introduction
3. Section II – Special Terms and Conditions
4. General Terms & Conditions
5. Attachment C- Supplementary General Conditions
6. Attachment B - General Conditions
7. Division 1, General Requirements
8. Technical Specifications
9. Referenced Standard Specifications

With reference to the Drawings the order of precedence is as follows:

1. Figures Govern over Scaled Dimensions
2. Detail Drawings Govern over General Drawings
3. Change Order Drawings Govern over Contract Drawings
4. Contract Drawings Govern over Standard or Shop Drawings

### 4.3 Reference To Standards:

Any reference to standard Specifications, manuals or codes of any organization or governmental authority shall mean the latest edition, in effect as of the Bid Opening Date.

## ARTICLE 5 - BONDS AND INSURANCE

### 5.1 Bid Guarantee:

Bidders maybe required to submit a Bid Guarantee in an amount indicated in the SECTION II - SPECIAL TERMS AND CONDITIONS. This Guarantee may be a Certified or Cashier's Check on a solvent National or State Bank, or a Bid Bond written by a Surety licensed to do business in Florida and rated at least "A", Class X in the latest edition of "Best's Key Rating Guide" published by A.M. Best Company.

### 5.2 Performance and Payment Bond:

CONTRACTOR shall furnish Performance and Payment Bonds, in amounts equal to the Contract Price as Security for the faithful performance and payment of CONTRACTOR's obligations. The Bond or Bonds shall remain in effect one year after the date of final payment. The Surety must be qualified as specified above in Paragraph 5.1. However, the City reserves the right to require additional bonds as set forth in Article 5 of the Contract.

### 5.3 Signatures:

All Bonds signed by an Agent must be accompanied by a Certified copy of the authority to act, with said copy having been signed (not typed nor printed) by an Officer of the Surety and carrying the seal of the Surety.

### 5.4 Insurance Coverage:

Within ten days from Notice of Award the CONTRACTOR shall purchase and maintain such insurance as specified in Article 2.25 of Section II – Special Terms and Requirements as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR's operations under the Contract or Contract Documents, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

### 5.5 Certificates of Insurance:

Within ten days of award, the Contractor shall obtain a Certificate of Insurance reflecting the necessary coverages as required by the Contract Documents. Certificates of Insurance shall contain a provision that coverages afforded under the policies will not be canceled until at least 30 days prior written notice has been given to the CITY. The City of Hollywood must be named as additional insured on all coverage with the exception of Workmen's Compensation. Policies shall be issued by companies authorized to do business under the Laws of the State of Florida. Policyholders and Financial Ratings must be no less than "A" and Class X respectively in the latest edition of "Best Key Rating Guide", published by A.M. Best Company.

5.6    Insurance Limits of Liability:

The insurance required by this Article shall be written for no less than the level of liability specified in "Insurance Requirements", Section 2 of the Supplementary General Conditions, or required by law, whichever is greater. The insurance shall include contractual liability insurance applicable to the CONTRACTOR's obligations under this contract.

The level required in Section 2 of the Supplementary General Conditions will not be reduced for any reason.

## ARTICLE 6 - AVAILABILITY OF LAND; REFERENCE POINTS

### 6.1 Rights-of-Way:

Lands or Rights-of-Way for the work to be constructed under the Contract will be provided by the CITY. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or Rights-of-Way provided. Any additional lands or Rights-of-Way required for construction operations shall be provided by the CONTRACTOR at his own expense; provided, that the CONTRACTOR shall not; and the CITY nor the ENGINEER shall not be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any such properties.

### 6.2 Permits:

When required by Article 2.16 of the Section II – Special Terms and Conditions, the CONTRACTOR shall secure, from the agencies having jurisdiction, the necessary permits to create obstructions, to make excavations if required under the Contract, and to otherwise encroach upon Rights-of-Way, and to present evidence to the ENGINEER that such permission has been granted, before work is commenced. Regulations and requirements of all agencies concerned shall be strictly adhered to in the performance of the Contract. The enforcement of such requirements under the Contract shall not be made the basis for additional compensation.

### 6.3 Lines and Grades:

The CONTRACTOR shall furnish all grades and all other lines required for the proper execution of the work.

## ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

### 7.1 Laws/Regulations to Be Observed:

The CONTRACTOR shall familiarize himself and comply with all Federal, State, County and CITY laws, by-laws, ordinances, or regulations controlling the action or operation of those engaged or employed in the work or affecting material used and govern himself in accordance with them. He shall indemnify and save harmless the CITY and all of its officers, agents and employees against any claims or liability arising from or based on the violation of any such laws, by-laws, ordinances, regulations, orders or decrees, whether by himself or his employees or Subcontractors.

### 7.2 Indemnification of City:

- (a) Refer to ARTICLE 1.46 – INDEMNIFICATION AND HOLD HARMLESS AGREEMENT of Section IV – General Terms and Conditions.
- (b) Refer to ARTICLE 1.47 – PATENT AND COPYRIGHT INDEMNIFICATION of Section IV – General Terms and Conditions.
- (c) The provisions of (a) and (b) above shall survive the expiration or earlier termination of the Contract Documents.

### 7.3 Guarantee of Payments:

The CONTRACTOR guarantees the payments of all just claims for materials, supplies, tools, labor and other just claims against him, or any Subcontractor in connection with this Contract, and his bond will not be released by final acceptance and payment by the CITY unless all such claims are paid or released.

### 7.4 Permits and Licenses:

The CONTRACTOR shall obtain all permits and licenses required by the Contract Documents. A copy of the permit(s) and such conditions and requirements thereon are a part of the Contract Documents. Failure to obtain such permits or licenses shall subject the CONTRACTOR to the provisions of the South Florida Building Code, Broward Edition.

## 7.5    Emergencies:

In emergencies affecting the safety or protection of persons or the work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or CITY, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice of any significant changes in the work or deviations from the Contract Documents caused thereby.

## 7.6    Substitutes or "Or Equal":

### A.      Substitutes or "Or-Equal" Materials or Equipment:

Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by the ENGINEER if sufficient information submitted by the CONTRACTOR to allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. The ENGINEER will be allowed 30 days within which to evaluate each proposed substitute. The ENGINEER will be the sole judge of acceptability, and NO SUBSTITUTE WILL BE ORDERED, INSTALLED OR UTILIZED WITHOUT THE ENGINEER'S PRIOR WRITTEN ACCEPTANCE which will be evidenced by either a Change Order or an approved set of Shop Drawings. Requests for review of substitute items of material and equipment will not be accepted by the ENGINEER from anyone other than the CONTRACTOR. The procedure for review by the ENGINEER is as follows:

If the CONTRACTOR wishes to furnish or use a substitute item of material or equipment, the CONTRACTOR shall make written application to the ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. In addition, the application shall

1. State that the evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's achievement of completion on time.
2. State whether or not acceptance of the substitute for use in the WORK will require a change in any of the Contract Documents to adapt design to the proposed substitute. The CONTRACTOR shall be responsible for any extra design adaptation costs associated with a proposed substitute.
3. State whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty.
4. Provide complete substitute identification and description, including manufacturer's and local distributor's name and address, performance and test data, and reference standards.



5. Provide samples, as required by ENGINEER.
6. Provide name and address of similar projects on which the proposed substitute has been used, and date of installation.
7. Identify all variations of the proposed substitute from that specified.
8. Indicate available maintenance, repair and replacement service.
9. Submit an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change. The CONTRACTOR shall be responsible for the costs of redesign and claims of other Contractors.
10. Provide any additional data about the proposed substitute as the ENGINEER may require of the CONTRACTOR.

B. Substitute means, method, technique, sequence or procedure of construction:

If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the ENGINEER, if the CONTRACTOR submits sufficient information to allow the ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by the ENGINEER will be similar to that provided in Paragraph 7.6 A.

- C. The CITY may require the CONTRACTOR to furnish at the CONTRACTOR's expense, a special performance guarantee or other surety with respect to any substitute.
- D. The ENGINEER will record time required by the ENGINEER and/or the ENGINEER's consultants in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not the ENGINEER accepts a proposed substitute, THE CONTRACTOR SHALL REIMBURSE THE CITY FOR THE CHARGES OF THE ENGINEER AND THE ENGINEER'S CONSULTANTS FOR EVALUATING EACH PROPOSED SUBSTITUTE.
- E. Any and all costs which result from changes to/adaptations of the work shall be paid by the CONTRACTOR including but limited to design, materials, installation, etc.

## 7.7 Shop Drawings:

Shop Drawing submittals shall be as follows:

- A. The CONTRACTOR shall submit a sufficient number of copies of each Shop Drawing to enable the ENGINEER to retain three copies unless additional copies are specified in the Contract Documents. Resubmissions of Shop Drawings shall be made in the same quantity until final approval is obtained.
- B. The CONTRACTOR shall submit Shop Drawings for all equipment, apparatus, machinery, fixtures, piping, fabricated structures, manufactured articles and structural components Manufacturer's Certified Affidavit that the item supplied complies with the design Specifications, and all other submittal requirements.
- C. Shop Drawings for structural components, electrical or mechanical systems shall be Certified by a Registered Engineer of the discipline involved.
- D. The CONTRACTOR shall thoroughly review and check the Shop Drawings, and each and every copy shall show his approval thereon. If the Shop Drawings show or indicate departures from the Contract requirements, the CONTRACTOR shall make specific mention thereof in his letter of transmittal. Failure to point out such departures shall not relieve the CONTRACTOR from his responsibility to comply with the Drawings and Specifications.
- E. No approval will be given to partial submittals of Shop Drawings for items which interconnect and/or are interdependent. It is the CONTRACTOR's responsibility to assemble the Shop Drawings for all such interconnecting and/or interdependent items, check them himself and then make one submittal to the ENGINEER along with his comments as to compliance, non-compliance, or features requiring special attention.
- F. If catalog sheets or prints of manufacturer's standard drawings are submitted as Shop Drawings, any additional information or changes on such Drawings shall be typewritten or lettered in ink.
- G. The CONTRACTOR shall keep one set of Shop Drawings marked with the ENGINEER's approval at the job site at all times.
- H. Where a Shop Drawing or sample is required by the Specifications, no related work shall be commenced until the submittal has been reviewed and approved by the ENGINEER.
- I. Approval of the Shop Drawings shall constitute approval of the subject matter thereof only, and not of any structure, material, equipment or apparatus shown or indicated. The approval of the Shop Drawings will be general and shall not relieve the CONTRACTOR of responsibility for the accuracy of such Drawings, nor for the proper fitting and construction of the work, nor for the furnishing of materials or work required by the contract and not indicated on the Drawings. Approval shall not relieve the CONTRACTOR from responsibility for errors or omissions of any sort on the Shop Drawings.

## 7.8

### Personnel:

#### A. Supervision and Superintendence:

1. The CONTRACTOR shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but the CONTRACTOR shall not be solely responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. The CONTRACTOR shall be responsible to see that the finished work complies accurately with the Contract Documents.
2. The CONTRACTOR shall keep on the work at all times during its progress a competent resident Superintendent fluent in both oral and written communication in the English language, who shall not be replaced without written notice to the ENGINEER except under extraordinary circumstances. The Superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the Superintendent shall be as binding as if given to the CONTRACTOR.

#### B. Workforce:

1. None but skilled workers shall be employed on work requiring special qualifications. When required in writing by the ENGINEER, the CONTRACTOR or any Subcontractor shall discharge any person who is, in the opinion of the ENGINEER, incompetent, disorderly or otherwise unsatisfactory, and shall not again employ such discharged person on the work except with the consent of the ENGINEER. Such discharge shall not be the basis of any claim for damages against the CITY or any CITY agents.
2. With respect to all skilled, semi-skilled and unskilled workers employed on the Project under this Contract, preference in employment shall be given to persons residing in Hollywood when such persons are available and qualified to perform the work to which the employment relates. No person shall be employed in violation of the State or National Labor Laws. No person under the age of 16 years shall be employed on a Project under the Contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health or safety of others shall be employed on the Project under this Contract; provided that this shall not operate against the employment of physically handicapped persons, otherwise employable where such persons may be safely assigned to work which they can ably perform. No person currently serving sentences in a penal or correctional institution and no inmate of an institution for mentally defective shall be employed on a Project under this Contract without specific approval of the ENGINEER.

3. No discrimination shall be made in the employment of persons on the work by the CONTRACTOR or by any Subcontractor under him, because of the race, color, sex, age or religion of such persons, and there shall be full compliance with the provisions of applicable State and Federal laws in this regard.

7.9 Safety and Protection:

A. Federal Safety and Health Regulations:

The CONTRACTOR and Subcontractors shall comply with the provisions of the Occupational Safety and Health Standards, promulgated by the Secretary of Labor under the "Occupational Safety and Health Act of 1970".

B. Responsibilities:

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:

1. All employees on the work and other persons who may be affected thereby.
2. All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site.
3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocating or replacement in the course of construction.

C. Designated Safety Officer:

The CONTRACTOR shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the CONTRACTOR's Superintendent unless otherwise designated in writing by the CONTRACTOR to the ENGINEER.

D. Protection of the Work:

Until acceptance of the work by the CITY, it shall be under the charge and in care of the CONTRACTOR and he shall take every necessary precaution against injury or damage to the work by action of the elements or from the execution or from the non-execution of the work. The CONTRACTOR shall rebuild, restore and make good, at his own expense, all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance.

7.10 Traffic Control, Public Safety and Convenience:

- A. The CONTRACTOR shall at all times conduct his work so as to assure the least possible obstruction to traffic and inconvenience to the general public, and provide adequate protection of persons and property in the vicinity of the work.
- B. WHEN THE NORMAL FLOW OF TRAFFIC WILL BE IMPAIRED OR DISRUPTED IN ANY MANNER ON ANY STREET, THE CONTRACTOR SHALL NOTIFY THE POLICE TRAFFIC SERGEANT AT 921-3610 AT LEAST 48 HOURS IN ADVANCE.
- C. Streets shall not be closed, except when and where directed by the ENGINEER, and whenever a street is not closed the work must be conducted with the provision for safe passageway for traffic at all times. The CONTRACTOR shall make all necessary arrangements concerning maintenance of traffic and selection of detours required.
- D. When permission has been granted to close an existing roadway, or portion thereof, the CONTRACTOR shall furnish and erect signs, barricades, lights, flags and other protective devices as necessary subject to the approval of the ENGINEER. From sunset to sunrise, the CONTRACTOR shall furnish and maintain as many yellow lights as the ENGINEER may direct.
- E. During working hours the CONTRACTOR shall furnish watchmen in sufficient numbers to protect and divert the vehicular and pedestrian traffic from working areas closed to traffic, or to protect any new work. Failure to comply with this requirement will result in the ENGINEER shutting down the work until the CONTRACTOR shall have provided the necessary protection.
- F. No separate payment will be made for such signs, barricades, lights, flags, watchmen or other protective devices as required, with all costs thereof deemed to be included in the prices bid for the various items scheduled in the bid.
- G Sidewalks, gutters, drains, fire hydrants and private drives shall, in so far as practicable, be kept in condition for their intended uses. While the work is actually going on at any location, as much as half the street width at that location may be barricaded to exclude traffic entirely, but street traffic shall not be obstructed needlessly. Fire hydrants on or adjacent to the work shall be kept accessible to fire apparatus at all times, and no material or obstruction shall be placed within ten feet of any such hydrant.
- H. Construction material stored upon the public street shall be placed so as to cause as little obstruction to the general public as is reasonably possible.

#### 7.11 Use of Explosives:

When the use of explosives is necessary for the prosecution of the work, the CONTRACTOR shall observe the utmost care so as not to endanger life or property, and whenever directed, the number and size of charges shall be limited. All explosives shall be stored in a secure manner and all such storage places shall be marked clearly "DANGEROUS EXPLOSIVES" and shall be in care of a competent watchman at all times. The CONTRACTOR must familiarize himself with all laws and ordinances pertaining thereto, and govern himself and his employees accordingly.

#### 7.12 Loading of Structures:

The CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall the CONTRACTOR subject any part of the work or adjacent property to stresses or pressures that will endanger it.

#### 7.13 Concerning Subcontractors:

- A. The CONTRACTOR, with his own forces, shall perform no less than 25% of the work as determined by the Contract price. Each Subcontractor shall be properly licensed for the type of work he is to perform.
- B. A copy of each Sub-Contract shall be filed promptly with the ENGINEER upon request. Each Sub-Contract shall contain a reference to the Contract between the CITY and the CONTRACTOR, and the terms and conditions of the Contract shall be made a part of each Sub-Contract. Each Sub-Contract shall provide for annulment of same by the CONTRACTOR upon written order of the ENGINEER if the Subcontractor fails to comply with the requirements of this Contract.
- C. The CONTRACTOR shall be responsible to the CITY and ENGINEER for the acts and omissions of his Sub-Contractors and their employees to the same extent as he is responsible for the acts and omissions of his own employees. Nothing contained in this Contract shall create any contractual relationship between any Subcontractor and the CITY or ENGINEER nor relieve the CONTRACTOR of any liability or obligation under this Contract.

#### 7.14 Materials and Equipment:

- A. Material for the Work:
  - 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 the work.
  - 2. Unless otherwise specified, shown or permitted by the ENGINEER, all material and equipment incorporated in the work shall be new and of current manufacture. The ENGINEER may request the CONTRACTOR to furnish manufacturer's certificates to this effect.

3. The ENGINEER may require any or all materials to be subjected to test by means of samples or otherwise, at production points or after delivery. The CONTRACTOR shall afford such facilities as the ENGINEER may require for collecting and forwarding samples, which samples shall be furnished by the CONTRACTOR without charge. The CONTRACTOR shall furnish evidence satisfactory to the ENGINEER that the materials and finished articles have passed the required test prior to the incorporation of such materials and finished articles in the work. Unless otherwise provided, the cost of such inspection and testing shall be as provided in Article 12.2.
4. All packaged manufactured products for use on the work shall be delivered to the work in their original, unopened packages, bearing thereon the manufacturer's name and the brand name of the product.
5. Wherever any product or material is selected to be used on the work, all such products or material shall be of the same brand and manufacture throughout the work.
6. All equipment, tools and machinery used for handling material or executing any part of the work shall be maintained in a satisfactory working condition. All equipment utilized on any portion of the work shall be such that no injury to personnel, the work, adjacent property or other objects will result from its use.
7. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Contract Documents.

B. Storage of Materials:

1. All materials and equipment including that ordered by the CITY designed for permanent installation in the work shall be properly stored by the CONTRACTOR to insure protection against deterioration of any type. These materials shall be placed as to cause a minimum of inconvenience to other contractors on the work and to the public. The storage piles shall be arranged to facilitate inspections, and any deterioration shall be grounds for rejection.
2. Materials stored in public Rights-of-Way, shall be stored in such a manner so as to be compatible with the Traffic Control requirements set forth in Paragraph 7.10. Materials shall be stored so as not to deny access to public or private property. Stored materials shall be adequately marked with barricades and/or flashing warning lights, where necessary, so as to protect the materials from damage and to protect the public health, safety and welfare.
3. Lawns, grass plots or other private property shall not be used for storage purposes without written permission of the Owner or Lessee of that private property. Should the CONTRACTOR desire to store equipment or materials of any kind on the property of the CITY, he must obtain permission from the

ENGINEER. The CITY reserves the right to order materials to be removed or relocated in such approved storage areas, if necessary.

4. The protection of stored materials shall be the CONTRACTOR's responsibility and the CITY OF HOLLYWOOD shall not be liable for any loss of materials, by theft or otherwise, nor for any damage to the stored materials.

C. Salvage of Materials and Equipment:

The CITY reserves the right to retain title to all soil, sand, stone, gravel, equipment, machinery or any other material that was a part of the structure, site or Right-of-Way and which was developed from excavations or other operations connected with the work. The CONTRACTOR will be permitted to use in the work, without charge, any such material which meets the requirements of the Contract Documents. For that material which the CITY desires to retain the CONTRACTOR shall, at his expense, transfer to a site within the CITY as designated by the ENGINEER. That material which the CITY does not wish to retain shall be the property of the CONTRACTOR and removed from the site at CONTRACTOR's expense.

7.15 Temporary Utilities:

The CONTRACTOR shall provide and maintain at his own expense, all water, power, telephone and sanitary facilities as required to comply with State and/or local Codes and Regulations. If water, including that for testing is required, it is the CONTRACTOR's responsibility to arrange through the CITY Water Department for a water meter. A deposit to be paid by the CONTRACTOR is required for meter rental and all water shall be purchased at the prevailing rate.

7.16 Review of Records:

The CONTRACTOR shall allow and permit the ENGINEER or his duly authorized representative to inspect and review all payrolls, records of personnel, conditions of employment, invoice of materials, books of accounts and other relevant data and records pertinent to the CONTRACT and Sub-Contracts.

7.17 Use of Premises:

CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits or required by the Contract Documents, and shall not interfere with the premises or operation of the City Utilities facilities with construction equipment or other materials or equipment. Construction which interferes with Plant Operations shall be fully coordinated and approved by the ENGINEER.



7.18 CONTRACTOR's Daily Reports:

Except where otherwise provided, the CONTRACTOR shall complete a daily report indicating manpower, major equipment, Subcontractors, etc., involved in the performance of the work. The daily report shall be completed on forms approved by the ENGINEER, and shall be submitted to the ENGINEER at the conclusion of each work day.

7.19 Record Documents:

The CONTRACTOR shall keep one record copy of all Specifications, Drawings, Addenda, Modifications, Shop Drawings and samples at the site, in good order and annotated to show all changes made during the construction process. These shall be available to ENGINEER for examination and shall be delivered to ENGINEER upon completion of the work.

7.20 Cleanliness of the Site:

During the progress of the work, The CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other 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.

7.21 Dust Control:

It shall be the CONTRACTOR's responsibility to control dust by watering as directed by the ENGINEER. The water used shall be paid for by the CONTRACTOR. Should the CONTRACTOR fail to control dust to the satisfaction of the ENGINEER, the CITY will control the dust by whatever means the CITY desires and the CONTRACTOR shall pay all expenses incurred by the CITY associated with the control of the dust.

7.22 Continuing the Work:

The CONTRACTOR shall carry on the work and maintain the Progress Schedule during all disputes or disagreements with the CITY. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the CITY may otherwise agree in writing.

7.23 Indemnification:

In consideration of the amount listed in the Bid Form and other valuable consideration, the Contractor shall defend, indemnify and save harmless the CITY, its officers, agents, and employees from or on account of any personal injury, loss of life or damage to property received or sustained by any person or persons during or on account of any operations connected with the construction of this Project; or by or in consequence of any negligence (excluding negligence of the CITY), in connection with the same; or by use of any improper materials or by or on account of any use of any improper materials or by or on account of any act or omission of the said Contractor or his subcontractor, agents, servants or employees. Contractor agrees to indemnify and save harmless the CITY against any liability arising from or based upon the violation of any federal, state,

county or city laws, by-laws, ordinances or regulations by the Contractor, his subcontractor, agents, servants or employees. Contractor further agrees to indemnify and save harmless the CITY from all such claims and fees, and from any and all suits and actions of every name and description that may be brought against the CITY on account of any claims, fees, royalties, or costs for any invention or patent, and from any and all suits and actions that may be brought against the CITY for the infringement of any and all patents or patent rights claimed by any person, firm, or corporation.

The indemnification provided above shall obligate the Contractor to defend at his own expense or to provide for such defense, at the CITY's option, any and all claims or liability and all suits and actions of every name and description that may be brought against the Owner which may result from the operations and activities under this Contract whether the construction operations be performed by the Contractor, his subcontractor or by anyone directly or indirectly employed by either.

Nothing in this indemnification shall be deemed to affect the rights, privileges or immunities of the CITY as set forth in Section 768.28, Florida Statutes.

The CITY will pay to the Contractor the specific consideration, in the amount stated in the Bid Form. The Contractor shall acknowledge the receipt of payment and other good and valuable consideration from the Owner which has been paid to him as specific consideration for the indemnification provided herein and in accordance with the provisions of Chapter F.S.A., Section 725.06.

## ARTICLE 8 - CITY'S RESPONSIBILITIES

### 8.1 Communications:

The CITY shall issue all communications to the CONTRACTOR through the ENGINEER.

### 8.2 Furnish Contract Documents:

The CITY shall furnish the number of Contract Documents as specified in the Supplementary General Conditions to the CONTRACTOR at no cost. Referenced Standard Specifications Manuals, guidebooks, etc., will not be provided.

### 8.3 Furnish Right-of-Way:

The CITY shall furnish the necessary land or Right-of-Way on which the work is to be accomplished, and will provide lines and grades as specified in Article 6.

### 8.4 Timely Delivery of Materials:

The CITY shall be responsible for the delivery of any CITY furnished material, equipment or labor as specified in the Contract Documents.

## ARTICLE 9 - ENGINEER'S STATUS

### 9.1 Authority of the Engineer:

- A. The general supervision of the execution of this Contract is vested in the ENGINEER who is the CITY's sole representative during the construction period. The instructions of the ENGINEER are to be strictly and promptly followed in every case. The CONTRACTOR's representative (Article 7.8 A. 1.) shall be responsible for the execution of any instructions given by the ENGINEER during the absence of the CONTRACTOR.
- B. The ENGINEER is the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work. Claims, disputes and other matters relating to the acceptability of work or requirements of the Contract Documents shall be referred in writing to the ENGINEER within 15 days of the event, with a request for a formal decision, which the ENGINEER will render in writing within a reasonable time. This rendering of a decision by the ENGINEER will be a condition precedent to any exercise by the CITY or CONTRACTOR of rights or remedies as either may otherwise have under the Contract Documents or at law in respect to any such claim, dispute or other matter.
- C. The ENGINEER will issue with reasonable promptness any written clarifications or interpretations of the Contract Documents as he shall deem necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If, as a result of a clarification or interpretation, either the CONTRACTOR or ENGINEER believes a Change Order is justified, it shall be submitted.
- D. The ENGINEER has approval authority over the acceptability of all material or equipment furnished, Shop Drawings, Change Orders, work performed and the rate of progress of the work. Verification of the quantities of work performed for pay purposes is the responsibility of the ENGINEER.
- E. The ENGINEER also has the authority to disapprove or reject work which is defective, and may require special inspection or testing of the work, whether or not it is fabricated, installed or completed.
- F. The ENGINEER has the authority to suspend the work wholly or in part for such period or periods as may be deemed necessary, due to the unsuitable prosecution of the work, or for such time as is necessary due to failure on the part of the CONTRACTOR to carry out orders given or perform any or all provisions of the Contract. The CONTRACTOR shall not suspend the work and shall not remove any equipment, tools, lumber or other materials without the written permission of the ENGINEER.

### 9.2 Access to the Work:

The ENGINEER is to have free access to the materials and work at all times for laying out, measuring or inspecting same, and the CONTRACTOR is to afford him all necessary facilities and assistance for so doing.

### 9.3    Limitations on The ENGINEER's Responsibilities:

- A.     Neither the ENGINEER's authority to act under this Article or elsewhere in the Contract Documents nor any decision made by the ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any manufacturer, fabricator, supplier or distributor or any of their agents or employees or any other person performing any of the work.
  
- B.     Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used, to describe requirement, direction, review or judgment of the ENGINEER as to the work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective never indicates that the ENGINEER has authority to supervise or direct performance of the work.
  
- C.     The ENGINEER will not be responsible for the CONTRACTOR's means, methods, techniques, sequences or procedures of construction, nor the safety precautions and programs incident thereto, and the ENGINEER will not be responsible for the CONTRACTOR's failure to perform the work in accordance with the Contract Documents.
  
- D.     The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR or of any Subcontractors, or of the agents or employees of any CONTRACTOR or subcontractor, or of any other persons at the site or otherwise performing any of the work.

### 9.4    Inspectors:

- A.     Inspectors employed by the CITY assist the ENGINEER in ascertaining the work conforms to the Contract Documents and are authorized to inspect all work done and material furnished as representatives of the ENGINEER. Inspectors shall be stationed at the site of the work to report to the ENGINEER as to the progress of the work and the quality of workmanship and material.
  
- B.     In case of any dispute arising between the CONTRACTOR and the Inspector, the Inspector shall have the authority to reject material or to suspend the work until the question of issue can be referred to and decided upon by the ENGINEER.
  
- C.     If the CONTRACTOR refuses to suspend operation on verbal order, the Inspector shall issue a written order giving the reason for shutting down the work. After placing the order in the hands of the man in charge, the Inspector shall immediately leave the job. work done during the absence of the Inspector, after such written notice, will not be accepted nor paid for.

- D. Inspectors are not authorized to revoke, alter, enlarge, relax or release any requirements of these Contract Documents, nor to issue instructions contrary to them. Inspectors shall in no case act as foreman or perform other duties for the CONTRACTOR, nor interfere with management of the work by the latter. Any instructions which Inspectors may give the CONTRACTOR shall in no way be construed as releasing the CONTRACTOR from fulfillment of the terms of the Contract.
- E. The payment of any compensation, whatever may be its character or form, or the giving of any gratuity, or the granting of any valuable favor, by the CONTRACTOR to any Inspector, directly or indirectly, is strictly prohibited and any such act on the part of the CONTRACTOR will constitute a violation of this Contract and may subject the CONTRACTOR to other penalties provided for by law or ordinance.

9.5    Inspections:

- A. The ENGINEER will make, or have made, such inspections and tests as he deems necessary to assure that the work is being accomplished in accordance with the requirements of the Contract. In the event such Inspections or tests reveal non-compliance with the requirements of the Contract, the CONTRACTOR shall bear the cost of such corrective measures as well as the cost of subsequent reinspection and retesting.
- B. Work done in the absence of a prescribed inspection may be required to be removed and replaced under proper inspection. The entire cost of removal and replacement, including the cost of all material which may be furnished by the CITY and used in the work thus removed, shall be borne by the CONTRACTOR, regardless of whether the work removed is found to be defective or not. Work covered up without the authority of the ENGINEER, shall, upon order of the ENGINEER, be uncovered to the extent required, and the CONTRACTOR shall similarly bear the entire cost of performing all the work and furnishing all the material necessary for the removal of the covering and its subsequent replacement.
- C. Unless otherwise provided, the cost of inspection and all inspection fees imposed by public agencies other than the fees associated with the issuance of the Master Building Permit by the City of Hollywood shall be paid by the CONTRACTOR.
- D. No inspection nor any failure to inspect at any time or place shall relieve the CONTRACTOR from any obligation to perform all of the work in strict conformance with the requirements of the Contract Documents.

## ARTICLE 10 - CHANGES IN THE WORK/CONTRACT PRICE

### 10.1 Changes in the Work or Terms of Contract Documents:

- A. Without invalidating the Contract and without notice to any surety CITY reserves and shall have the right, from time to time to make such increases, decreases or other changes in the character or quantity of the Work as may be considered necessary or desirable to complete fully and acceptably the proposed construction in a satisfactory manner. Any extra or additional work within the scope of this Project must be accomplished by means of appropriate Clarifications, Field Orders, or Change Orders.
- B. Any changes to the terms of the Contract Documents must be contained in a written document, executed by the parties hereto, with the same formality and of equal dignity prior to the initiation of any work reflecting such change.

This section shall not prohibit the issuance of Change Orders executed only by CITY as hereinafter provided.

### 10.2 Supplemental Instructions - Clarifications:

- A. The CITY, through the ENGINEER, shall have the right to approve and issue Clarifications setting forth written interpretations of the intent of the Contract Documents and ordering minor changes in Work execution, providing the Clarifications involve no change in the Contract Price or the Contract Time.
- B. The ENGINEER shall have the right to approve and issue Clarifications setting forth written orders, instructions, or interpretations concerning the Contract Documents or its performance, provided such Clarifications involve no change in the Contract Price or the Contract Time.

### 10.3 Field Orders / Change Orders:

- A. Changes in the quantity or character of the Work within the scope of the Project which are not properly the subject of Clarifications, including all changes resulting in changes in the Contract Price or the Contract Time, shall be authorized only by Field Orders or Change Orders approved in advance and issued in accordance with the provisions of the CITY Procurement Code, as amended from time to time.
- B. CONTRACTOR shall not start work on any changes requiring an increase in the Contract Price or the Contract Time until a Field Order or Change Order setting forth the adjustments is approved by the CITY. Upon receipt of a Change Order CONTRACTOR shall promptly proceed with the work set forth within the document.

- C. Field Orders shall be issued for change in Contract Price related to Cost Allowances specifically included on the Proposal Bid Form. Change Orders shall be issued when required for all other Contract Price Changes. Hereinafter, the term "Change Order(s)" shall be used to include "Change Orders" and "Field Orders" with the exception that Field Order shall not be used for any Contract Time adjustments.
- D. In the event satisfactory adjustment cannot be reached for any item requiring a change in the Contract Price or Contract Time, and a Change Order has not been issued, CITY reserves the right at its sole option to either terminate the Contract as it applies to the items in question and make such arrangements as may be deemed necessary to complete the disputed work; or the work shall be performed on the "cost of work" basis as described in Article 10.4.
- E. On approval of any Contract change increasing the Contract Price, CONTRACTOR shall ensure that the performance bond and payment bond are increased so that each reflects the total Contract Price as increased.
- F. Under circumstances determined necessary by CITY, Change Orders may be issued unilaterally by CITY.

10.4 Value of Change Order Work:

- A. The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
  - A.1 Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of items involved, subject to the provisions of Article 10.4.G.
  - A.2 By mutual acceptance of a lump sum which CONTRACTOR and CITY acknowledge contains a component for overhead and profit.
  - A.3 On the basis of the "cost of work," determined as provided in this Article, plus a CONTRACTOR's fee for overhead and profit which is determined as provided in Article 10.4.D.
- B. The term "cost of work" means the sum of all direct costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work described in the Change Order. Except as otherwise may be agreed to in writing by CITY, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in Article 10.4.C.
  - B.1 Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the work described in the Change Order under schedules of job classifications agreed upon by CITY and



CONTRACTOR. Payroll costs for employees not employed full time on the work covered by the Change Order 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 the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay application thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing the work after regular working hours, on Sunday or legal holidays shall be included in the above to the extent authorized by CITY.

- B.2 Cost of all materials and equipment furnished and incorporated in the work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless CITY deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to CITY. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment shall accrue to CITY and CONTRACTOR shall make provisions so that they may be obtained. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by CITY with the advice of ENGINEER and the costs of transportation, loading, unloading, installation, dismantling and removal thereof, all in accordance with the terms of said agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the work.
- B.3 Payments made by CONTRACTOR to Subcontractors for work performed by Subcontractors, If required by CITY, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to CITY who will then determine, with the advice of ENGINEER, which bids will be accepted. If the Subcontract provides that the Subcontractor is to be paid on the basis of cost of the work plus a fee, the Subcontractor's cost of the work shall be determined in the same manner as CONTRACTOR'S cost of the work. All Subcontractors shall be subject to the other provisions of the Contract Documents insofar as applicable.
- B.4 Cost of special engineers, including, but not limited to, engineers, architects, testing laboratories, and surveyors employed for services specifically related to the performance of the work described in the Change Order.

B.5 Supplemental costs including the following:  
The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the work except for local travel to and from the site of the work.

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 workmen, which are consumed in the performance of the work, and cost less market value of such items used but not consumed which remains the property of CONTRACTOR.

Sales, use, or similar taxes related to the work, and for which CONTRACTOR is liable, imposed by any governmental authority. Deposits lost for causes other than CONTRACTOR's negligence; royalty payments and fees for permits and licenses. The cost of utilities, fuel, and sanitary facilities at the site. Receipted 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. Cost of premiums for additional bonds and insurance required because of changes in the work.

C. The term "cost of the work" shall not include any of the following:

- C.1 Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in its principal or a branch office for general administration of the work and not specifically included in the agreed- upon schedule of job classifications referred to in this Article, all of which are to be considered administrative costs covered by CONTRACTOR's fee.
- C.2 Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.
- C.3 Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the work and charges against CONTRACTOR for delinquent payments.
- C.4 Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same, except for additional bonds and insurance required because of changes in the work.
- C.5 Costs due to the negligence or neglect of CONTRACTOR, any Subcontractors, 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.

- C.6 Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in this Section.
- D. CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:
  - D.1 A mutually acceptable fixed fee or if none can be agreed upon,
  - D.2 A fee based on the following percentages of the various portions of the cost of the work:

For costs incurred under Article 10.4.B.1, CONTRACTOR's fee shall not exceed ten percent (10%).

For costs incurred under Article 10.4.B.3 and B.4, CONTRACTOR's fee shall not exceed seven and one half percent (7.5%); and if a subcontract is on the basis of cost of the work plus a fee, the maximum allowable to the Subcontractor as a fee for overhead and profit shall not exceed ten percent (10%);

No fee shall be payable on the basis of costs itemized under Article 10.4.B.5 and Article 10.4.C.
- E. The amount of credit to be allowed by CONTRACTOR to CITY for any such change which results in a net decrease in cost, will be the amount of the actual net decrease. When both additions and credits are involved in anyone change, the combined overhead and profit shall be figured on the basis of the net increase, if any, however, CONTRACTOR shall not be entitled to claim lost profits for any Work not performed.
- F. Whenever the cost of any work is to be determined pursuant to Articles 10.4.B and 10.4.C, CONTRACTOR will submit in a form acceptable to CONSUL T ANT an itemized cost breakdown together with the supporting data.
- G. Where the quantity of any item of the Work that is covered by a unit price is increased or decreased by more than twenty percent (20%) from the quantity of such work indicated in the Contract Documents, an appropriate Change Order shall be issued to adjust the unit price, if warranted.
- H. Whenever a change in the Work is to be based on mutual acceptance of a lump sum, whether the amount is an addition, credit or no change-in-cost, CONTRACTOR shall submit an initial cost estimate acceptable to ENGINEER and CITY.
  - H.1 Breakdown shall list the quantities and unit prices for materials, labor, equipment and other items of cost.
  - H.2 Whenever a change involves CONTRACTOR and one or more Subcontractors and the change is an increase in the Contract Price,

overhead and profit percentage for CONTRACTOR and each Subcontractor shall be itemized separately.

- I. Each Change Order must state within the body of the Change Order whether it is based upon unit price, negotiated lump sum, or "cost of the work."

10.5 Notification and Claim for Change of Contract Price:

- A** Any claim for a change in the Contract Price shall be made by written notice by CONTRACTOR to the CITY and to ENGINEER within five (5) calendar days of the commencement of the event giving rise to the claim and stating the general nature and cause of the claim. Thereafter, within twenty (20) calendar days of the termination of the event giving rise to the claim, written notice of the extent of the claim with supporting information and documentation shall be provided unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim and such notice shall be accompanied by CONTRACTOR's written notarized statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for changes in the Contract Price shall be in accordance with Articles 10.3 and 10.4 hereof, if CITY and CONTRACTOR cannot otherwise agree. **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.**

10.6 Notice of Change:

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 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. Failure of the CONTRACTOR to obtain such approval from the Surety may be a basis for termination of this Contract by the CITY.

10.7 Records:

The CONTRACTOR's representative and the ENGINEER shall compare records of extra work done at the end of the day. Such records shall be made in duplicate upon a form provided for such purpose by the ENGINEER and shall be signed by both the Inspector and the CONTRACTOR's representative, one copy being submitted to the ENGINEER and the other being retained by the CONTRACTOR.

10.8 Cancelled Items and Payments Therefore:

The CITY COMMISSION shall have the right to cancel those portions of the Contract relating to the construction of any item provided therein. Such cancellation shall entitle the CONTRACTOR to payment in a fair and equitable amount covering all items of cost incurred by him prior to the date of cancellation or suspension of the work. The CONTRACTOR shall be allowed a profit percentage on the materials used and on construction work actually performed, at the same rates as provided for "Extra Work", but no allowance will be made for anticipated profits. Acceptable materials ordered by the CONTRACTOR or delivered on the work, prior to date of such cancellation or suspension, may be purchased from the CONTRACTOR by the CITY at actual cost and shall thereupon, become property of the CITY, or may be returned to the manufacturer for a reasonable restocking charge.

10.9 Full Payment:

The Compensation herein provided shall be received and accepted by the CONTRACTOR as payment in full for all extra work done or costs incurred in event of cancellation.

## ARTICLE 11 - CHANGES IN THE CONTRACT TIME

### 11.1 Change Order:

The Contract Time may only be changed by a Change Order. A FULLY EXECUTED CHANGE ORDER MUST EXIST PRIOR TO EXTENSION OR SHORTENING OF THE CONTRACT TIME.

### 11.2 Notification and Claim for Change of Contract Time:

- A.** Any claim for a change in the Contract Time shall be made by written notice by the CONTRACTOR to the CITY and to ENGINEER within five (5) calendar days of the commencement of the event giving rise to the claim and stating the general nature and cause of the claim. Thereafter within twenty (20) calendar days of the termination of the event giving rise to the claim, written notice of the extent of the claim with supporting information and documentation shall be provided unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim and such notice shall be accompanied by CONTRACTOR's written notarized statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for changes in the Contract Time shall be determined in accordance with Articles 10.3 and 10.4 hereof, if CITY and CONTRACTOR cannot otherwise agree. **IT IS EXPRESSLY AND SPECIFICALLY AGREED THAT ANY AND ALL CLAIMS FOR CHANGES TO THE CONTRACT TIME SHALL BE WAIVED IF NOT SUBMITTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.**
- B.** The Contract Time will be extended an amount equal to time lost on critical Work items due to delays beyond the control of and through no fault or negligence of CONTRACTOR if a claim is made thereafter as provided in Article 11.2. Such delays shall include, but not be limited to, acts or neglect by any separate contractor employed by CITY, fire, floods, labor disputes, epidemics, abnormal weather conditions or acts of God

### 11.3 Basis for Extension:

Extensions of time shall be considered and will be based solely upon the effect of delays to the work as a whole. Extensions of time shall not be granted for delays to the work, unless the CONTRACTOR can clearly demonstrate, through schedule analysis, that the delay to the work as a whole arose in accordance with Article 12.3 or Article 15.1, and that such delays did or will, in fact, delay the progress of work as a whole. Time extensions shall not be allowed for delays to parts of the work that are not on the critical path of the project schedule. Time extensions shall not be granted until all float or contingency time, at the time of the delay, available to absorb specific delays and associated impacts is used.

11.4 Change of Time Due to Contract Execution Problems:

Refer to Article 3.4 for a decrease in Contract Time when the CONTRACTOR fails to return the correctly executed Contract Documents within the time allowed.

11.5 Change of Time Due to Change Order Evaluation:

When evaluating a proposed Change Order, the ENGINEER shall have access to any available float or contingency time. Extension will only be considered in accordance with Article 11.3.

11.6 Change of Time and Inspection and Testing:

Neither observations by the ENGINEER, nor inspections, tests or approvals by others, passing or failing, will be cause for consideration of time extension.

11.7 Change of Time and Defective Work:

- A. If WORK is found to be defective, CONTRACTOR shall bear all remedial expenses including any additional costs experienced by CITY due to delays to others performing additional WORK. CONTRACTOR shall further bear the responsibility for maintaining schedule, and will be excluded from a time extension and the recovery of delay damages due to the uncovering.
- B. If the WORK is found to be defective per the Specifications, but the CITY chooses to accept it at its sole discretion, CONTRACTOR shall bear the responsibility for maintaining schedule, and will be excluded from a time extension and the recovery of delay damages due to the uncovering.

11.8 Liquidated Damages:

All time limits stated in the Contract Documents are of the essence. The provisions of this Article 11 shall not exclude recovery for damages by CITY as indicated in Section 3 of the Supplementary General Conditions.

ARTICLE 12 - WARRANTY AND GUARANTEE;  
TEST AND INSPECTIONS;  
CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

12.1 Warranty and Guarantee:

The CONTRACTOR warrants and guarantees to the CITY and the ENGINEER 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.

12.2 Tests and Inspections:

- A. The CONTRACTOR shall give the ENGINEER and, when appropriate, the Building Department and other regulatory authorities which have jurisdiction over the work, timely notice of readiness of the work for all required inspections, tests or approvals.
- B. All inspections performed as a result of the issuance of the Master Building Permit shall be performed by the CITY. All costs associated with such inspections shall be paid by the CITY, EXCEPT THAT should said test or inspection fail to pass the CONTRACTOR shall pay all costs associated with the rework and the retesting.
- C. When any other regulatory authority, by virtue of its rules or regulations, requires specific tests or inspections, the CONTRACTOR shall assume full responsibility for and pay all costs in connection with said tests and inspections.
- D. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the ENGINEER's acceptance of a manufacturer, fabricator, supplier or distributor of materials or equipment proposed to be incorporated in the work, or of materials or equipment submitted for approval prior to ENGINEER's acceptance thereof for incorporation in the work and as otherwise specified in the Contract Documents.
- E. Neither observations by the ENGINEER nor inspections, tests or approvals by others shall relieve the CONTRACTOR from his obligations to perform the work in accordance with the Contract Documents.

12.3 Uncovering Work:

- A. If any work that is to be inspected, tested or approved is covered without written concurrence of the ENGINEER, it must, if requested, by the ENGINEER, be uncovered. Such uncovering and replacement shall be at the CONTRACTOR's expense.



- B. CONTRACTOR must contact all regulatory agencies issuing construction permits to make all necessary inspections. If CONTRACTOR fails to have the necessary inspections performed and such failure results in uncovering of work already performed, CONTRACTOR shall be responsible for all related time delays and monetary costs.
- C. If the ENGINEER considers it necessary or advisable that work previously covered with his permission or cognizance be observed, inspected or tested, the CONTRACTOR, at the ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER 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. If, however, such work is not found to be defective the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction if he makes a claim therefor in accordance with Article 10.2 and Article 11.2.

#### 12.4 City May Stop the Work:

If the work is defective, or the CONTRACTOR fails to supply sufficient skilled workmen or suitable materials or equipment, 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.

#### 12.5 Correction or Removal of Defective Work:

If required by the ENGINEER, the CONTRACTOR shall promptly, without cost to the CITY and as specified by the ENGINEER either correct any defective work, whether or not fabricated, installed or completed, or if the work has been rejected by the ENGINEER, remove it from the site and replace it with nondefective work.

#### 12.6 One Year Correction Period:

If within one year after the date of Substantial Completion or Final Completion as applicable, or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, the CONTRACTOR shall promptly without cost to the CITY and in accordance with the ENGINEER's written instructions, either correct such defective work, or if it has been rejected by the ENGINEER remove it from the site and replace it with nondefective 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 ENGINEER may have the defective work corrected or the rejected work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by the CONTRACTOR.

12.7 Acceptance of Defective Work:

If instead of requiring correction or removal and replacement of defective work, the ENGINEER prefers to accept it, he may do so. In such case, if acceptance occurs prior to the ENGINEER's recommendation of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract 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.

12.8 City May Correct Defective Work:

If the CONTRACTOR fails within a reasonable time after written notice of the ENGINEER to proceed to correct and to correct defective work or to remove and replace rejected work as required by the ENGINEER in accordance with Paragraph 12.5, or if the CONTRACTOR fails to perform the work in accordance with the Contract Documents, (including any requirements of the progress schedule), the CITY may, after seven 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, and suspend the CONTRACTOR's services related thereto, take possession of the CONTRACTOR's tools, appliances, construction equipment and machinery at the site and 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. The CONTRACTOR shall allow the CITY, the CITY's representatives, agents and employees such access to the site as may be necessary to enable the CITY to exercise his 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 ENGINEER, 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 limitations, compensation for additional professional services required and all 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 rights hereunder.

## ARTICLE 13 - PAYMENTS TO THE CONTRACTOR

### 13.1 Basis of Payment:

Progress payments shall be based on the aggregate of the unit price amounts listed in the Proposal or in the Schedule of Values which have been incorporated in the work acceptable to the ENGINEER.

### 13.2 Unit Price Inclusion:

The unit prices stated in the Proposal include all costs and expenses for materials, labor, tools, equipment, transportation, commissions, patent fees and royalties, removing crossings or other obstructions, protection or maintaining pipes, drains, railroad tracks, buildings, bridges, or other structures furnishing temporary crossings or bridges, furnishing all supplemental construction stakes, batter boards, templets, common and ordinary labor for handling materials during inspection replacing any property damage, together with any and all costs or expenses for performing and completing the work as specified.

### 13.3 Schedule of Values: (Lump Sum Price Breakdown)

A Schedule of Values must be submitted within seven days subsequent to the CONTRACTOR executing and submitting the Documents required of Article 2.13 of the Section II – Special Terms and Conditions. The schedules shall be satisfactory in form and substance to the ENGINEER, and shall include quantity and unit prices aggregating the Contract Price, and shall subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction. Upon acceptance of the schedule of values by the ENGINEER, it shall be incorporated into a form of Application for Payment acceptable to the ENGINEER.

### 13.4 Changed Conditions: (Unit Price Only)

It is mutually agreed that due to latent field conditions which can not be foreseen at the time of advertising for bids, adjustments of the Plans to field conditions will be necessary during construction; and, therefore, such changes in the plans shall be recognized as constituting a normal and accepted margin of adjustment not unusual and not involving or permitting any change or modification of unit prices, in which case payment will be made for the revised quantities at the unit price bid in the Proposal.

### 13.5 Application for Progress Payment:

On the 20th day of the month or the first working day thereafter, the CONTRACTOR shall submit to the ENGINEER for review an Application for Payment form filled out and signed by the CONTRACTOR. The form shall be notarized, and shall cover the work completed as of the date of the application. The Application for Payment shall be accompanied by a Schedule of Values, and any other supporting documentation as the ENGINEER may reasonably require.

13.6 Payment for Materials:

If payment is requested on the basis of materials and equipment not incorporated in the work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by such data, satisfactory to the ENGINEER, as will establish the CITY's title to the material and equipment and protect the CITY's interest therein, including applicable insurance.

13.7 Affidavit Required:

All Applications for Payment shall include an Affidavit of the CONTRACTOR stating that all previous progress payments received on account of the work have been applied to discharge in full all of CONTRACTOR's obligations reflected in prior Applications for Payment. The amount of retainage with respect to progress payments will be 5%.

13.8 Retainage:

The amount of retainage with respect to progress payments will be 5% until completion of the construction services purchased pursuant to the Contract.

13.9 CONTRACTOR's Warranty of Title:

The CONTRACTOR warrants and guarantees that title to all work, materials and equipment covered by any Application for Payment whether incorporated in the Project or not, will pass to the CITY at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereinafter in these General Conditions referred to as "Liens").

13.10 Review of Application for Payment:

The ENGINEER will, within seven (7) days, review the Application for Payment and either approve and submit it for payment or notify the CONTRACTOR of the deficiencies such that the CONTRACTOR may make the necessary corrections and resubmit in time for the month's payment. However, the ENGINEER may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations. He may also refuse to recommend any such payment, or because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such extent as may be necessary in the ENGINEER's opinion to protect the CITY from loss because:

- A. The work is defective, or completed work has been damaged requiring correction or replacement.
- B. Written claims have been made against the CITY or Liens have been filed in connection with the work.
- C. The Contract Price has been reduced because of Change Order.
- D. The CITY has been required to correct defective work or complete the work in accordance with Article 12.8.
- E. The CONTRACTOR's unsatisfactory prosecution of the work in accordance with the Contract Documents.
- F. The CONTRACTOR's failure to make payment to Sub- Contractors, or for labor, materials or equipment.

13.11 Payment to the Contractor:

Payments are made only on the fifteenth day or first workday thereafter of each month.

ARTICLE 14 - SUBSTANTIAL COMPLETION, PARTIAL UTILIZATION,  
FINAL CLEAN UP, INSPECTION, PAYMENT AND ACCEPTANCE

14.1 Substantial Completion:

When the CONTRACTOR considers the entire work ready for its intended use, the CONTRACTOR shall, in writing to the ENGINEER, certify that the entire work is substantially complete and request that the ENGINEER issue a Certificate of Substantial Completion. Within a reasonable time thereafter the CONTRACTOR and the ENGINEER shall make an inspection of the work to determine the status of completion. If the ENGINEER does not consider the work substantially complete, the ENGINEER will notify the CONTRACTOR in writing giving his reasons therefor. If the ENGINEER considers the work substantially complete, the ENGINEER will prepare and deliver to the CONTRACTOR a Certificate of Substantial Completion, which shall fix the date of Substantial Completion. There shall be attached to the certificate a proposed Punch List, developed by the CONTRACTOR, of items to be completed or corrected before final payment.

Within ten (10) days after delivery of the certificate, the CITY shall review the proposed Punch List and either approve it or contact the CONTRACTOR to commence good faith efforts to develop a Punch List that is satisfactory to both parties. If the parties are unable to resolve any differences they may have in the development of the Punch List, the ENGINEER shall resolve their differences. The parties shall expedite the process of developing the Punch List with the intent of finalizing the Punch List within sixty (60) days after the date of Substantial Completion.

At the time of delivery of the Certificate of Substantial Completion the ENGINEER will deliver to the CONTRACTOR written notice as to division of responsibilities pending final payment between the CITY and the CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities and insurance, said responsibilities will be binding on the CITY and the CONTRACTOR until final payment. Unless otherwise stated herein or on the Certificate of Substantial Completion, all building, product, equipment, and machinery warranties will commence on the date of Substantial Completion. The CITY shall have the right to exclude the CONTRACTOR from the work after the date of Substantial Completion, but the CITY shall allow the CONTRACTOR reasonable access to complete or correct items on the Punch List.

14.2 Partial Utilization:

Use by the CITY of any finished part of the work which has specifically been identified in the Contract Documents or which the ENGINEER and the CONTRACTOR agree constitutes a separately functioning and usable part of the work that can be used by the CITY without significant interference with CONTRACTOR's performance of the remainder of the work, may be accomplished prior to Substantial Completion of all the work subject to the following:

- A The ENGINEER at any time may request the CONTRACTOR in writing to permit the CITY to use any such part of the work which the ENGINEER believes to be ready for its intended use and substantially complete. If the CONTRACTOR agrees, the CONTRACTOR will certify to the ENGINEER that said part of the work is substantially complete and request the ENGINEER to issue a Certificate of Substantial Completion for that part of the work. The CONTRACTOR, at any time, may notify the ENGINEER in writing that the CONTRACTOR considers any such part of the work ready for its intended use and substantially complete and request the ENGINEER to issue a Certificate of Substantial Complete for the part of the work. Within a reasonable time after either such request, the CONTRACTOR and the ENGINEER shall make an inspection of that part of the work to determine its status of completion. If the ENGINEER does not consider that part of the work to be substantially complete, the ENGINEER will notify the CONTRACTOR in writing giving the reasons therefore. If the ENGINEER considers that part of the work to be substantially complete, the provisions of Article 14.1 will apply with respect to Certificate of Substantial Completion of that part of the work and the division of responsibility in respect thereof and access thereto. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of partial utilization, the OWNER will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.

#### 14.3 Final Clean-Up:

Upon completion of the work and before final inspection shall be made, the CONTRACTOR shall clean and remove from the site, the Right-of-Way and adjacent property, all surplus and discarded materials, rubbish, and temporary structures; restore in an acceptable manner all property, both public and private, which has been damaged during the prosecution of the work; and shall leave the site and vicinity unobstructed in a neat and presentable condition throughout the entire area or length of the work under Contract. The placing of materials of every character, rubbish, or equipment on the abutting property, with or without the consent of the property owners, shall not constitute the satisfactory disposal. If the work is of such a character as may be done by block or sections, the CONTRACTOR may be required to promptly remove and dispose of accumulated rubbish, debris or surplus materials from blocks or sections as completed or partially completed. No separate payment will be made for final cleaning up and restoration of property, but all costs thereof shall be included in the prices bid for the various scheduled items of work.

#### 14.4 Final Inspection:

Upon written notice from the CONTRACTOR that the entire work or an agreed portion thereof is complete and final clean-up has been completed, the ENGINEER will make a final inspection with the CONTRACTOR and will notify the CONTRACTOR in writing of all particulars in which this inspection reveals that the work is incomplete or defective. The CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

#### 14.5 Final Application for Payment:

After the CONTRACTOR has completed all such corrections to the satisfaction of the ENGINEER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in Article 7.19 of the General Conditions and other documents; all as required by the Contract Documents and after the ENGINEER has indicated that the work is acceptable (subject to the provisions of Article 14.9) the CONTRACTOR may make Application for Final Payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the CITY) of all Liens arising out of or filed in connection with the work. In lieu thereof and as approved by the CITY, the CONTRACTOR may furnish receipts or releases in full; an affidavit of the CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the work for which the CITY or the CITY's property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Subcontractor or Supplier fails to furnish a release or receipt in full, the CONTRACTOR may furnish a Bond or other collateral satisfactory to the CITY to indemnify the CITY against any Lien.

#### 14.6 Final Payment and Acceptance:

If on the basis of the ENGINEER's observation of the work during construction and final inspection, and the ENGINEER's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, the ENGINEER is satisfied that the work has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will recommend payment. Thereupon the ENGINEER will give written notice to the CITY and the CONTRACTOR that the work is acceptable subject to the provisions of Article 14.9.

#### 14.7 Payment of Retainage Without Final Completion:

If through no fault of the CONTRACTOR, final completion of the work is significantly delayed and if the ENGINEER so confirms, the CITY shall, upon receipt of the CONTRACTOR's final Application for Payment and recommendation of the ENGINEER, and without terminating the Agreement, make payment of the balance due for the portion of the work fully completed and accepted. If the remaining balance to be held by the CITY for work not fully completed or corrected is less than the retainage stipulated in the Agreement and if Bonds have been furnished as required in Article 5.2, the written consent of the Surety to the payment of the balance due for that portion of the work fully completed and accepted shall be submitted by the CONTRACTOR to the ENGINEER with the application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.



14.8 CONTRACTOR's Continuing Obligation:

The CONTRACTOR's obligation to perform and complete the work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ENGINEER, nor the issuance of a Certificate of Substantial Completion, nor any payment by the CITY to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the work or any part thereof by the CITY nor any act of acceptance by the CITY nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by the ENGINEER pursuant to Article 14.6, nor any correction of defective work by the CITY will constitute an acceptance of work not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the work in accordance with the Contract Documents (except as provided in Article 14.9).

14.9 Waiver of Claims:

The making and acceptance of final payment will constitute:

- A. A waiver of all claims by the CITY against the CONTRACTOR, except claims arising from unsettled Liens, from defective work appearing after final inspection pursuant to Article 14.4 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by the CITY of any rights in respect of the CONTRACTOR's continuing obligations under the Contract Documents.
- B. A waiver of all claims by the CONTRACTOR against the CITY other than those previously made in writing and still unsettled.

## ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

### 15.1 City May Suspend Work:

The CITY may, at any time and without cause, suspend the work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the CONTRACTOR which will fix the date on which work will be resumed. The CONTRACTOR shall resume the work on the date so fixed. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

### 15.2 City May Terminate:

- A. Upon the occurrence of any one or more of the following events:
1. If the CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if the CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency.
  2. If a petition is filed against the CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against the CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency.
  3. If the CONTRACTOR makes a general assignment for the benefit of creditors.
  4. 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.
  5. If the CONTRACTOR admits in writing an inability to pay its debts generally as they become due.
  6. If the CONTRACTOR persistently fails to perform the work in accordance with the Contract Documents (including, but not limited to, failure to supply a qualified superintendent or sufficient skilled workers or suitable materials or equipment or failure to adhere to the approved progress schedule revised from time to time).
  7. If the CONTRACTOR disregards laws or regulations of any public body having jurisdiction.

8. If the CONTRACTOR disregards the authority of the ENGINEER.
  9. If the CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents.
- B. The CITY may, after giving the CONTRACTOR and the Surety seven days' written notice and to the extent permitted by laws and regulations, terminate the services of the CONTRACTOR, exclude the CONTRACTOR from the site and take possession of the work and of all the CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by the CONTRACTOR (without liability to the CONTRACTOR 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 such case the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals, and court and arbitration costs) such excess will be paid to the CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR, or CONTRACTOR's Surety, shall pay the difference to the CITY.
  - C. Where the CONTRACTOR's services have been so terminated by the CITY, the CITY alone shall determine the scope and description of the work to be completed and the method and schedule for completing it.
  - D. Where the CONTRACTOR's services have been so terminated by the CITY the termination will not affect any rights or remedies 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.
  - E. Upon seven days' written notice to the CONTRACTOR the CITY may, without cause and without prejudice to any other right or remedy, elect to abandon the work and terminate the Contract. In such case the CONTRACTOR shall be paid for all work executed and any expense sustained plus reasonable termination expenses, which will include, but not be limited to, direct, indirect and consequential costs (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

15.3 Contractor May Stop Work or Terminate:

If through no act or fault of the CONTRACTOR, the work is suspended for a period of more than ninety (90) days by the CITY or under an order of court or other public authority, or the CITY fails for sixty (60) days to pay the CONTRACTOR any sum finally determined to be due, then the CONTRACTOR may, upon seven days' written notice to the CITY terminate the Contract and recover from the CITY payment for all work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Contract, if the CITY has failed to make any payment as aforesaid, the CONTRACTOR may upon seven days' written notice to the CITY stop the work until payment of all amounts then due are paid. The provisions of this paragraph shall not relieve the CONTRACTOR of the obligations to carry on the work in accordance with the progress schedule and without delay during disputes and disagreements with the CITY.

- END OF SECTION -

ATTACHMENT C  
SUPPLEMENTARY GENERAL CONDITIONS  
INDEX TO ARTICLES

1. Project Schedule	00800-2
2. Insurance Requirements (Not Used)	00800-3
3. Liquidated Damages	00800-4
4. Restricted Area	00800-5
5. Existing Facilities and Structures	00800-5
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11. Inspections and Testing During Overtime	00800-6
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13. Owner's Contingency (Not Used)	00800-8

**General Note:**

The General Conditions refer to specific section numbers in the Supplementary General Conditions. These reference numbers may not coordinate with the actual Article numbers utilized in the Supplementary General Conditions. The CONTRACTOR shall comply with all General Conditions and all Supplementary General Conditions as well as related conditions included in the General Requirements, Division 1 of the Technical Specifications. Incorrect cross-reference numbers shall not relieve this requirement.

**1. Project Schedule**

Time is of the essence for this work. The following defines the schedule for the project:

CONSTRUCTION WORK SCHEDULE  
CONSTRUCTION / STARTUP / ACCEPTANCE:

Major Milestones	Completion Time (Calendar Days)	Liquidated Damages (Per Day)
Substantial Completion	540	\$1,000.00
Project Closeout	30	\$1,000.00

Failure to meet any of the above defined construction/startup/acceptance completion dates shall subject the CONTRACTOR to pay damages as specified in these Supplementary General Conditions in Article 3.

<sup>(1)</sup>Substantial Completion

1. Refer to Attachment B - General Conditions Articles 14.1 and 14.2. (Certification of Substantial Completion Services appended to the Supplementary General Conditions).
2. Substantial Completion shall also include:
  - Completion of all construction work associated with the specific "Major Milestone" listed in the construction work schedule including completion of punch list items. "Completion of punch list items" shall be as determined by the Engineer in the field.
  - Coating touchup completed.
  - Record shop drawings and O&M submittals received and accepted by the Engineer.
  - Record drawing red-lines received and accepted by the Engineer.
  - Guarantee certifications, performance affidavits, and all other certifications received and accepted by the Engineer.

Contractor shall also conform to construction sequence constraints as defined on the Drawings and in Specifications.

<sup>(2)</sup>Project Closeout

1. Refer to Division 1 General Requirement, Section 01700 Project Closeout.
2. Project Closeout shall also include:
  - All requirements of substantial completion met plus the following
  - Site cleanup and restoration completed
  - All other sitework completed
  - Minor punch list items completed (minor as defined by the Engineer in the field)
  - Demobilization completed
  - Releases from all parties who are entitled to claims

The title "Engineer" utilized in these descriptions for substantial and final completion shall mean the City staff engineer assigned to this project, or his designated representative.

2. **Insurance Requirements (Not Used. Refer to ARTICLE 2.25 of SECTION II – SPECIAL TERMS AND CONDITIONS OF THE CONTRACT DOCUMENTS)**

**3. Liquidated Damages**

Liquidated damages shall be paid by the CONTRACTOR to the CITY for failure to complete work on time in accordance with the following schedule:

CONSTRUCTION/STARTUP/ACCEPTANCE:		
<u>Major Milestones</u>	<u>Completion Time</u> (calendar days)	<u>Liquidated Damages</u> (Per Day)
1. Substantial Completion	540	\$1,000.00
2. Project Closeout	30	\$1,000.00

The CITY is hereby authorized to deduct the sums described above from the monies which may be due to the CONTRACTOR for the work under this contract. Liquidated damages shall be additive such that the maximum total which may be deducted shall be \$1,000.00/day. Other damages for failure to meet warranty conditions as defined in other sections of the Specifications shall also be added with liquidated damages for failure to meet completion times.



4. **Restricted Area**

The CONTRACTOR shall, in installing the new facilities, confine all activities within the CITY property, easement, and right-of-ways indicated.

5. **Existing Facilities and Structures**

All existing facilities shall be protected, and if damaged, shall be repaired by the CONTRACTOR at no additional cost to the CITY.

6. **Explosives**

Explosives shall not be used on this project.

7. **Contract Documents**

The CITY will provide the CONTRACTOR with one (1) set of Contract Documents after the Notice to Proceed.

8. **Required Notifications**

When provisions of the pertinent codes, standards or regulations conflict with this Specification, the more stringent shall apply.

Prior to any site work, the CONTRACTOR shall notify the Engineering and Construction Services Division Inspector at (954) 921-3930.

Prior to excavation at the site, the CONTRACTOR shall notify the appropriate utilities and Sunshine State One-Call of Florida, Inc. (formerly U.N.C.L.E.) at 1-800-432-4770 for locations of buried utilities.

Prior to closure of any CITY streets or alleyways, or other activity which requires the diversion of traffic, the CONTRACTOR shall notify and obtain the permission of the CITY of Hollywood Fire and Police Communications Section at (954) 967-4321.

9. **Notice of Completion**

See attached form.

10. **Prevailing Wage Requirement**

A. The CONTRACTOR shall be responsible for ensuring payment of the rate of wages and fringe benefits, or cash equivalent, for all laborers, mechanics and apprentices employed by him/her or his/her SUBCONTRACTORS on the work covered by this contract which shall be not less than the prevailing rate of wages and fringe benefits payment or cash equivalent for similar skills or classifications of work as established by the General Wage Decision by the United States Department of Labor for Broward County, Florida that is in effect prior to the date the CITY issued the invitation for bids for this project (the prevailing rate of wages and fringes can be obtained at website <http://www.access.gpo.gov/davisbacon>).

If the General Wage Decision fails to provide for a fringe benefit rate for any worker classification, then the fringe benefit rate applicable to such worker classification shall be the fringe benefit rate that has a basic wage rate closest in dollar amount to the work classification for which no fringe benefit rate has been provided.

- B. Upon commencement of work, the CONTRACTOR and all of his/her SUB-CONTRACTORS shall post a notice in a prominent place at the work site stating the requirements of this Article.
- C. As per the City of Hollywood Code of Ordinances, Prevailing Wage Requirements and Fringe Benefits are applicable to the following: (A) Utilities projects over \$1,000,000.00 (one million dollars) and (B) All other projects over \$500,000.00 (five hundred thousand dollars).

## **11. Inspections and Testing During Overtime**

- A. The following supplement Article 3.15 and 3.16 of the General Conditions:

For weekend work, CONTRACTOR shall submit a written request to the CITY by the preceding Wednesday. A separate request is required for each week that the CONTRACTOR wished to work on a weekend. For evening and holiday work, CONTRACTOR shall submit a written request to the CITY three (3) days in advance. The CITY will provide inspection services for all overtime work and the CONTRACTOR shall pay for inspection services per Article 3.15, no exceptions.

Similarly, Holiday and other overtime work shall be requested a minimum of 36-hours in advance and CITY will provide inspection for all overtime.

- B. Exceptions to the hours and days of the week for work and other related limitations are allowed only for tie-ins during low flow periods / early morning hours, coatings that need to be applied during lower temperature times of the day and whenever the Documents specifically define that work shall be completed outside of the limitations for "normal" work hours, days, etc.

Inspection for tie-ins during low flow/early morning and specialty coating application performed during nighttime will not be cause for extra inspection costs unless such work is remedial in nature as a result of defective work.

## **12. Retainage**

After 50-percent completion of the construction services purchased pursuant to this contract, CONTRACTOR may present to CITY a payment request for one-half of the retainage then held by CITY. CITY shall promptly make payment to CONTRACTOR, unless CITY has grounds for withholding the payment of retainage. CITY shall have grounds for withholding the payment of retainage with respect to any amounts that are the subject of a good-faith dispute, the subject of a claim brought pursuant to Florida Statute Section 255.05, or otherwise the subject of a claim or demand by CITY or CONTRACTOR.

At acceptance of Substantial Completion, CITY shall promptly make payment to CONTRACTOR of one-half of the retainage then held by CITY. At acceptance of completion of all punch list items, CITY shall promptly make payment to CONTRACTOR the balance of retainage then held by CITY.

**13. Owner's Contingency (NOT USED)**

*This allowance is in its entirety dedicated for the use of the Owner (The City of Hollywood) to address conditions (or work) associated with undefined conditions. All work resulting from undefined conditions shall be authorized in writing and in advance by the Owner, specifically the Director of Public Services, through the full execution of a Field Order. The actual amount to be paid per Field Order will be negotiated and agreed by both parties (the Owner and the Contractor). The final/negotiated amount of the field order will be deducted from the Owner's Allowance designated in the Bid Proposal and Schedule of Values. The Owner reserves the right to award none, any portion of, or all of the money associated with this allowance. By executing the CONTRACT between the City of Hollywood and the Contractor, the Contractor acknowledges that under no circumstances he or she should assume that he or she would be entitled to any amounts set aside by the City of Hollywood within the Owner's Allowance.*

# CERTIFICATE OF SUBSTANTIAL COMPLETION

**PROJECT:** **ENGINEER:** Engineering & Const. Services Division

**TO:** **CONTRACTOR:**

**CONTRACT FOR:**

**NOTICE TO PROCEED DATE:**

**DATE OF ISSUANCE:**

**PROJECT OR DESIGNATED PORTION SHALL INCLUDE:**

Portions of the work performed under this Contract as described above, have been reviewed and found to be substantially complete. The Date of Substantial Completion of Project or designated portion thereof designated above is hereby established as \_\_\_\_\_ which is also the date of commencement of applicable warranties required by the Contract Documents for the noted area.

## **DEFINITION OF DATE OF SUBSTANTIAL COMPLETION**

The Date of Substantial Completion of the work or designated portion thereof is the date certified by the ENGINEER ("Date of Issuance" above) when construction is sufficiently complete, in accordance with the Contract Documents, so the CITY can occupy or utilize the work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

A list of items to be completed or corrected, prepared by the CONTRACTOR and verified and amended by the ENGINEER, for the above referenced "Project or Designated Portion" is attached to this form (attached "Punch List" dated \_\_\_\_\_).

The failure to include any items on such list does not alter the responsibility of the CONTRACTOR to complete all work in accordance with the Contract Documents.

# CERTIFICATE OF SUBSTANTIAL COMPLETION

Please note that in accordance with Article 14 General Conditions, the Contractor retains full responsibility for the satisfactory completion of all work regardless of whether the Owner occupies and / or operates a part of the facility and that the taking possession and use of such work shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents.

City of Hollywood - ECSD

**ENGINEER**

**BY**

**DATE**

**CONTRACTOR**

**BY**

**DATE**

The CITY OF HOLLYWOOD, through the City's authorized representative, accepts the work or designated portion thereof as substantially complete and will assume full possession thereof at \_\_\_\_\_(time) on \_\_\_\_\_(date).

**BY**

**DATE**

- END OF SECTION -

**CITY OF HOLLYWOOD  
DEPARTMENT OF PUBLIC UTILITIES**

**LIFT STATION A-09 FORCE MAIN REPLACEMENT  
(NW 70<sup>th</sup> AVENUE FROM JOHNSON STREET TO ARTHUR STREET)**

**TECHNICAL SPECIFICATIONS PACKAGE**



**CITY PROJECT NO. 20-8533**

March 13, 2024

Prepared by:



EAC Consulting, Inc.  
5100 NW 33<sup>rd</sup> Avenue, Suite 243  
Fort Lauderdale, FL 33309  
CA# 7011

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N 70th Avenue, from and including Johnson Street to just north of Arthur Street  
&  
Arthur Street, from N 70th Avenue to LS A-09  
PROJECT NO. 20-8533

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APPENDIX 3 – Subsurface Utility Information

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APPENDIX 5 – City of Hollywood As-built Standards

## SECTION 01010

### SUMMARY AND PHASING OF WORK

#### PART 1 - GENERAL

##### 1.01 THE REQUIREMENT

- A. The work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work, or other operations 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 shown 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 performed, furnished, and installed by the Contractor as though originally so specified or shown, at no increase in cost to the City.
- B. Prior to construction, the Contractor shall verify existing utilities identified on the Drawings and locate other potential utilities in their working area that may not be shown on the Drawings. The utility verifications consist of excavation to verify tie-in points and to locate potential conflicts that may affect the work as shown on the Drawings. The Contractor shall be responsible for the coordination of this work with the associated utility owners and permitting agencies having jurisdiction over the specific locations to be verified.

##### 1.02 SCOPE

- A. It is the intent of the City to obtain a complete and working installation under this contract and any items of labor, materials or equipment, which may reasonably be assumed as necessary to accomplish this end, should be supplied whether or not specifically shown on the plans or described herein. Maintenance of the existing utility systems is mandated throughout the construction period.
- B. In general, the project consists of the replacement of an existing 10-inch asbestos forcemain that extends from Lift Station A-09, west along Arthur Street and south along N 70th Avenue to Johnson Street. The replacement forcemain is a proposed 12-inch PVC (approximately 1,400 LF) that will extend from the intersection of N 70th Avenue and Johnson Street to just north of Arthur Street where it will reconnect to an existing 8-inch (to be verified by the contractor) forcemain. An 8-inch PVC forcemain (branch section) (approximately 120 LF) will also extend east, from the intersection of N 70th Avenue and Arthur Street to an existing 6-inch forcemain (Approximately 12LF) (to be verified by the contractor) connected to Lift Station A-09. In addition, approximately 36 LF of 18-inch forcemain (to be verified by the contractor) will be replaced along Johnson Street along with all associated existing and proposed connections. All existing asbestos forcemains (approximately 1600 LF) will be grout filled and abandoned in-place.

It is the intent of the City that this project be constructed as a single-phase project. This however does not relieve the contractor of his/her responsibility to organize and sequence the work in a manner that provides for public safety, minimizes inconveniences to residents and businesses, provide safe access to all properties and uninterrupted utility services at all times. If the contractor elects to construct the project as separate phases as a result of his/her means and methods, then the contractor is required to submit a detailed construction phasing plan to the City for approval prior to construction.

- C. The Contractor is responsible for all MOT efforts required for this project and all additional phases of the work, if applicable. Contractor coordination efforts may include, but not be limited to; phasing of the work, work zone coordination, adjusting work limits or work phasing pending the timing of work being completed by others, MOT coordination, MOT phasing, permit submittals and approval timing, restoration coordination, coordination with the Owner, the Engineer and other jurisdictional agencies, coordination with sub-contractors and other workers, public involvement coordination, coordination for notifications, and all other necessary coordination efforts to properly sync the project construction. Additional costs, claims, or change orders to the Owner will not be acceptable due to lack of coordination and proper phasing of the Work on the part of the Contractor.

#### 1.03 WORK BY OTHERS

- A. The Contractor shall cooperate fully with all utility forces of the City, or other public or private agencies engaged in the relocation, altering, or otherwise rearranging any facilities which interfere with the progress of the work, and shall schedule the work so as to minimize interference with said relocation, altering, or rearranging of facilities.
- B. The Contractor's attention is directed to the fact that work will be conducted at the site by other contractors during the performance of the work under this Contract. The Contractor shall conduct its operations so as to cause a minimum of interference with the Work of such other contractors and shall cooperate fully with such contractors to provide continued safe access to their respective portions of the site, as required to perform their respective contracts.
- C. When two or more contracts are being executed at one time on the same or adjacent land in such manner that Work on one contract may interfere with that on another, the City shall determine the sequence and order of the Work. When the territory of one contract is the necessary or convenient means of access for the execution of another contractor, such privilege of access or any other reasonable privilege may be granted by the City to Contractor.

#### 1.04 CONTRACTOR FURNISHED MATERIAL AND EQUIPMENT

- A. All equipment, materials, or devices incorporated in this project shall be new and unused, unless indicated otherwise in the Contract Documents and shall be the products of reliable manufacturers who, unless otherwise specified, have been regularly engaged in the manufacture of such material and equipment for at least

five (5) years. Procedures and additional requirements regarding manufacturer's experience and substitutions are included in Section 01300 - Submittals.

#### 1.05 DRAWINGS OF EXISTING FACILITIES

- A. Drawings of the existing facilities may be inspected at the City's Engineering and Construction Services Office, if available. These drawings are for information only and are not a part of the Contract Documents. In making these drawings available for inspection, the City makes no guarantee, either expressed or implied, as to their accuracy or completeness.
- B. The Contractor shall contact representatives for other utilities, facilities in proximity of the work and Sunshine State One Call Inc., to obtain the as-built information from them directly. The utilities shown on Drawings are based upon available records supplied from various sources. The City makes no guarantee, either expressed or implied, as to their accuracy or completeness.

#### 1.06 ITEMS SPECIFIED ON DRAWINGS

- A. Certain items of material and/or equipment, and their installation may be specified on the Drawings and not mentioned in the Specifications. Such items are to be considered as both shown on the Drawings and noted in the Specifications and be provided by the Contractor in accordance with the Specification on the Drawings.

#### 1.07 FIELD LAYOUT OF WORK

- A. See Section 01050 – Field Engineering.
- B. All survey work for construction control purposes shall be made by the Contractor at his expense.

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

## PART 3 - EXECUTION

### 3.01 CONSTRUCTION COORDINATION

- A. The Contractor is required to coordinate construction activities to maintain the project schedule and complete the work within the Contract Time. Locations of work must be approved by City of Hollywood prior to installation.
- B. All work must be coordinated by the Contractor throughout the duration of the project, including but not limited to, phasing of work efforts to ensure that project sequencing and work is properly performed without rework, delays, added costs, or circumstances that could have been avoided if adequate coordination and sequencing/phasing of the project was performed.
- C. The Contractor shall be responsible for coordinating all sub-contractors and trades and in incorporating the work of all subcontractors or trades where necessary and as required.
- D. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction; however, the Contractor shall be solely responsible for this work.

### 3.02 PROTECTION OF CONSTRUCTION AND EQUIPMENT

- A. All newly constructed work shall be carefully protected from damage in any way. All portions damaged shall be reconstructed by the Contractor at his expense.
- B. Protect all structures in a suitable manner to prevent damage. Should any part of a structure become heaved, cracked or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor at his own expense and to the satisfaction of the ENGINEER. If in the final inspection of the work, any defects, faults or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials, labor and equipment required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein and any damages caused by the performance of the Work, for at least the warranty period described in the Contract.
- C. The Contractor shall completely restore all pavement, sidewalk, curbing, landscaping, swales, culverts, or other areas disturbed by construction activities.

END OF SECTION

## SECTION 01025

### BASIS OF PAYMENT

#### PART 1 - GENERAL

##### 1.01 GENERAL

- A. Payments to the Contractor shall be made on the basis of the bid items listed on the Proposal Bid Form as full and complete payment for furnishing all materials, labor, tools and equipment, and for performing all operations necessary to complete the work included in the Contract Documents. Such compensation shall also include payments for any loss or damages arising directly or indirectly from the work, or from any discrepancies between the actual quantities of work and those shown in the Contract Documents, or from any unforeseen difficulties which may be encountered during the prosecution of the work until the final acceptance by the City.
- B. The prices stated in the proposal include full compensation for overhead and profit, all costs and expenses for taxes, labor, equipment, materials, commissions, transportation charges and expenses, patent fees and royalties, labor for handling materials during inspection, furnishing and repairing small tools and ordinary equipment, mobilization, home office expenses and general supervision, bond, insurance, labor for handling materials during inspection, together with any and all other costs and expenses for performing and completing the work as shown on the plans and specified herein. In addition, the Contractor shall include the actual cost of social security taxes, unemployment insurance, worker's compensation, fringe benefits, inclusive of life and health insurance, union dues, pension, pension plans, vacations, and insurance and contractor's public liability and property damage insurance involved in the work based on the actual wages paid to such labor and all other general costs and profits, prorated to each item.
- C. Unless otherwise specifically stated elsewhere herein, the Contractor shall include in the prices bid all materials, electrical supply, fuel, lubricants, temporary equipment, temporary wiring, temporary piping and fittings, pumps, gages, and all other items of whatever nature required to completely test, balance, disinfect if required, and put into fully operational condition all equipment and/or systems supplied by either the Department or the Contractor and installed as a part of this Project. Further, any test materials supplied by the Contractor shall be completely satisfactory to the Department. Any decision as to whether a particular material is suitable for test purposes shall be at the sole discretion of the Engineer whose decision shall be final. Any material considered not suitable shall be immediately replaced by the Contractor with suitable material and no extra compensation will be allowed.

- D. The Basis of Payment for an item at the price shown in the Proposal shall be in accordance with its description of the item in this Section and as related to the work specified and as shown on the Drawings. Unit prices when used will be applied to the actual quantities furnished and installed in conformance with the Contract Documents.
- E. The Contractor's attention is called to the fact that the quotations for the various items of work are intended to obtain a complete and working installation under this Contract, and any items of labor, equipment or materials which may reasonably be assumed as necessary to accomplish this end shall be supplied whether or not they are specifically shown on the Plans or stated herein. Should the Contractor feel that the cost of any item of work has not been established by the Proposal or Basis of Payment, he shall include the cost for that work in the last Bid Item for each construction package so that his proposal for the project does reflect his total price for completing the work in its entirety.
- F. The Contractor shall submit, with each Payment Request, a list of M/WBE Subcontractors that he is or will be utilizing for his contract. For each M/WBE Subcontractor, the following information shall be provided:
  - 1. Total sub-contract dollar amount.
  - 2. Amount paid to date.

## 1.02 MEASUREMENT

The quantities for payment under this Contract shall be determined by actual measurement of the completed items, in place, ready for service and accepted by the City, in accordance with the Schedule of Payment Values as described in Section 01300, unless otherwise specified. A representative of the City shall witness all field measurements.

## 1.03 PAYMENT ITEMS

For purposes of describing items appearing in the Proposal Bid Form, pricing for each item shall include work and components described below:

### **Force Main installation and associated Pay Items:**

- A. **Item No. 1 – Mobilization /Demobilization, Bonds, and Insurance** - The lump sum price provided for this item shall be full compensation for all mobilization/demobilization activities, including but not limited to bonds, insurance, transport of personnel, materials, equipment, and other incidentals to the site, preparation of submittals including schedule, temporary facilities and offices, safety equipment and first aid supplies, project signs including procurement, installation, and removal at the end of the project (City approved signs and locations), field surveys, sanitary and other facilities required by the specifications, any space required for staging, laydown, survey, storage, parking, etc., and all other activities necessary for complete mobilization/demobilization requirement for the contract.

- B. **Item No. 2 – All construction activities associated with all temporary and permanent connections and reconnections on Johnson Street, including but not limited to line stops, solid sleeves, bypass operations and all other appurtenances as shown or not shown on the plans** - The lump sum price provided for this item shall be full compensation for furnishing all labor, equipment, materials, delivery, dewatering, testing and commissioning for all work to install line stops, by-passable line stops, solid sleeves, bypass operations including but not limited to temporary piping, pumping equipment, vacuum trucks and other appurtenances to facilitate all temporary and permanent force main connections and reconnections required for temporary services as well as to re-establish permanent services for final project acceptance. Existing pipe sizes must be verified in the field prior to furnishing all proposed appurtenances for temporary and permanent connection. No additional compensation will be granted for differing pipe sizes found in the field. Depending on the contractor's means and methods, any costs associated with night work, working on weekends or overtime including but not limited inspectors, police, flagmen, lighted signs, and other costs associated with work of this nature must be included as part of this bid item. No additional compensation will be granted for any such effort once the bid has been accepted by the City.
- The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction. Some activities related to temporary and permanent connections and reconnections may need occur at night when sewer flows are low. All activities must be thoroughly coordinated and approved by the City, including the development of a detailed step-by-step plan that is timebound to facilitate all connections and reconnections.
- C. **Item No. 3 – All construction activities associated with all temporary and permanent connections and reconnections on Arthur Street, including but not limited to line stops, solid sleeves, bypass operations and all other appurtenances as shown or not shown on the plans** - The lump sum price provided for this items shall be full compensation for furnishing all labor, equipment, materials, delivery, dewatering, testing and commissioning for all work to install line stops, solid sleeves, bypass operations including but not limited to temporary piping, pumping equipment, vacuum trucks and other appurtenances to facilitate all temporary and permanent force main connections and reconnections required for temporary services as well as to re-establish permanent services for final project acceptance. Existing pipe sizes must be verified in the field prior to furnishing all proposed appurtenances for temporary and permanent connection. No additional compensation will be granted for differing pipe sizes found in the field. Depending on the contractor's means and methods, any costs associated with night work, working on weekends or overtime including but not limited inspectors, police, flagmen, lighted signs and other costs associated with work of this nature must be included as part of this bid item. No additional compensation will be granted for any such effort once the bid has been accepted by the City.



The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction. Some activities related to temporary and permanent connections and reconnections may need occur at night when sewer flows are low. All activities must be thoroughly coordinated and approved by the City, including the development of a detailed step-by-step plan that is timebound to facilitate all connections and reconnections.

- D. **Item No. 4 – All construction activities associated with all temporary and permanent connections and reconnections on N 70<sup>th</sup> Avenue, including but not limited to line stops, solid sleeves, bypass operations and all other appurtenances as shown or not shown on the plans** - The lump sum price provided for this items shall be full compensation for furnishing all labor, equipment, materials, delivery, dewatering, testing and commissioning for all work to install line stops, solid sleeves, bypass operations including but not limited to temporary piping, pumping equipment, vacuum trucks and other appurtenances to facilitate all temporary and permanent force main connections and reconnections required for temporary services as well as to re-establish permanent services for final project acceptance. Existing pipe sizes must be verified in the field prior to furnishing all proposed appurtenances for temporary and permanent connection. No additional compensation will be granted for differing pipe sizes found in the field. Depending on the contractor's means and methods, any costs associated with night work, working on weekends or overtime including but not limited inspectors, police, flagmen, lighted signs, and other costs associated with work of this nature must be included as part of this bid item. No additional compensation will be granted for any such effort once the bid has been accepted by the City.

The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction. Some activities related to temporary and permanent connections and reconnections may need occur at night when sewer flows are low. All activities must be thoroughly coordinated and approved by the City, including the development of a detailed step-by-step plan that is timebound to facilitate all connections and reconnections.

- E. **Item No. 5 – Removal and Disposal of 18” DIP Force Main** – The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, dewatering, and commissioning for all work necessary and required for the removal and disposal of a portion of an existing 18” force mains and associated appurtenances as shown on the plans. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete

surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.

- F. **Item Nos. 6 – 10 – Furnish, Deliver & Install 6” PVC C900 (DR-18), 8” PVC C900 (DR-18), 10” PVC C900 (DR-18), 12” PVC C900 (DR-18) & 18” DIP Force Main** – The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, dewatering, installation, and commissioning for all work necessary and required for the installation of new force main pipes (various sizes). This pay item includes excavation, bedding material, pipe laying, pipe connections, pipe restraints, all fittings and other appurtenances needed to install pipe from station to station as shown on the plans. Payment shall be at the unit bid price times the number of linear feet shown on the plans (horizontal projection length only). No additional compensation will be granted for actual pipe length installed due to vertical or other deflections. The work shall meet all City and other applicable standards includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.
- G. **Item Nos. 11 - 17 – Furnish, Deliver & Install DIP Tees, Reducers and Foster Adaptors** – The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, dewatering, installation, and commissioning for all work necessary and required for the installation of new DIP tees, reducers, foster adaptors (various sizes) and associated appurtenances as shown on the plans. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.
- H. **Item Nos. 18 - 19 – Furnish, Deliver & Install Plug Valves with Boxes** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, dewatering, installation, and commissioning for all work necessary and required for the installation of new plug valves with boxes and associated appurtenances as shown on the plans. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.
- I. **Item No. 20 – Furnish, Deliver & Install Air Release Valve Assemblies with Enclosures** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, dewatering, installation, and commissioning for all work necessary and required for the installation of new air

release valves (per City Standard S-08) and associated appurtenances as shown on the plans. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.

- J. **Item No. 21 – Pre-trenching Activities** – The lump sum price provided for this item is full compensation for all labor, equipment, materials, delivery, designation, test holing, etc. for all work necessary and required for pre-trenching in and around all proposed installations to their proposed depths and horizontal locations as well as along their proposed alignments as shown on the plans. The proposed installations include but is not limited to all temporary and proposed pipes, structures, appurtenances, connection points, etc. The proposed work also includes the identification and location (horizontally and vertically) of all utilities within a 20-foot swath (10-feet either side of the proposed installation) by geophysical methods including but not limited to ground penetration radar (GPR), electromagnetic induction, etc.

The purpose of this activity is to ensure that no portion of the proposed work as shown on the plans conflict with any existing utilities or underground installations, prior to construction. If potential conflicts are found, the contractor must notify the owner, engineer of record & associated utility owner with at least seven (7) days advanced notice prior to construction. This notification shall include survey information that describes the potential conflict's actual location, nature, size, material of construction and its horizontal & vertical alignment. Failure on the contractor's part to pre-trench prior to construction is at his/her own risk & by so doing relieves the owner and the engineer of any & all liabilities & costs associated with resolving conflicts. In addition, no additional compensation will be granted by the owner or engineer of record for any costs incurred to correct conflicts during construction as a result of failure on the contractor's part to pre-trench.

- K. **Item No. 22 – Document Project Corridor – Existing Conditions** - The lump sum price provided for this item is full compensation for all labor, equipment, and materials for all work necessary to document existing conditions of the project corridor. Project corridor shall include right-of-way and any areas disturbed by construction including temporary and permanent staging areas, parking areas, maneuvering area, etc. and at least 150 feet outside of areas as shown on the plans. In addition, properties along the project corridor should be included in the video recording and the view should be limited to only views that can be seen from the street. No other views of private property are required. A video recording must be produced prior to construction mobilization, of the entire project corridor and a copy of said video must be given to the City prior to construction.

All above ground features including but not limited to signs, driveways, mailboxes, pavement surface, sidewalks, fences, gates, trees, utility valve covers, swales, stormwater inlets, manhole rims, vegetation, etc. must be fully documented as to its original condition prior to construction. This video should be

detailed enough to leave no doubt that the contractor restored the project corridor to pre-construction conditions after construction is completed. In the event that any above ground structure is damaged by construction or any complaint is received by the City with regards to damages and the video documentation cannot clearly show evidence that damages were not as a result of construction activities, the contractor shall make the appropriate repairs to industry standards at no additional cost to the City.

- K. **Item Nos. 23 - 25 – Cut, Grout Fill and Abandon Existing 6”, 8” & 10” Force Main Pipes** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and installation for all work necessary and required for abandoning in-place all existing force mains as specified on the plans and removing them from service as shown on the plans. The bid price shall be full compensation for each linear foot of pipe placed out of service, and shall include but not be limited to coordination with CITY for temporary system deactivation, notifying affected property owners/occupants, excavation (including exploratory excavation), cutting, hauling and legal disposal of all removed material, including pipe segments cut and removing appurtenances, furnishing flowable grout, pumping equipment and materials, installing grout and exit ports in mains, pumping flowable grout to completely fill existing mains 6” and larger in diameter that are being placed out of service. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.
- L. **Item Nos. 26 - 28 – Furnish, Deliver & Install 6”, 8” & 10” Cap** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and commissioning for all work necessary and required for capping and plugging abandoned existing force main pipes as specified on the plans. The bid price shall include but not be limited to coordination with CITY for temporary system deactivation, notifying affected property owners/occupants, excavation (including exploratory excavation). The bid price shall be full compensation required for the provision and installation of each cap. Verification for each cap size will be confirmed prior to furnishing and delivering. No additional compensation will be provided for caps that are incorrect in size due to actual field conditions. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.
- M. **Item No. 29 – Trench Restoration** – The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and installation for all work necessary and required for full trench restoration less the final layer of asphalt (1-inch thick – SP 9.5). This pay item includes select backfill placed in layers not exceeding 6-inches in thickness, 12-inches of Type B stabilized subgrade, 12-inches of lime-rock, 1-inch of asphalt (SP 9.5) and the installation

of temporary striping affected by trench restoration to restore traffic control immediately after restoration. Temporary markings must be in accordance with all FDOT Standards. All work must comply with Standard Details G-03, G-12 and G-12.1 as shown on the plans. Payment shall be at the unit bid price times the number of linear feet shown on the plans. The elevation of restored surface with asphalt and existing asphalt surface cannot exceed 1-inch.

Restored surface must also be machine laid and drivable. No additional compensation will be granted for trenches wider and longer than shown on the plans due to contractor's means and methods. Trench width and restoration is based on G-12.1. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.

- N. **Item No. 30 – Milling 1” of Asphalt Pavement** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery for all work necessary and required for milling areas outside of trench width surface replacement (per G-12.1). It will be paid for at the unit price bid times the number of square yards (SY) of milling as shown on the plans unless other directed by the City. Also included in the price for this bid item are the removal roadway features including but not limited to speed humps, etc. All milling activities must comply with FDOT requirements. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.
- O. **Item No. 31 – Resurfacing of 1” of Asphalt Pavement** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and installation for all work necessary and required for paving to the extent shown on the plans, 1” thick (minimum) machine laid asphaltic (SP 9.5) concrete surface course for permanent paving and the immediate installation of temporary striping for areas affected by resurfacing to restore traffic control. Temporary markings must be in accordance with all FDOT Standards. It will be paid for at the unit price bid times the number of square yards (SY) of asphaltic (SP 9.5) concrete overlay installed and accepted by the City and Engineer as measured along the limits as shown on the plans. Also included in the price for this bid item are any adjustments to valve boxes, valve covers, manhole frames and rims, and any other surface items to maintain a level driving surface. All resurfacing activities must comply with FDOT requirements. The work shall meet all City and other applicable standards and includes all activities to complete this task for acceptance by the EOR and City. Any damage that results from these activities including but not limited to damage to asphalt, grass, or concrete surfaces as well as any underground (utilities, etc.) or above ground topographic features will be restored to equal or better condition than existed prior to construction.

- P. **Item No. 32 – Reflective Pavement Markers (Class B, mono or bi-directional, all colors)** – The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery and other work activities necessary and required for the replacement of existing reflective pavement markers (RPM) that were removed or obliterated by the Contractor's operation, or as indicated on the plans, in accordance with MUTCD (latest edition), FDOT Standard Specifications for Road and Bridge Construction (latest edition), and/or Broward County Public Works and Transportation Department Standards (latest edition). Any discrepancies between these standards must be brought to the attention of the City and Engineer. RPMs required for MOT operations shall be bid and paid for under the MOT pay item. Any reflective markings that are installed and are later determined to be in non-compliance with any of the latest standards shown herein, will be corrected at the contractor's expense even if it existed prior to construction. Reflective markings must be installed by a contractor that is either certified by the FDOT or Broward County.
- Q. **Item No. 33 – Pavement Message Thermoplastic Markings - "School"** – The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and other work activities necessary and required for replacement of existing thermoplastic pavement message markings and other associated permanent pavement markings that are removed or obliterated by the Contractor's operation, or as indicated on the plans, in accordance with MUTCD (latest edition), FDOT Standard Specifications for Road and Bridge Construction (latest edition), and/or Broward County Public Works and Transportation Department Standards (latest edition). Any discrepancies between these standards must be brought to the attention of the City and Engineer. Pavement message markings required for MOT operations shall be bid and paid for under the MOT pay item. All final thermoplastic pavement message markings must be in full compliance with Section 711 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition). Any pavement message markings that are installed and are later determined to be in non-compliance with any of the latest standards shown herein, will be corrected at the contractor's expense even if it existed prior to construction. Pavement message markings must be installed by a contractor that is either certified by the FDOT or Broward County.
- R. **Item No. 34 – Thermoplastic (White) (Solid) (6")** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and other work activities necessary and required for replacement of existing thermoplastic pavement markings and other associated permanent pavement markings that are removed or obliterated by the Contractor's operation, or as indicated on the plans, in accordance with MUTCD (latest edition), FDOT Standard Specifications for Road and Bridge Construction (latest edition), and/or Broward County Public Works and Transportation Department Standards (latest edition). Any discrepancies between these standards must be brought to the attention of the City and Engineer. Pavement markings required for MOT operations shall be bid and paid for under the MOT pay item. All final thermoplastic pavement markings must be in full compliance with Section 711 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition). Any pavement message markings that are installed and are later determined to be in non-compliance with any of the latest standards shown

herein, will be corrected at the contractor's expense even if it existed prior to construction. Pavement message markings must be installed by a contractor that is either certified by the FDOT or Broward County.

- S. **Item No. 35 – Thermoplastic (White) (Solid) (12”)** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and other work activities necessary and required for replacement of existing thermoplastic pavement markings and other associated permanent pavement markings that are removed or obliterated by the Contractor's operation, or as indicated on the plans, in accordance with MUTCD (latest edition), FDOT Standard Specifications for Road and Bridge Construction (latest edition), and/or Broward County Public Works and Transportation Department Standards (latest edition). Any discrepancies between these standards must be brought to the attention of the City and Engineer. Pavement markings required for MOT operations shall be bid and paid for under the MOT pay item. All final thermoplastic pavement markings must be in full compliance with Section 711 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition). Any pavement message markings that are installed and are later determined to be in non-compliance with any of the latest standards shown herein, will be corrected at the contractor's expense even if it existed prior to construction. Pavement message markings must be installed by a contractor that is either certified by the FDOT or Broward County.
  
- T. **Item No. 36 – Thermoplastic (White) (Solid) (24”)** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and other work activities necessary and required for replacement of existing thermoplastic pavement markings and other associated permanent pavement markings that are removed or obliterated by the Contractor's operation, or as indicated on the plans, in accordance with MUTCD (latest edition), FDOT Standard Specifications for Road and Bridge Construction (latest edition), and/or Broward County Public Works and Transportation Department Standards (latest edition). Any discrepancies between these standards must be brought to the attention of the City and Engineer. Pavement markings required for MOT operations shall be bid and paid for under the MOT pay item. All final thermoplastic pavement markings must be in full compliance with Section 711 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition). Any pavement message markings that are installed and are later determined to be in non-compliance with any of the latest standards shown herein, will be corrected at the contractor's expense even if it existed prior to construction. Pavement message markings must be installed by a contractor that is either certified by the FDOT or Broward County.
  
- U. **Item No. 37 – Thermoplastic (Yellow) (Solid) (6”)** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and other work activities necessary and required for replacement of existing thermoplastic pavement markings and other associated permanent pavement markings that are removed or obliterated by the Contractor's operation, or as indicated on the plans, in accordance with MUTCD (latest edition), FDOT Standard Specifications for Road and Bridge Construction (latest edition), and/or Broward County Public Works and Transportation Department Standards (latest

edition). Any discrepancies between these standards must be brought to the attention of the City and Engineer. Pavement markings required for MOT operations shall be bid and paid for under the MOT pay item. All final thermoplastic pavement markings must be in full compliance with Section 711 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition). Any pavement message markings that are installed and are later determined to be in non-compliance with any of the latest standards shown herein, will be corrected at the contractor's expense even if it existed prior to construction. Pavement message markings must be installed by a contractor that is either certified by the FDOT or Broward County.

- V. **Item No. 38 – Thermoplastic (Yellow) (Skip) (6”)** - The unit price provided for this item shall be full compensation for all labor, equipment, materials, delivery, and other work activities necessary and required for replacement of existing thermoplastic pavement markings and other associated permanent pavement markings that are removed or obliterated by the Contractor's operation, or as indicated on the plans, in accordance with MUTCD (latest edition), FDOT Standard Specifications for Road and Bridge Construction (latest edition), and/or Broward County Public Works and Transportation Department Standards (latest edition). Any discrepancies between these standards must be brought to the attention of the City and Engineer. Pavement markings required for MOT operations shall be bid and paid for under the MOT pay item. All final thermoplastic pavement markings must be in full compliance with Section 711 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition). Any pavement message markings that are installed and are later determined to be in non-compliance with any of the latest standards shown herein, will be corrected at the contractor's expense even if it existed prior to construction. Pavement message markings must be installed by a contractor that is either certified by the FDOT or Broward County.
  
- W. **Item No. 39 – Furnish and Install Stamped Concrete Driveway Apron** - This is a lump sum payment for labor, equipment, materials, delivery, installation, finishing, color matching, etc. for a fully functional and code compliant driveway that replaces an existing driveway. Under no circumstances should any work take place within private property and under no circumstances should a driveway be damaged or removed without coordinating with the City. This pay item can only be used in the event that the contractor locates all utilities in the area to the full extent horizontally and vertically and demonstrates to the City and EOR that removing and replacing the driveway is the only alternative to avoid conflicts during utility installation per plans.
  
- X. **Item No. 40 – Furnish and Install Sod** - The unit price provided for this item shall be full compensation for labor, equipment, materials, delivery and installation of sod. This pay item is intended for sod affected by construction activities that are related to the installation of a proposed utility either directly under a sodded area or within 3-feet of an existing sodded area. The contractor shall replace sod (in-kind to a state equal or better) at their own cost in areas disturbed by construction activities that are as a result of their chosen means and methods such as staging areas, temporary equipment parking areas, areas for maneuvering equipment, areas for stockpiling, areas traversed with construction



equipment, areas affected to increase production rate, etc.

- E. **Item No. 41 – Maintenance of Traffic (MOT)** – This is a lump sum payment for all labor, equipment, materials, delivery, and installation testing and commissioning for all work necessary and required for the design and preparation of a signed and sealed (by a Florida Professional Engineer with Advanced MOT Certification) phased and detailed certified MOT plans. This payment includes all submittals and permitting through various regulatory agencies having jurisdiction over the ROW limits. It also includes but is not limited to lane closure submittals and approvals, traffic studies, flagman, police, all MOT pavement markings and striping, installation, and removal and/or relocations and maintenance of phased traffic control devices for the duration of the project until final completion per applicable authority having jurisdiction. Under no circumstances must construction commence without a certified MOT plan approved by the City, Broward County and other right-of-way jurisdictional agencies.
  
- F. **Item No. 42 – Activities Required for Compliance with Florida Trench Safety Act (Trench Safety Act)** – This is a lump sum payment for all labor, equipment, materials, delivery, and installations for all work necessary and required to comply with the Florida Trench Safety Act – Section 553.60. The purpose and intent of this act is to provide for increased worker safety by requiring compliance with sufficient standards for trench safety. The Occupational Safety and Health Administration’s excavation safety standards, 29 C.F.R. s. 1926.650 Subpart P, are hereby incorporated as the state standard. This item is intended to cover all costs associated with contractor’s means and methods to ensure full compliance in accordance with the Trench Safety Act.
  
- G. **Item No. 43 – Certified and As-Builts and Record Drawings (By Professional Surveyor and Mapper (PSM))** – This is a lump sum payment for all labor, equipment, materials, for all work pertaining to the preparation of As-builts and Record Drawings. The minimum requirements pertaining to the information to be shown on these documents are shown on the plans. Payment will be for full compensation to furnish as-built documentation and record drawings signed and sealed by a licensed PSM in hardcopy and electronic form and meeting City standards (PDF and AutoCAD) and an asset table at the completion and acceptance of work. In addition, payment for furnishing monthly as-builts and redlined drawings with pay applications are included in this pay item.
  
- H. **Item No. 44 – Owner’s Contingency (allowance)** - Included in this contingency are activities associated with unforeseen conditions or other work to be authorized at the discretion of the City. All work authorized from this allowance must be authorized in writing by the City. Amount to be paid shall be negotiated and agreed to by both parties. The City reserves the right to award any, all, or none of the money associated with this allowance.
  
- I. **Item No. 45 – Consideration for Indemnification** - In recognition of the Contractor’s indemnification obligations, the City will pay to the Contractor the specific consideration of ten dollars (\$10.00). Payment of said specific consideration shall be made at the time of the payment of the first progress estimate and the Contractor shall acknowledge payment of this consideration by

letter to the City after receipt of the progress payment.

- J. **Item No. 46 – Landscaping Allowance** – This is a lump sum payment for all labor, equipment, materials, and delivery for any work related to the removal, relocation or replacement of landscape related items such as vegetation, irrigation systems, etc. that may be impacted by construction. Payment for water or irrigation supply source, and coordination with the Owner’s staff, arborists, and others as needed for a complete and acceptable installation of all impacted landscaping. All landscaping removal and replacement items must match size and type in kind and be approved by the Owner.
- K. **Item No. 47 – All Permits, Licenses, Fees and Testing Allowance** – This is a lump sum payment for all labor, equipment, materials, and delivery for any work related to obtaining all permits, all licenses, all fees and all testing required for the construction, commissioning and acceptance by the owner of the entire project. Payment will be based on the cost of actual permits, licenses or fees paid directly to agency, documented by paid receipts, specifically excluding any labor, mark-up, overhead and profit, administration and other costs involved in obtaining wastewater permits or licenses or paying fees. Testing includes but is not limited to density testing associated with roadway trench restoration, lime-rock bearing ratio, pressure testing of pipes, bacteriological test of pipes, etc.

Density testing for multiple mobilizations due to either limited testing as ordered by the Contractor or due to failure related results or stand-by time will not be paid for by this allowance. Any lack of Contractor coordination and scheduling which creates additional trips or down-time by the testing company will not be accepted or paid for by this allowance. The Contractor is to schedule and coordinate all testing times to ensure efficiency. The Contractor is responsible for submitting and obtaining all necessary regulatory agency wastewater permits other than those provided by the Owner. Fees specifically excluded from this allowance, include but are not limited to, reinspection fees, expired permit fees, stand by time, failed tests, and bacteriological testing fees. The City reserves the right to award any, all, or none of the money associated with this allowance.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01030

### SPECIAL PROJECT PROCEDURES

#### PART 1 - GENERAL

##### 1.01 WORK TO FACILITATE FORCEMAIN CONNECTIONS AND RECONNECTIONS

- A. The plans contain a suggested sequence for proposed connections. This suggested sequence of construction does not relieve the contractor of his/her responsibility to develop a detailed sequencing plan (plan) of their own for the proposed work. If the suggested sequence of construction is adopted by the contractor, then the contractor must make it their own and accepts that neither the engineer or the City will be liable for any damages that may arise from this plan. All cost associated with the plan must be included in the bid price, including any temporary bypasses, pumping equipment or reduction of flows necessary to implement the plan. The contractor will be responsible for ensuring that their proposed bypass system includes design elements to counter all imposed horizontal and vertical forces. The plan must be coordinated and approved by the City prior to undertaking the work. The City will allow wastewater flows to be shutdown from 12:00 am to 2:00 am to facilitate connections on Johnson Street, N 70<sup>th</sup> Street and Arthur Street as shown on the plans. The contractor MOT is required to keep at least one lane open at all times for emergency vehicles. In addition, the contractor's MOT must maintain bus access through the project site during daytime hours.

##### ~~1.02 WORK WITHIN RAILROAD RIGHT OF WAY (ROW) LIMITS~~

- ~~A. Contractor shall provide advanced notification(s) to FEC and the City prior to all work efforts. Notifications shall be a minimum of 48 hours in advance of any proposed work efforts and shall be coordinated through the railroad ROW representatives.~~
- ~~B. The Contractor is responsible for coordination, exhibits and all associated documents for submitting, and securing approvals, for any necessary permits for work within the railroad ROW limits and for paying all associated permit fees.~~
- ~~C. American Railway Engineering and Maintenance of Way Association (AREMA) standards and specifications, FDOT/Sunrail standards and specifications, and the City's standards and specifications must be followed at all times. In areas where there are conflicting requirements, the most stringent requirements shall be required to be followed at no additional cost to the City.~~
- ~~D. All work is to be within the railroad ROW limits. Any work outside of the railroad ROW limits will require the Contractor to secure all necessary property City(s) approvals for use of the associated work limits and any necessary construction or temporary access easements at no additional cost to the City.~~

##### 1.03 SEQUENCE OF WORK

- A. The Contractor shall establish his work sequence based on the use of crews to facilitate completion of the construction within the specified contract time. Contractor shall submit a detailed phasing and project construction sequencing schedule and plan as required.
- ~~B. The Contractor will be required to sequence their work efforts around an active railroad ROW and allow for occasional disruptions to the work due to the railroad activity. No additional compensation will be provided for any railroad activities that create Contractor or construction downtime.~~

#### 1.04 PUBLIC NUISANCE

- A. The Contractor shall not create a public nuisance including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.
- B. Sound levels measured by the Engineer shall not exceed 50 dBA from 7 P.M. to 7 A.M. or 60 dBA 7 A.M. to 7 P.M. This sound level shall be measured at the exterior of the nearest exterior wall of the nearest residence. Levels at the equipment shall not exceed 85 dBA at any time. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to these levels. Work stoppage by the Engineer or City for excessive noise shall not relieve the Contractor of the other portions of this Specification including, but not limited to, completion dates and bid amounts. Local jurisdictional requirements may vary from the above requirements. It is the Contractor's responsibility to identify and comply with all jurisdictional requirements for noise abatement, construction work hours and notifications.
- C. Work hours as required for the various jurisdictional agency project permits must be followed at all times. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

#### 1.05 ASBESTOS PIPE REMOVAL AND DISPOSAL PROCEDURES

- A. General. The Contractor will be responsible for permitting, removal and disposal of asbestos-cement (A-C) pipe segments required to perform the Work as shown on the Drawings. The following paragraphs briefly summarize permitting, field procedures and disposal activities related to the A-C pipe. In these discussions, certain local, state and federal laws have been referenced. The Contractor must comply with all applicable local, state and federal laws/regulations whether or not such laws/regulations are referenced in these specifications.

The Contractor shall provide evidence of experience of proper procedures in removal, handling and disposal of asbestos-cement pipe materials within the past five (5) years. References from at least three completed projects shall be provided at the Preconstruction Conference. If the Contractor proposes to utilize the services of a duly qualified Subcontractor for this portion of the work, these same requirements shall be met.

- B. Permitting. The Contractor shall apply for and obtain all permits related to removal of the A-C pipe segments. In accordance with Florida Department of Environmental Protection (FDEP) Rule 62-257.30 1 of the Florida Administrative

Code (FAC), the Contractor must submit a "Notice of Asbestos Removal Project" form with a copy to the Engineer. The Contractor will submit the form to FDEP in a timely manner in accordance with the schedule contained in Rule 62-257. The agencies that may require permits for this project are not necessarily limited to the FDEP.

- C. Field Procedures. The Contractor is responsible for all procedures, including safety and health procedures, which will be used when handling A-C pipe segments. The Contractor's handling of A-C pipe segments shall be in conformance with 29 CFR 1926.58 (OSHA Safety and Health Standards).

Cutting of A-C pipe shall be done in conformance with the recommended practices contained in the American Water Works Association's (AWWA) Manual No. M-16. Cutting methods should be used which minimize the production of airborne dust.

- D. Preparation of Transport of Materials. The Contractor will remove the pipe sections from the ground in whole pieces without fracturing, breaking or otherwise damaging pipe. The A-C pipe segments shall be carefully loaded onto the transport vehicle without damaging the pipe. The transport vehicle shall totally enclose the A-C pipe segments so that wind and rain cannot disperse dust from the pipe material. Transport of the A-C pipe segments shall also meet the requirements of the waste disposal agency.
- E. Waste Disposal. As stated in Rule 62-701.520(3), the FDEP indicates that asbestos containing waste materials can be accepted at a permitted Class I, II or III landfill. The regulations also indicate that the waste generator (the Contractor) shall make arrangements with the landfill operator before disposal of the asbestos containing waste materials and inform the operator of the quantity of the waste and the scheduled date the shipment will arrive at the landfill. The Contractor shall provide the Engineer and the City a manifest immediately following disposal.

#### 1.06 PIPING AND EXISTING UTILITIES

- A. Pipe Locations. All pipes shall be located substantially as indicated on the Drawings, but the Engineer or City reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Soft digs have been performed to field verify the approximate location of the existing piping; however, it is the Contractor's responsibility to field verify and confirm all existing utility locations, including allowing for utility coordination efforts for other utility facilities within the railroad ROW limits and to protect and support all existing utilities at no additional cost to the City.
- B. Utility Conflicts. Contractor must identify all locations where there is the possibility of conflicts with existing utilities. Contractor will promptly notify the City and Engineer in writing in accordance with these documents. Contractor acknowledges that resolving utility conflicts, can sometimes require permitting. The City will grant additional days to the Contractor to cover the length of unanticipated delay in writing. However, under no circumstances will the Contractor be eligible for remobilization costs.

## 1.07 ADDITIONAL TRAFFIC REQUIREMENTS

- A. Contractor will be responsible for submittal of Maintenance of Traffic (MOT) plans to meet all jurisdictional authorities requirements for submittals within their right-of-way limits. ~~MOT will also be submitted for all construction proposed within the railroad ROW limits. Contractor shall be the responsible party relating to all aspects of railroad ROW permitting.~~ Approval must be received from the regulatory authority prior to commencement of any work within their right-of-way limits. No additional compensation will be provided for coordination, submittals, permitting, signed and sealed MOT plans to meet all regulatory agencies requirements or inspection services costs ~~nor any other fees related to providing MOT within the railroad ROW limits.~~
- B. Night work or weekend work may be required for various areas within the project limits depending on contractor's means and methods. The Contractor is responsible for costs associated with all night work including but not limited to, inspector costs, police or flagmen costs, signage and MOT costs and all other costs associated with night or weekend work. The cost associated with this effort must be included in the bid price for temporary and permanent connections
- C. No excavations shall be left exposed or unattended while Contractor is not on premises.

## 1.08 OPEN EXCAVATIONS AND RESTORATION

- A. Contractor shall be responsible for restoration of all disturbed areas during construction with equal or better quality, quantity, material and size. Items within the project limits that may require restoration due to the Contractor's means and methods and associated work or equipment movement, staging, etc., as well as those limits outside of the work limits, and not shown on the drawings, shall be the responsibility of Contractor to restore if impacted. In addition, timely restoration shall be required by the Contractor. The open trench excavation limits may be required to be limited to minimize risk or safety issues. The City and Engineer, reserve the right to notify the Contractor of any areas that will be required to be backfilled, sheeted, shored or braced including providing restoration in advance of larger scale restoration efforts or other restoration efforts.
- B. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges, sheeting, shoring, and bracing to minimize open trench excavation limits. ~~adjacent to the railroad ROW limits and to facilitate additional safety measures due to the active railroad.~~
- C. ~~Installations by open trench methods shall comply with AREMA Manual for Railway Engineering, Part 4, Culverts, Section 4.14, Assembly and Installation of Pipe Culverts.~~

- D. Sheeting, piles, shoring and bracing and associated signed and sealed design calculations by a licensed Professional Engineer are required to be submitted for work within the railroad ROW limits. All calculations, reviews, and permit approvals are to be provided by the Contractor at no additional cost to the City.

#### 1.09 TEST PITS/HOLES

- A. Test pits and/or holes for the purpose of locating underground pipeline, utilities, or structures in advance of the construction shall be excavated and backfilled by the Contractor. Test pits shall be backfilled immediately after their purpose has been satisfied. ~~and maintained in a manner satisfactory to FDOT/Sunrail standards and specifications and meeting all AREMA guidelines. Grouting of test holes is typically required if within the railroad right of way limits.~~ The costs for such test pits and grouting of the test pits and/or holes shall be borne by the Contractor.

#### 1.10 JURISDICTIONAL DISPUTES

- A. It shall be the responsibility of the Contractor to pay all costs that may be required to perform any of the Work shown on the Drawings or specified herein in order to avoid any work stoppages due to jurisdictional disputes. The basis for subletting Work in question, if any, shall conform with precedent agreements and decisions on record with the Building and Construction Trades Department, AFL-CIO, dated June, 1973, including any amendments thereto.

#### 1.11 INCLEMENT WEATHER

- A. In the event of inclement weather, or whenever the City or Engineer directs; the Contractor shall, and shall cause subcontractors to protect carefully the Work and materials against damage or injury from the weather. If, in the opinion of the City or Engineer, any portion of work or materials have been damaged or injured by reason of failure on the part of the Contractor or any subcontractors to so protect the Work, such Work and materials shall be removed and replaced at the expense of the Contractor.

#### 1.12 COORDINATION OF WORK

- A. The Contractor shall cooperate fully so as to eliminate or minimize the creation of conflicts with all other parties performing work. ~~within the active railroad ROW limits. Adjustments from time to time may be required in the Contractor's work location and/or schedule upon notice provided by the railroad representative, FDOT/Sunrail, or the City.~~

#### 1.13 USE OF PUBLIC/PRIVATE STREETS

- A. The use of public/private streets and roads shall be such as to provide a minimum of an inconvenience to the public and to other traffic. Any earth or other excavated materials spilled from trucks shall be removed by the Contractor and the streets and roads cleaned to the satisfaction of the City or Engineer.

- B. Access to properties along the Project must be maintained at all times throughout the duration of the Project.

#### 1.14 CHEMICALS

- A. All chemicals used during project construction, or furnished for project operations, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of the State Department of Health, Florida Department of Environmental Protection and if required, also the EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with the manufacturer's instructions or recommended use procedures.

#### 1.15 SAFETY AND HEALTH REGULATIONS

- A. The Contractor shall comply with the Department of Labor Safety & Health Regulations for construction promulgated under the Occupational Safety & Health Act of 1970, (PL 91-596) and under Section 107 of the Contract Work Hours & Safety Standards Act (PL 91-54).
- B. All equipment furnished and installed under this Contract shall comply to Part 1910, Occupational Safety & Health Standards & Amendments thereto.
- C. The Contractor shall comply with the Florida Trench Safety Act (90-96, Florida Law).

#### 1.16 STATE AND FEDERAL PERMITS

- A. The Contractor is required to comply with and meet all applicable State and Federal permits. The City has provided the permits as included in the Appendix of the Contract documents. All other necessary permits shall be at the Contractor's cost and the Contractor shall be required to secure them prior to associated jurisdictional work. All conditions set forth in the permits shall become part of the Contract.

#### 1.17 INSPECTION

- A. The authorized representatives and agents of the Environmental Protection Agency and Controlling State and Local Pollution Control Agencies shall be permitted to inspect all work, material, payrolls, personnel records, invoices of materials and any other relevant data and records. The City and Engineer shall be permitted access to any work area for the inspection of work and materials. The City may, at the Contractor's expense, order the uncovering or removal of any finished work if circumstances indicate faulty work or materials were used in the original installation. The City and Engineer shall also be permitted to inspect material invoices, payrolls or any other relevant data or records as may be necessary or required to satisfy the requirements of the Contract.

#### 1.18 ENVIRONMENTAL PROTECTION



A. General:

1. Contractor shall comply with all Federal, State and Local laws and regulations controlling pollution of the environment. He shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter. In the event of conflict between such laws and regulations and the requirements of the Specifications, the more restrictive requirements shall apply. Environmental protection requirements specified in other Sections shall be considered as supplementing the requirements of this Section.
2. Failure of the Contractor to fulfill any of the requirements of this Section may result in the City ordering the stopping of construction operations.
3. Failure on the part of the Contractor to perform the necessary measures to control erosion, siltation, and pollution will result in the City notifying the Contractor to take such measures. In the event that the Contractor fails to perform such measures within 24 hours after receipt of such notice, the City may stop the Work as provided above, or may proceed to have such measures performed by others. The cost of such work performed by others plus related fees by the Engineer will be deducted from monies due the Contractor on his Contract.
4. All erosion and pollution control features installed by the Contractor shall be acceptably maintained by the Contractor during the time that construction work is being done.
5. Repair or replace damaged or inoperative erosion and pollution control devices as directed by the Engineer or the City's Representative.
6. Where there is a high potential for erosion and possible water pollution, the Contractor shall not expose, by his construction methods or procedures, an area of erosive land at any one time larger than the minimum amount required for the proper and efficient construction operation. If the exposure of any incomplete work corresponding to the exposure period required for erosion is anticipated, temporary protective measures shall be taken to prevent the erosion or collapse of land in that immediate construction area.

- B. Erosion and Pollution Control Schedule: At or prior to the preconstruction conference, the Contractor shall submit to the City for his information, three (3) copies of his erosion and pollution control work schedule. This schedule shall show the time relationship between phases of the Work which must be coordinated to reduce erosion and pollution, and shall describe construction practices and temporary control measures which will be used to minimize erosion and pollution. The schedule shall also show the Contractor's proposed method of erosion control on haul roads and borrow and material pits, and his plan for disposal of waste materials or other sources of pollution. Maps or other

documents may also be required to show the proposed final surface gradient of proposed borrow pits, soil type base course pits, and waste areas. No work shall be started until the erosion and pollution control schedules and methods of operations have been submitted to the City for his information.

C. Air Pollution Controls:

1. Contractor shall control dust caused by his operations in the construction of the Project, including but not specifically limited to the following:
  - a. Clearing, grubbing, and stripping.
  - b. Excavation and placement of embankment.
  - c. Cement and aggregate handling.
  - d. Limerock stabilization.
  - e. Use of haul roads.
  - f. Sandblasting or grinding.
2. Contractor shall control air pollution from the following causes in constructing the project:
  - a. Volatiles escaping from asphalt and cutback materials.
  - b. Use of herbicides or fertilizers.
3. Control of dust and other air pollutants by the Contractor shall include:
  - a. Exposing the minimum area of land.
  - b. Applying temporary mulch with or without seeding.
  - c. Use of water sprinkler trucks.
  - d. Use of covered haul trucks.
  - e. Use of stabilizing agents in solution.
  - f. Use dust palliatives and penetration asphalt on temporary roads.
  - g. Use of wood chips in traffic and work areas.
  - h. Use of vacuum-equipped sandblasting systems.
  - i. Use of plastic sheet coverings.
  - j. Restricting the application rate of herbicides to recommended dosage. Materials shall be covered and protected from the

elements. Application equipment and empty containers shall not be rinsed and discharged so as to pollute a stream, river, lake, pond, water impoundment, or the ground water.

- k. Relay of operations until climate or wind conditions dissipate or inhibit the potential pollutants.
- D. Open Burning of Combustible Wastes: No open burning of combustible waste materials or vegetation shall be permitted. All waste materials shall be removed from the site or within public rights-of-way and disposed in a legal manner.
- E. Permanent and Temporary Water Pollution Control (Soil Erosion):
- 1. Sufficient precautions shall be taken during construction to minimize the run-off of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other polluting materials harmful to humans, fish, or other life, into the supplies and surface waters of the State. Control measures must be adequate to assure that turbidity in the receiving water will not be increased more than allowed by the State or controlling agency. Such measures may consist of construction of berms, dikes, dams, drains and sediment basins, or use of fiber mats, woven plastic filter cloths, gravel, mulches, quick growing grasses, sod, bituminous spray and other erosion control devices or methods approved by the State or controlling agency.
  - 2. The Contractor shall promptly clear all waterways and drainage patterns of false work, piling, debris, or other obstructions placed during construction work and not a part of the finished work.
  - 3. The Contractor shall remove and dispose of silt accumulations as directed by the Engineer or the City's Representative.
  - 4. If new and additional erosion control structures are to be installed, under this project, to prevent possible future erosion as a result of work under this contract, they shall be constructed concurrently with the other work, as early as possible, and as conditions permit.

#### 1.19 TREE AND SHRUB PROTECTION AND TRIMMING

- A. Contractor shall exercise care to protect all trees and shrubs designated to remain. Trees and shrubs outside construction limits shall remain and shall be protected and where damaged, restored to original condition. Contractor shall obtain approval from the City prior to removing or trimming any trees. Trees damaged within construction limits due to negligence shall be restored or replaced to meet original condition.
- B. Tree limbs which interfere with construction operations and are approved for pruning shall be neatly cut with sharp pruning instruments; do not break or chop. All cut faces shall be coated with an approved tree pruning compound which is waterproof, antiseptic, elastic and free of kerosene, coal tar, creosote and other substances harmful to plants. Pruning operations shall be extended to restore

the natural shape of the entire tree or shrub. Do not allow fires under or adjacent to trees or other plants which are to remain.

- C. Contractor shall protect tree and shrub root systems. Do not store construction materials, debris or excavated materials beyond construction limits. Do not permit vehicles or construction equipment beyond the limits of utility line construction. Restrict foot traffic to prevent excessive compaction of soil over root system. Excavated material shall be stockpiled away from tree drip lines as approved by the Engineer. Protect tree and shrub root systems from damage due to noxious materials in solution caused by run-off or spillage during construction operations, or drainage from stored materials. Protect root systems from flooding, erosion or excessive wetting resulting from dewatering operations. Excavate within the drip line of trees only when approved by the Engineer. Where trees are designated to remain within the limits of construction and trenching for utilities is required within tree drip lines, cut roots with sharp pruning instruments; do not break or chop. Paint roots over 2" caliper with approved tree pruning compound.
- D. Trees damaged by construction operations shall be repaired promptly after damage occurs to prevent progressive deterioration of damaged trees. Removed trees, branches, roots and other excess materials shall be removed from the construction site to an approved landfill at the expense of the Contractor.

#### A.20 SITE CLEANUP

- A. The Contractor shall keep the working area free at all times of tools, materials and equipment not essential to the progress of the Work. Debris, waste materials, and rubbish shall be properly disposed of and not allowed to accumulate. If the Contractor should fail to do this, the City will make the necessary arrangements to effect the cleanup by others and will back charge the cost to the Contractor. If such action becomes necessary on the part of and in the opinion of the City, the City will not be responsible for the inadvertent removal of material which the Contractor would not have disposed of had he effected the required cleanup.
- B. Where material or debris has washed or flowed into or been placed in watercourses, ditches, gutters, drains, catch basins, or elsewhere as result of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the Work, and the ditches, channels, drains etc., kept in a clean and neat condition.
- C. On or before the completion of the Work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him; shall remove all rubbish from any grounds he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations, in a neat and satisfactory condition.

- D. The Contractor shall restore the entire project site to its original or better condition, with the exception of any area(s) designated for alteration by the Contract Documents. The Contractor shall restore or replace; when and as directed, any public or private property damaged by his work, equipment, or employees to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration.
- E. The Contractor shall thoroughly clean all materials and equipment installed by him and his subcontractors and on completion of the Work shall deliver it undamaged and in fresh and new appearing condition.

#### 1.21 LAWS AND REGULATIONS

- A. It shall be the responsibility of the Contractor to give all notices and comply with all the laws, rules, regulations, ordinances, etc., that may be applicable at the time the Work is started on the project. Should the Contractor discover the Drawings or Specifications are contradictory to, or in variance with the above, he shall notify the Engineer immediately, in writing, in order that any required changes or modifications can be made. It is not the Contractor's responsibility to make certain that the Drawings or Specifications are in non-compliance with any of the above; however, should he be aware of any existing discrepancy, or have reason to believe such may exist and performs work without proper notice to the Engineer, the Contractor shall be responsible for any cost involved in making the necessary alterations or corrections.

#### 1.22 CONTRACTOR'S USE OF PREMISES

- A. All project construction work will be accomplished on the City's property, public/private rights-of-way/easements or within temporary construction easements and the Contractor shall confine his activity to those designated areas. The Contractor shall not enter upon private property for any reason without securing prior permission from the property City. Such permission, including any stipulations, shall be in writing and a copy shall be delivered to the Engineer prior to the Contractor's entry or occupation of the subject property. This requirement will be rigidly enforced, particularly with regard to the utilization of vacant areas adjacent to the work site for the storage of materials or parking equipment.
- B. The Contractor shall perform his work in such manner that he will not damage adjacent public or private property. Any damage to existing physical structures or utility services shall be repaired or restored promptly at no expense to the City.
- C. The Contractor shall avoid damage to and preserve all existing vegetation (grass, shrubs, trees, etc.) on or near the work area which do not, within reason, interfere with construction. The Contractor will be responsible for and required to replace or restore all such vegetation damaged or destroyed at no cost to the City. The Contractor will also be responsible for any unauthorized cutting or

damage to trees, shrubs, etc., and also damage caused by careless operation of equipment, storage of materials and rutting or tracking of grass by equipment.

- D. The Contractor shall conduct access, hauling, filling, and storage operations as specified herein and as shown on the Contract Drawings.
  - 1. On-site borrow areas are designated as follows: Suitable material, as approved by Engineer, from excavations for project structures. Any additional borrow material required shall be provided by the Contractor from off-site.
  - 2. On-site spoil areas will become property of the Contractor and are to be disposed off-site.
- E. Construct all fill areas so runoff will not flood improved areas.
- F. All connections to existing piping systems shall be made as shown or indicated on the Drawings after consultation, cooperation, and coordination with the City. Some such connections may have to be made during off-peak hours (late night, early morning, or weekend hours). The Contractor shall give a minimum of 72 hours notice to the City when tie-ins with the existing plant utilities are required.
- G. For major utility pipeline tie-ins and relocations, the Contractor shall submit a detailed Plan of Action for review and approval by the City and the Engineer. No major utility relocation or tie-ins shall proceed until the Plan of Action for that Work is approved.

#### 1.23 HAZARDOUS LOCATIONS

- A. The Contractor shall be responsible for identification of hazardous locations, appropriate construction methods, and all other safety issues.

#### 1.24 ADDITIONAL PROVISIONS

- A. The Contractor shall provide at his own cost all necessary temporary facilities for access to, and for protection of, all existing structures. The Contractor is responsible for all damage to existing structures, equipment, and facilities caused by his construction operations, and must repair all such damage when and as ordered by the Engineer.

#### 1.25 DRAINFIELD AND FRENCH DRAIN RESTORATION

- A. Contractor shall restore all existing drainfields and french drains to equal or better condition if impacted during construction efforts. Laterals, services or other impacts to drainfields and french drains must follow FDOT standards and specifications for restoration.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01041

### PROJECT COORDINATION

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

Furnish personnel and equipment that will be efficient, appropriate and large enough to secure a quality of work that is acceptable to the Owner/Engineer and a rate of progress that will ensure the completion of the work within the Contract Time. If at any time such personnel appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work aforesaid, he may order the Contractor to increase the efficiency, change the personnel or increase the personnel and equipment, and the Contractor shall conform to such order at no additional cost to the Owner. Failure of the Engineer to give such order shall in no way relieve the Contractor or his obligations to secure the quality of the work and rate of progress

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

#### PART 3 - EXECUTION

##### 3.01 CONSTRUCTION COORDINATION

- A. The Contractor is required to coordinate construction activities to maintain the project schedule and complete the work within the Contract Time. Locations of work must be approved by the Owner prior to installation.
- B. All work must be coordinated by the Contractor throughout the duration of the project, including but not limited to, phasing of work efforts to ensure that project sequencing and work is properly performed without rework, delays, added costs, or circumstances that could have been avoided if adequate coordination and sequencing/phasing of the project was performed. Phased work may include multiple partial clearance submittals in order to construct the infrastructure within the proposed project limits. All phasing, coordination, permitting and clearances, etc. will be at no additional cost to the Owner. The Contractor shall plan their work and crews as needed to allow for phased construction and meet the project schedule and deadlines.
- C. The Contractor shall be responsible for coordinating all sub-contractors and trades and in incorporating the work of all subcontractors or trades where necessary and as required.



- D. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction; however, the Contractor shall be solely responsible for this work.

### 3.02 PROTECTION OF CONSTRUCTION AND EQUIPMENT

- A. All newly constructed work shall be carefully protected from damage in any way. All portions damaged shall be reconstructed by the Contractor at his expense.
- B. Protect all structures in a suitable manner to prevent damage. Should any part of a structure become heaved, cracked or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor at his own expense and to the satisfaction of the Engineer. If in the final inspection of the work, any defects, faults or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials, labor and equipment required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein and any damages caused by the performance of the Work, for at least the warranty period described in the Contract.
- C. The Contractor shall completely restore all pavement, sidewalk, curbing, landscaping, swales, culverts, or other areas disturbed by construction activities.

END OF SECTION

SECTION 01050  
FIELD ENGINEERING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The Contractor shall provide and pay for field engineering service for Project.
1. Survey work required in execution of Work.
  2. Civil, structural, or other professional engineering services specified or required to execute Contractor's construction methods.
  3. The method of field staking for the construction of the Work shall be at the option of the Contractor. The Owner has provided the engineering surveys necessary to establish reference points which in his judgement are necessary to enable the Contractor to proceed with his work.
  4. The accuracy of any method of staking shall be the responsibility of the Contractor. All engineering for vertical and horizontal control shall be the responsibility of the Contractor.
  5. The Contractor shall be held responsible for the preservation of all stakes and marks. If any stakes or marks are carelessly or willfully disturbed by the Contractor, the Contractor shall not proceed with any work until he has established such points, marks, lines, and elevations as may be necessary for the prosecution of the Work.
  6. The Contractor shall retain the services of a registered land surveyor licensed in the State of Florida to identify existing control points and maintain a survey during construction.
- B. Related Requirements Described Elsewhere:
1. Conditions of the Contract.
  2. Summary of Work: Section 01010.
  3. Project Record Documents and Survey: Section 01720.

1.02 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Qualified engineer or registered land surveyor, acceptable to the Owner and the Engineer.

- B. Registered professional engineer of the discipline required for the specific service on the Project, currently licensed in the State of Florida.

#### 1.03 SURVEY REFERENCE POINTS

- A. Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction.
  - 1. Make no changes or relocations without prior written notice to the Engineer.
  - 2. Report to the Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
  - 3. Require surveyor to replace Project control points which may be lost or destroyed at no additional cost to the Owner. Establish replacement based on original survey control.

#### 1.04 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of two (2) permanent bench marks on site, referenced to data established by survey control points.
  - 1. Record locations, with horizontal and vertical data, on Project Record Documents.
- B. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
  - 1. Site improvements:
    - a. Stakes for grading, fill, and topsoil replacement.
    - b. Utility slopes and invert elevations.
  - 2. Batter boards for structure.
  - 3. Building foundation, column locations, and floor levels.
  - 4. Controlling lines and levels required for mechanical and electrical trades.
- C. From time to time, verify layouts by same methods.

#### 1.05 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.

- B. At the end of the project, submit a certified site survey at a minimum 1 inch equals 20 feet scale on sheets 24 inches by 36 inches (or scale of original drawings), indicating the corners and location of all new structures and slabs and elevations of wastewater and water facilities, pavement areas, sidewalks, finished floors, vaults, and above grade piping.
- C. At the end of the project, submit a certified survey at the same scale as the Engineer's line drawings indicating elevations and stationing at 100-foot pipe increments and at all valve and fitting locations.
- D. See Section 01720 – Project Record Documents and Survey, for project specific requirements.

#### 1.06 SUBMITTALS

- A. Submit name and address of surveyor and professional engineer to the Engineer.
- B. On request of the Engineer, submit documentation to verify accuracy of field engineering work.
- C. Submit certificate signed by a registered engineer or surveyor certifying that elevations and locations of improvements are in conformance with the Contract Documents, or if not in conformance, certify as to variances from the Contract Documents.
- D. Submit drawings showing locations of all structures constructed. This drawing shall be included with the Project Record Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01070

### APPLICABLE STANDARDS

#### PART 1 - GENERAL

##### 1.01 THE REQUIREMENT

- A. Wherever references are made in these specifications to any published standards, codes, standard 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. References shall be to the latest versions currently in effect, unless otherwise specified by the City and/or Engineer. 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.
- B. The following is a partial list of typical abbreviations which may be used in the Specifications, and the organizations to which they refer. Abbreviated titles for other governing standards are used throughout these specifications and, although most of them are widely known, their complete titles are given below to avoid misunderstanding:
1. AAMA - Architectural Aluminum Manufacturer's Association
  2. AASHTO - American Association of the State Highway and
  3. ACI - American Concrete Institute
  4. ACI - American Concrete Institute
  5. ACIFS - American Cast Iron Flange Standards
  6. ACOE - Army Corps of Engineers
  7. ACPA - American Concrete Pipe Association
  8. AFBMA - Anti-Friction Bearing Manufacturer's Association
  9. AGMA - American Gear Manufacturer's Association
  10. AGA - American Gas Association
  11. AGMA - American Gear Manufacturers Association
  12. AHGDA - American Hot Dip Galvanizers Association
  13. AI - The Asphalt Institute
  14. AIA - American Institute of Architects
  15. AISC - American Institute of Steel Construction
  16. AISI - American Iron and Steel Institute
  17. AITC - American Institute of Timber Construction
  18. AMCA - Air Moving and Conditioning Association
  19. ANSI - American National Standards Institute, Inc.
  20. APA - American Plywood Association
  21. API - American Petroleum Institute
  22. APHA - American Public Health Association
  23. APWA - American Public Works Association

24. ASA - Acoustical Society of America
25. ASAE - American Society of Agriculture Engineers
26. ASCE - American Society of Civil Engineers
27. ASHRAE - American Society of Heating, Refrigerating, and Air-Conditioning Engineers
28. ASLE - American Society of Lubricating Engineers
29. ASME - American Society of Mechanical Engineers
30. ASMM - Architectural Sheet Metal Manual
31. ASSE - American Society of Sanitary Engineers
32. ASTM - American Society for Testing and Materials
33. AWI - Architectural Woodwork Institute
34. AWWA - American Wood Preservers Association
35. AWPI - American Wood Preservers Institute
36. AWS - American Welding Society
37. AWWA - American Water Works Association
38. BCEPGMD - Broward County Environmental Protection and Growth Management Department (formerly BCEPD)
39. BCHD - Broward County Health Department
40. BHMA - Builders Hardware Manufacturer's Association
41. CMA - Concrete Masonry Association
42. CRSI - Concrete Reinforcing Steel Institute
43. CSA - Canadian Standards Association
44. DHI - Door and Hardware Institute
45. DIPRA - Ductile Iron Pipe Research Association
46. EIA - Electronic Industries Association
47. ETL - Electrical Test Laboratories
48. FBC - Florida Building Code
49. FDEP - Florida Department of Environmental Protection
50. FDOT - Florida Department of Transportation
51. FS - Federal Specifications
52. ICEA - Insulated Cable Engineers Association
53. IEEE - Institute of Electrical and Electronics Engineers
54. IES - Illuminating Engineering Society
55. IPCEA - Insulated Power Cable Engineers Association
56. ISA - Instrument Systems and Automation
57. ISO - International Organization for Standardization
58. MBMA - Metal Building Manufacturers Association
59. MMA - Monorail Manufacturers Association
60. MTI - Marine Testing Institute
61. MUTCD – Manual on Uniform Traffic Control Devices
62. NAAMM - National Association of Architectural Metal Manufacturers
63. NACE - National Association of Corrosion Engineers
64. NBS - National Bureau of Standards
65. NCPI - National Clay Pipe Institute
66. NEC - National Electrical Code
67. NEMA - National Electrical Manufacturer's Association
68. NFPA - National Fire Protection Association
69. NLMA - National Lumber Manufacturers Association
70. NIOSH - National Institute of Occupational Safety and Health

71. NIST - National Institute of Standards and Testing
72. NRCA - National Roofing Contractors Association
73. NSF - National Science Foundation
74. OSHA - Occupational Safety and Health Administration
75. PCA - Portland Cement Association
76. SMACCNA - Sheet Metal and Air Conditioning Contractors National Association
77. SAE - Society of Automotive Engineers Standards
78. SHBI - Steel Heating Boiler Institute
79. SMACCNA - Sheet Metal and Air Conditioning Contractors National Association
80. SSPC - Steel Structures Painting Council
81. SSPWC - Standard Specifications for Public Works Construction
82. SFWMD - South Florida Water Management District
83. UL - Underwriters Laboratories, Inc.

C. Contractor shall, when required, furnish evidence satisfactory to the Engineer that materials and methods are in accordance with such standards where so specified.

D. In the event any questions arise as to the application of these standards or codes, copies shall be supplied on site by the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01200  
PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRECONSTRUCTION

A. A mandatory preconstruction meeting will be held to acquaint representatives of the City and various other agencies with those in responsible charge of the Contractor's activities for the project. Unless otherwise directed by the City, no construction activities relating to this contract shall commence until after the pre-construction meeting is adjourned, and until any pending business/action items from the meeting has been addressed by the Contractor to the satisfaction of the City and Engineer. The meeting will cover such subjects as the following:

1. Insurance certificates
2. Permits, licenses, notifications
3. Construction schedules/phasing plans
4. Cost breakdown and applications for payment
5. Material deliveries, storage and payments
6. Shop drawings and submittals
7. Job-site inspection by the Engineer and/or City's RPR
8. Safety and emergency action procedures
9. Operations of the existing utilities
10. Field offices, security and other housekeeping procedures
11. List of subcontractors
12. Liquidated damages
13. Communications
14. Coordinating
15. All other appropriate and project specific matters

1.02 PROGRESS

A. A progress meeting shall be held on a once-per-month basis for the purpose of coordinating and expediting the work. The Contractor, as a part of his obligations under the Contract, shall attend in person or by an authorized representative to attend and to act on his behalf. The Engineer will conduct such meetings and as necessary, with the Contractor's input, prepare the meeting agenda and meeting notes. The Contractor is required to provide a knowledgeable and professional Project Manager who will represent the Contractor in discussions with the City and Engineer and who will maintain a professional demeanor.



- B. In addition, the Engineer or Contractor may call for special job site meetings for the purpose of resolving unforeseen problems or conflicts which may impede the construction schedule. The Engineer will prepare a brief summary report of the decisions or understandings concerning each of the items discussed at the meeting.
- C. At monthly progress meetings, the Contractor shall submit to the Engineer for review a look back schedule for work completed within the last three (3) weeks, a current look ahead schedule for the work anticipated to be completed within the next three (3) weeks, and an overall project progress schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 THE REQUIREMENT

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

<u>Copies to Engineer/City</u>	<u>Type of Submittal (not inclusive)</u>
1 (digitally)	Construction schedule
4 originals	Schedule of payment items
2 DVDs	Audio visual preconstruction record
1 (digitally)	Shop drawings
4 originals	Certificates of compliance
2 originals	Warranties
1*	Product samples
2 (digitally in CAD) <u>AND</u>	
2 originals signed and sealed	As-builts/Record drawings
2 digitally in CAD	Final Record Drawings

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

1.02 SUBMITTAL PROCEDURES

- A. 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.

### 1.03 CONSTRUCTION PROGRESS SCHEDULE

- A. The Contractor is responsible for submitting a phased project schedule, including a phased layout or exhibit showing each phase of the work, the timing for each phase of the work, and the progressive for successive construction events that must be completed once the initial phase(s) of the work are completed. The schedule should include, but not be limited to, phased MOT plans, phased infrastructure plans, partial clearances for phasing of the work and tie-ins, sequencing, coordination with various jurisdictional agencies having control over the ROW limits, notifications, crews or added resources needed for the phasing, and all other items for a successful and timely construction project to meet the project schedule.
- B. 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 return of the executed Agreement to 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 qualified. 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 within thirty days of the Notice to Award. 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.
- C. The Contractor's progress schedule (baseline and monthly updates) shall be computer generated and resource loaded. Each 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
  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. Estimated Cost of The Activity
  10. Total Float and Free Float
- D. 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
  5. The Effective or Starting Date of The Schedule (the date indicated in the Notice-to-Proceed)
- E. The work day to calendar date correlation shall be based on an 8-hour day and 40-hour week with adequate allowance for holidays and all other special requirements of the Work. A total of six (6) days for adverse weather shall also be allowed for in the progress schedule.
- F. 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, nonworking activities and activities which add restraints to the construction progress schedule shall not be accepted.
- G. 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.

- H. Construction progress schedules and related items which contain activities showing negative float or which extend beyond the contract completion date will not be accepted by the Engineer.
- I. 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 manpower 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 concurrency of accomplishment of activities, and comply with the revised schedule.
- J. If 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 manpower (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.
- K. 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 for approval a schedule adjustment showing each such activity divided into two activities reflecting completed versus uncompleted work.
- L. 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.

- M. 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.
- N. 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.
- O. Available float time may be used by the City through the City's Engineer.
- P. 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.
- Q. 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.
- R. 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.

- S. The Contractor shall present and discuss the proposed schedule at the preconstruction conference.
- T. 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.
- U. 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. Ten (one 22-inch by 34-inch and nine 11-inch by 17-inch), schedules, required schedule "sorts" (tabulations) and an electronic copy of the baseline schedule shall be submitted for review and acceptance. Five (one 22-inch by 34-inch and four 11-inch x 17-inch) up-to-date copies of the schedule and five copies of tabulations and an electronic copy shall be submitted along with the application for monthly progress payments for the same period.
- V. The construction progress schedule shall be developed and maintained using Primavera Sure Trak as manufactured by Primavera Systems, Inc., or equal.

#### 1.04 SCHEDULE OF PAYMENT VALUES

- A. The Contractor shall submit a Schedule of Payment Values, in accordance with Section 01025, for all items in the proposal that are to be paid for to complete the project. The schedule shall contain the labor and material values of the component parts of Work for the purpose of making progress payments during the construction period. The Schedule of Payment Values 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.
- B. The schedule shall be given in sufficient detail for the proper identification of Work accomplished. Each item shall include its proportional share of all costs including

the Contractor's overhead, contingencies and profit. The sum of all scheduled items shall equal the total value of the Contract.

- C. If the Contractor anticipates the need for payment for materials stored on the project site, it 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.
- D. The Contractor shall expand or modify the above schedule and materials listing as required by the Engineer's initial or subsequent reviews.
- E. The Contractor shall update the Schedule of Payment Values monthly for reviewing by the Engineer. The payment applications shall be reviewed by the Engineer in accordance with the updated Schedule of Payment Values.

#### 1.05 SHOP DRAWINGS, PROJECT DATA AND SAMPLES

- A. General: A Shop Drawing Submittal Schedule shall be provided by the Contractor within thirty (30) days of the Notice to Proceed.
- B. The Contractor shall furnish for review 1 digital copy of shop drawings, project data, samples and other submittal items required by the Contract Documents. 1 digital copy of shop drawings shall be returned to the Contractor stamped "Furnish as Submitted" or "Furnish as Corrected". Where major corrections are indicated, 1 digital copy of shop drawings will be returned stamped "Revise and Resubmit" and a new submittal is required (4 copies).
- C. The review of the Contractor's submissions shall in no way relieve the Contractor of any of his responsibilities under the Contract. An acceptance of a submission shall be interpreted to mean that there are no specific objections to the submitted material, subject to conformance with the Contract Drawings and Specifications.
- D. 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):
  - E. 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 two additional codes. The first will define the type of submittal as follows:

- 01 - Product Data, Specifications, Cut Sheets, Manufacturers certification or approval letters
- 02 - Shop Drawings
- 03 - Product Samples and Mock-Ups
- 04 - Special requirements as required in the contract documents
- 05 - As-Built Drawings
- 06 - Warranties
- 07 - O&M
- 08 - Spare Parts

The second code will identify individual submittals within that submittal type. The number to the left of the decimal represents the submittal number and the number to the right of the decimal represents the revision number.

Example:

<u>Package</u>	<u>Submittal</u>	<u>Description</u>
03300	03300-01-1.1	Concrete Admixture A, First Submittal
06400	06400-01-1.2	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">←</div>           Re-submittal         </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="margin-right: 10px;">↑</div>           First Submittal         </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="margin-right: 10px;">↑</div>           Product Data         </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="margin-right: 10px;">↑</div>           Finish Carpentry         </div>

By the following this code system, all submittals may be entered into the Document Tracking System prior to receipt of submittals. When a particular submittal is received, locate the entry in the Document Tracking project file, add the appropriate information and process. The Document Tracking System will provide the next sequence number.

F. Shop Drawings and Project Data within practical limits shall be submitted as a single complete package for any operating system and shall include all items of equipment and mechanical units involved in the functioning of such system. Where applicable, the submission shall include elementary wiring diagrams showing circuit functioning and necessary interconnection wiring diagrams for construction.

- G. All submissions shall bear the Contractor's stamp certifying that they have been checked for conformance and accuracy. Submissions without the Contractor's stamp of approval will not be reviewed by the Engineer and will be returned to the Contractor.
- H. For any submission containing any departure from the Contract Documents and the Contractor shall include proper explanation in his letter of submittal.
- I. Work on fabricated or special items shall not be commenced until the required submission information has been reviewed and accepted.
- J. Standard items shall not be assembled or shipped until the required submission information has been reviewed and accepted.
- K. Prior review actions shall not relieve the Contractor of the responsibility for correcting errors, deviations, and/or omissions discovered at a later date.
- L. Shop Drawings: Shop Drawings include, but are not limited to, layout drawings, installation drawings, construction drawings, certified and interconnecting wiring diagrams, etc. The Contractor shall be responsible for security of all the information, details, dimension, drawings, etc. necessary to prepare submission drawings required and necessary under this Contract and to fulfill all other requirements of his Contract. The Contractor shall secure such information, details, drawings, etc. from all possible sources including the Contract Drawings, drawings prepared by subcontractors, Engineer, manufacturers, Contractors, etc.
- M. Submission drawings shall accurately and clearly present the following:
  - 1. All working and installation dimensions.
  - 2. Arrangement and sectional views.
  - 3. Units of equipment in the proposed position for installation, details of required attachments and connections and dimensioned locations between units and in relation to the structures.
  - 4. Necessary details and information for making connections between the various trades including but not limited to, power supplies and interconnection wiring between units, accessories, appurtenances, etc.
- N. Product Data: 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.

- O. Product data shall include materials of construction, dimensions, performance characteristics, capacities, wiring diagrams, piping and controls, etc.
- P. Samples: Contractor shall furnish for review all samples as required by the Contract Documents or requested by the Engineer.
- Q. 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 the nature of the work where the material represented by the sample will be used.
- R. 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.
- S. Engineer's review will be for compliance with the Contract Documents, and his comments will be transmitted to the Contractor with reasonable promptness.
- T. Accepted samples will establish the standards by which the completed work will be judged.

#### 1.06 OPERATION AND MAINTENANCE INSTRUCTIONS (MANUALS)

- A. Individual Instructions: The Contractor, through manufacturer's representatives or other qualified individuals, shall provide instruction of designated employees of the City in the operation and care of all equipment furnished.
- B. Written Instructions: The Contractor shall furnish and deliver to the Engineer, prior to the fifty percent completion point of construction, and no later than thirty (30) days prior to operator training, three (3) complete sets of instructions, technical bulletins, and any other printed matter such as diagrams, prints or drawings, containing full information required for the proper operation, maintenance, and repair of the equipment. As a minimum, the following shall be included in this submittal:
  - 1. Operating Instructions
  - 2. Troubleshooting Information
  - 3. Maintenance Schedule(s)
  - 4. Lubrication Schedule
  - 5. Location of Service Centers

6. Parts Diagram and List
  7. Spare Parts List (spare parts furnished shall be defined)
  8. Special Tools List
  9. Installation Instructions
  10. Assembly & Erection Drawings
  11. Dimensional Drawings
  12. Wiring Diagram(s)
  13. Storage Instructions
- C. These requirements are a prerequisite to the operation and acceptance of equipment. Each set of instructions shall be bound together in appropriate three-ring binders. A detailed Table of Contents shall be provided for each set. Written operation and maintenance instructions shall be required for all equipment items supplied for this project. The amount of detail shall be commensurate with the complexity of the equipment item. Submittal shall be made for all mechanical and electrical equipment included but not limited to pumps, valves, gates, etc.
- D. Information not applicable to the specific piece of equipment installed on this project shall be struck from the submission. Information provided shall include a source of replacement parts and names of service representatives, including address and telephone number.
- E. Extensive pictorial cuts of equipment are required for operator reference in servicing.
- F. When written instructions include shop drawings and other information previously reviewed by the Engineer, only those editions thereof which were accepted by the Engineer, and which accurately depict the equipment installed, shall be incorporated in the instructions.

#### 1.07 RECORD DRAWINGS

- A. Refer to Section 01720 for specific Record Drawing requirements.
- B. The Contractor shall keep and maintain, at the job site, one record set of Drawings. On these, it shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original Contract Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the Drawings. As-Built furnished grade information shall be included on the record

drawings. Said record drawings shall be supplemented by detailed sketches as necessary or directed to indicate, fully, the Work as actually constructed. These master record drawings of the Contractor's representation of as-built conditions, including all revisions made necessary by addenda and change orders shall be maintained up-to-date during the progress of Work.

- C. The record drawings shall be received on the 20th working day of every third month after the month in which the final notice to proceed is given as well as on completion of Work. Failure to maintain the record drawings up-to-date shall be grounds of withholding monthly progress payments until such time as the record drawings are brought up-to-date.
- D. In the case of those drawings which depict the detail requirement for equipment to the assembled and wired in the factory, such as motor control centers and the like, the record drawing shall be updated by indicating those portions which are superseded by change order drawings or final shop drawings, and by including appropriate reference information describing the change orders by number and the shop drawings by manufacturer, drawing, and revision numbers.
- E. Record drawings shall be accessible to the Engineer at all times during the construction period.
- F. Upon substantial completion of the Work and prior to final acceptance, the Contractor shall finalize and deliver a complete set of final record drawings to the Engineer for transmittal to the City, conforming to the construction records of the Contractor. This set of drawings shall consist of corrected drawings showing the reported location of the Work. The information submitted by the Contractor and incorporated in the Final Record Drawings will be assumed to be correct, and the Engineer will not be responsible for the accuracy of such information, and for any errors or omissions which may appear on the Final Record Drawings as a result.
- G. The information submitted by the Contractor in the Final Record Drawings shall be certified by a land surveyor registered in the State of Florida. For clarity, Final Record Drawings needs to be redrawn and clearly labeled as "Record Drawings". Notations indicated in the drawings shall be legible and printed in black ink. No handwritten notes are allowed.
- H. Final payment will not be acted upon until the Engineer certifies the record drawings as required by the agencies having jurisdiction. Said up-to-date record drawings shall be in the form of a set of prints with carefully plotted information.

- I. All final record drawings shall be certified by the Engineer of Record. Such certification shall evidence that Engineer has reviewed the information, finds it in substantial accordance with the design; and where deviations from the design exist, that said deviations are not to the detriment of the system. Engineer's certification shall read as follows:

"I HEREBY NOTIFY THE CITY OF THE COMPLETION OF CONSTRUCTION OF ALL THE COMPONENTS OF THE WATER, SEWER AND STORMWATER FACILITIES FOR THE ABOVE REFERENCED PROJECT AND CERTIFY THAT THEY HAVE BEEN CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE PLANS AND SPECIFICATIONS PERMITTED BY THE AGENCIES HAVING JURISDICTION."

- J. The Contractor shall submit all electronic media files of the paving, grading, water, sewer and drainage plans, reports, other supporting information, and the final version of as-builts drawings shall be submitted to the Engineer's office. The information provided shall contain an index file with a brief description of the electronic filing contents, and shall be labeled with project name, company name, and point of contact. Documents and spreadsheets shall be submitted in either MS Word, Word Perfect, Excel, Lotus, or other format approved by the Engineer. Drawings shall be submitted in AutoCad, Microstation, or other format approved by the Engineer.
- K. Final Record Drawings shall conform to Section 01720 and shall be submitted to the City, including, but not limited to the following information:
1. Drawings shall be legibly marked to record actual construction.
  2. Drawings shall show actual location of all underground and above ground water and wastewater, stormwater piping and related appurtenances. All changes to piping location including horizontal and vertical locations of utilities and appurtenances shall be clearly shown and referenced to permanent surface improvements. Drawings shall also show actual installed pipe material, class, etc. Profile sheets shall be updated to include all field measurements and elevations taken during construction.
  3. Drawings shall clearly show all field changes of dimension and detail including changes made by field order or by change order.
  4. Drawings shall clearly show all details not on original contract drawings but constructed in the field. All equipment and piping relocation shall be clearly shown.

5. Location of all manholes, hydrants, tees, reducers, crosses, valves, and valve boxes shall be shown. All tees, reducers, crosses, and valves shall be referenced from at least two (2) and preferably three (3) permanent points such as building corners and roadway intersections.
6. Dimensions between all manholes shall be field verified and shown. The rim, inverts and grade elevations of all manholes shall be shown.

## 1.08 WARRANTIES

- A. Original warranties, called for in the Contract Documents, shall be 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.
- C. The Contractor shall warrant to the City that all material and labor used in the construction are covered by his warrantee for a minimum of a one year period upon approval and acceptance by the City. The Contractor shall replace or repair defects at no cost to the City during the warrantee period. No visible or potential leakage shall be allowed during the warrantee period.

## 1.09 CERTIFICATES

- A. Copies of certificates of compliance and test reports shall be submitted for requested items to the Engineer prior to request for payment.

## 1.10 AUDIO-VISUAL PRECONSTRUCTION RECORD

- A. General: Prior to commencing work, the Contractor shall have a continuous color audio-video DVD recording taken of the entire Project, including existing 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 tapes covering the respective, affected construction area by the Engineer. The Engineer shall have the authority to reject all or any portion of the video DVD 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. Audio-video recordings shall not be performed more than ninety days prior to construction in any area. All DVDs and written records shall become property of the City.
- B. Services: The Contractor shall engage the services of a professional electrographer. The color audio-video tapes shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of preconstruction color audio-video tape documentation. The electrographer shall furnish to the Engineer a list of all equipment to be used for the audio-video taping, 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 taping for on projects of a similar nature within the last twelve months.

- C. Audio-Video DVDs: Audio-video DVDs shall be new. The DVDs shall be compatible for with a standard player-receiver.
- D. Equipment: 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 tape 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.
  - 3. The color video camera used in the recording system shall have a horizontal resolution of 300 lines at center, a luminance signal to noise ratio of 45 dB and a minimum illumination requirement of twenty-five foot-candles.
- E. Recorded Information - Audio: Each tape 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 his fixed elevation video record of the zone of influence of construction.
- F. Recorded Information - Video: All video recordings must, by electronic means, display continuously and simultaneously, generated with the actual taping, transparent digital 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, bid package number, process structure or area, and the viewing side. This transparent information shall appear on the extreme upper left hand third of the screen.

- G. Conditions for Taping: All taping shall be done during times of good visibility. No taping 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. Tape Coverage: Tape 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 road, 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 his subcontractors or suppliers within the area covered.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01400

### TESTING AND INSPECTION

#### PART 1 - GENERAL

- A. All testing and inspection will be in accordance with the General Conditions or the applicable sections included within each Division.
- B. The work or actions of the testing laboratory shall in no way relieve the Contractor of his obligations under the Contract. The laboratory testing work will include such inspections and testing required by the Contract Document, existing laws, codes, ordinances, etc. The testing laboratory will have no authority to change the requirements of the Contract Documents, nor perform or approve any of the Contractor's work.
- C. The Contractor shall allow the Engineer ample time and opportunity for testing materials and equipment to be used in the work. He shall advise the Engineer promptly upon placing orders for materials and equipment so that arrangements may be made, if desired, for inspection before shipment from the place of manufacture. The Contractor shall at all times furnish the Engineer and his representatives, facilities including labor, and allow proper time for inspecting and testing materials, equipment, and workmanship. The Contractor must anticipate that possible delays may be caused him in the execution of his work due to the necessity of materials and equipment being inspected and accepted for use. The Contractor shall furnish, at his own expense, all samples of materials required by the Engineer for testing, and shall make his own arrangement for providing water, electric power, or fuel for the various inspections and tests of structures and equipment. As a minimum, 24-hours advance written notice shall be provided by the Contractor for rebar, structural and similar inspections by the Engineer. The amount of time required for advance written notice by the Contractor to the Engineer for other inspections depends upon other factors and shall be solely at the Engineer's discretion.
- D. 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 to the City the 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.
- E. The City will bear the cost of all additional tests, inspections, or investigations undertaken by the order of the Engineer for the purpose of determining conformance with the Contract Documents if such test, inspection, or investigations 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 test, inspections, or investigations, the Contractor shall bear the full cost thereof or shall reimburse the City for said cost. 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.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01410

### CONTRACTOR'S HEALTH AND SAFETY PLAN

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section describes Contractor's responsibilities for a written site-specific health and safety plan (SSHP). Contractor shall conduct all construction activities in a safe manner so as not to result in:
  - a. Injuries to employees, Subcontractors or other persons with an interest at or near the Site,
  - b. Employee exposures to health hazards above the occupational limits established by the Occupational Health and Safety Administration (OSHA), the American Conference of Governmental Industrial Hygienists (ACGIH), or the Nuclear Regulatory Commission (NRC),
  - c. Exposure of area residents to air contaminants above the levels established for general public exposure by the Environmental Protection Agency (EPA), NRC, or the State in which the Project is located,
  - d. Significant increases in the levels of contaminants in soil, water, or sediment near the Site, or
  - e. Violations of OSHA, or other Laws or Regulations.

- B. Any disregard of the provisions of the SSHP may, without limitation, be deemed just and sufficient reason for termination of Contractor's services for cause.

##### 1.02 QUALITY ASSURANCE

###### A. Qualifications:

1. Engage an industrial hygienist certified by the American Board of Industrial Hygiene or a safety professional certified by the Board of Certified Safety Professionals to prepare or supervise the preparation of the SSHP.
2. Submit qualifications along with SSHP.

- B. Regulatory Requirements: Contractor's health and safety practices shall follow the standards and guidelines established in the following:

1. 29 CFR 1904, OSHA, Record Keeping.
2. 29 CFR 1910, OSHA, General Industry Standards.

3. 29 CFR 1926, OSHA, Construction Industry Standards.
4. 29 CFR 1926.65, OSHA, Hazardous Waste Operations and Emergency Response.
5. 49 CFR 171.8, DOT, Hazardous Materials in Transport.
6. 40 CFR Parts 261.3, 264 and 265, EPA, Resource Conservation and Recovery Act.
7. 29 CFR 1910.146, OSHA, Permit-Required Confined Spaces.
8. 29 CFR 1926.1101, OSHA, Asbestos

### 1.03 SUBMITTALS (Per Section 01300)

- A. Submit to Engineer the following:
  1. Contractor's SSHP.
  2. Qualifications of industrial hygienist or safety professional.
  3. Health and safety reports.
  4. Accident reports.

## PART 2 - PRODUCTS

### 2.01 GENERAL PROVISIONS

- A. Submit SSHP to Engineer one week prior to the Preconstruction Conference, or 30 days prior to planned mobilization at the Site, whichever is sooner.
- B. The SSHP shall bear a stamp or specific written indication that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of the SSHP.
- C. Engineer will review and either accept or return for revision Contractor's SSHP in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and acceptance will be only to determine if the topics covered by the SSHP conform to the Contract Documents.
- D. Engineer's review and acceptance will not extend to means, methods, techniques, procedures of construction, or to whether the representations made in the SSHP comply with regulatory standards or standards of good practice.
- E. At the time of submittal, Contractor shall give Engineer specific written notice of variations, if any, that the SSHP may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the submittal; and, in addition, by a specific notation made on each submittal to Engineer for review and acceptance of each such variation.
- F. No Work shall be performed on the Site until the written SSHP has been accepted by the Engineer.

- G. Notwithstanding any other provision of the Contract Documents, extensions to the Contract Times will not be granted if caused by undue delay by Contractor in developing or revising the SSHP.

## 2.02 WRITTEN HEALTH AND SAFETY PROGRAM

- A. The SSHP, which shall be kept on the Site, shall address the safety and health hazards of each phase of operations on the Site and include the requirements and procedures for employee protection. The SSHP as a minimum, shall address and include the following:
1. The organizational structure of Contractor's organization.
  2. A comprehensive work plan.
  3. A safety and health risk or hazard analysis for each task and operation found in the work plan.
  4. Employee training assignments including copies of 40-hour, 24-hour Supervised Field Activities, 8-hour Supervisors, and 8-hour Refresher Training Certificates for all Contractors' employees assigned to the Project.
  5. Personal protective equipment to be used by employees for each of the tasks and operations being conducted. Respirator fit test certificates for all Contractor employees assigned to the Project.
  6. Medical Surveillance Requirements: Medical clearance certificates for all Contractors' employees assigned to the Project.
  7. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
  8. Site control measures for purposes, including but not limited to:
    - a. Preventing trespassing,
    - b. Preventing unqualified or unprotected workers from entering restricted areas,
    - c. Preventing tracking of contaminants out of the Site,
    - d. Maintaining log of employees on and visitors to the Site,
    - e. Delineating hot, cold and support zones,
    - f. Locating personnel and equipment decontamination zones, and
    - g. Communicating routes of escape and gathering points.

9. Decontamination procedures.
  10. An emergency response plan for safe and effective responses to emergencies, including the necessary PPE and other equipment.
  11. Confined space entry procedures (if applicable).
  12. A spill containment program.
- B. Organizational Structure:
1. The organizational structure part of the SSHP shall refer to or incorporate information on the specific chain of command and specify the overall responsibilities of supervisors and employees, and shall include, at a minimum, the following elements:
    - a. Designation of a general supervisor who has the responsibility and authority to direct all hazardous waste operations.
    - b. A Site safety and health supervisor who has the responsibility and authority to implement and modify the SSHP and verify compliance.
    - c. All other personnel needed for hazardous waste Site operations and emergency response and their general functions and responsibilities.
    - d. The lines of authority, responsibility, and communication.
  2. The organizational structure shall be reviewed and updated as necessary to reflect the current status of Site operations.
- C. Work Plan:
1. The comprehensive work plan part of the SSHP shall refer to or incorporate information on the following:
    - a. The tasks and objectives of the Site operations and the logistics and resources required to achieve those tasks and objectives.
    - b. The anticipated activities as well as the Contractor's normal operating procedures.
    - c. The personnel and equipment requirements for implementing the work plan.
- D. The SSHP shall include procedures that will be used to ensure safe waste handling during the excavating, handling, loading, and transporting activities.



- A. Document all accidents resulting in bodily injury using OSHA 301 form.
- B. Submit copies of completed OSHA 301 forms to the Engineer weekly.
- C. Based upon the results of an accident investigation, make modifications to the SSHP by changing tasks or procedures to prevent a reoccurrence.
- D. Post a copy of Contractor's OSHA 300A report in a conspicuous place onsite.

#### 2.04 DAILY HEALTH AND SAFETY FIELD REPORTS

- A. Submit to Engineer daily health and safety field reports including, but not limited to, weather conditions, delays encountered in construction, and acknowledgment of deficiencies noted along with corrective actions taken on current and previous deficiencies. In addition, the daily health and safety air monitoring results, documentation of instrument calibration, new hazards encountered, and PPE utilized shall be included.
- B. The daily health and safety field reports shall include a description of problems, real or anticipated, encountered during the course of Work that should be brought to the attention of the Engineer and notification of deviations from planned Work shown in the previously submitted daily health and safety field report(s).

#### PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01500

### CONSTRUCTION CONSIDERATIONS

#### PART 1 - GENERAL

##### 1.01 HYDRAULIC UPLIFT ON STRUCTURES

- A. The Contractor shall be completely responsible for any structures, stormwater conflicting structure, tanks, wet wells, pipelines, manholes, foundations, cellars, or similar structures that may become buoyant during the construction operations due to the ground water, floods or buoyancy of piping caused due to the placement of flowable backfills before the structure is put into operation. Should there be any possibility of buoyancy of a pipeline or structure, the Contractor shall take the necessary steps to prevent its buoyancy. Damage to any structures due to floating or flooding shall be repaired or the structures replaced at the Contractor's expense.

##### 1.02 WATER TIGHTNESS OF STRUCTURES

- A. General: It is the intent of these specifications that all concrete work, sealing work around built-in items and penetrations be performed as required to ensure that groundwater, rainwater, wastewater, chemical solutions or other process liquids in tanks, wetwells, channels, and containers will not leak into any buildings and/or equipment rooms, pipe galleries, habitable areas, or other generally dry areas.
1. The required watertightness shall be achieved by quality concrete construction and proper sealing of all joints and penetrations.
  2. Each unit shall be tested separately, and the leakage tests shall be made prior to backfilling and before equipment is installed unless otherwise approved by the Engineer. Only potable water shall be used for the tests.
  3. The watertightness of buildings exclusive of the portions designed to contain liquids will consist of checking for leaks due to rain or groundwater infiltration.
  4. The Contractor shall provide at his own expense all labor, material, temporary bulkheads, pumps, water, measuring devices, etc., necessary to perform the required test.
- B. Built-in Items and Penetrations: All pipe sleeves, built-in items and penetrations shall be sealed as detailed and as required to ensure a continuous watertight seal.

##### 1.03 CUTTING AND PATCHING

- A. The Contractor shall perform all cutting and patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by such other work. The Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work and shall only cut or alter

work with the written consent of the Engineer and of the other contractors whose work will be affected.

#### 1.04 ABANDONMENT AND SALVAGE OF EXISTING FACILITIES

- A. General: The scope of work requires the Contractor to interface with existing structures, and piping which will be abandoned or otherwise removed and/or relocated as part of the work. Prior to beginning any work associated with existing facilities to be abandoned, salvaged, or otherwise removed or relocated, the Contractor shall inform the City and the Engineer of his intent so that all arrangements can be made with the City for isolating pipelines (where possible) or otherwise removing existing facilities from service to the extent possible. The Contractor shall not proceed without written authorization from the City. **The Contractor shall contact and coordinate accordingly with utilities companies prior to and during the execution of the relocation, removal or abandonment of existing utilities structures. Existing utilities coordination is exclusively the responsibility of the Contractor.**
- B. Pipelines: The Contractor shall abandon, salvage or otherwise remove existing pipelines or segments of existing pipelines shown to be abandoned in place, salvaged, or removed as part of the contract work. Unless otherwise indicated in the Contract Documents, all piping shown on the Drawings to be abandoned shall be abandoned in place. Pipe shown to be abandoned need only be removed a minimum three feet clear of new utilities to be installed. Abandon-in-place shall be defined as installing plugs, or other permanent closure, as reviewed and accepted by the City, on all termination's, open ends or ends of pipe designated as being cut, capped and anchored in an acceptable manner. The pipe will remain buried unless otherwise noted. All piping 6-inches in diameter and larger shall be grout filled when abandoned in place. See Sections 02080 and 03600 for additional requirements.
- C. Piping indicated on the Drawings as being removed, or any piping to be abandoned which interferes with new structures or piping, shall be excavated and removed using methods which will not disturb adjacent piping or other facilities. All pipe materials shall be subject to salvage by the City as defined below. Any remaining piping on both ends of pipe segments removed shall be abandoned in-place, per the above definition. After piping has been removed, the Contractor shall backfill the evacuated area in accordance with requirements set forth in other sections of these specifications.
- D. Equipment: The Contractor shall abandon, salvage or otherwise remove existing equipment or other facilities as shown on the Contract Drawings or indicated herein. In all cases, the Contractor shall exercise caution when handling the existing equipment so as not to disturb or damage adjacent facilities. The Contractor shall make all repairs to adjacent facilities which may be damaged as a result of the Contractor's efforts in abandoning, salvaging or otherwise removing existing facilities, at no additional cost to the City.
- E. Salvage: The City may desire to salvage certain items of existing equipment which are to be dismantled and removed during the course of construction. Prior to removal of any existing equipment or piping from the site of work, the Contractor

shall ascertain from the City whether or not the particular item or items are to be salvaged. Items to be salvaged shall be either stockpiled on the site, in a location as designated by the City, or delivered by the Contractor to the City's designated facility. All other items of equipment shall be disposed of off-site by the Contractor at his own expense, in accordance with applicable laws, ordinances and regulations.

#### 1.05 DIMENSIONS OF EXISTING STRUCTURES

- A. Where the dimensions and locations of existing structures are of critical importance in the installation or connection of new work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any materials or equipment which is dependent on the correctness of such information.

#### 1.06 REHABILITATION

- A. Certain areas of existing structures, piping, conduits, and the like will be affected by work necessary to complete modifications under this Contract. The Contractor shall be responsible to rehabilitate those areas affected by its construction activities.
- B. Where new rectangular openings are to be installed in concrete or concrete masonry walls or floors, the Contractor shall score the edges of each opening (both sides of wall or elevated slab) by saw cutting clean straight lines to a minimum depth of one inch and then chipping out the concrete. Alternately, the opening can be formed by saw cutting completely through the slab or wall. Saw cuts deeper than one inch (or the depth of cover over existing reinforcing steel, whichever is less) shall not be allowed to extend beyond the limits of the opening. Corners shall be made square and true by a combination of core drilling, chipping, or grinding. All necessary precautions shall be taken during removal of concrete to prevent debris from falling and damaging adjacent equipment or piping. Saw cuts allowed to extend beyond the opening shall be repaired by filling with non-shrink grout. The concrete around any exposed reinforcement steel shall be chipped back and exposed reinforcement steel cut a minimum of 1-1/2 inches from the finished face of the new opening. The inside face of the new opening shall be grout to fill any voids and cover the exposed aggregate and shall be trowel-finished to provide a plumb and square opening.
- C. Where new conduit or piping is to be installed through existing concrete walls, the Contractor shall accurately position the core-drill openings. Openings shall be adequately sized to allow alignment of piping or conduit and fittings without deflection and to provide adequate clearance for satisfactory packing in the annular space between the piping or conduit and the core drilling opening as shown on the Drawings.
- D. Where new piping is to be connected to existing piping, the existing piping shall be cut square and the ends properly prepared for the connection shown on the drawings. Any damage to the lining and coating of the existing piping shall be repaired by the Contractor.

- E. Where existing equipment, equipment pads and bases, piping, piping supports, electrical panels and devices, conduits, and associated appurtenances are removed, the Contractor shall rehabilitate the affected area such that little or no evidence of the previous installation remains. Opening in concrete floors, walls, and ceiling from piping, conduit, and fastener penetrations shall be filled with non-shrink grout and finished to match the adjacent area. Concrete pads and bases for equipment and supports shall be removed by chipping away concrete and cutting any exposed reinforced steel and anchor bolts a minimum of 1-1/2 inches below finished grade. The area of concrete to be rehabilitated shall be scored by saw cutting clean, straight lines to a minimum depth of 1-1/2 inches, and all concrete within the scored lines removed to a minimum depth of 1-1/2 inches. The area within the scored lines shall be patched with non-shrink grout to match the adjacent grade and finish. Abandoned connections to piping and conduits shall be terminated with blind flanges, caps, and plugs suited for the material, type, and service of the pipe or conduit.
- F. Where existing structural steel members are removed or modified, the surface of the remaining existing steel members damaged by construction activities shall be repaired. The affected areas shall be surface prepared and coated in accordance with Section entitled "Painting."
- G. Disposal of Debris: All debris, materials, piping, and miscellaneous waste products from the work described in this section shall be removed from the project as soon as possible. They shall be disposed of in accordance with applicable federal, state, and local regulations. The Contractor is responsible for determining these regulations and shall bear all costs or retain any profit associated with disposal of these items.

#### 1.07 INSTALLATION OF EQUIPMENT

- A. Contractor shall have on hand sufficient personnel, proper equipment, and machinery of ample capacity to facilitate the work.
- B. Contractor shall be responsible for locating, aligning and leveling all equipment and shall employ a licensed surveyor to set all lines and levels of equipment to the accuracy required.
- C. Complete manufacturers installation instructions, including permissible tolerances, shall be furnished in duplicate with each unit of equipment or set of identical units.
- D. All equipment shall be installed in accordance with the shop drawings; inclusive of manufacturers' specifications, drawings and tolerances; under the direct supervision of the required manufacturers Engineer. No instructions shall be issued that are contrary to written specifications without prior written approval by the City's Engineer.
- E. Equipment shall be erected in a neat and workmanlike manner on the foundations' at the locations and elevations shown on the drawings unless otherwise indicated by the Engineer during installation.

#### 1.08 SUPERVISION BY MANUFACTURER'S REPRESENTATIVES

- A. The Contractor shall provide the services of qualified equipment manufacturers technical representatives who shall adequately supervise the installation and testing of all equipment furnished under this Contract and instruct the Contractor's personnel and City's operating personnel in its maintenance and operation.
- B. ~~All PCCP piping work shall require the Contractor to coordinate with Hanson Pipe and its representatives as necessary to perform the specified work. The Contractor shall pay for all costs associated with manufacturer's technical and field representatives, including but not limited to, meetings, coordination, field visits, technical submittals and submittal documentation, certifications, etc. as deemed necessary by the Owner or Engineer for the PCCP work effort. Appendix D has PCCP information for the Contractor to review.~~

#### 1.09 EQUIPMENT MANUFACTURER'S CERTIFICATION

- A. As a condition precedent to acceptance of equipment installed and operating, the Contractor will provide the City with written certification, obtained from each company manufacturing equipment for the project that the equipment is installed and does operate in accordance with the specifications and manufacturers recommendations.

#### 1.10 SLEEVES AND OPENINGS

- A. The Contractor shall provide all openings, chases, etc., to fit his own work and that of any other subcontractors and contractors. All such openings or chases shown on the Contract 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.
- 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, opening, forms or frames shall be furnished by the installer of the pipes, conduits or equipment, but shall be placed by the Contractor.
- C. 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.
- D. When requested by the Contractor, the installer of the pipes, conduit, or equipment, including those contractors or subcontractors who require openings or chases in slabs and walls for passage of ducts, mounting or 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 or contractor 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.

- E. Any cost 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 subcontractor or contractor responsible therefor. No contractor or subcontractor shall arbitrarily cut, drill, alter, damage, or otherwise endanger the work of another Contractor. In no case shall beams lintels, or other structural members be cut without the approval of the Engineer. The nature and extent of any corrective or additional work shall be subject to the approval of the Engineer following consultation with the affected parties.

#### 1.11 OBSTRUCTIONS

- A. All water pipes, storm drains, sanitary sewers, force mains, gas or other pipe, telephone or power cables or conduits and all other obstructions, whether or not shown, shall be temporarily supported across utility line excavations. The Contractor shall be responsible for any damage to any such pipes, conduits, or structures. Approximate locations of known water, sanitary, drainage, power and telephone installations along route of new pipelines or in the vicinity of new work are shown, but must be verified in the field by the Contractor. The Contractor shall uncover these pipes, ducts, cables, etc., carefully, by hand, prior to installing new lines. Any discrepancies or differences found shall be brought to the attention of the Engineer in order that necessary changes may be made to permit installation of new work. These conditions are supplemental to general requirements elsewhere in the Contract Documents.

#### 1.12 SITE CONDITIONS

- A. The Contractor acknowledges that he has investigated prior to bidding and satisfied himself as to the conditions affecting the Work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, canal stages, tides, water tables or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the Work. The Contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, or any contiguous site, as well as from information presented by the Drawings and Specifications made a part of this Contract, or any other information made available to him prior to receipt of Bids. Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work. The City assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the City.

#### 1.13 CONSTRUCTION DEWATERING

- A. 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 Hollywood Noise Ordinance and/or Broward County Noise Ordinance, whichever is more stringent.

- B. Dewatering shall be done in accordance with Section 02140 - Dewatering.

#### 1.14 SUBSURFACE INVESTIGATIONS

- A. The Contractor shall be responsible for having determined to his satisfaction, prior to the submission of his bid, the nature and location of the work, the conformation of the ground, the character and quality of the substrata, the types and quantity of materials to be encountered, the nature of the groundwater condition, the character of equipment and facilities required preliminary to and during the performance of the work, the general and local conditions and all other matters which can in any way affect the work under this Contract. The prices established for the work to be done shall reflect all costs pertaining to the work. Any claims for extras based on the substrata or ground water table conditions will be disallowed.
- B. The Contractor further acknowledges that he assumes all risk contingent upon the nature of the subsurface conditions actually encountered by him in performing the work covered by the Contract, even though such actual conditions may result in the Contractor performing more or less work than he originally anticipated.
- C. Existing utilities shall be protected in accordance with Section 01530 - Protection of Existing Facilities.

#### 1.15 DIFFERING SITE CONDITIONS

- A. The Contractor shall promptly and before such conditions are disturbed, notify the City in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for this contract. The City will promptly investigate the conditions, and if he finds that such conditions do materially so differ and cause an increase or decrease in the Contractor cost of, or the time required for, performance of any part of the work under this contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the contract modified in writing accordingly.

#### 1.16 PROTECTION OF PROPERTY

- A. The Contractor shall protect all property that may be affected by his work or operations in accordance with Section 01530 - Protection of Existing Facilities. The location and extent of underground and covered facilities are not guaranteed.
- B. The Contractor is cautioned to proceed with care in order to prevent the undermining or damage to existing utilities including piping, power cable, utility poles, conduit, duct banks, fiber optic cable, gas, telephone and cable TV services, structures, piping, and other facilities.
- C. The Contractor shall take all measures necessary to protect new and existing mechanical equipment from dust and debris. All protective measures shall be furnished, installed, lighted, ventilated, maintained, and removed at the Contractor's own cost.



- D. When city water is being used, the supply source shall be protected against contamination in accordance with existing codes and regulations.
- E. In the event any of the Contractor's activities were to disrupt or endanger any facilities, he shall at his own expense make all necessary repairs or replacements necessary to correct the situation to the satisfaction of the Engineer. Such work shall progress continuously to completion on a 24-hour per day, seven workday basis. The Contractor shall be responsible for the services of repair crews on call 24 hours per day for emergencies that arise involving work under this Contract.

#### 1.17 WEATHER CONDITIONS

- A. 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. The City reserves the right, through the opinion of the Engineer, to order that additional protection measures over and beyond those proposed by the Contractor, be taken to safeguard all components of the project. The Contractor shall not claim any compensation for such precautionary measures so ordered, nor claim any compensation from the City for damage to the work from the elements of weather.

#### 1.18 FIRE PROTECTION

- A. The Contractor shall take all necessary precautions to prevent fires at or adjacent to the work, including his own buildings and trailers. Adequate fire extinguisher and hose line stations shall be provided throughout the work area.

#### 1.19 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 traffic and warning devices necessary to warn pedestrians and area traffic. See Section 01570 – Traffic Regulations and Maintenance of Traffic.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01520

### MAINTENANCE OF FACILITIES AND SEQUENCE OF CONSTRUCTION

#### PART 1 - GENERAL

##### 1.01 GENERAL

The Contractor shall ensure the continuous operation of all existing sanitary sewer systems, potable water systems, and stormwater facilities during construction. In addition, the Contractor shall provide temporary traffic routing and coordinate his work so as to minimize impact to the utilities systems located in the area. In performing the work shown and specified, the Contractor shall plan and schedule his work as outlined in this Section.

##### 1.02 CONSTRUCTION SCHEDULE

- A. The Construction Schedule shall be submitted by the Contractor and include phasing considerations, layout, sequencing and plans. The construction must be substantially complete in 150 calendar days of NTP. Final completion must be completed within 180 calendar days of NTP. Failure to maintain either schedule will result in liquidated damages of \$1,000.00 per day. Failure to meet any of the above defined completion dates shall subject the CONTRACTOR to pay damages as specified in these Supplementary General Conditions in Article 3. The 150 calendar days to substantial completion will include all holidays, and, all rain days, etc. No time extensions will be granted for rain delays and holidays, etc.

##### 1.03 USE OF FACILITIES BEFORE COMPLETION

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 in accordance with Article 14-2, Partial Utilization of the General Conditions.

##### 1.04 CONNECTION OF EXISTING SYSTEMS

All connections to existing systems shall be performed in such a manner that no damage and minimal interruption is caused to the existing installation. On completion of its installation, the Contractor shall complete the connection to the existing systems in a proper manner. Any damage caused to existing installations shall be repaired or replaced by the responsible Contractor at no additional cost to the City.

##### 1.05 COORDINATION WITH DEPARTMENT OF PUBLIC UTILITIES PERSONNEL

- A. Before commencing work involving removing or placing in operation existing or new facilities or tie-ins to existing facilities, the Contractor shall notify the City at least three (3) business days in advance in writing. The City shall be responsible for removing facilities from operation as deemed necessary.
- B. The Contractor shall, under no circumstances, interfere with wastewater treatment plant and existing potable water, sewer and stormwater facilities without the City's authorization, in writing, and supervision. The Contractor shall notify the City's representative in writing a minimum of three work days prior to each scheduled service request. This notification shall be provided on the City's standard form, or on an approved equivalent form completed in full by the Contractor.

#### 1.06 COORDINATION WITH PRIVATE PROPERTY OWNERS

Prior to commencing with construction (including mobilization and maintenance of traffic) the Contractor shall distribute copies of the "Notice to Owners" (to be provided by the City) and "Right of Entry and Temporary Construction Easement" (refer to Appendix C) to all property owners/tenants within the project area and shall obtain permission from property owners/tenants prior to working within their properties.

#### 1.07 GENERAL SEQUENCE OF CONSTRUCTION AND OPERATION REQUIREMENTS

- A. Work under the Contract shall be scheduled and performed in such a manner as to result in the least possible disruption to the public's use of roadways, driveways, parking areas, and utilities. Utilities shall include but not be limited to water, sewerage, irrigation, drainage structures, gas, electrical service, cable TV services, fiber optic cables, and telephone. Prior to commencing with the WORK, Contractor shall perform a location investigation of all existing underground and above ground utilities and facilities in accordance with Section 01530 entitled "Protection of Existing Facilities". Utilities that present potential conflict with the proposed piping shall be field verified with soft digging.
- B. 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 minimize any disruptions and to avoid any impact to continued collection system service. 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. It is intended only to indicate which activities must precede other activities in order to minimize interference's and disruptions.
- C. All work by the Contractor that disrupts the normal utilities operations shall be shown on the Construction Schedule specified in Section 01300 and specifically

scheduled with the City. Schedule notification shall consist of a written notice defining the work to be accomplished, the normal treatment plant that will be interrupted, the duration of the interruption, and the mitigating effort to be performed by the Contractor. The written notice shall be submitted to the City fourteen days in advance of the proposed work and the City will respond to the Contractor in writing within seven days of receipt of the notice regarding the acceptability of the proposed plan.

- D. At no time, the Contractor shall undertake closing off any pipelines, or opening valves, or take any other action which would affect the operation of the existing system, except as specifically required by the drawings and specifications, and until authorization is granted by the City or Engineer and after proper notification.
- E. Temporary installations required to complete a particular aspect of the work during the allowed time period shall be determined by the Contractor and implemented by the Contractor at no additional cost to the City. All such temporary installations shall be subject to the review and acceptance of the Engineer.
- F. 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 in paragraph 1.08. 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 and accepted for satisfactory use, subject to the Engineer's approval, prior to the Contractor proceeding to the next phase of construction.

#### 1.08 DETAILED SEQUENCE OF CONSTRUCTION AND OPERATION REQUIREMENTS

- A. A phasing plan is to be submitted by the Contractor including a phasing schedule, exhibit for the phasing areas and sequencing considerations (permitting, MOT, etc). The Contractor must obtain approval of the phasing plan prior to commencement of construction.
- B. Phase I - Mobilization / Site Preparation: Mobilize for work – Video working areas, set up staging and storage areas, obtain permits, develop and submit construction schedule, submit shop drawing schedule, survey, locate existing utilities and elevations with soft digging, verify existing fittings to be connected, shop drawing submittals, and procure materials.
- C. Phase II – Construction of the Water and/or Sewer Systems: The tasks included under this phase consist of installation of proposed improvements and sequencing effort for corridors that are congested or needed phased

infrastructure and partial clearances as well as other infrastructure considerations for project completion.

- D. Phase III - Final Sitework and Closeout: Final pavement and asphalt overlay of the affected road sections, final restoration, final grading, sodding, miscellaneous work, demobilization and related closeout activities as described in Section 01700 - Project Closeout.
- E. Construction Constraints: Contractor shall comply with the following constraints during construction and utilize constraints in determining a sequence of construction:
  - 1. Construction work during the installation of the proposed work shall be limited to the public right-of-ways. Homeowners shall have access to their driveways at all times.
  - 2. The excavation area shall be surrounded with barricades and obstructions illuminated with temporary lighting furnished, installed and maintained by the Contractor.
  - 3. Final restoration of roads, driveways, sidewalks and all other paved areas shall be completed within a timely fashion.
  - 4. Contractor is expected to work regular hours between the hours of 7:00 AM and 6:00 PM, Monday through Friday. Requests for approval to work during other than regular hours must be submitted to the Engineer and City at least 72 hours in advance of the period proposed for such overtime work and shall set forth the proposed schedule for overtime work to give ample time to arrange for personnel to be at the site of the Work, even for work required to occur by contract. Contractor shall pay for the charges for all overtime work. Such additional charges shall be a subsidiary obligation of Contractor, and no extra payment shall be made by City on account of such overtime work. The Contractor shall not violate the Hollywood Code of Noise Ordinance.
  - 5. Work hours as required by other jurisdictional authorities or by permit conditions must be followed at all times. The Contractor shall notify the authority if any deviations to the standard work hours are anticipated.
  - 6. The Contractor shall pay liquidated damages of \$5000/DAY for not complying with any one of the above requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 COORDINATION WITH EXISTING UTILITIES AND OTHER AGENCIES

- A. The Contractor shall coordinate with Sunshine One-Call Notification at 811 a minimum of 48 business hours prior to any excavation for location of existing underground facilities.

3.02 COOPERATION

- A. The Contractor shall allow the City or its agents, and other project contractors or their agents, to enter facilities being constructed under this Contract for the purpose of constructing, installing, operating, maintaining, removing, repairing, altering or replacing such equipment pipes, sewers, conduits, manholes, wires, or other structures and appliances which may be required to be installed at or in the work. The Contractor shall cooperate with all the aforesaid parties and shall allow reasonable provisions for the prosecution of any other work by the City, or others, to be done in connection with his work, or in connection with normal use of the facilities.

END OF SECTION

## SECTION 01530

### PROTECTION OF EXISTING FACILITIES

#### PART 1 - GENERAL

##### 1.01 THE REQUIREMENT

- A. The Contractor shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.
- B. The Contractor shall verify the exact locations and depths of all utilities shown and the Contractor shall make exploratory excavations of all utilities that may interfere with the Work. All such exploratory excavations shall be performed as soon as practicable after award of Contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's Work. When such exploratory excavations show the utility location as shown to be in error, the Contractor shall so notify the City.
- C. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility and shall be at no additional cost to the City.

##### 1.02 RESTORATION OF ROADWAYS/ALLEYS

- A. General: 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 or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.
- B. Temporary Restoration: Temporary restoration includes repair to all driveways, sidewalks and roadways. They shall be swept clean and be maintained free of dirt and dust. All areas disturbed by the construction activities shall be restored to proper grade, cleaned up, including the removal of debris, trash, and deleterious materials. All construction materials, supplies, or equipment, including piles of debris shall be removed from the area. All temporarily restored areas shall be maintained by the Contractor. These areas shall be kept clean and neat, free of dust and dirt, until final restoration operations are completed. The Contractor is responsible to utilize dust abatement operations in the temporarily restored areas as required, to the satisfaction of the Engineer.

- C. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the Contractor shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration and improvements.
- D. Permanent Resurfacing: 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, unless otherwise shown on the drawings.
- E. Final Restoration: Final restoration shall include the completion of all required pavement replacement of roadways, driveways, curbs, gutters, sidewalks and other existing improvements disturbed by the construction: final grading, placement of sod, installation or replacement of any trees or shrubs, repair of irrigation systems, pavement markings, etc., all complete and finished, acceptable to the Engineer.

#### 1.03 EXISTING UTILITIES AND IMPROVEMENTS

- A. General: The Contractor shall protect all underground utilities and other improvements which may be impaired during construction operations. It shall be the Contractor's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations.
- B. Utilities to be Moved: In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the Contractor, be notified by the City to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the Contractor shall notify the City a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- C. Where the proper completion of the Work requires the temporary or permanent removal and / or relocation of an existing utility or other improvement which is shown, the Contractor shall remove and temporarily replace or relocate such utility or improvement in a manner satisfactory to the City and the Owner of the utility/facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the Contractor in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.
- D. City's Right of Access: The right is reserved to the City and to the Owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.



- E. Underground Utilities Shown or Indicated: Existing utility lines that are shown or the locations of which are made known to the Contractor prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired by the Contractor.
- F. Underground Utilities Not Shown or Indicated: In the event that the Contractor damages any existing utility lines that are identified in the field or the locations of which are not made known to the Contractor prior to excavation by the City and Sunshine One-Call Notification, a written report thereof shall be made immediately to the City. The Contractor shall make the repairs immediately under the provisions for changes and extra work contained in the General Conditions.
- G. Approval of Repairs: All repairs to a damaged improvement are subject to inspection and approval by an authorized representative of the City before being concealed by backfill or other Work.
- H. No fill, excavation material, construction generated debris or equipment shall obstruct water valves, gas meters or sewer manholes. Water, sewer and gas service shall be made accessible to repair or maintenance crews representing the City or a privately-owned utility company.
- I. Maintaining in Service: All oil and gasoline pipelines, power, and telephone or other communication cable ducts, gas and water mains, irrigation lines, reuse lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the Work shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the City are made with the owner of said utilities. The Contractor shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

#### 1.04 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. Trees are to be protected at all times. If any tree removal, trimming or relocation is required, the Contractor needs to coordinate with the Engineer, accordingly. Trees that are removed are required to be replaced at the Contractor's expense and in kind to the greatest extent possible. All required permits related to tree removal are the responsibility of the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01550

### SITE ACCESS AND STORAGE

#### PART 1 - GENERAL

##### 1.01 SITE ACCESS

- 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.
- B. The Contractor will be responsible for monitoring the main gate for its personnel, equipment and material deliveries.

##### 1.02 STORAGE

- A. Any equipment and materials stored shall be in accordance with the manufacturer's recommendations and as indicated by the City.
- B. Responsibility for protection and safekeeping of equipment and materials will be solely that of the Contractor, and no claim shall be made against the City by reason of any act of an employee or trespasser. Should an occasion arise necessitating access to an area occupied by stored equipment and/or materials, the Contractor shall immediately move them.
- C. If the Contractor requires staging and storage areas, the Contractor shall obtain such areas from off site sources at no additional cost to the City.
- D. Upon completion of the Contract, the Contractor shall remove from the storage and work areas all of their equipment, temporary fencing, surplus materials, rubbish, etc., and restore the area to its original or better conditions.

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

#### PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01560  
SPECIAL CONTROLS

PART 1 - GENERAL

1.01 CHEMICALS

- A. All chemicals used during project construction or furnished for testing of project operation, whether herbicide, pesticide, disinfectant, polymer, reactant of other classification, will be required to show approval of either EPA or HUD. The handling, use, storage and disposal of such materials, containers or residues shall be in strict conformance with manufacturer and/or Contractor's secured storage. Copies of antidote literature and a supply of antidotes shall be kept at the job site office.

1.02 DUST

- A. During all work for this Contract, the Contractor shall by the application of water and/or calcium chloride or other means, approved by the Engineer, eliminate dust annoyance to adjacent property, business establishments and the plant site in accordance with Article 7.21, Dust Control, of the General Conditions. The Contractor shall take all protective measures, to the satisfaction of the Engineer, necessary to ensure that dust and debris does not enter any of the mechanical or electrical equipment. The Contractor shall be responsible for the cleanup of existing buildings, equipment, controls, etc., which have become soiled due to the lack of proper dust control as determined by the Engineer. The Contractor shall provide daily application of water to all unpaved areas designated by the Engineer in the field and to the satisfaction of the Engineer in the field.

1.03 NOISE

- A. Noise resulting from the Contractor's work shall not violate the Hollywood Code of Ordinance Chapter 100, with specific note to the restrictions of paragraph 100.05 or exceed the noise levels and other requirements stated in the Broward County Chapter 27 Pollution Control, relating to noise abatement in Broward County. The Contractor shall be responsible for curtailing noise resulting from all operations, and upon written notification from the Engineer or the noise control officers, make any repairs, replacements, adjustments, additions and furnish mufflers or other noise attenuation devices when necessary to fulfill requirements.

1.04 EROSION ABATEMENT AND WATER POLLUTION

- A. It is imperative that the Contractor's dewatering operations not contaminate or disturb the environment or properties adjacent to the Work. The Contractor, shall, therefore, schedule and control his operations to confine all runoff water from disturbed surfaces, water from dewatering and/or from excavation below the ground water table operations that becomes contaminated with lime silt, muck

and other deleterious matter, fuels, oils, bitumens, calcium chloride, chemicals and other polluting materials.

- B. The Contractor shall construct temporary stilling 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 his commencing work.

#### 1.05 HURRICANE AND STORM WARNINGS

- A. As the schedule for this project coincides, in part, with the recognized South Florida hurricane season, the Contractor's attention is drawn to the possibility of hurricane conditions, or severe storm conditions, occurring at the plant site during the course of Contract work.
- B. Within 30-days of the date of Notice-to-Proceed, the Contractor shall submit to the Engineer and Owner a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the Owner in case of a hurricane warning.
- C. In the event of inclement weather, or whenever the Engineer shall direct, the Contractor shall, and will cause Sub-Contractors to protect carefully the Work and materials against damage or injury by reasons of failure on the part of the Contractor to so protect the Work. Such Work and materials so damaged shall be removed and replaced at the expense of the Contractor.
  - 1. Hurricane Watch: Upon designation of a hurricane watch, Contractor shall be responsible for storing all loose supplies and equipment on the job site that may pose a danger. In addition, the Contractor shall remove all bulkheads and plugs in pipelines that would impede drainage in the case of flooding. Structures that may be in danger of floatation shall be flooded. The Contractor shall also cooperate with City personnel in protecting other structures at the site.
  - 2. Hurricane Warning: No mobile "temporary facility" under the control of the City of Hollywood, or on City property, shall be staffed during a hurricane warning. Contractor facilities meeting these criteria shall comply.
- D. The Contractor is advised to take all necessary precautions to protect his equipment by moving it to higher ground if in an area subject to flooding. Known

areas of Hollywood that would be subject to flooding from storm tides include, but are not limited to:

Hollywood Blvd.  
A1A  
US Highway 1

North Lake Area  
Sheridan Street  
46<sup>th</sup> Avenue

South Lake Area  
Dania Beach Blvd.  
Hallandale Beach Blvd.

#### 1.06 PESTS AND RODENTS

- A. The Contractor shall be responsible for maintaining the jobsite free from litter, rubbish and garbage and shall provide containers for the disposal of garbage and other materials that attract and are breeding places for pests and rodents. The Contractor shall provide the services of an exterminator to inspect the jobsite on a periodic basis and to provide service as required to control pests and rodents, as applicable and at no cost to the city.

#### 1.07 PERIODIC CLEAN-UP; BASIC SITE RESTORATION

- A. During construction, the Contractor shall regularly remove from the site all accumulated debris and surplus materials of any kind which result from his operations, or whenever the accumulation in excess of one truck load. Unused equipment and tools shall be stored at the Contractor's yard or base of operations for the project.
- B. When the work involves installation of sewers, drains, water mains, manholes, underground structures, or other disturbance of existing features in or across streets, rights-of-way, easements, or private property, the Contractor shall (as the work progresses) promptly backfill, compact, grade and otherwise restore the disturbed area to a basic condition which will permit resumption of pedestrian or vehicular traffic and any other critical activity or function consistent with the original use of the land. Unsightly mounds of earth, large stones, tree roots, boulders, and debris shall be removed so that the site presents a neat appearance.
- C. The Contractor shall perform the clean-up 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.
- D. 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 (5) days prior written notice to the Contractor, employ such labor and equipment as he deems necessary for the purpose, and all costs resulting therefrom shall be charged to the Contractor and deducted from the amounts of money that may be due him.

#### 1.08 SECURITY

- A. The Contractor shall care for and protect against loss or damage of all material to be incorporated in the construction for the duration of the Contract and shall repair or replace damaged or lost materials and damage to structures.
- B. The Contractor shall be responsible for providing, and maintaining temporary fencing and gates and the daily securing of temporary fencing and gates used for construction purposes for the duration of the project.
- C. The Contractor shall strictly comply with working hours on the project site. Prior to any work outside of the standard working hours, the Contractor shall request the City's approval via written request (at least 8 hours in advance). The written request shall clearly define the work to be performed, the names of the employees, their employer and their trade and the hours and days during which the work is planned. Other jurisdictions requiring notification or as part of a permit condition must also be coordinated with and notified by the Contractor prior to commencement for all work hours.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01570

### TRAFFIC REGULATIONS AND MAINTENANCE OF TRAFFIC

#### PART 1 - GENERAL

##### 1.01 TRAFFIC CONTROL

- A. Contractor shall obey all traffic laws and comply with all the requirements, rules and regulations of the State of Florida Department of Transportation (FDOT), the City of Hollywood, Broward County and other local authorities having jurisdiction, to maintain adequate warning signs, lights, barriers, etc., for the protection of vehicular traffic and pedestrian traffic on public roadways and within the project corridor.
- B. The Contractor shall maintain traffic and protect the public from all damage to persons and property within the Contract Limits, in accordance with the Contract Documents and all applicable state, city and local regulations. The Contractor shall conduct its construction operations so as to maintain and protect access, for vehicular and pedestrian traffic, to and from all properties and business establishments adjoining or adjacent to those streets affected by his operations, and to subject the public to a minimum of delay and inconvenience. Suitable signs, barricades, railing, etc. shall be erected and the work outlined by adequate lighting at night. Danger lights shall be provided as required. Watchmen, flagmen, and crossing guards shall be provided as may be necessary for the protection of traffic. Traffic Control and Maintenance of traffic during construction shall be included in the Contractor's bid and no additional payment shall be requested to the City for these activities
- C. For the protection of vehicular and pedestrian traffic in public or private streets and alleyways, 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 the "Manual of Uniform Traffic Control Devices (MUTCD), published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1).
- D. The Contractor shall submit a Maintenance of Traffic (MOT) Plan for Engineer and/or City approval at least 60 days prior to construction work. The plan shall be signed and sealed by a registered PE in the state of Florida. All MOT submittals must be done by the Contractor in advance of the work effort such that approvals may be obtained on the project schedule kept on track.
- E. All MOT provided by the Contractor must take into consideration the required project phasing, maintaining or adjusting MOT as necessary, all permit submittal requirements, permit approvals and permit fees from all jurisdictional agencies having authority over the ROW limits.
- F. Prior to performing any work within or abutting the State rights-of-way, the Contractor shall submit a Maintenance of Traffic (MOT) Plan to Florida

Department of Transportation (FDOT) for approval as required by the FDOT Utility Permit. The plan shall be signed and sealed by a registered PE in the state of Florida.

- G. All signs, signals, and barricades shall conform to the requirements of FDOT.
- H. All dirt spilled from the Contractor's trucks on existing pavements shall be removed by the Contractor immediately and whenever in the opinion of the City the accumulation is sufficient to cause the formation of mud, dust, interference with traffic or create a traffic hazard.
- I. Areas designated by the Broward County Traffic Engineering Division as "Safe Walk Routes" shall adhere to the requirements of the Broward County Maintenance of Traffic School/Pedestrian.

## 1.02 TEMPORARY CROSSINGS

- A. General: Wherever necessary or required for the convenience of the public or individual residents at street or highway crossings, private driveways, or elsewhere, the Contractor shall provide suitable temporary bridges 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, which written consent shall be delivered to the City prior to excavation. All such bridges shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges 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 shall submit designs to said authority for approval, as may be required.
- B. 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 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 City 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 provided or shown and as approved by jurisdictional authorities. Toe boards shall be provided to retain excavated material if required by the City 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, sewer inlets, and other drainage facilities.
- C. 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 FDOT.

- D. 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.
- E. Temporary Street Closure: If closure of any street is required during construction, a formal application for a street closure shall be made to the authority having jurisdiction at least 30 days prior to the required street closure in order to determine necessary sign and detour requirements. Detour signs shall be provided, installed prior to street closure, and removed after construction by the Contractor.
- F. Temporary Driveway Closure: The Contractor shall notify the City or occupant (if not owner-occupied) of closure of driveways to be closed more than one eight-hour work day, at least three (3) working days 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 owner/occupant how long the work will take and when closure is to start.
- G. Temporary Bridges: Whenever 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.

### 1.03 CONTRACTOR PARKING

- A. The Contractor shall obtain parking for all personnel vehicles as required.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01600

### EQUIPMENT AND MATERIALS

#### PART 1 - GENERAL

##### 1.01 GENERAL

- A. All equipment, materials, instruments or devices incorporated in this project shall be new and unused, unless indicated otherwise in the Contract Documents.
- B. Equipment and materials to be incorporated in the work shall be delivered sufficiently in advance of their installation and use to prevent delay in the execution of the work, and they shall be delivered as nearly as feasible in the order required for executing the work.
- C. The CONTRACTOR shall protect all equipment and materials from deterioration and damage. The equipment and materials shall be handled and stored by the manufacturer, fabricator CONTRACTOR and CONTRACTOR before, during, and after shipment to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, damage or theft of any kind whatsoever. Any equipment exhibiting any of the above, shall be removed and replaced at the CONTRACTOR'S expense for both labor and materials.

##### 1.02 STORAGE

- A. The CONTRACTOR shall store its equipment and materials at their site in accordance with the manufacturer's recommendations and as directed by the ENGINEER in the field. No storage area will be provided by CITY. The CONTRACTOR shall enforce the instructions of the CITY and the ENGINEER regarding the posting of regulatory signs for loadings on structures, fire safety, and smoking areas.

##### 1.03 HANDLING AND MAINTENANCE

- A. The manufacturer's storage instructions shall be carefully followed, and any deviations shall be approved by the manufacturer in writing with a copy to the ENGINEER. Equipment with moving parts shall be rotated per the manufacturer's recommendations while in storage and during the period between installation and acceptance.
- B. All equipment shall be stored fully lubricated unless otherwise instructed by the manufacturer. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of acceptance.

- C. Equipment with electric motors having space heaters shall have the space heaters energized unless stored in a temperature and humidity controlled building. Space heaters shall be energized at the time of installation and maintained until acceptance of the equipment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01700

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

1.02 SUBSTANTIAL COMPLETION

- A. The Work will not be substantially complete, and Contractor may not request substantial completion inspection unless the following submittals and work is completed:

1. All Operation and Maintenance manuals have been submitted.
2. Project Record Documents, including the signed and sealed Project Record Survey, are complete and have been submitted and reviewed to the requirements of Section 01720. Additionally, the Project Record Documents must be approved by the Engineer and the City prior to deeming the project Substantially Complete.
3. All areas to be used and occupied are safe, operable in automatic and complete.
4. All painting, finishes, fencing, cleanup, final grading, grassing, planting, sidewalk construction, paving and restoration efforts shall have been completed and are ready for inspection.
5. The water and sewer mains are installed and connected to the existing system.
6. All the following related tests/inspections and Florida Department of Environmental Protection permit clearances are complete and approved.

a. ~~Water distribution system:~~

- ~~1) backfill density tests~~
- ~~2) hydrostatic pressure test~~
- ~~3) bacteriological test~~
- ~~4) "Clearance For Use" Letter by FDEP~~

b. ~~Sewage collection system:~~

- ~~1) gravity main backfill density tests~~
- ~~2) manhole backfill density test submittal~~

- ~~3) gravity main low air pressure test~~
- ~~4) gravity main lamp inspection~~
- ~~5) manhole inspection~~
- ~~6) "Clearance For Use" Letter by FDEP~~

c. Force main system:

- 1) force main backfill density tests
  - 2) force mains shall be pressure tested in accordance with Rule 62-555.330 (FAC)
  - 3) "Clearance For Use" Letter by FDEP
7. All deficiencies noted on inspection reports or nonconformances are corrected or the correction plan approved.
8. Until the Certificate of Substantial Completion is fully executed, the project shall not be deemed substantially complete.
- B. When the conditions of paragraph 1.02 A. are met the Contractor shall submit to the Engineer:
- 1. A written notice that he considers the Work, or portion thereof, is substantially complete, and request an inspection.
  - 2. A punch list of items to be corrected. (Uncompleted work which is not related to the safe, effective, efficient use of the Project may be allowed on the punch list with the Engineer's approval.)
- C. Within a reasonable time after receipt of such notice, the Engineer will make an inspection to determine the status of completion.
- D. Should the Engineer determine that the Work is not substantially complete:
- 1. The Engineer will promptly notify the Contractor in writing, giving the reasons therefor.
  - 2. Contractor shall remedy the deficiencies in the Work and send another written notice of substantial completion to the Engineer.
  - 3. The Engineer will within reasonable time, reinspect the Work. The Contractor will be liable for reinspection fees.
- E. When the Engineer finds that the Work is substantially complete, he will:
- 1. Schedule a walk-through of the project to include the City. Engineer shall determine the completeness of the punch list and readiness of the project for occupancy by the City.
  - 2. Prepare and deliver to City a tentative Certificate of Substantial Completion with the tentative punch list of items to be completed or corrected before final inspection.

3. After consideration of any objections made by the City as provided in Conditions of the Contract, and when the Engineer considers the Work substantially complete, he will execute and deliver to the City and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected. Any incomplete work allowed on a punch list must be reinspected upon completion and any deficiencies found will be added to the punch list.

#### 1.03 PROJECT CLOSEOUT

- A. As construction of the project enters the final stages of completion, the Contractor shall, in accordance with the requirements set forth in the Contract Documents, attend to or have already completed the following items:
  1. Placed water or sewer lines into service once FDEP clearances have been obtained.
  2. Correcting or replacing defective work, including completion of items previously overlooked or work which remains incomplete, all as evidenced by the City's "Punch" lists.
  3. Make final submittals.
  4. Attend to any other items listed herein or brought to the Contractor's attention by the City.

#### 1.04 CLOSEOUT TIMETABLE

- A. The Contractor shall establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the City, the Engineer, and their authorized representatives sufficient time to schedule attendance at such activities.

#### 1.05 FINAL SUBMITTALS

- A. Before the acceptance of the project major milestones for substantial completion, the Contractor shall submit to the Engineer (or to the City if indicated) certain records, certifications, etc., as listed in paragraph 1.02 A and as specified elsewhere in the Contract Documents. Missing, incomplete or unacceptable items, as determined by the Engineer or the City, shall indicate non-compliance with substantial completion major milestone dates. A partial list of such items appears below, but it shall be the Contractor's responsibility to submit any other items which are required in the Contract Documents:
  1. Written Test results of project components along with appropriate backup information. This includes but is not limited to the results of pressure tests, leakage calculations, density tests, etc., witnessed and signed-off by the City's inspector and the EOR's field representative.

2. Performance affidavits for equipment and materials.
3. Operation and Maintenance Manuals for equipment.
4. Record Drawings: Refer to Section 01720, Project Record Documents and Survey.
5. Written guarantees, where required.
6. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
7. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

#### 1.06 PUNCH LISTS

- A. Final cleaning and repairing shall be scheduled upon completion of the project.
- B. The Engineer will make his final inspection whenever the Contractor has notified the Engineer that the work is ready for the inspection. Any work not found acceptable and requiring cleaning, repair and/or replacement will be noted on the "Punch" list. Work that has been inspected and accepted by the Engineer shall be maintained by the Contractor, until final acceptance of the entire project.
- C. Whenever the Contractor has completed the items on the punch list, he shall again notify the Engineer that it is ready for final inspection. This procedure will continue until the entire project is accepted by the Engineer. The "Final Payment" will not be processed until the entire project has been accepted by the Engineer and all of the requirements in paragraph 1.05 "Final Submittals" of this Section have been satisfied.

#### 1.07 MAINTENANCE AND GUARANTEE

- A. The Contractor shall comply with all maintenance and guarantee requirements of the Contract Documents.
- B. Replacement of earth fill or backfill, where it has settled below the required finish grade elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the Contractor which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the Contractor shall have obtained a statement in writing from the affected private City or public agency releasing the City from further responsibility in connection with such repair or resurfacing.
- C. The Contractor shall make all repairs and replacements promptly upon receipt of written order from the City. If the Contractor fails to make such repairs or replacements promptly, the City reserves the right to do the Work and the Contractor and his surety shall be liable to the City for the cost thereof.

#### 1.08 TOUCH-UP AND REPAIR

- A. The Contractor shall touch-up and repair damage to all field painted and factory finished equipment. Touch-up of equipment panels, etc., shall match as nearly as possible the original finish. If in the opinion of the Engineer the touch-up work is not satisfactory, the Contractor shall repaint the item. Contractor shall also furnish additional paint as defined in the contract documents.

#### 1.09 FINAL CLEANUP

- A. The Contractor shall promptly remove from the vicinity of the completed Work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the Work by the City will be withheld until the Contractor has satisfactorily complied with the foregoing requirements for final cleanup of the project site.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



## SECTION 01720

### PROJECT RECORD DOCUMENTS AND SURVEY

#### PART 1 - GENERAL

##### 1.01 PURPOSE AND DESCRIPTION OF WORK

- A. The purpose of the Project Record Documents is to provide the City with factual information regarding all aspects of the Work, both concealed and visible, to enable future location, identification and modification of the Work without lengthy and expensive site measurement, investigation or examination.
- B. Provide professional surveying and mapping work required for the execution of the contract, including verification of existing survey data, construction layout, and production of the As-Built Drawings. This Work shall be performed by a Surveyor that is licensed by the State of Florida as a professional surveyor and mapper pursuant to Chapter 472, F.S.
- C. The location of the constructed improvements as depicted in the contract drawings is required. To verify the As-Built Drawing accuracies and to insure the Work was constructed in conformance with the contract drawings, the following survey documents are required to be certified by the Surveyor.
  - 1. ~~As-Built Asset Attribute Data Table (refer to Table 01720-2),~~
  - 2. Pipe Deflection Table (refer to Table 01720-3),
  - 3. Boundary Survey and Survey Map Report for any easements that have constructed pipes within and monuments that were replaced.

##### 1.02 DEFINITIONS

Except where specific definitions are used within a specific section, the following terms, phrases, words and their derivation shall have the meaning given herein when consistent with the context in which they are used. Words used in the present tense include the future tense, words in the plural number include the singular number and words in the singular number include the plural number. The word "shall" is mandatory, and the word "may" is permissive.

- A. **As-Built Drawings:** Drawings prepared by the Contractor's Surveyor shall depict the actual location of installed utilities for the completed WORK in a full size hard copy and an electronic AutoCAD file (dwg) format.
- B. **Record Drawings:** Drawings, prepared and certified by the City's Consultant Engineer, shall be a compiled representation of the constructed project, a listing of the sources and the basis of information used in the preparation of the "record drawings", the constructed project meets the Engineer's design intent and note the material deviations from the design documents, and the accuracy of the

location information is based upon the Contractor's surveyor data supplied in the tables (As-Built Asset Attribute Data and Pipe Deflection).

- C. **Boundary Survey:** Boundary survey, map and report certified by a Surveyor shall be provided that meets the requirements of Chapter 61G17-6 'Minimum Technical Standards', FAC.
- D. **Surveyor:** Contractor's Surveyor that is licensed by the State of Florida as a professional surveyor and mapper pursuant to Chapter 472, F.S.
- E. **Survey Map Report:** As a minimum the Survey Map Report shall identify any corners that had to be reset, measurements and computations made, and accuracies obtained.

#### 1.03 QUALIFICATIONS OF THE SURVEYOR

- A. The Surveyor, who is proposed by the Contractor to provide services for the Project, is subject to the approval of the City. Prior to any services being performed, the Contractor shall submit the name and address of any proposed Surveyor and a written acknowledgement from the Surveyor stating that he has the hardware, software and adequate scope of services in his agreement with the Contractor to fully comply with the requirements of this specification. These submittals shall be provided to the City prior to Notice to Proceed. It is recommended that the Surveyor attend the Preconstruction meeting. Any Surveyor, who has not previously performed work for the City in the past, shall attend the Preconstruction meeting.

#### 1.04 RELATED REQUIREMENTS

- A. All General Conditions, Supplements to the General Conditions, and any Addenda issued by the City are a part of this Section in the same manner as if fully written herein, and shall govern the Work of this Section, except where more stringent articles or requirements are stipulated, then they shall govern this Section.
- B. The Contract Documents are complimentary and what is required by anyone shall be as binding as if required by all.
- C. Other requirements affecting Record Documents may appear in pertinent other sections of these specifications.

#### 1.05 QUALITY ASSURANCE

- A. Delegate the responsibility for maintenance of the Record Documents to one person on the Contractor's staff as approved by the City.
- B. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of specifications and each sheet of drawings and other documents where such entry is required to show progress and changes properly.
- C. Make entries within 24-hours after receipt of information has occurred.

- D. Survey documents shall comply with the minimum technical standards of Chapter 61G17-6 of the Florida Administrative Code (FAC) and Table 01720-1 Minimum Survey Accuracies specified in, whichever are more stringent. Asset attribute data shall be signed, sealed and dated by the Surveyor. All coordinates shall be geographically registered in the Florida State Plan Coordinate System using the contract drawings control points for horizontal and vertical controls.

**Table 01720-1  
Minimum Survey Accuracies**

Asset/Location	Horizontal Accuracy (feet)	Elevation Accuracy (feet)	Location: horizontal center and vertical top, unless otherwise specified
Bench Marks	N/A	0.01	Point
Horizontal Control	0.01	N/A	Point
Easements and Tracts	*	N/A	Survey Monuments
Civil Site, Topo and Foundation Drawings	0.1	0.01	All
Hydrants	0.01	N/A	Operating Nut
Blow off Valves	0.01	N/A	Valve Enclosure
Air Release Valves	0.01	N/A	Valve Enclosure
Master Meters	0.01	N/A	Register
Meter Box or Curb Stops if box does not exist	0.01	N/A	Top of Meter Box
Clean-out	0.01	N/A	Top of Clean-out
Pump Station	0.01	0.01	Top Center of Wet Well and Pipe Inverts
Manholes	0.01	0.1	Top Center of Cover
Manhole	N/A	0.01	Pipe Inverts
System Valves	0.01	0.1	Operating Nut and Valve Body

**Table 01720-1 (cont'd)  
Minimum Survey Accuracies**

Asset/Location	Horizontal Accuracy (feet)	Elevation Accuracy (feet)	Location: horizontal center and vertical top, unless otherwise specified
Fittings & the end of the pipe	0.01	0.1	Top of Fitting and Ground
Piping at 100' max intervals	0.01	0.1	Top of Pipe and Ground
Restrained Pipe	0.01	N/A	Limits
Connections	0.01	0.1	Pipe Invert
Bore & Jack Casing	0.01	0.1	Top of Casing at Limits of Casing
Existing Utilities**	0.01	0.1	Conflicts

\* Shall conform to the requirements of the "Chapter 61G17-6, 'Minimum Technical Standards', FAC", for a boundary survey and shall be certified by the Surveyor.

\*\* Existing utilities including but not limited to water, wastewater, reclaimed water, storm, fiber optic cable, electric, gas and structures within the limits of construction.

1.06 SUBMITTALS

- A. Comply with pertinent provisions for the timely submittal requirements under this article and specification section.
- B. Prior to submitting a monthly payment application, the Contractor's progressive As-Built Drawings and As-Built Asset Attribute Data, and Pipe Deflection Tables shall be acceptable to the City.
- C. Progressive As-Built Drawings shall indicate the horizontal and vertical locations of all current constructed improvements with sufficient information and notes to easily determine if the improvements were constructed in conformance with the Contract Documents. The progressive As-Built Asset Attribute Data and Pipe Deflection Tables shall include a Surveyor's certified statement regarding the constructed improvements being within the specified accuracies or if not indicating the variances, as described in Table 01720-1 Minimum Survey Accuracies.
- D. Prior to submitting a request for final payment or the City issuing a Certificate of Completion for the Work, the Contractor shall submit the final Record Documents to the City for approval. Retainage funds will be withheld at the City's discretion based on the quality and accuracy of the final Record Documents.

## 1.07 RECORD DOCUMENTS AT SITE

- A. Maintain at the site and always available for City's use one record copy of:
  - 1. Construction Contract, Drawings, Specifications, General Conditions, Supplemental Conditions, Bid Proposal, Instruction to Bidders, Addenda, and all other Contract Documents.
  - 2. Change Orders, Verbal Orders, and other modifications to Contract.
  - 3. Written instructions by the City as well as correspondence related to Requests for Information (RFIs).
  - 4. Accepted Shop Drawings, Samples, product data, substitution and "or-equal" requests.
  - 5. Field test records, inspection certificates, manufacturer certificates and construction photographs.
  - 6. Progressive As-Built Drawings
  - 7. Current Surveyor's tables for the As-Built Assets Attribute Data, pipe deflection data, and gravity main data.
- B. Maintain the documents in an organized, clean, dry, legible condition and completely protected from deterioration and from loss and damage until completion of the Work, transfer of all record data to the final Record Documents and for submittal to the City.

## PART 2 - PRODUCTS

### 2.01 AS-BUILT DRAWINGS

- A. Maintain the electronic As-Built Drawings to accurately record progress of Work and change orders throughout the duration of the Contract.
- B. Date all entries. Enter RFI No., Change Order No., etc. when applicable.
- C. Call attention to the entry by highlighting with a "cloud" drawn around the area affected.
- D. In the event of overlapping changes, use different colors for entries of the overlapping changes.
- E. Design call-outs shall have a thin strike line through the design call-out and all As-Built information must be labeled (or abbreviated "AB") and be shown in a bolder text that is completely legible.

- F. Make entries in the pertinent other documents while coordinating with the Engineer and the City for validity.
- G. Entries shall consist of graphical representations, plan view and profiles, written comments, dimensions, State Plane Coordinates, details and any other information as required to document field and other changes of the actual Work completed. As a minimum, make entries to also record:
  - 1. Depths of various elements of foundation in relation to finish floor datum and State Plane Coordinates and elevations.
  - 2. As-Built Asset Attribute Data Table shall be completed in the Drawings.
  - 3. When electrical boxes, or underground conduits and plumbing are involved as part of the Work, record true elevations and locations, dimensions between boxes.
  - 4. Actually installed pipe or other Work materials, class, pressure rating, diameter, size, specifications, etc. Similar information for other encountered underground utilities, not installed by Contractor, their City and actual location if different than shown in the Contract Documents.
  - 5. Details, not on original contract Drawings, as needed to show the actual location of the Work completed in a manner that allows the City to find it in the future.
  - 6. The Contractor shall mark all arrangements of conduits, circuits, piping, ducts and similar items shown schematically on the construction documents and show on the As-Built Drawings the actual horizontal and vertical alignments and locations.
  - 7. Major architectural and structural changes including relocation of doors, windows, etc. Architectural schedule changes according to contractor's records and shop drawings.

## 2.02 RECORD DOCUMENTS

- A. A full size, three (3) hard copy set of the final Record Documents and shall include all of the documents described below under this subsection 2.02.
- B. The following documents shall be signed and sealed by the Surveyor:
  - 1. As-Built Asset Attribute Data Table (see Table 1720-2 for an example).
  - 2. Survey and Survey Map Report for the location of constructed pipes within any easements and right-of-way. As a minimum the Survey Map Report shall identify or describe the locations where the pipe centerline was constructed within three feet of the easement or right-of-way boundary, where the pipe was constructed outside the easement or right-of-way boundary, any corners that had to be reset, measurements and computations made, pump station boundary issues, and accuracies

obtained. Survey map report shall be dated after the Work within the right-of-ways or easements have been completed.

3. Pipe Deflection Table (see Table 1720-3 for an example). *An electronic blank table will be supplied by the City.*
- C. Digital Set of the final Record Documents including but not limited to:
    1. Scanned digital copies of the final As-Built Drawings.
    2. Electronic Survey documents electronically sealed by the Surveyor.
    3. Final Record Documents information.
    4. Digital As-Built Drawing in the Engineer's current version of AutoCAD file (dwg) format for the Contract Drawings, updated to match the final Record Drawing information.
  - D. New Boundary Survey to re-establish easement corners, right-of-way monuments, or pump station site corners with monuments if destroyed by the Work.
  - E. Scanned Documents: Scan the Survey Documents and other Record Documents reflecting changes from the Bid Documents.
  - F. The scanned As-Built drawing sets shall be complete and include the title sheet, plan/profile sheets, cross-sections, and details. Each individual sheet contained in the printed set of the As-Built Drawings shall be included in the electronic drawings, with each sheet being converted into an individual tif (tagged image file). Then, the tif images shall be embedded into a single pdf (Adobe Acrobat) file representing the complete plan set. Review all Record Documents to ensure a complete record of the project.
  - G. Provide an encompassing digital AutoCAD file that includes all the information of the As-Built Drawings and any other graphical information in the As-Built Drawings. It shall include the overall Work, utility system layout and associated parcel boundaries and easements. Feature point, line and polygon information for new or altered Work and all accompanying geodetic control and survey data shall be included. The surveyor's certified as-built asset attribute data shall be added to the As-Built Drawings and Surveyor shall electronically seal the data.

**TABLE 1720-2**  
**Asset Attribute Data Form Examples**

**General Information Worksheet**

	A	B	C
1	<b>Date of submittal</b>	3/3/2009	
2			
3	<b>Collection Date</b>	3/3/2009	
4			
5	<b>Project Number</b>	123456	
6			
7	<b>Project Name</b>	ABC	
8			
9	<b>Contractor Name</b>	Joe Contractor	
10			
11	<b>Company</b>	Your Company	
12			

General Info \ Hydrants \ Valve \ Manhole \ Meter \ Fitting \ Cleanout \ Pipes \ Structures \ Easements

**Hydrants Worksheet**

	A	B	C	D	E	F	H	I
1	<b>ID Number</b>	<b>Utilities Asset Number</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Service Type</b>		
2	1	H001	535896.7840	1491359.5830	99.78	Water		
3	2	H002	536062.0800	1491360.9250	99.20	Water		
4	3	H002	509643.9000	1481344.6000	99.20	Water		

General Info \ **Hydrants** \ Valve \ Manhole \ Meter \ Fitting \ Cleanout \ Pipes \ Structures \ Easements

**Valves Worksheet**

	B	C	D	E	F	G
1	<b>Utilities Asset Number</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Valve Type</b>	<b>Service Type</b>
2	V001	535887.9950	1491394.7730	96.74	Gate	Water
3	V002	535884.7480	1491396.1010	91.27	Gate	Water
4	V003	535883.6870	1491393.4900	92.18	Gate	Water

General Info \ Hydrants \ **Valve** \ Manhole \ Meter \ Fitting \ Cleanout \ Pipes \ Structures \ Easements

**Manhole Worksheet**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	<b>ID Number</b>	<b>Utilities Asset Number</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Invert Elev N</b>	<b>Invert Elev NE</b>	<b>Invert Elev E</b>	<b>Invert Elev SE</b>	<b>Invert Elev S</b>	<b>Invert Elev SW</b>	<b>Invert Elev W</b>	<b>Invert Elev NW</b>	<b>Service Type</b>
2	15	15	535895.3040	1491144.0450	96.31	91.55	88.61			88.71		88.61		Water Reclamation
3	277	277	505952.6267	1474939.7822	92.76		88.63				88.95	88.17		Water Reclamation
4	278	278	506130.5461	1475093.6556	91.00					85.95			87.2	Water Reclamation
5	279	279	505993.3980	1475243.3448	92.36					88.8				Water Reclamation

General Info \ Hydrants \ Valve \ **Manhole** \ Meter \ Fitting \ Cleanout \ Pipes \ Structures \ Easements \ Lookup \ Relation

**Meter Worksheet**

	A	B	C	D	E	F	G
1	<b>ID Number</b>	<b>Utilities Asset Number</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Meter Type</b>	<b>Service Type</b>
2	7	7	535887.9950	1491394.7730	96.74	Flow	Water

General Info \ Hydrants \ Valve \ Manhole \ **Meter** \ Fitting \ Cleanout \ Pipes \ Structures \ Easements

**Fitting Worksheet**

	A	B	C	D	E	F	G
1	<b>ID Number</b>	<b>Utilities Asset Number</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Fitting Type</b>	<b>Service Type</b>
2	20008	F0001	538549.20	1475457.69	78.94	Tee	Water Reclamation
3	20010	F0002	538544.73	1475457.74	78.94	Tee	Water Reclamation
4	20013	F0003	538544.36	1475467.92	79.02	Tee	Water Reclamation

General Info \ Hydrants \ Valve \ Manhole \ Meter \ **Fitting** \ Cleanout \ Pipes \ Structures \ Easements



Cleanout Worksheet

	A	B	C	D	E	F	H
1	ID Number	Utilities Asset Number	Easting	Northing	Elevation	Service Type	
2	15	15	535898.3848	1491144.8458	96.31	Water Reclamation	
3	277	277	505962.0207	1474906.7832	92.76	Water Reclamation	

General Info / Hydrants / Valve / Manhole / Meter / Fitting / **Cleanout** / Pipes / Structures / Easements

Pipes Worksheet

	A	B	C	D	E	F	G	H	I
1	ID Number	Utilities Asset Number	Easting	Northing	Elevation	W Pipe Type	WW Pipe Type	RW Pipe Type	Service Type
2	20001	P00001	1475448.92	538024.96	81.6	Distribution	Pressurized		Water Reclamation
3	20002	P00002	1475487.68	538055.74	79.74	Distribution	Pressurized		Water Reclamation
4	20004	P00003	1475470.75	538166.01	79.46	Distribution	Pressurized		Water Reclamation

General Info / Hydrants / Valve / Manhole / Meter / Fitting / Cleanout / **Pipes** / Structures / Easements

Structures Worksheet

	A	B	C	D	E	F	G
1	ID Number	Utilities Asset Number	Easting	Northing	Elevation	Structure Type	Service Type
2	20	3980	535886.9150	1491144.3200	96.17	PumpStation	Water Reclamation

General Info / Hydrants / Valve / Manhole / Meter / Fitting / Cleanout / Pipes / **Structures** / Easements

Easements Worksheet

	A	B	C	D	E	F	G
1	ID Number	Utilities Asset Number	Easting	Northing	Elevation		
2	1721	1721	468066.6800	1515018.8300			
3	1722	1722	468866.9488	1514983.8388			
4	1723	1723	468041.9400	1514983.6500			
5	1724	1724	468041.9400	1515018.6400			

Hydrants / Valve / Manhole / Meter / Fitting / Cleanout / Pipes / Structures / **Easements**

**Note: Do not fill out Utilities Asset Number (grey) column.**

**TABLE 01720-3  
PIPE DEFLECTION TABLE EXAMPLE**

<b>Project:</b> <b>Contractor:</b> <b>Progress Mtg Date:</b> <b>Contract #</b> <b>Dwg Sheet #</b> <b>Utility Type</b> <b>Pipe Manufacturer</b> <b>Pipe size &amp; material</b> <b>PVC Manufacturer Deflection</b> <b>County Allowable Deflection</b> 75% <b>Allowable Angle of Offset</b> <b>Allowable Radius of Curvature</b> <b>Laying Length of Pipe</b>	FM National Pipe 16" PVC C905 6 inches 4.5 inches 1.5 degrees 764 feet 20 feet	
---	---	--

ID	Size and Type	Northing	Easting	Elev.	Calculations Including Elevation (XYZ)							
					Distance between points AB	Distance between points BC	Distance between points AC	Total Deflection Ø'	Radius of Curve**	Average Offset Angle***	Average Offset****	
					Length AB	Length BC	Length AC	XYZ (w elevation)	XYZ (w elevation)	per laying length	per laying length	
					ft	ft	ft	degrees	ft	degrees	inches	
14041	16" FM	1505131.50	468948.53	107.68	-	-	-	-	-	-	-	-
7000	16" FM	1505059.60	468932.08	108.15	73.76	38.93	112.66	5.48	1,178.35	0.97	4.07	
2128	16" FM	1505022.11	468921.60	108.55	38.93	39.61	78.54	2.29	1,961.65	0.58	2.45	
2127	16" FM	1504983.85	468911.35	108.29	39.61	38.35	77.96	1.78	2,505.50	0.46	1.92	
2126	16" FM	1504946.67	468901.96	107.81	38.35	39.13	77.42	8.79	505.16	2.27	9.51	
2125	16" FM	1504908.11	468895.31	107.48								

Data that has been inputted     
  Values in yellow are over spec

\*Uses law of cosines to determine angle ABC and Ø.  
 $\text{angle } ABC = \arccos((AB^2 + BC^2 - AC^2) / (2 * AB * BC))$   
 $180 - \text{angle } ABC = \text{angle } \phi$   
 Calculate the total deflection Ø.  
 to the outer point (A or C) is equal in angle to the approach from the next point along the

\*\* Uses law of sines, using the chord length AC and radius R.  
 $\text{Since } \sin((\phi/2) * (\pi/180)) = (\text{Chord}/2) / R \text{ and length } AC = \text{Chord}$   
 $R = AC / (2 * \sin(\phi * \pi / 360))$   
 This calculation assumes an average radius over the bend between three points.

\*\*\* Adds the lengths of AB + BC / 20ft to get an approximate number of bends over the span.  
 This value is divided by the total deflection angle to calculate the average bend angle of  
 This assumes that the bend angle consistent across the entire length.

\*\*\*\* Uses average offset angle and laying length of pipe.

## PART 3 - EXECUTION

### 3.01 SURVEY FIELD WORK

- A. Locate, reference, and preserve existing horizontal and vertical control points and property corners shown on the Drawings prior to starting any construction Work. If the Surveyor performing the Work discovers any discrepancies that will affect the Project, the Contractor must immediately report these findings to the City. All survey work shall meet the requirements as defined in Florida Administrative Code 61G17-6. Reference and preserve all survey points during construction. If survey points are disturbed, it is the responsibility of the Contractor's Surveyor to reset the points at the Contractor's expense. Copies of the Surveyor's field notes and/or electronic files for point replacement shall be provided to the City.
1. The Surveyor shall locate all improvements for the project As-Built Asset Attribute Data using State Plane Coordinates as the horizontal datum and the benchmark referenced on the Drawings as the vertical datum. The City's Engineer will provide electronic files of the Drawings to be used by the Surveyor in complying with these specifications.
  2. The construction layout shall be established from the reference points shown or listed on the Drawings. The accuracy of any method of staking shall be the responsibility of the Contractor. All construction layout staking shall be done such as to provide for easy verification of the Work by the City.
- B. Only a land surveyor licensed in the State of Florida shall be employed for this Work. Monuments for principal control points were set by the Engineer and shall be protected by the Contractor from disturbance. If the monuments are disturbed, any Work that is governed by these monuments shall be held in abeyance until the monuments are reestablished by the Contractor and approved by the Engineer. The accuracy of all the Contractor's stakes, alignments and grades is the responsibility of the Contractor. However, the Engineer has the discretionary right to check the Contractor's stakes, alignments, and grades at any time.
- Use survey control points to layout such work tasks as the following:
1. Clearing, grubbing, work limits, right-of-way lines and easements
  2. Locations for pipelines and all associated structures and appurtenances
- C. The Surveyor shall reference and replace any project control points, boundary corners, benchmarks, section corners, and right-of-way monuments that may be lost or destroyed, at no additional cost to the City. Establish replacement points based on the original survey control. Copies of all reference field notes and/or electronic files for point replacement shall be submitted to the City.

### 3.02 CONSTRUCTION PROGRESS MEETINGS

- A. At the preconstruction meeting the *Contractor shall be provided with a blank electronic version of the spreadsheet for the tables: Asset Attribute Data and Pipe Deflection*. The Contractor's surveyor shall use these tables to input the data and shall not alter the table format or formulas.
- B. Contractor shall provide progressive Record Documents both as paper copies and electronic format described below.
  - 1. Construction Contract, As-Built Drawings, Specifications, General Conditions, Supplemental Conditions, Bid Proposal, Instruction to Bidders, Addenda, and all other Contract Documents.
  - 2. Specifications and Addenda: Record manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed as well as any changes made by Field Order, Change Order or other.
  - 3. Change orders, verbal orders, and other modifications to Contract.
  - 4. Written instructions by the City as well as correspondence related to Requests for Information (RFIs).
  - 5. Accepted Shop Drawings, samples, product data, substitution and "or-equal" requests.
  - 6. Field test records, inspection certificates, manufacturer certificates and construction photographs.
  - 7. As-Built Asset Attribute Data Table: Surveyor shall obtain field measurements of vertical and horizontal dimensions of constructed improvements. The monthly submittal shall include the Surveyor's certified statement regarding the constructed improvements being within the specified accuracies as described in Table 01720-1 Minimum Survey Accuracies or if not, indicating the variances.
  - 8. Pipe Deflection Table: Surveyor shall input the type of pipe, pipe manufacturer, PVC manufacturer deflection allowance, allowable angle of offset and radius of curvature, laying length of pipe, and coordinates. Surveyor shall certify the data entered are correct and indicate that the deflection allowance, offset or radius of curvature does not exceed 0.75% of the manufacturer's maximum allowable recommendation for deflection.

### 3.03 FINAL RECORD DOCUMENTS SUBMITTAL

- A. Submit the Final Record Documents within 30 days after Substantial Completion.

1. Participate in review meetings as required and make required changes and promptly deliver the Final Record Documents to the Engineer and City.

#### 3.04 STORAGE AND PRESERVATION

- A. Store Record Documents and samples at a protected location in the project field office apart from documents used for construction.
  1. Provide files and racks for storage of documents
  2. Provide locked cabinet or secure space for storage of samples.
- B. File documents and samples in accordance with CSI format with section numbers matching those in the Contract Documents.
- C. In the event of loss of recorded data, use means necessary to again secure the data to the City's approval.
  1. Such means shall include, if necessary in the opinion of the City, removal and replacement of concealing materials.
  2. In such cases, provide replacements of the concealing materials to the standards originally required by the Contract Documents.

END OF SECTION

SECTION 01740

PERMITS

PART 1 - GENERAL

1.01 General:

- A. The Contractor shall obtain and pay for all permits, licenses and fees related to the work. The Contractor shall also initiate all necessary jurisdictional agency reviews and approvals, and secure all required approvals, prior to commencement of the work. Inspection by City personnel is required in addition to, not in lieu of, municipal, FDOT, Florida East Coast (FEC) Railroad, County, or other agency department inspections. No project will be accepted until it has passed all inspections, including installation or replacement, necessary testing, pavement, and restoration requirements, etc.
  
- B. The Contractor shall familiarize himself with, and comply with, all requirements of required permits governing all work under this Contract. The Contractor's particular attention is called to any Special Conditions of the permits relating to construction procedures, excavation and backfill requirements, open trench restrictions, turbidity control, dewatering and sampling, traffic control, pavement restoration and all other general and special conditions. In the event any of the conditions of the permits are in conflict with the requirements of these Specifications, the most stringent conditions shall take precedence. New or required permit conditions for each jurisdictional agency shall be the responsibility of the Contractor to become aware of, and to follow, at no additional cost to the City.
  
- C. The City has obtained the following permits for the project (located in the Appendix):

Agency	Permit No.
BROWARD COUNTY EPGMD LICENSE	WW-62895
DEP ID	HOL #054633-714
BROWARD COUNTY TRAFFIC	BCTED Reference No 210303060
BUILDING DEPARTMENT	DRY RUN

Contractor is responsible to obtain any other permits required to complete construction and to obtain all necessary approval for the project construction. In addition, the City of Hollywood Building Department permit must be finalized by the Contractor.

- D. Any deviations from the Plans, Specifications or required permits, must first be approved by the City, even if approval for the change has been given by the

permitting agency. Any changes requiring additional costs will be required to be submitted in advance of the Contractor performing the work. Failure to do so may result in the Contractor performing the work at their own cost.

- E. The Contractor shall fully assume all obligations and responsibilities, monetary and otherwise, imposed by the permits throughout the life of the project, including but not limited to:
1. Proper maintenance of permit documentation and field records
  2. Proper maintenance of all permit-required field controls, including but not limited to, the following:
    - (a) Notifications, inspections, work during night or weekend hours
    - (b) Dewatering and dewatering discharge and permitting requirements
    - (c) Chemical spill prevention
    - (d) Erosion, sedimentation, turbidity and dust retention
    - (e) Protection of existing facilities (utility, storm, power, railroad, etc.)
    - (f) Temporary vehicular and pedestrian traffic controls
  3. Payment of fines resulting from permit non-compliance
  4. Maintaining active permits and obtaining permit extensions when needed
  5. Providing certifications of all materials and equipment installed
  6. Performing successful inspections and tests required by the permits
  7. Correcting any work that is not in compliance with permits
  8. Performing successful equipment start-ups
  9. Providing Operation and Maintenance (O&M) manuals for installed equipment as required by permits
  10. Repair of any permanent traffic controls impacted by Contractor
  11. Close-out of all permits
- F. All surveying required by the project permits will be done by the Contractor's Florida registered Land Surveyor. This includes staking out limits of construction and Field Engineering per Section 01050. All jurisdictional as-built requirements for facilities constructed within the agencies right-of-way limits will be the responsibility of the Contractor and at the Contractor's cost. Comments provided by the City, Engineer, and all regulatory agencies will be required to be responded to and as-builts updated at the Contractor's expense such that an actual final as-built survey and representation of all constructed facilities is as accurate as possible. As-builts are to be provided in CAD and will be required to be signed and sealed by a licensed PSM in the State of Florida. Up to ten (10) hard copy and/or digital signed and sealed sets, including CAD files or PDF files, may also be required of due to the various permitting agencies. All costs will be borne by the Contractor for as-built documentation, files, and plan sets.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



## SECTION 02080

### ABANDONMENT, REMOVAL AND DISPOSAL OF EXISTING PIPE REMOVED FROM SERVICE

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: Furnish all labor, materials, equipment and incidentals required to abandon or place out of service, remove, salvage and/or dispose of existing water/sewer/force main pipelines as shown on the Drawings and as specified herein.
- B. Definitions:
  - 1. Pipeline Abandonment/Pipeline Placed out of Service - isolate from active pipelines, remove from service, dispose of pipeline contents, plug pipeline, fill pipeline with specified cementitious material, leave pipe in place.
  - 2. Pipeline Removal - isolate from active pipelines, remove from service. Dispose of pipeline contents, remove pipe, valves, fittings, dispose or stockpile removed materials as required.

##### 1.02 QUALITY ASSURANCE

- A. Permits and Licenses: Contractor shall obtain and pay respective fees for all necessary permits and licenses for performing the Work and shall furnish a copy of same to the Engineer prior to commencing the Work. The Contractor shall comply with the requirements of the permits.
- B. Notices: Contractor shall issue written notices of planned work to companies or local authorities owning utility conduit, wires or pipes running to or through the project site. Copies of said notices shall be submitted to the Engineer.
- C. Standards:
  - 1. National Emission Standards Hazardous Air Pollution (NESHAP), 40 CFR Part 61, Subpart M, latest revision.
  - 2. Occupational Safety and Health Act, 29 CFR.
  - 3. The Environmental Protection Agency (EPA) Asbestos Abatement Worker Protection Rule.
  - 4. Florida Statutes.

D. Quality Control

1. It shall be the responsibility of the Contractor to provide supervision and inspections to ensure that the existing piping is removed and disposed, salvaged or abandoned or placed out of service as designated in the Drawings and as specified herein.

1.03 SUBMITTALS

- A. Shop Drawings - Submitted to the Engineers acceptance prior to construction in accordance with Section 01300 for the following:
1. Grout – See Section 03600 requirements.
  2. Caps and plugs.

PART 2 - MATERIALS (NOT USED)

PART 3 - EXECUTION

3.01 REMOVAL, ABANDONMENT AND DISPOSAL

- A. General: Existing piping designated on the Drawings to be removed shall be exposed and removed by the Contractor in accordance with the requirements specified herein.
- B. Potential types of pipe to be removed and/or abandoned in place or placed out of service:
1. Ductile Iron/Cast Iron, PVC, PE, AC or PCCP Water/Sewer/Force Mains
- C. Removal and Disposal:
1. Pipe designated to be removed and disposed by the Contractor shall be completely drained and the contents properly disposed. The pipe shall then be completely removed from the site, including fittings, valves other in-line devices.
  2. The Contractor shall be required to submit, obtain and pay for all necessary permit fees for piping removal and disposal.
  3. If manufacturer's representatives are required for portions of piping that is to be removed on the plans (such as but not limited to PCCP piping), the Contractor shall be required to coordinate and pay for all costs associated with the manufacturer's representatives review, field review, submittal documents and other efforts as necessary for the piping removal and/or replacement or repairs.

- D. Removal of material to be salvaged:
1. Pipe, fire hydrants, and valves to be removed and salvaged as directed by the City shall be completely drained and the contents properly disposed. The pipe shall then be thoroughly pressure washed, palletized on wooden skids to a dimension not exceeding the recommendation of the manufacturer, and conveyed to the City at the location designated by the City at no cost to the City.
- E. Abandonment/Placed out of Service:
1. Types of pipe to be abandoned in place or placed out of service:
    - a. Asbestos Cement (AC) Mains and various other pipes as shown on the drawings. See Section 01030 Special Project Procedures for asbestos cement (AC) pipe handling.
  2. All pipe designated to be abandoned on this project shall be left in place and placed out of service. Piping that is 6-inches in diameter and larger shall be filled with grout in accordance with Section 03600, Grouting.
  3. Plugs: Pipe to be grouted shall be capped or plugged with a fitting. All caps and plugs shall be submitted to the Engineer for approval. Existing pipe shall be properly restrained per the restrained joint table requirements with thrust collars or manufactured restraints based on conditions that result from cutting pipes and/or closing valves to grout pipe to be abandoned or placed out of service.

END OF SECTION

SECTION 02100  
CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish all materials, equipment and labor necessary to complete all clearing and grubbing as specified herein and in accordance with the Drawings.
- B. The Contractor shall box and protect all trees, shrubs, lawns, and landscaping. Any damaged trees or landscaping shall be restored at the Contractor's cost.

1.02 STANDARDS AND REGULATIONS

- A. The Contractor shall comply with all state, county and local regulations regarding disposal of debris resulting from the clearing and grubbing operation.
- B. The Contractor shall dispose of debris resulting from the clearing and grubbing operation at off-site locations in a lawful manner.

1.03 PROTECTION OF PERSONS AND PROPERTY

- A. All work shall be performed in such a manner to protect all personnel, workmen, pedestrians, and adjacent property and structures from possible injury or damage.
- B. Required wind load calculation for equipment mounted outside. Contractor to submit equipment support detail for approval.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

- A. The Work specified in this section consists of clearing and grubbing within the areas required in the easements, parcels owned by the City, and/or right-of-ways to install the pipeline, appurtenances and other project work as shown on the Drawings. The Work shall include the proper disposal of the resultant products and debris in areas provided by the Contractor unless noted otherwise.

- B. Property obstructions which are to remain in place, such as buildings, sewers, drains, pipelines, conduits, poles, walls, posts, bridges, etc., are to be carefully protected from injury and are not to be displaced, except for unusual cases when so specified by the Engineer.
- C. Standard clearing and grubbing shall consist of the complete removal and disposal of all trees, shrubs, timber, brush, stumps, roots, grass, weeds, rubbish and other obstructions resting on or protruding through the surface of the existing ground and the surface of excavated areas.
- D. Excavation resulting from the removal of trees, roots, and the like shall be filled with suitable material, as approved by the Engineer, and thoroughly compacted per the requirements contained in Section 02222, Excavation and Backfill for Utilities and Structures.

### 3.02 DISPOSAL OF MATERIALS

- A. Timber, stumps, muck, brush, roots, rubbish and other objectionable material resulting from clearing and grubbing shall be disposed of in a lawful manner, off site by the Contractor.
- B. Burning of any debris resulting from the clearing and grubbing work will not be permitted at the site.

END OF SECTION

## SECTION 02140

### DEWATERING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Design, furnish, operate, maintain, and remove temporary dewatering systems to control groundwater and surface water to maintain stable, undisturbed subgrades, and permit work to be performed under dry and stable conditions. Work to be done as part of dewatering includes, but is not limited to:
  - 1. Lower the groundwater level
  - 2. Lower hydrostatic pressure.
  - 3. Sampling and discharge requirements.
  - 4. Prevent surface water from entering the excavation during construction.
  - 5. Implement erosion control measures for disposing of discharge water.
- B. Groundwater within the excavation area shall be lowered to at least 1 foot below the lowest excavation levels as specified and as indicated.
- C. Common groundwater recharge methods include, but are not limited to, deep wells, large sumps or any combination thereof.
- D. The Contractor shall obtain the required permits and pay any associated permit fees for the discharge from the Contractor's dewatering systems in accordance with Broward County and South Florida Water Management District (SFWMD) requirements and all other jurisdictional agencies as necessary. The Contractor shall conform with all permit requirements. In addition, a listing of potentially contaminated sites per the Broward County contaminated site database can be found on the County's website. As their website is updated regularly, the Contractor shall be responsible to review the latest contaminated site listing and allow time for any initial monitoring, dewatering sampling/testing and subsequent permitting time frames if there is evidence of groundwater contamination in the dewatering samples. No delay claims will be allowed for the Contractor's lack of initial due diligence and/or installation of monitoring wells for sampling of dewatering discharge if not implemented prior to commencement of construction such that necessary measures and permitting efforts/submittals can be performed without impact to the project schedule.

##### 1.02 RELATED WORK

- A. Section 01560 – Special Controls
- B. Section 02160 – Temporary Excavation Support Systems

- C. Section 02210 – Earth Excavation, Backfill, Fill and Grading
- D. Section 02222 – Excavation and Backfill for Utilities and Structures
- E. Section 02225 – Contaminated Soils and Groundwater

### 1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01300, Submittals:
  - 1. Qualification of the Contractor's dewatering specialist's or firm's qualifications a minimum of four (4) weeks prior to execution of any dewatering. The submittal shall include, but not be limited to:
    - (a) Qualifications of specialist's or firm's Registered Professional Engineer as specified in Paragraph 1.04 B.
    - (b) Qualifications of specialist's or firm's field representative, as specified in paragraph 1.04 B, who shall oversee the installation, operation and maintenance of the dewatering system.
  - 2. Submit a dewatering plan at least two weeks prior to start of any dewatering operation. Do not submit design calculations. The review will be only for the information of the City and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include the following items as a minimum:
    - (a) Dewatering plan and details stamped and signed by a Registered Professional Engineer.
    - (b) Certificate of Design: Refer to Section 01300, Submittals.
    - (c) A list of equipment including, but not limited to, pumps, prime movers, and standby equipment.
    - (d) Detailed description of dewatering, maintenance, and system removal procedures.
    - (e) Monitoring plan and details, including, but not limited to, number and locations of observation wells, and geotechnical instruments such as settlement markers and piezometers, and frequency of reading the monitoring devices.

- (f) Erosion/sedimentation control measures, and methods of disposal of pumped water. Sampling of dewatering discharge and meeting the required permitting agency parameters.
  - (g) List of all applicable laws, regulations, rules, and codes to which dewatering design conforms.
  - (h) List of assumptions made for design of dewatering and for groundwater recharge systems, including but not limited to groundwater levels, soil profile, permeability, and duration of pumping and or recharge.
  - (i) Turbidity measurements in receiving waters as required by the permit. A turbidity control and monitoring where discharge is to a body of water.
- 3. Measurement records consisting of observation well groundwater records and the geotechnical instrumentation readings within one day of monitoring.
  - 4. A modified dewatering plan within 24 hours, if open pumping from sumps and ditches results in boils, loss of fines, sinkholes or softening of the ground.

#### 1.04 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400, Testing and Inspection and as specified.
- B. Employ the services of a dewatering specialist or firm having the following qualifications:
  - 1. Have completed at least five (5) successful dewatering projects of equal size and complexity and with equal systems within the last five (5) years.
  - 2. Retain the services of a Florida Registered Professional Engineer having a minimum of five (5) years of experience in the design of well points, deep wells, or equal systems.
  - 3. Retain the services of a field representative having a minimum of five (5) years of experience in installation of well points, deep wells, or equal systems.
- C. If subgrade soils are disturbed or become unstable due to dewatering operation or an inadequate dewatering system, notify the City's representative, stabilize the



subgrade, and modify system to perform as specified at no additional cost to the City.

- D. Notify the City's representative immediately if any settlement or movement is detected on structures. If the settlement or movement is deemed by the City's representative to be related to the dewatering, take actions to protect the adjacent structures and submit a modified dewatering plan to the City's representative within 24 hours. Implement the modified plan and repair any damage incurred to the adjacent structures at no additional cost to the City.
- E. If oil and/or other hazardous materials are encountered after dewatering begins, immediately notify the City's representative.

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with the General Requirements.

#### 1.06 PROJECT/SITE CONDITIONS

- A. Subsurface Conditions: Refer to Geotechnical Report provided specifically for the project. The Contractor is responsible for investigating existing soil conditions as the Geotechnical Report does not assure all subsurface site conditions are represented.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Provide settlement markers, observation wells, piezometers and/or any other geotechnical instruments in accordance with the submitted dewatering plan.
- B. Provide casings, well screens, piping, fittings, pumps, power and other items required for dewatering system.
- C. Provide sand and gravel filter around the well screen. Wrapping geotextile fabric directly around the well screen shall not be allowed.
- D. When deep wells, well points, or vacuum well points are used, provide pumping units capable of maintaining high vacuum and handling large volumes of air and water at the same time.
- E. Provide and store auxiliary dewatering equipment, consisting of pumps and hoses on the site in the event of breakdown, at least one (1) pump for every five (5) used.

1. Provide and maintain erosion/sedimentation control devices as indicated or specified and in accordance with the dewatering plan.
2. Provide temporary pipes, hoses, flumes, or channels for the transport of discharge water to the discharge location.
3. Provide cement grout having a water cement ratio of 1 to 1 by volume.
4. Provide for dewatering discharge sampling as required by regulatory agencies. All sampling and permit fees are to be paid by the Contractor.
5. Sampling parameters must meet regulatory standards prior to dewatering discharge. The Contractor is required to pay for all sampling and testing, including permitting efforts as necessary for dewatering discharge of groundwater.

## PART 3 - EXECUTION

### 3.01 EXECUTION

- A. Execution of any earth excavation, installing earth retention systems, and dewatering shall not commence until the related submittals have been reviewed by the City' representative with all City's representative comments satisfactorily addressed and the geotechnical instrumentation has been installed.
- B. Furnish, install and maintain dewatering system in accordance with the dewatering plan and regulatory requirements.
- C. Carry out dewatering program in such a manner as to prevent undermining or disturbing foundations of existing structures or of work ongoing or previously completed.
- D. Do not excavate until the dewatering system is operational.
- E. Unless otherwise specified, continue dewatering uninterrupted until all structures, pipes, and appurtenances below groundwater level have been completed such that they will not be floated or otherwise damaged by an increase in groundwater elevation.
- F. Discontinue open pumping from sumps and ditches, if such pumping is resulting in boils, loss of fines, softening of the ground, or instability of the slopes. Modify dewatering plan and submit to the City's representative and required regulatory agencies at no additional cost to the City.
- G. Where subgrade materials are disturbed or become unstable due to dewatering operations, remove and replace the materials in accordance with Section 02210, Earth Excavation, Backfill, Fill and Grading, at no additional cost to the City.

H. Dewatering Discharge:

1. Install and monitor recharge systems when specified and/or indicated and in accordance with the submitted dewatering plan.
2. Install sand and gravel filters in conjunction with well points and deep wells to prevent the migration of fines from the existing soil during the dewatering operation.
3. Transport pumped or drained water to discharge location without interference to other work, damage to pavement, other surfaces, or property.
4. Provide separately controllable pumping lines.
5. The City's representative reserves the right to sample discharge water at any time. The Contractor is required to meet all regulatory requirements for sampling and sampling parameters, prior to dewatering discharge.
6. Immediately notify the City's representative if suspected contaminated groundwater is encountered. Do not pump water found to be contaminated with oil or other hazardous material to the discharge locations.

I. Monitoring Devices and Records:

1. Install, maintain, monitor and take readings from the observation wells and geotechnical instruments in accordance with the dewatering plan.
2. Install settlement markers on structures within the zone of influence for dewatering a distance equal to twice the depth of the excavation, from the closest edge of the excavation. Conduct and report settlement surveys to 0.01 feet.
3. For large rectangular, square or circular mass excavations the zone of influence shall be defined by the actual cone of watering influence corresponding to a 10% increase in effective vertical stress.

J. Install and maintain erosion/sedimentation control devices at the point of discharge and in accordance with the dewatering plan and regulatory requirements.

K. Removal:

1. Do not remove dewatering system without written approval from the Engineer, and/or the City.

2. Backfill and compact sumps or ditches with clean fill in accordance with Section 02210 - Earth Excavation, Backfill, Fill and Grading.
3. All dewatering wells shall be abandoned upon completion of the work, and completely backfilled with cement grout.

### 3.02 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION

## SECTION 02160

### TEMPORARY EXCAVATION SUPPORT SYSTEMS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Design, furnish and install temporary excavation support systems as required to maintain lateral support, prevent loss of ground, limit soil movements to acceptable limits and protect from damage existing and proposed improvements including, but not limited to, pipelines, utilities, structures, roadways, railroads and other facilities.
- B. Common types of excavation support system include, but are not limited to, singular or multiple stages comprised of cantilevered or internally braced soldier piles and lagging, steel sheet pile wall, timber sheet pile wall, trench box, or combinations thereof. Trench box temporary excavation support system is only acceptable for pipe or utility trench excavations. Temporary unsupported open cut excavation with stable sloping sides is allowed where applicable.
- C. Wherever the word "sheeting" is used in this section or on the contract drawings, it shall be in reference to any type of excavation support system specified except trench box.
- D. Construction of the temporary excavation support systems shall not disturb the existing structures or the completed proposed structures. Damage to such structures shall be repaired by the Contractor at no additional cost to the Owner.
- E. Adjacent structures are those that bear upon soils above the proposed excavation depth and within a distance equal to twice the total depth of the excavation away from the closest edge of the excavation. Monitor and protect adjacent structures as specified and indicated.
- F. Vibration monitoring for excavation support systems will be performed by Contractor's vibration consultant and monitoring firm. Vibration due to Contractor's operations shall not exceed specified limits 1.05 E.
- G. Construction operations not to exceed specified noise limits in accordance with the City of Hollywood Noise Ordinances.
- H. The Contractor shall bear the entire cost and responsibility of correcting any failure, damages, subsidence, upheaval or cave-ins as a result of improper installation, maintenance or design of the temporary excavation support systems.

The Contractor shall pay for all claims, costs and damages that arise as a result of the work performed at no additional cost to the Owner.

- I. All excavation support systems are to be designed and installed in conformance with the latest OSHA requirements.

#### 1.02 RELATED WORK

- A. Section 02210 – Earth Excavation, Backfill, Fill and Grading
- B. Section 02222 – Excavation and Backfill for Utilities and Structures
- C. Division 3

#### 1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. A36: Standard Specification for Structural Steel
  - 2. A328: Standard Specification for Steel Sheet Piling
  - 3. A416: Standard Specification for Strand Steel, Uncoated Seven-Wire for Prestressed Concrete
  - 4. A722: Specification for Uncoated High-Strength Steel Bar for Prestressing Concrete
  - 5. A615: Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- B. American Wood-Preserves Association (AWPA) Standards.
- C. American Welding Society (AWS) Code: D1.1.
- D. Federal Standard, FS TT-W-571: Wood Preservation and Treating Practices.
- E. Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29: Subpart P - Excavations, Trenching and Shoring.
- F. American Concrete Institute (ACI)
  - 1. ACI 304: Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

#### 1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01300:
  - 1. Submit the following qualifications four (4) weeks prior to the construction:

- (a) Qualifications of independent vibration consulting and monitoring firm as specified in Paragraph 1.05 D.
  - (b) Qualifications of Contractor's temporary excavation support system designer as specified in Paragraph 1.05 G.
  - (c) Qualifications of Contractor's temporary excavation support system installer as specified in Paragraph 1.05 H.
  - (d) Qualifications of Contractor's independent tieback testing laboratory as specified in Paragraph 1.05 I, if a tieback system is utilized.
  - (e) Qualifications of Contractor's temporary excavation support system installation supervisor as specified in Paragraph 1.05 J.
  - (f) Qualifications of vacuum excavation subcontractor as specified in Paragraph 1.05 F, if drilled micro piles (DMPs) for utilities are utilized.
2. Submit a temporary excavation support plan stamped and signed by a Registered Professional Engineer at least two weeks prior to start of the construction. Do not submit design calculations. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include the following items as a minimum.
- (a) Proposed temporary excavation support system(s), details, location, layout, depths, extent of different types of support relative to existing features and the permanent structures to be constructed, and methods and sequence of installation and removal.
  - (b) Certificate of Design: Refer to Section 01300.
  - (c) A list of all design assumptions, including safety factors used for the temporary excavation support system(s) and all lateral pressures used for each system.
  - (d) If utilizing a tieback system, include tieback installation procedures and criteria for acceptance of tiebacks for performance and proof tests. Submit the tieback testing results to the Engineer for information only.
  - (e) Requirements of dewatering during the construction.
  - (f) Minimum lateral distance from the edge of the excavation support system for use for vehicles, construction equipment, and stockpiled construction and excavated materials.

- (g) List of equipment used for installing the excavation support systems.
  - (h) Monitoring schedule, installation procedures and location plans for vibration/noise monitoring, geotechnical instrumentation (deformation monitoring points, inclinometers, etc.) and observation wells/piezometers to monitor ground, excavation support system, adjacent structures and groundwater fluctuation during the entire construction period.
3. Submit a Construction Contingency Plan specifying the methods and procedures to maintain temporary excavation support system stability if the allowable movement of the adjacent ground and adjacent structures is exceeded.
4. Monitoring data within one (1) day of data collection from vibration and noise recording equipment, observation wells, deformation monitoring points and offset lines. Data shall include:
- (a) Horizontal and vertical movements of geotechnical instruments and groundwater readings.
  - (b) New movements since the initial readings of the geotechnical instruments.
  - (c) Weekly summary in tabular and graphic form at the end of each week.
  - (d) A schematic plan of excavation and/or relevant construction activities at the time of monitoring.
5. For excavation support systems left in place, submit the following as-built information prior to backfilling and covering the excavation support systems:
- (a) Survey locations of the temporary excavation support systems, including coordinates of the ends and points of change in direction.
  - (b) Type of the temporary excavation support system.
  - (c) Elevations (NAVD 88, or as applicable for the current survey datum) of top and bottom of the excavation support systems left in place.

#### 1.05 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified herein.



- B. Conform to the requirements of the OSHA Standards and Interpretations: "Part 1926 Subpart P - Excavation, Trenching, and Shoring", and all other applicable laws, regulations, rules, and codes.
- C. Construction operations to conform to noise regulations provided in the Noise Control Plan and this Section.
- D. Retain the services of an independent vibration consulting firm with the following in-house personnel to conduct the following vibration monitoring requirements:
  - 1. Preparing, reviewing and signing of monitoring plans and daily reports, and overseeing of the monitoring and interpretation of the vibration data shall be performed by personnel with the following qualifications:
    - (a) Be a Florida Registered Professional Engineer.
    - (b) Have a minimum of five (5) years' experience in the vibration consulting field.
    - (c) Have successfully completed at least five (5) projects with vibration-inducing construction operations, pile driving, and noise levels equal to or more severe than those to be encountered.
  - 2. Assist Contractor in selecting pile driving equipment which will generate the lowest vibration and noise levels.
  - 3. Installation, monitoring and interpretation of monitoring equipment shall be performed by personnel with the following qualifications:
    - (a) Have at least three (3) years of experience in the operation of monitoring equipment proposed for use and interpretation of records produced by such equipment.
    - (b) Have installed, operated, monitored and interpreted equipment and records on at least three (3) projects with vibration-inducing construction operations, pile driving, and noise levels equal to or more severe than those to be encountered.
- E. The peak particle velocity for pile driving, or other vibration-inducing operations, shall not exceed the following:

<u>Type of Concrete</u>	<u>Age of Concrete, hrs</u>	<u>Peak Particle Velocity in/sec</u>
Mass Concrete	0-11	1.0
(footings, mats, Slab-on-grade, fill concrete, etc.)	11 and over	2.0

Concrete Structures (walls, columns, elevated slabs, etc.)	0-11 11-24 24 and over	0.5 1.0 2.0
Existing Structures, residences or utilities	-	0.5

- F. If utilizing deformation monitoring points (DMPs) for utilities, vacuum excavation shall be performed by subcontractor having five (5) years of experience in non-destructive vacuum excavation methods for utilities.
- G. Prepare design, including calculations and drawings, under the direction of a Professional Engineer registered in the state where the project is located and having the following qualifications.
1. Not less than ten (10) years' experience in the design of specific temporary excavation support systems to be used.
  2. Completed not less than five (5) successful temporary excavation support system projects of equal type, size, and complexity within the last five (5) years.
- H. Temporary Excavation Support System Installer's Qualifications:
1. Not less than three (3) year experience in the installation of similar types and equal complexity as the proposed system.
  2. Completed not less than three (3) successful excavation support systems of similar type and equal complexity as the proposed system.
- I. If utilizing a tieback system, employ an independent testing laboratory to test the tieback system with the following qualifications:
1. Be accredited by the American Association of State Highway and Transportation Officials (AASHTO) Accreditation Program.
  2. Employ personnel conducting testing who are trained in the methods and procedures to test and monitor tieback systems of similar type and equal complexity, as the proposed system.
  3. Have not less than five (5) years of experience in testing of tieback systems of similar type and equal complexity as the proposed system.
  4. Have successfully tested at least three (3) tieback systems of similar type and equal complexity as the proposed system.

- J. Install all temporary excavation support systems under the supervision of a supervisor having the following qualifications:
  - 1. Not less than five (5) years of experience in installation of systems of similar type and equal complexity as the proposed system.
  - 2. Completed at least five (5) successful temporary excavation support systems of similar type and equal complexity as the proposed system.
- K. All welding shall be performed in accordance with AWS D1.1.

## 1.06 DESIGN CRITERIA

- A. Design of temporary excavation support systems shall meet the following minimum requirements:
  - 1. Support systems shall be designed for earth pressures, hydrostatic pressure, equipment, temporary stockpiles, construction loads, roadways, railroads, and other surcharge loads.
  - 2. Design a bracing system to provide sufficient reaction to maintain stability.
  - 3. Limit movement of ground adjacent to the excavation support system to be within the allowable ground deformation as specified.
  - 4. Design the embedment depth below bottom of excavation to minimize lateral and vertical earth movements and provide bottom stability. Toe of braced temporary excavation support systems shall not be less than 5 feet below the bottom of the excavation.
  - 5. Design temporary excavation support systems to withstand an additional 2 feet of excavation below proposed bottom of excavation without redesign except for the addition of lagging and/or bracing.

## 1.07 DELIVERY, STORAGE AND HANDLING

- A. Store sheeting and bracing materials to prevent sagging which would produce permanent deformation. Keep concentrated loads which occur during stacking or lifting below the level which would produce permanent deformation of the material.

## 1.08 PROJECT/SITE CONDITIONS

- A. Subsurface Conditions: Refer to Sections 01500, 02210, 02222, and the project Geotechnical Report.
- B. Concrete: Section 03300 - Cast in Place & Precast Concrete, Reinforcing and Formwork.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Structural Steel: All soldier piles, wales, rakers, struts, wedges, plates, waterstop and accessory steel shapes shall conform to ASTM A36.

- B. Steel Sheet Piling: ASTM A328, continuous interlocking type.
- C. Timber Lagging Left in Place: Pressured treated per appropriate AWPA standards.
- D. Tieback Tendons: Tieback tendons shall be high strength steel wire strand cables conforming to ASTM A416, or bars conforming to ASTM A722. Splicing of individual cables shall not be permitted.
- E. Raker Ties: ASTM A615 Grade 60.
- F. Cement Grout Materials And Admixtures For Tieback Anchorages: Grout cube strength shall be a minimum 3500 psi at 7 days and 5000 psi at 28 days.
- G. Tamping tools adapted for backfilling voids after removal of the excavation support system.
- H. Provide specific trench box sizes for each pipe and utility excavation with structural capacity of retaining soil types as described in OSHA's 29 CFR Part 1926 Subpart P.

## 2.02 EQUIPMENT

- A. A vibratory hammer shall be utilized for driving the temporary sheet piling providing that such operations do not exceed vibration/noise requirements of the specifications. Impact hammer shall be utilized when vibratory hammer is unable to drive temporary sheet piling to required depth and/or unable to meet vibration requirements. Impact hammer shall also meet noise and vibration requirement.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. Installation of the temporary excavation support systems shall not commence until the related earth excavation and dewatering submittals have been reviewed by the Engineer with all Engineer's comments satisfactorily addressed.
- B. Install excavation support systems in accordance with the temporary excavation support plan.
- C. If utilizing a tieback system, all performance and proof tests shall be conducted in the presence of the Engineer. Testing performed without the Engineer or Owner's representative present will not be accepted. Repeat testing in the Engineer's presence at no additional cost to the Owner.

- D. Do not drive sheeting within 100 feet of concrete less than seven (7) days old.
- E. Carry out program of temporary excavation support in such a manner as to prevent undermining or disturbing foundations of existing structures of work ongoing or previously completed.
- F. Bottom of the trench box excavation support system shall be above the pipe invert prior to installing the pipe.
- G. Install and read geotechnical instrumentation in accordance with the temporary excavation support plan. Notify the Engineer or Owner's representative immediately if any geotechnical instrumentation is damaged. Repair or replace damaged geotechnical instrumentation at the sole option of the Engineer and at no additional cost to the Owner.
- H. Continuously monitor movements of the ground adjacent to excavation support systems and adjacent structures. If the measured movements approach or exceed the allowable movements, take immediate steps to arrest further movement by revising procedures such as providing supplementary bracing, filling voids behind the trench box, supporting utilities or other measures (Construction Contingency Plan) as required.
- I. Notify utility owners if existing utilities interfere with the temporary excavation support system. Modify the existing utility with the utility owners' permission or have the utility owner make the modifications at no additional cost to Owner.

### 3.02 GROUND DEFORMATION ADJACENT TO EXCAVATION SUPPORT SYSTEMS

- A. Allowable Vertical (heave/settlement) and Lateral Movements: 2 inches [5 cm] maximum for the trench box excavation support system, and 1 inch [2.5 cm] maximum for other types of excavation support systems at any location behind the excavation support system.
- B. Monitoring personnel shall use a procedure for reading and recording geotechnical instrumentation data which compares the current reading to the last reading during data collection to eliminate spurious readings.
- C. Plot the observed ground deformation readings versus time. Annotate the plots with construction loading and excavation events having an impact on the readings. Evaluate plots by means of secondary rate-of-change plots to provide early warning of accelerating ground movements.
- D. Notify the Engineer when the allowable ground deformation is exceeded.

- E. Implement Construction Contingency Plan under direction of the temporary excavation support system designer and the Engineer.

### 3.03 REMOVAL OF EARTH RETENTION SYSTEM

- A. Sheeting shall not be left in place.
- B. Remove the temporary excavation support system without endangering the constructed or adjacent structures, utilities, or property. Immediately backfill all voids left or caused by withdrawal of temporary excavation support systems with bank-run gravel, screened gravel or select borrow by tamping with tools specifically adapted for that purpose.
- C. When tiebacks are used, release tension in tiebacks as the excavation is backfilled. Do not leave tensioned tieback in place at the completion of the work.
- D. The excavation support system left-in-place shall be cut-off a minimum of 2 feet below the bottom of the next higher foundation level or a minimum of 5 feet below finished grade.

### 3.04 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION



## SECTION 02210

### EARTH EXCAVATION, BACKFILL, FILL AND GRADING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Perform the following earth excavation, backfill, fill and grading as indicated or specified:
  - 1. Make excavations to accommodate piping, conduits, foundations and other structures.
  - 2. Provide materials for backfilling excavations and constructing embankments and fills as indicated and specified.
  - 3. Construct embankments of compacted materials.
  - 4. Grade surfaces to meet finished grades indicated.
  - 5. Immediately notify the Engineer if suspected hazardous materials are encountered and cease operations in that part of work.
  - 6. Immediately stop work and notify the Engineer if historical artifacts or human remains are encountered.
  - 7. Remove boulders within the excavation limits.

##### 1.02 RELATED WORK

- A. Section 01560 – Special Controls
- B. Section 02100 – Clearing and Grubbing
- C. Section 02222 – Excavation and Backfill for Utilities and Structures
- D. Section 02500 – Landscaping
- E. Division 3

##### 1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM) Publications:
  - 1. C33: Specification for Concrete Aggregates.
  - 2. C136: Sieve Analysis of Fine and Coarse Aggregates.

3. D421: Practice for Dry Preparation of Soil Samples for Particle Size Analysis and Determination of Soil Constants.
  4. D422: Test Method for Particle-Size Analysis of Soils.
  5. D1140: Test Method for Amount of Material in Soils Finer than the No. 200 (75 Fm) Sieve.
  6. D1556: Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
  7. D1557: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  8. D2167: Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
  9. D2922: Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods. (Shallow Depth).
  10. D3017: Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
  11. D4318: Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
  12. D4718: Practice for Correction of Unit Weight and Water Content for Soils Containing Oversized Particles.
  13. D4944: Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Pressure Tester Method.
  14. D4959: Test Method for Field Determination of Water (Moisture) Content of Soil by Direct Heating Method.
  15. D5080: Test Method for Rapid Determination of Percent Compaction.
- B. Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29: Subpart P - Excavations, Trenching and Shoring.

#### 1.04 DEFINITIONS

- A. Percentage of compaction is defined as the ratio of the field dry density, as determined by ASTM D1556 to the maximum dry density determined by ASTM D1557 Procedure C, multiplied by 100.
- B. Proof Roll: Compaction with a minimum of 4 passes of a vibratory steel drum or rubber tire roller. Vibratory plate compactors shall be used in small areas where vibratory steel drum or rubber tire roller cannot be used.
- C. Acceptable Material: Material which does not contain organic silt or organic clay, peat, vegetation, wood or roots, stones or rock fragments over 6-inch [15 cm] in diameter, porous biodegradable matter, loose or soft fill, excavated pavement, construction debris, or refuse. Stones or rock fragments shall not exceed 40 percent by weight of the backfill material.
- D. Unacceptable Materials: Materials that do not comply with the requirements for the acceptable material or which cannot be compacted to the specified or indicated density.

#### 1.05 SUBMITTALS

- A. Submit the following in accordance with Section 01300 - Submittals:
  - 1. Qualifications of the Contractor's Independent Testing Laboratory as specified in Paragraph 1.06 I, four (4) weeks prior to the execution of any earth excavation, backfilling, filling, or compaction process.
  - 2. Submit an excavation, backfilling, and filling plan at least two weeks prior to start of any earth moving activities. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include, but not be limited to the following items:
    - (a) Detailed sequence of work.
    - (b) General description of construction methods.
    - (c) Numbers, types, and sizes of equipment proposed to perform excavation and compaction.
    - (d) Details of dust control measures.

- (e) Proposed locations of stockpiled excavation and/or backfill materials.
  - (f) Proposed surplus excavated material off-site disposal areas and required permits.
  - (g) Details of erosion and sedimentation control measures which will prevent erosion and sedimentation during the earth moving activities.
- 3. Laboratory testing results of gradation and moisture-density relationship. Submittal shall include specific location of the source and the date when sample was taken.
  - 4. During Construction, submit written confirmation of fill lift thickness, in-place soil moisture content, and percentage of compaction to the Engineer before placing the next lift or constructing foundations.

#### 1.06 QUALITY ASSURANCE AND CONTROL

- A. Provide in accordance with Section 01400 and as specified.
- B. The Contractor shall be solely responsible for making all excavations in a safe manner. All excavation, trenching, and related sheeting, bracing, etc. shall comply with the requirements of OSHA excavation safety standards (29 CFR Part 1926 Subpart P) and State requirements. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.
- C. Do not excavate, construct embankments, or fill until all the required submittals have been reviewed by the Engineer.
- D. Formulate excavation, backfilling, and filling schedule and procedures to eliminate possibility of undermining or disturbing foundations of partially and completed structures, pipelines and embankments or existing structures and pipelines.
- E. Field Testing and Inspections:
  - 1. By Contractor's independent testing laboratory, acceptable to the Engineer, at Contractor's expense as specified in Paragraph 1.06 G.
  - 2. Location of tests mutually acceptable to testing laboratory and the Engineer or as directed by the Engineer.
  - 3. In the event compacted material does not meet specified in-place density, recompact material and retest this area until specified results are obtained at no additional cost to the Owner.

4. Contractor's testing laboratory to perform inspection at least once daily to confirm lift thickness and compaction effort for entire fill area.
  5. Owner may retain the services of an independent testing laboratory to conduct confirmatory testing and inspection.
- F. Methods of Field Testing
1. In-Place Density: ASTM D1556, ASTM D2167, or ASTM D2922.
  2. In-Place Moisture Content: ASTM D3017, ASTM D4944, or ASTM D4959.
- G. Material Testing Frequency: The following testing frequencies are minimum required for all structural and non-structural fill, grading and embankment.
1. Field In-Place Density and Moisture Content - Screened gravel and crushed stone shall be compacted as specified and indicated. For other backfill and fill materials, minimum test frequency shall be as follows, and no less than one test per:
    - (a) Trenches under structures, foundation preparation, or roadways subbase: Every 500' lin. ft. [150 m.] per lift.
    - (b) Trenches in areas without structures or roadways: Every 1000 lin. ft. [300 m.] per alternate lift.
    - (c) Paved Roadways: Every 200 lin. ft. [60 m.] per lift
    - (d) Paved Areas: 3,500 sq. ft. [350 sq. m.] per lift.
    - (e) Under each structure: 1,000 sq. ft. [100 sq. m.] per lift.
    - (f) Around each structure: 1,500 sq. ft. [150 sq. m.] per lift.
    - (g) Embankment Fills: 10,000 sq. ft. [1000 sq. m.] per lift.
  2. Moisture Density - One per source, except for screened gravel and crushed stone. Repeat the moisture density test for every 5,000 cubic yard of material use, and whenever visual inspection indicates a change in material gradation as determined by the Engineer.
  3. Gradation Analysis - A minimum of one per source and for each moisture density test and whenever visual inspection indicates a change in material gradation.

4. Owner's testing laboratory to conduct confirmatory testing at a minimum frequency of 25% of the specified frequencies in paragraph 1.06.H, or as directed by Owner's Engineer.

H. Construction Tolerances

1. Construct finished surfaces to plus or minus 1 inch [2.5 cm] of the elevations indicated.
  2. Grade cut and fill areas to plus or minus 0.20 foot [6.0 cm] of the grades indicated.
  3. Complete embankment edges to plus or minus 6 inches [15 cm] of the slope lines indicated.
  4. Provide the Engineer with adequate survey information to verify compliance with above tolerances.
- I. Cut pavement with a saw or pneumatic tools to prevent damage to remaining pavement without extra compensation. Where pavement is removed in large pieces, dispose of pieces before proceeding with excavation.
- J. Pipes, drains, and other utilities may exist in certain locations not indicated on drawings. No attempt has been made to show all services. Completeness or accuracy of information given is not guaranteed. Contractor is to conform with all Sunshine One Call (811) requirements.
- K. Dig test pits considered as incidental to the normal excavation as indicated and specified in this Section, at no additional compensation.
- L. Carefully support and protect from damage, existing pipes, poles, wires, fences, curbs, property line markers, and other structures, which the Engineer determines must be preserved in place without being temporarily or permanently relocated. Should such items be damaged, restore without compensation therefore, to at least as good condition as that in which they were found immediately before the work was begun.
- M. Whenever certain existing structures, as described below, are encountered, and the Engineer so directs, change the location, remove and later restore, or replace such structures, or assist the Owner in doing so.
- N. In removing existing pipes or other structures, include for payment only those new materials which are necessary to replace those unavoidably damaged as determined by the Engineer.
- O. The preceding two paragraphs apply to pipes, wires, and other structures which meet the following: (a) are not indicated on the drawings or otherwise provided for, (b) encroach upon or are encountered near and substantially parallel to the edge of the excavation, and (c) in the opinion of the Engineer, will impede

progress to such an extent that satisfactory construction cannot proceed until they have been changed in location, removed (to be later restored), or replaced.

- P. Restore existing property or structures as promptly as practicable.
- Q. If material unacceptable for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with the drawings and/or specifications, remove such material to the required width and depth as directed by the Engineer and replace it with screened gravel, select borrow, or concrete.
- R. Do not remove excavation materials from the site of the work or dispose of except as directed or permitted by the Engineer.
- S. Haul away and dispose of surplus excavated materials at locations directed by the Engineer at no additional cost to the Owner.
- T. During progress of work, conduct earth moving operations and maintain work site so as to minimize the creation and dispersion of dust. Furnish and spread calcium chloride if the Engineer decides that it is necessary for more effective dust control.
- U. Provide suitable and safe bridges and other crossings where required for accommodation of travel, and to provide access to private property during construction, and remove said structures thereafter.

#### 1.07 SITE CONDITIONS:

- A. Subsurface Conditions: Refer to Front End documents and Geotechnical Report.
- B. Refer to Geotechnical Report provided ~~specifically~~ for the project. The Contractor is responsible for investigating existing soil conditions as the Geotechnical Report does not assure all subsurface site conditions are represented. No additional compensation will be considered by the City for proposed means and methods by the contractor that conflicts with subsurface site conditions.

### PART 2 - PRODUCTS

#### 2.01 GENERAL

- A. Use only acceptable materials from excavations or borrows.
- B. Provide Fine Aggregate conforming to ASTM C33.



## 2.02 EQUIPMENT

- A. The compaction equipment shall be selected by the Contractor, and shall be capable of consistently achieving the specified compaction requirements. The selected compaction equipment shall meet the following minimum requirements:
  - 1. Manually operated vibratory plate compactors weighing no less than 200 pounds [90 kg] with vibration frequency no less than 1600 cycles per minute.
  - 2. Vibratory steel drum or rubber tire roller weighing at least 12,000 pounds [5450 kg].

## PART 3 - EXECUTION

### 3.01 SITE MAINTENANCE

- A. Roadway and Site Leveling: Grade roadway and site as to maintain them in a level unrutted condition and to eliminate puddling of surface and subsurface water.

### 3.02 EXCAVATION

- A. Execution of any earth excavation shall not commence until the related excavation support systems, and backfill and fill materials submittals are reviewed by the Engineer and all Engineer's comments satisfactorily addressed.
- B. Carry out program of excavation, and excavation support systems to eliminate possibility of undermining or disturbing foundations of existing structures or of work previously completed under this contract.
- C. Excavate to widths that give suitable room for building structures or laying and jointing piping.
- D. Do not plow, scrape or dig by machinery near to finished subgrade in a manner that would result in disturbance of subgrade.
- E. Excavate to lines and grades indicated in an orderly and continuous program.
- F. Establish limits of excavation to allow adequate working space for installing forms and for safety of personnel.
- G. Excavate to elevations indicated, or deeper, as directed by the Engineer, to remove unacceptable material.

- H. Exercise care to preserve material below and beyond the lines of excavations.
- I. Place excavated material at the approved stockpile locations and in no case closer than 3 feet [90 cm] from edge of excavations to prevent cave-ins of bank slides.
- J. Regard small, less than one cubic yard, boulders, rock fragments, and concrete encountered during excavation as a normal part of in-place soils and not included for payment as rock.

### 3.03 SEPARATION OF EXCAVATED MATERIALS FOR REUSE

- A. Remove only existing pavement that is necessary for prosecution of work.
- B. Carefully remove loam and topsoil from excavated areas. Store separately for further use or furnish equivalent loam and topsoil as directed.
- C. Carefully remove acceptable material from excavated areas and store separately for further use as backfill material.

### 3.04 TRENCH EXCAVATION

- A. When pipe is to be laid in gravel bedding or concrete cradle, excavate trench by machinery to, or just below designated subgrade. If material remaining at bottom of trench is disturbed, recompaction shall be required.
- B. When pipe is to be laid directly on bottom of trench, do not excavate lower part of trenches by machinery to subgrade. Remove remainder of material to be excavated just before placing of pipe by use of hand tools. Form a flat or shaped bottom, true to grade, so pipe will have a uniform and continuous bearing. Support on firm and undisturbed material between joints, except for limited areas where use of pipe slings have disturbed bottom.
- C. Depth and width of trench are to conform with OSHA and Florida Trench Safety Act requirements, whichever are more stringent.

### 3.05 TRENCH EXCAVATION IN FILL

- A. Place and compact material to top of fill or to a minimum height of 1 ft. [30 cm] above top of pipe, whichever is less, when pipe is to be laid in embankment or other recently filled material. Take particular care to ensure maximum consolidation of material under pipe location. Excavate pipe trench as though in undisturbed material.

### 3.06 EXCAVATION NEAR EXISTING STRUCTURES

- A. Discontinue digging by machinery when excavation approaches pipes, conduits, or other underground structures. Continue excavation by use of hand tools. Include such manual excavation in work to be done when incidental to normal excavation and under items involving normal excavation.
- B. Excavate test pits when determination of exact location of pipe or other underground structure is necessary for doing work properly.

### 3.07 REMOVAL OF SUBSURFACE OBSTRUCTIONS

- A. Remove indicated subsurface structures and related obstructions to extent shown.
- B. Promptly notify the Engineer when any unexpected subsurface facilities are encountered during excavation such as utility lines and appurtenances, walls and foundations.

### 3.08 UNAUTHORIZED EXCAVATION

- A. When the bottom of any excavation for structures is taken out beyond limits indicated or specified, backfill, with screened gravel and crushed stone wrapped with non-woven geotextile fabric or with 1,500 psi (10 Mpa) concrete.

### 3.09 REUSE AND DISPOSAL OF SURPLUS EXCAVATED MATERIALS

- A. Reuse surplus acceptable excavated materials for backfill; deposit neatly and grade so as to make or widen fills, flatten side slopes, or fill depressions; or legally dispose off-site; all as directed or permitted and without additional compensation.

### 3.10 SUBGRADE PREPARATION AND PROTECTION

- A. Remove loam and topsoil, loose vegetable matter, stumps and large roots from areas upon which embankments will be built or material will be placed for grading. Shape subgrade as indicated on drawings, and prepare by forking, furrowing, or plowing so that the first layer of new material placed thereon will be well bonded to it.
- B. As directed by the Engineer, over excavate unacceptable materials below the foundation subgrade or two feet below the pipe to be installed. Backfill the over excavation with compacted screened gravel or crushed stone wrapped with nonwoven geotextile fabric. In no case shall the screened gravel be placed directly on the exposed subgrade prior to placing the geotextile fabric.
- C. Proof roll the foundation subgrade prior to backfilling and filling operation, or placing foundation concrete.

- D. Proof roll the pipe trench foundation subgrade prior to backfilling and filling operation, or placing soil-supported pipeline.
- E. Utilize excavating equipment equipped with a toothless or smooth edged, excavating bucket to expose the pipe trench foundation subgrade to avoid disturbance of the bearing surface. Tamp the exposed subgrade with the excavating bucket prior to backfilling and filling operation, or placing soil-supported pipeline.

### 3.11 CARE AND RESTORATION OF PROPERTY

- A. Enclose uncut tree trunks adjacent to work in wooden boxes of such height as may be necessary for protection from injury from piled material, equipment, operations, or otherwise due to work. Operate excavating machinery and cranes of suitable type with care to prevent injury to trees not to be cut and particularly to overhanging branches and limbs.
- B. Cut all branches, limbs, and roots smoothly and neatly without splitting or crushing. Neatly trim, cut the injured portions and cover with an application of grafting wax or tree healing paint as directed.
- C. Protect cultivated hedges, shrubs, and plants which might be injured by the Contractor's operations by suitable means or dig up and temporarily replant and maintain. After construction operations have been substantially completed, replant in original positions and care for until growth is reestablished. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish in their beauty or usefulness, replace by items of equal kind and quality existing at the start of the work.
- D. Do not use or operate tractors, bulldozers, or other power-operated equipment on paved surfaces when their treads or wheels of which are so shaped as to cut or otherwise damage such surfaces.
- E. Restore surfaces damaged by the Contractor's operations to a condition at least equal to that in which they were found immediately before work commenced. Use suitable materials and methods for such restoration.

### 3.12 BACKFILLING - GENERAL

- A. Do not place, spread, roll or compact fill material during unfavorable weather conditions. If interrupted by heavy rain or other unfavorable conditions, do not resume until ascertaining that the moisture content and density of the previously placed soil are as specified.
- B. Do not use puddling, ponding or flooding as a means of compaction.



### 3.13 MATERIAL PLACEMENT AND COMPACTION REQUIREMENTS

- A. Select Borrow, and Fine Aggregate
  - 1. Dump and spread in layers not to exceed 8-in. [20 cm] uncompacted thickness.
  - 2. Compact, fill and backfill under structure and bedding for pipes (from below pipe to spring line) as indicated but to not less than 95 percent. Compact to not less than 95 percent in other areas unless otherwise indicated, and not less than 98 percent under roadways.
- B. Screened Gravel and Crushed Stone
  - 1. Dump and spread in layers not to exceed 8-in. [20 cm] uncompacted thickness.
  - 2. Compact using self-propelled vibratory steel drum or rubber tire rollers with a minimum of 4 passes in directions perpendicular to one another in open areas. In small areas, use manually operated vibratory plate compactors with a minimum of 4 passes.
- C. Bank-run Gravel and Acceptable materials for use as non-structural fill
  - 1. Dump and spread in layers not to exceed 12-in. [30 cm] uncompacted thickness.
  - 2. Compact to not less than 95 percent unless otherwise indicated.
- D. Backfilling and filling operation shall be suspended in areas where tests are being made until tests are completed and the testing laboratory has advised the Engineer that adequate densities are obtained.

### 3.14 STRUCTURAL FILL AND BACKFILL UNDER STRUCTURES

- A. Provide in accordance with Section 02222.
- B. Compact fill and backfill under structures and pavements with screened gravel, crushed stone, select borrow, or fine aggregate as specified and indicated.

### 3.15 NON-STRUCTURAL BACKFILL AROUND STRUCTURES

- A. Provide in accordance with Section 02222.
- B. Use acceptable materials for non-structural backfill around structures and compacted as specified and indicated.

- C. Conduct hydraulic testing as soon as practicable after structures are constructed and other necessary work has been done. Start backfilling promptly after completion of tests.
- D. Deposit material evenly around structure to avoid unequal soil pressure.
- E. Do not place backfill against or on structures until they have attained sufficient strength to support the loads (including construction loads) to which they will be subjected, without distortion, cracking, or other damage.

### 3.16 BACKFILLING PIPE TRENCHES

- A. Provide in accordance with Section 02222.

### 3.17 MATERIAL FOR FILLING AND EMBANKMENTS

- A. Use acceptable materials for filling and building embankments unless otherwise indicated.

### 3.18 PLACING AND COMPACTING EMBANKMENT MATERIAL

- A. Compact fill material as specified and indicated.
- B. Perform fill operation in an orderly and systematic manner using equipment in proper sequence to meet the specified compaction requirements.
- C. Place fill on surfaces which are free of unacceptable materials.
- D. Begin filling in lowest section of work area. Grade surface of fill approximately horizontal but provide with sufficient longitudinal and transverse slope to allow for runoff of surface water from every point.
- E. Conduct filling so that no obstruction to drainage from other sections of fill area is created at any time.
- F. Reduce moisture content of fill material, if necessary, in source area by working it over under warm and dry atmospheric conditions. A large disc harrow with two to three foot diameter disks may be required for working soil in a drying operation.
- G. Compact uniformly throughout. Keep surfaces of fill reasonably smooth and free from humps and hollows which would prevent proper and uniform compaction. Do not permit hauling equipment to follow a single track on the same layer but direct equipment to spread out to prevent overcompaction in localized areas. Take care in obtaining thorough compaction at edges of fill.

- H. Slightly slope surface of fill to ensure drainage during periods of wet weather. Do not place fill while rain is falling or after a rain-storm until the Engineer considers conditions satisfactory. During such periods and upon suspension of filling operations for any period in excess of 12 hours, roll smooth the surface of fill using a smooth wheel static roller to prevent excessive absorption of rainfall and surface moisture. Prior to resuming compaction operations, remove muddy material off surface to expose firm, compacted material, as determined by the Engineer.
- I. When fill is placed against an earlier fill or against in-situ material under and around structures, including around piping beneath structures or embankments, slope junction between two sections of fill, 1 vertical to 1.5 horizontal. Bench edge of existing fill 24-in. [60 cm] to form a serrated edge of compact stable material against which to place the new fill. Ensure that rolling extends over junction between fills. Follow OSHA standards for variations in soil types and slope requirements.
- J. When fill is placed directly upon another older fill, clean surface thoroughly of debris and remove any loose material. Then proof roll the entire old surface.
- K. After spreading each loose lift to the required thickness and adjusting its moisture content as necessary, roll with sufficient number of passes to obtain the required compaction. One pass is defined as the required number of successive trips which by means of sufficient overlap will insure complete coverage and uniform compaction of an entire lift. Do not make additional passes until previous pass has been completed.
- L. In case material of any fill sinks and weaves under roller or under hauling units and other equipment, required degree of compaction is not being obtained. Reduce the moisture content. If such sinking and weaving produces surface cracks, suspend operations on that part of the embankment until it becomes sufficiently stabilized. Ideal condition in fill is that attained when the entire fill below the surface being rolled is so firm and hard as to show only the slightest weaving and deflection as roller passes. Spread out rolling operations over the maximum practicable area to minimize condition of sinking and weaving.
- M. If because of defective workmanship, compaction obtained over any area is less than that required, remedy condition at no cost to Owner. If additional rolling or other means fail to produce satisfactory results, remove material in that area down to a level of satisfactory density. Perform removal, replacement, and rerolling without additional compensation



### 3.19 COMPACTION CONTROL OF BACKFILL, FILL, AND EMBANKMENT

- A. Compact to density specified and indicated for various types of material. Control moisture content of material being placed as specified or if not specified, at a level slightly lower than optimum.
- B. The soil testing laboratory shall provide inspection during filling or backfilling operations to ensure compaction of screened gravel or crushed stone and record compaction equipment in use.
- C. Moisture control may be required either at the stockpile area, pits, or on embankment or backfill. Increase moisture content when material is too dry by sprinkling or other means of wetting uniformly. Reduce moisture content when material is too wet by using ditches, pumps, drainage wells, or other devices and by exposing the greatest possible area to sun and air in conjunction with harrowing, plowing, spreading of material or any other effective methods.

### 3.20 ALLOWANCE FOR SHRINKAGE

- A. Build embankments or backfill to a height above finished grade which will, in the opinion of the Engineer, allow for the shrinkage or consolidation of material. Initially, provide at all points, an excess of at least one percent of total height of backfill measured from stripped surface to top of finished surface.
- B. Supply specified materials and build up low places as directed, without additional cost if embankment or backfilling settles so as to be below the indicated level for proposed finished surface at any time before final acceptance of the work.

### 3.21 RESTORATION

- A. Provide finished grading in accordance with Section 02260.
- B. Restore all green space areas disturbed by construction operations in accordance with Section 02500, Landscaping, and Section 02930, Sodding.

### 3.22 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION

## SECTION 02220

### EXCAVATION, BACKFILL AND COMPACTION

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. The work included under this section consists of excavating, grading, backfilling and compacting for general construction.
- B. For Excavation and Backfill for Utilities and Structures refer to Section 02222.
- C. Excavation shall include the removal of all material of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the work. The removal of said material shall conform to the lines and grades indicated.
  - 1. When excavations are to be made in paved surfaces, the pavement shall be saw-cut ahead of the excavation by means of suitable sharp tools to provide a uniform sharp edge, with minimum disturbance of remaining material.

##### 1.02 PROTECTION

- A. Excavations
  - 1. Notify ENGINEER of unexpected subsurface conditions and discontinue work in affected area until notification to resume work.
  - 2. Provide and maintain adequate barricades and warning lights to protect open trenches.
  - 3. All trenches shall be fully backfilled at the end of each day.
- B. Existing Utilities
  - 1. Those existing utilities that are to be retained shall be protected, and if damaged, shall be repaired by the CONTRACTOR at no additional cost to the CITY.
  - 2. The CONTRACTOR shall notify CALL SUNSHINE at their toll free number 1-800-432-4770 and/or each utility individually, forty-eight (48) hours prior to any excavation.
- C. Contractor shall exercise care during excavation in areas of environmental sensitivity and advise the project engineer if any hazardous material is encountered.

## PART 2 - PRODUCTS

### 2.01 MATERIAL

- A. Material shall comply with the latest FDOT specifications for Road and Bridge Construction, the drawings and other contract documents.
- B. Material used for backfill shall be select granular material, free from grass, roots, brush or other vegetation, rubbish, clay, marl, lumps of broken paving or boulders having maximum dimension larger than six (6") inches. Unsuitable material shall be removed from the site at the CONTRACTOR'S expense away from the project.
- C. Material coming within one foot (1'-0") of any structure or pipe shall be free of rocks or unbroken masses of earthy material having maximum dimension larger than two inches (2").
- D. If, in the ENGINEER'S opinion, material is unsuitable for backfill purposes, imported material having sand equivalent value of no less than twenty percent (20%) shall be used for this portion of the trench backfill. Imported sand backfill, when ordered by the ENGINEER, will be paid for under a separate unit bid item if such bid item has been established, otherwise payment will be made in accordance with a negotiated price.
- E. Suitable For Fills: Material classified as A-1, A-3, or A-2-4 under AASHTO M 145, free from vegetation and organic material, and with not more than 10 percent by weight passing the No. 200 sieve.
- F. Unsuitable for Fills: Materials classified as A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 and A-8 under AASHTO M 145.
- G. Select Material: Suitable material containing no pieces or rock fragments larger than will pass a 3-inch diameter ring.

## PART 3 - EXECUTION

### 3.01 EXCAVATION

- A. Work shall comply with the latest FDOT Standard Specifications for Road and Bridge Construction.
- B. Trench and Excavation

1. Work shall comply with the latest FDOT Standard Specifications for Road and Bridge Construction.
  2. The maximum amount of open trench permitted in any one (1) location shall be one hundred feet (100'), unless the trench is located within a State of County right-of-way, in which case the requirement would defer to the more stringent of those agencies.
  3. All trenches shall be fully backfilled at the end of each day or, in lieu thereof, when approved by the ENGINEER, heavy steel plate adequately braced and capable of supporting vehicular traffic may be used in certain locations where it is impractical to backfill at the end of each day.
- C. Over-excavation When Ordered:
1. Trenches shall be over-excavated beyond the depth shown, when ordered by the ENGINEER. Such over-excavation shall be to the depth ordered.
  2. The trench shall be refilled to the grade of the bottom of the pipe with either selected granular material obtained from the excavation, sand or crushed rock, at the option of the ENGINEER. When crushed rock bedding is ordered, the material shall be a well-graded material with maximum particle size of three-quarters of an inch (3/4").
  3. Bedding material shall be placed in layers, brought to optimum moisture content, and compacted to ninety-five percent (95%) of maximum density.
  4. Payment for over-excavation shall be paid for either on a negotiated price basis, or as the ENGINEER may determine in accordance with the General Conditions.
- D. Over Excavation not Ordered, Specified or Shown:
1. Any over-excavation carried below the grade ordered, specified or shown, shall be refilled to the required grade with suitable selected granular material.
  2. Refilled material shall be moistened as required and compacted to ninety-five percent (95%) of maximum density.
  3. Work required due to over excavation when not ordered shall be performed by the CONTRACTOR at his own expense.
- E. Disposal of Excess Excavated Material:

1. The CONTRACTOR shall remove and dispose of all excess excavated material at his own expense, in accordance with the General Conditions.
2. All excess suitable material that cannot be used as fill on the site(s), is to remain property of the CITY and shall be removed by the CONTRACTOR to a disposal site(s) as directed by ENGINEER.
3. All materials suitable for use as backfill shall be hauled to and used in areas where not enough suitable material is available from the excavation.
4. Unsuitable material such as trees, shrubs, etc. shall be the CONTRACTORS responsibility to load, haul and provide a disposal site.

### 3.02 BACKFILLING

- A. Work shall comply with the latest FDOT Specifications for Road and Bridge Construction, the drawings and all other contract documents.
- B. Backfill shall not be dropped directly upon any structure or pipe.
- C. Backfill shall not be placed around or upon any structure until the concrete has attained sufficient strength to withstand the loads imposed.
- D. Backfill around and beneath structures, and beneath paved areas:
  1. Except where otherwise specified for a particular structure or ordered by the ENGINEER, backfill placed around and beneath structures, and beneath paved areas, shall be placed in horizontal layers not to exceed eight inches (8") in thickness, as measured before compaction.
  2. The backfill shall be brought up evenly with each layer moistened and compacted by mechanical means to ninety-five percent (95%) of maximum density.

### 3.03 COMPACTION TESTING

- A. Compaction testing specified herein are expressed as a percentage of maximum density. Maximum density shall be determined by AASHTO T-180, Method D.
- B. The CITY shall retain the services of an independent materials testing laboratory to perform laboratory and field density tests which, in the opinion of the ENGINEER, are necessary to establish compliance with the compaction requirements of these specifications. The first round of tests will be paid from the "Cost Allowance for Permits, Licenses and Fees".
- C. The costs of subsequent recompaction and retesting due to not achieving the required minimum compaction shall be borne by the CONTRACTOR at no additional cost to the CITY.
- D. Compaction density tests shall be scheduled by the ENGINEER. CONTRACTOR shall give notice to the ENGINEER 24 hours in advance of required density tests.

- E. All tests which fail to meet minimum compaction requirements shall be paid by the CONTRACTOR. All tests shall be performed in the presence of the ENGINEER or his representative.
- F. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompactd until the required compaction is secured, at no additional cost to the CITY.

END OF SECTION

## SECTION 02222

### EXCAVATION AND BACKFILL FOR UTILITIES AND STRUCTURES

#### PART 1 - GENERAL

##### 1.01 THE REQUIREMENT

- A. Excavate, grade and backfill as required for underground piping systems and structures including appurtenances as shown on the Drawings and specified herein.

##### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01300 – Submittals
- B. Section 01560 – Special Controls
- C. Section 02140 – Dewatering
- D. Section 02160 – Temporary Excavation Support Systems
- E. Section 02210 – Earth Excavation, Backfill, Fill and Grading
- F. Section 02220 – Excavation, Backfill and Compaction
- G. Division 3

##### 1.03 QUALITY CONTROL

- A. Codes and Standards: Excavation and backfill work shall be performed in compliance with applicable codes, standards and requirements of governing authorities having jurisdiction in the area.
- B. Testing and Inspection Service: An independent testing laboratory will be retained by the City to do appropriate testing as described in Section 01400, Testing and Inspection. 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.

##### 1.04 SUBMITTALS

- A. General: Submit information and samples to the Engineer for review as specified herein in accordance with Section 01300, Submittals.
- B. Dewatering: See Section 02140 for Dewatering. 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 and

City before commencing the work. The Contractor will not be granted contract time extensions due to dewatering permit processing delays or sampling requirements.

- C. Bedding and Backfill Materials: The Contractor shall notify the Engineer of the off-site sources of bedding and backfill materials, and submit to the Engineer a representative sample weighing approximately 50 lbs. The sample shall be delivered to a location on site determined by the Engineer.
- D. Sheeting System: 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.

#### 1.05 SUBSURFACE INFORMATION

- A. The Contractor shall be responsible for anticipating groundwater and understanding soil 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.

#### 1.06 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 et. seq.. 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 et. seq. 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".

## 1.07 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.

## 1.08 EXISTING UTILITIES

- A. Locate existing underground utilities in the areas of work. Test pits and hand excavation in critical areas will be required prior to initiating work.
- B. All existing utilities including piping, electrical conduits, electric duct banks and telephone cables that are shown on the Contract Drawings to be relocated, shall be relocated prior to initiating earth work. Excavation and backfill for relocation of existing utilities shall conform to the requirements of Section 02222, Excavation and Backfill for Utilities and Structures. 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, Engineer and City of such piping/utility for directions.
- C. The Contractor shall cooperate with the City and utility companies in keeping respective services and facilities in operation.

PART 2 - PRODUCTS

2.01 BEDDING MATERIAL

- A. Bedding materials shall be furnished from acceptable off-site sources. The Contractor shall submit to the Engineer the sources of each material for review in accordance with Section 01300, Submittals.
- B. Crushed stone (or drainfield limerock) shall be used as bedding material for piping (except for copper pipe) and/or manholes as shown on the Standard Details when the installation is below the ground water table elevation. Crushed stone shall consist of hard, durable, sub-angular particles of proper size and gradation, and shall be free from organic material, wood, trash, sand, loam, clay, excess fines, and other deleterious materials.

- 1. For pipe diameters less than 24 inches, the stone shall conform to the requirements of ASTM C 33, Size No. 57 (3/4-inch rock) and be graded within the following limits:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
1-½ inch	100
1 inch	95 - 100
½ inch	25 - 60
No. 4	0 - 10
No. 8	0 - 5

- 2. For bedding of 24 inch and larger diameter pipe, the stone shall conform to the requirements of ASTM C 33 and be graded within the following limits:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
5/8 inch	100
1/2 inch	40 - 100
3/8 inch	15 - 45
No. 10	0 - 5

- C. Sand shall be used for bedding pipe when installed under dry trench conditions, or above the ground water table. Sand shall also be used for bedding copper pipe under all conditions. Sand shall be dry, screened, graded sand with 100 percent passing a 3/8-inch sieve and not more than 5 percent passing a No. 200 sieve.
- D. Limerock screenings, sand or other fine material shall not be used for bedding.
- E. All pipe bedding material shall be new, unless otherwise approved by the Engineer. Existing pipe bedding material may not be used.

## 2.02 SELECT BACKFILL

- A. Select Backfill: Select backfill shall be clean sandy material passing through a 3/4-inch sieve as select backfill material.

## 2.03 GENERAL BACKFILL

- A. All other backfill (general backfill) placed above the select backfill shall pass through a 6-inch ring. General backfill shall contain no more than 10 percent organics. General backfill used under roadways shall be compatible with the materials and compaction specified under Section 02510, Asphaltic Concrete Pavement and 02526, Concrete Pavement, Curb and Walkway.

## 2.04 STRUCTURAL BACKFILL

- A. Fill material shall be non-cohesive, non-plastic, 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.

## 2.05 EXCAVATABLE FLOWABLE FILL

- A. Excavatable flowable fill is called for on the Drawings where limited cover over the existing piping may exist due to conflicts with existing utilities or areas where it is not deemed feasible to go under the existing utility piping. The excavatable flowable fill shall be used in these instances for backfill and shall be placed around the piping conflict such that a layer is formed surrounding both the existing and the proposed or "new" piping with a minimum distance of 3 feet outside of the outer diameters of the intersecting piping and to finished grade elevation. Flowable fill contains a low cementitious content to reduce strength developments for possible future removal. Compressive strength testing shall be governed by the guidelines set forth in ACI Committee Report 229 and shall meet FDOT Standards and Specifications. See Section 03375 – Flowable Fill for additional requirements.

## PART 3 - EXECUTION

### 3.01 EXCAVATION

- 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.
- C. 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 required for a proper installation. All excavations shall be made by open cut and in accordance with the Trench Safety Act. 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.
- D. 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 18 inches as defined on the Drawings. 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 pipe barrel or that will allow for a minimum of 36 inches of covering unless otherwise indicated on the Drawings.
- E. Ladders or steps shall be provided for and used by workmen to enter and leave trenches as per OSHA standards.
- 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 traffic on public roadways and sidewalks and shall not be placed on private property. In congested areas, such materials that 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 backfill requirements shall be disposed off-site at the Contractor's expense and with no additional cost to the City.
- H. Unless otherwise indicated on the Drawings, all excavation for structures 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.

### 3.02 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 judgment 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.

### 3.03 SHEETING AND BRACING

- A. See Section 02160 Temporary Excavation Support Systems
- B. 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 in conformance with 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.
- C. 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.
- D. 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.

- E. 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.

#### 3.04 REMOVAL OF WATER

- A. General: It is a basic requirement of these Specifications that excavations shall be free from water before pipe or structures are installed.
  - 1. Removal of groundwater, or dewatering, shall be accomplished in accordance with the requirements of Section 02140, Dewatering.
- B. 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.

#### 3.05 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.

#### 3.06 PIPE BEDDING IN DRY TRENCHES

- A. Pipe trenches shall be excavated as described herein. 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.

#### 3.07 BACKFILL

- A. The Contractor shall not completely backfill and fully restore trenches until the piping has been inspected and pressure and leakage tested ~~in accordance with Section 15995, Pipeline Testing and Disinfection.~~
- B. Pipelines: Pipeline trenches shall be backfilled to a level 12 inches above the top of the pipe with select backfill. When placed in the dry, such material shall be placed in 9-inch layers, each compacted to the densities specified herein. Only

hand operated mechanical compacting equipment shall be used within six inches of the installed pipe.

- C. After the select backfill has been placed as specified above, and after all excess water has completely drained from the trench, general backfilling of the remainder of the trench may proceed. General backfill 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 12 inches. Each layer shall be moistened, tamped, puddled, rolled or compacted to the densities specified herein.
- D. Manholes and Vaults: Any excavation below the levels required for the proper construction of manholes or vaults shall be filled with Class B concrete. The use of earth, rock, sand or other materials for this purpose will not be permitted.

### 3.08 COMPACTION AND DENSITIES

- 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. 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. Density Test Locations for Pipelines: The compacted backfill/fill shall be tested for in-place density at the rate of one test location per 200 lineal feet (or fraction thereof) of trench, or as shown on the Drawings or as directed by the Engineer. The density tests shall be taken at the trench bottom and at each location in one foot intervals beginning from the top of the piping and ending at the final grade. At existing road or pavement crossings, a minimum of two (2) density tests per crossing per lift is required.
- C. Inspection and Testing: 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.
- D. 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.

### 3.09 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. Sheet piling 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 herein.

- 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. In areas where muck is located, the excavation of material up to two feet below the outside bottom of the trench width will be required to be removed and disposed of by the Contractor. The removal and disposal of up to two feet of muck below the pipe trench is considered incidental to the construction and the Work shall be done at no additional cost to the City which also includes replacing the muck with suitable pipe bedding material.

### 3.10 ALTERNATE METHOD OF CONSTRUCTION

- A. Use of This Method: 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. 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 and City 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 and City shall determine acceptable.
- 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, sheet piling 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. Removal of Water: The installation of pipe and appurtenances under water will be permitted and the requirements of Article 3.04 will be waived.

- E. Excavation shall be performed in accordance with Article 3.01 to the specified limits. The excavation shall be completely cleaned of silt and other fines.
- F. Pipe Bedding: Pipe bedding shall be placed from the bottom of the excavation to six inches above the top of the pipe. The bedding material shall be screened gravel or crushed stone as specified in Article 2.01. Limerock screenings, sand or other fine organic material shall not be used.
- G. The bedding material shall be placed to the lower third of the pipe barrel 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. After the pipe section is installed and tested if required, the remaining bedding shall be placed to the top of the pipe.
- H. Select backfill material shall be used to backfill from 6 inches above the top of the pipe to a level one foot above standing ground water. The lift shall then be compacted per Article 3.08. General backfill shall then be placed in 8-inch lifts and compacted per Article 3.08.
- 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 shall backfill material be dumped or pushed into the trenches containing water. Below water level, the bedding and backfill material shall be carefully rammed into place in uniform layers, of equal depth on each side of the pipe, up to one foot above the water level. Above the water level, backfill material shall be placed and compacted for normal backfill as previously specified.

### 3.11 RESTORATION

- A. Provide finished grading in accordance with Section 02260, Finish Grading.
- B. Restore all green space areas disturbed by the trenching operations in accordance with Section 02500, Landscaping, and Section 02930, Sodding or as otherwise applicable.

END OF SECTION

SECTION 02223  
SCREENED GRAVEL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide and compact screened gravel as indicated and specified on the Drawings.

1.02 RELATED WORK

- A. Section 02210 - Earth Excavation, Backfill, Fill and Grading

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM) Publications:
  - 1. C33: Specification for Concrete Aggregates
  - 2. D422: Test Method for Particle-Size Analysis of Soils.

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01300:
  - 1. Gradation test result from the soil testing laboratory, at least two (2) weeks prior to hauling material, for the Engineer's acceptance.
  - 2. Submit a 20-lb. [9 kg] sample of the material when requested by the Engineer.

1.05 QUALITY ASSURANCE

- A. Provide in accordance with Section 01400 and as specified.
- B. Qualifications of the independent soil testing laboratory as specified in Section 02210 - Earth Excavation, Backfill, Fill and Grading.
- C. Maximum particle size and gradation analyses shall be performed in accordance with ASTM D422.
- D. Material testing frequency and requirements as specified in Section 02210 - Earth Excavation, Backfill, Fill and Grading.

## PART 2 - PRODUCTS

### 2.01 MATERIAL

- A. Screened gravel: Gradation and physical property requirements of screened gravel shall conform to ASTM C33, Coarse Aggregate number 67.
- B. Screened gravel for driveway: Gradation and physical property requirements of screened gravel shall conform to ASTM C33, Coarse Aggregate number 57.
  - 1. Contractor shall excavate to 12 inches below grade and install geotextile fabric under 12 inches of screened gravel as indicated.
- C. Screened gravel shall be free from roots, leaves, and other organic materials.
- D. Crushed rock of equivalent size and grading may be used instead of screened gravel.

## PART 3 - EXECUTION

### 3.01 PLACEMENT AND COMPACTION

- A. As specified in Section 02210 - Earth Excavation, Backfill, Fill and Grading and as indicated on the drawings.

### 3.02 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION

## SECTION 02225

### CONTAMINATED SOILS AND GROUNDWATER

#### PART 1 - GENERAL

##### 1.01 THE REQUIREMENT

- A. This Section includes, except as elsewhere provided, the work necessary to remove, transport, and properly dispose of contaminated soils and groundwater required for complete construction of structures and underground piping systems and appurtenances as shown on the Drawings and specified herein.
- B. The Contractor is to review the Broward County contaminated sites listing as provided on their website to obtain the most current listing for referenced locations which may potentially have contaminated groundwater and soils.

##### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02222 – Excavation and Backfill for Utilities and Structures
- B. Section 02140 – Dewatering

##### 1.03 QUALITY CONTROL

- A. Codes and Standards: All work associated with dewatering, excavation, removal, transportation and disposal of contaminated soils and groundwater shall be performed in compliance with applicable codes, standards and requirements of governing authorities having jurisdiction in the area.
- B. Testing and Inspection Service: A testing laboratory certified by the Broward County Environmental Protection and Growth Management Department (BCEPGMD) and the State of Florida shall be retained by the Contractor to conduct appropriate soils and groundwater testing in accordance with regulatory requirements and the Contract Documents.

##### 1.04 SUBMITTALS

- A. The Contractor shall submit information and samples to the City for review as specified herein in accordance with Section 01300. The information shall include:
  - 1. Detailed description of the proposed methods for temporary stockpiling, transportation, and disposal of all contaminated soils and groundwater.
  - 2. Copies of permits for all disposal facilities.
  - 3. Copies of all manifest and documentation for handling and disposing of all contaminated soil and groundwater in full compliance with local, state and

federal requirements. This documentation must be provided prior to requesting payment under this Bid item.

4. Copies of all laboratory analyses required for transportation and disposal of all contaminated soils and groundwater in full compliance with local, state and federal requirements.
5. Names, addresses and contact numbers of all subcontractors.
6. Copy of Contractor's Health and Safety Plan and training certificates of personnel who will be handling the contaminated material in accordance with OSHA requirements.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 3.01 CONTAMINATED SOILS

- A. The Contractor shall retain a laboratory certified by Broward County and the State of Florida to sample the groundwater in the excavation, the stored soil and soil samples in the perimeter of the excavated hole for petroleum contamination (EPA Methods 601, 602, 610). The number of samples shall be sufficient to comply with the requirements of the Contractor's approved Dewatering Plan and all local, state and federal regulations. The results of the tests shall be forwarded to the City.
- B. Excavated materials which are deemed to be contaminated shall be removed, treated and disposed of by the Contractor in accordance with all applicable regulatory requirements. The soil may be contaminated with petroleum product which may be partly or entirely diesel fuel or gasoline. When such soil conditions are encountered, they shall be brought to the City's attention. The extent of excavation shall be determined in the field by the City.
- C. All contaminated soil which is excavated shall be stockpiled in an area designated for contaminated soils. The Contractor shall take whatever precautions are necessary to ensure that contaminated soils are not co-mingled with non-contaminated stockpiled soils and/or mucks.
- D. Contaminated soils must be placed on an impermeable barrier when temporarily stockpiled and must be covered with visquine to prevent runoff. All stockpile leachate or runoff must be collected for disposal in accordance with federal, state and local regulations.
- E. Contaminated soils shall be processed and treated at a state licensed facility. These soils shall be transported and disposed of in accordance with federal, state and local regulations.

- F. The Contractor shall be responsible for testing soil which has been treated to certify treated soil meets applicable federal, state, and local regulations for final disposal.

### 3.02 CONTAMINATED GROUNDWATER

- 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 in accordance with local, state and federal regulations and the requirements of the Contract Documents. If groundwater contamination is identified at any time during the performance of the Work, Contractor shall immediately notify the City.
- B. If contaminated groundwater in the dewatering excavation area is encountered, the contaminated groundwater shall be removed, treated and discharged by the Contractor in accordance with all applicable regulatory requirements.
- C. Treatment of contaminated groundwater will include the following options, depending on the magnitude of the contamination in the trench: Granular Activated Carbon (GAC) Treatment vessels, mobile air stripping units, vacuum truck removal and disposal or other method as approved by the City and regulatory agencies with jurisdiction.
- D. If contaminated groundwater is encountered during construction, Contractor shall provide reference information for the qualified groundwater remediation subcontractor to be utilized, including phone number, contact name, and address. The selected groundwater treatment/recycling facility for hauling contaminated groundwater shall also be identified.
- E. Effluent water from the treatment system will be analyzed by the certified laboratory to confirm that concentrations are below regulatory limits. Effluent water will then be directed to a pre-approved location as determined by local regulatory agencies and/or the City.

### 3.03 TRANSPORT AND DISPOSAL

- A. Transport Regulations: The Contractor shall be responsible for the loading, labeling, placarding, marking, weighing, and transporting of all waste materials in accordance with the Florida Department of Transportation Regulations, and U.S. Department of Transportation Regulations. The Contractor shall use only transporters that are licensed and competent to haul these wastes.

### 3.04 WASTE CONTAINERS

- A. Each transport container of waste shall be visually inspected by the Contractor for leaks, drips, or container damage prior to being loaded. Containers which are found to be leaking or damaged shall not be loaded until the damage is repaired. The Contractor shall prepare the transport container to prevent spillage or contamination. The Contractor shall notify the City two hours before any loaded transport leaves the site.
- B. All transport containers leaving the site shall be inspected by the Contractor to ensure that no waste material adheres to the wheels or undercarriage.
- C. All vehicles on which waste is adhering shall be cleaned by sweeping tires and undercarriage or by other dry methods prior to leaving the site.

### 3.05 SHIPPING RECORDS

- A. The Contractor shall prepare accurate shipping records for any wastes leaving the site in accordance with applicable federal and state regulations. The Contractor shall be responsible for providing copies of the records to the City and shall immediately notify the City of any problems in completing shipments and disposal of wastes.
- B. The Contractor shall:
  - 1. Be responsible for appropriate measurement of unit quantity (weight or volume) of waste material removed from the site.
  - 2. Coordinate vehicle inspection and recording of quantities leaving the site with the City. These quantities shall be compared to recorded quantities received at the treatment or disposal facilities. The Contractor shall resolve any discrepancies occurring immediately, determining the probable cause for the discrepancy.
  - 3. Be solely responsible for any and all actions necessary to remedy situations involving waste spiked in transit.
- C. The Contractor shall ensure that a copy of the manifest is returned to the City by the designated treatment or disposal facility within 14 days of receipt of the material to be disposed.

END OF SECTION



## SECTION 02260

### FINISH GRADING

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. The Contractor shall, under this Section, supply, place, compact and roll finish grade materials prior to landscaping work.
- B. Finish grade sub-soil.
- C. Cut out areas to receive stabilizing base course materials for paving and sidewalks.
- D. Place, finish grade and compact topsoil.

##### 1.02 RELATED WORK

- A. Section 02210 - Earth Excavation, Backfill, Fill and Grading
- B. Section 02222 - Excavation and Backfill for Utilities and Structures
- C. Section 02500 - Landscaping
- D. Section 02930 - Sodding

##### 1.03 PROTECTION

- A. The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement, utility lines, and sprinkler system. Correct and restore any damaged items at no cost to the City.

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS

- A. Topsoil shall be friable loam free from subsoil, roots, grass, excessive amount of weeds, stones and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4% and a maximum of 25% organic matter.

## 2.02 CRUSHED STONE

- A. Crushed stone for general grading purposes 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  $\frac{3}{4}$  inches.

## PART 3 - EXECUTION

### 3.01 SUBSOIL PREPARATION

- A. Rough grade subsoil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, etc., in excess of 2 inches in size. Remove sub-soil which has been contaminated with petroleum products.
- B. Cut out areas, to subgrade elevation, which are to receive stabilizing base for paving and sidewalks.
- C. Bring subsoil to required levels, profiles and contours. Make changes in grade gradual. Blend slopes in to level areas.
- D. Slope grade away from building minimum 4 inches in 10 feet (unless indicated otherwise on Drawings).

### 3.02 PLACING TOPSOIL

- A. Place topsoil in area where seeding, sodding and planting is to be performed. Place to the following minimum depths, up to finished grade elevations:
  - 1. 6-inches for seeded areas.
  - 2. 4 1/2-inches for sodded areas.
  - 3. 24-inches for shrub beds.
  - 4. 18-inches for flower beds.
- B. Use topsoil in relatively dry state. Place during dry weather.
- C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles and contours of subgrade.
- D. Remove stones, roots, grass, weeds, debris and other foreign material while spreading.

- E. Manually spread topsoil around trees, plants, buildings and other structures to prevent damage which may be caused by grading equipment.
- F. Lightly compact placed topsoil.

3.03 SURPLUS MATERIAL

- A. Remove surplus sub-soil and topsoil from site.
- B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping and or sodding.

END OF SECTION

## SECTION 02332

### LIMEROCK BASE

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish all labor, materials, equipment and incidentals required to provide limerock base in accordance with the grades and typical sections shown on the Drawings and as specified herein. The Contractor is solely responsible for the cost of limerock base to be provided at various locations within the project corridor, and at potentially varying thicknesses per jurisdictional requirements, or for replacement in kind, as applicable.

##### 1.02 RELATED WORK:

- A. Section 02100 – Clearing and Grubbing
- B. Section 02260 – Finish Grading
- C. Section 02510 - Asphaltic Concrete Pavement

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS

- A. Source: The material used in limerock base courses shall be material classified as either Miami Oolite Formation or Ocala Formation at the Contractor's option; however, only one formation may be used.
- B. Limerock material shall contain not less than 70 percent of carbonates of calcium and magnesium. The maximum percentage of water sensitive clay material shall be 3%.
- C. Graduation: At least 97 percent (by weight) of the material shall pass a 3-1/2-inch sieve and the material shall be grades uniformly down to dust. 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.
- D. Quality:
  - 1. The limerock material shall be uniform in quality and shall not contain cherty or other extremely hard pieces or lumps, balls or pockets of sand

or clay size material in sufficient quantity as to be detrimental to prevent proper bonding, finishing or strength of limerock base. Limerock material shall be non-plastic, and the liquid amount shall not exceed 35.

2. Compacted limerock material shall have an average LBR value of not less than 100.

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. For new limerock base construction, or areas where pavement is to be replaced, Contractor shall remove existing subgrade as required to provide the minimum thickness of new limerock base course as indicated on plans.
- B. Compact subgrade to a density of no less than 98% of maximum density as determined by AHSHTO T-180.
- C. No separate bid item is provided in the proposal for evacuating, grading and compacting subgrade. The cost thereof shall be included in the BID schedule items.

### 3.02 PERFORMANCE

- A. Transporting Limerock: The limerock shall be transported to the point where it is to be used, over rock previously placed if practicable, and dumped on the end of the preceding spread. No hauling over the subgrade or dumping on the subgrade shall be done.
- B. Spreading Limerock:
  1. The limerock shall be spread uniformly, and all segregated areas of fine or coarse rock shall be removed and replaced with well-graded rock.
  2. When the specified compacted thickness of the base is greater than 6-inches, the base shall be constructed in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subgrade.
- C. Establish grades and cross-sections conforming to plans
  1. Provide a minimum of 8" inches of limerock as required to provide grades, elevations and cross-sections or as indicated on plans.

2. The Contractor must determine for himself the volume of material required for the site.
- D. Compacting and Finishing Base:
1. Work shall comply with the appropriate Section of the FDOT Standard Specifications for Road and Bridge Construction, latest edition.
  2. Proposed limerock base shall be compacted to a minimum of ninety-eight percent (98%) of maximum density as determined by ASHTO T-180. Properly compact areas adjacent to curbs, catch basins, manholes and other areas not accessible to rollers with mechanical or hand tamping devices.
  3. Correction of Defects:
    - (a) If at any time the subgrade material should become mixed with the base course material, the Contractor shall dig out and remove the mixture, which shall be shaped and compacted as specified above.
    - (b) If cracks or checks appear in the base, either before or after priming, which in the opinion of the Engineer would impair the structural efficiency of the base course or checks by rescarifying, reshaping, adding base material where necessary and recompacting are deemed as being necessary, the Contractor shall rectify at no cost to the City.

END OF SECTION

## SECTION 02500

### LANDSCAPING

#### PART 1 - GENERAL

##### 1.01 THE REQUIREMENT

- A. Items specified in this Section include the installation of new landscaping, or repairs to existing landscaped and grassed areas that may be damaged or disturbed by Contractor activities. The Contractor is to protect existing trees and landscaping, obtain approvals prior to trimming or removal, and replace in kind if removal is approved by the City.

##### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02510 - Asphaltic Concrete Pavement
- B. Section 02210 - Earth Excavation, Backfill, Fill and Grading
- C. Section 02930 - Sodding

##### 1.03 SUBMITTALS

- A. The Contractor shall submit submittals for review in accordance with the Section 01300 - Submittals.

##### 1.04 DEFINITIONS

- A. The phrase "FDOT Specifications" shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. The FDOT Specifications are referred to herein and 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 in their entirety.

##### 1.05 PROTECTION OF EXISTING IMPROVEMENTS

- A. The Contractor shall be responsible for the protection of all pavements and other improvements within the work area. All damage to such improvements, as a result of the Contractor's operations, beyond the limits of the work of pavement replacement shall be repaired by the Contractor at his expense.

##### 1.06 GUARANTEE

- A. The Contractor shall guarantee all trees, ground cover or shrubs planted or replanted under this Contract for a period of one year beyond closeout of the

project. In the event that any new tree, plant or shrub dies within the guarantee period, the Contractor shall be responsible for replacement in kind. In the event that a transplanted (reused) tree dies within the guarantee period, the Contractor shall be responsible for replacement in kind, except that the maximum height of any new tree shall be eight feet as measured from the ground surface, once planted, to the top of the tree.

## PART 2 - PRODUCTS

### 2.01 REPLACEMENT TREES, GROUND COVER AND SHRUBS

- A. Replacement trees, ground cover and shrubs shall be of the same type and size and sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall have healthy, well developed root systems and shall be free of disease and insect pests, eggs or larvae.

### 2.02 MULCH

- A. Mulch shall be windproof shredded eucalyptus, mulch shall be clean, fresh, free of branches and other foreign matter. Mulch shall be used around all shrubs, ground covers and tree trunks, and placed to a minimum depth of 2 inches extending from the tree trunk outward two feet.

### 2.03 GRAVEL BEDS

- A. Filter Fabric: Filter fabric shall be nonwoven polyester material Trevia Type 1120 as manufactured by Hoechst Fibers Industries, or equal. Fabric weight shall be 6 ounces per square yard, puncture strength maximum 40 pounds, minimum Flux 240 gallons per minute per square foot. Fabric shall be installed in accordance with the manufacturer's recommendations, with precautions taken to avoid tearing the fabric. Fabric shall be laid in strips with a minimum overlap of one foot.
- B. Limerock: Limerock shall meet ASTM A57 standards and shall be prewashed. Maximum size shall be 3/4 inches. Limerock shall be carefully placed and spread on the fabric to a minimum depth of 6 inches. Final grades and locations shall be as designated on the Drawings.

## PART 3 - EXECUTION

### 3.01 GRADING AND SODDING

- A. Finished grading to be provided in accordance with Section 02260.



B. Sodding to be provided in accordance with Section 02930.

### 3.02 TREES, GROUND COVER AND SHRUBS

- A. Excavation and Plant Holes: Plant hole excavations shall be roughly cylindrical in shape, with the side approximately vertical. Plants shall be centered in the hole. Bottoms of the holes shall be loosened at least six inches deeper than the required depth of excavation.
- B. Holes for balled and burlaped plants shall be large enough to allow at least eight inches of backfill around the earth ball. For root balls over 18 inches in diameter, this dimension shall be increased to 12 inches. Where excess material has been excavated from the plant hole, the excavated material shall be disposed of as and where directed by the Engineer.
- C. Setting of Plants: The Contractor, when setting plants in holes, shall make sure that when lowered into the hole, the plant shall rest on a prepared hole bottom such that the roots are level with, or slightly above, the level of their previous growth and so oriented such as to present the best appearance.
- D. Palms of the Sabal species may be set deeper than the depth of their original growth, provided that the specified clear trunk height is attained.
- E. The backfill shall be made with planting mixture and shall be firmly rodded and watered-in, so that no air pockets remain. The quantity of water applied immediately upon planting shall be sufficient to thoroughly moisten all of the backfilled earth. Plants shall be kept in a moistened condition for the duration of the Contract.
- F. Staking and Guying: Plants shall be staked in accordance with the following provisions:
  - 1. Small Trees: For trees and shrubs of less than one-inch caliper, the size of stakes and the method of tying shall be such as to rigidly support the staked plant against damage caused by wind action or other effects. Trees larger than one inch and smaller than one and one-half inch caliper shall be staked with a two-inch stake, set at least 24 inches in the ground and extending to the crown of the plant. The plant shall be firmly fastened to the stake with two strands of 14 gauge soft wire, enclosed in rubber hose, or other approved covering. The wire shall then be nailed or stapled to the stake to prevent slippage.
  - 2. Medium Trees: All trees, other than palm trees, larger than one and one-half inch caliper and smaller than two and one-half inch caliper shall be staked with two or more, two-inch by two-inch stakes, eight feet long, set two feet in the ground. The tree shall be midway between the stakes and

held firmly in place by two strands of 12-gauge wire, applied as specified above for single stakes. The wires shall be tightened and kept tight by twisting.

4. Large Trees: All trees, other than palm trees, larger than two and one-half inch caliper, shall be braced with three or more two-inch by four-inch wood braces, toenailed to cleats which are securely banded at two points to the palm, at a point at least six feet above the ground. The trunk shall be padded with five layers of burlap under the cleats. Braces shall be approximately equidistantly spaced and secured underground with two-inch by four-inch by 24-inch stake pads. In firm rock soils, Number 4 steel reinforcing rods or one-half inch pipe is acceptable.
5. Palm Trees: Palm trees shall be braced with three or more two-inch by four-inch wood braces, toenailed to cleats which are securely banded at two points to the palm, at a point at least six feet above the ground. The trunk shall be padded with five layers of burlap under the cleats. Braces shall be approximately equidistantly spaced and secured underground with two-inch by four-inch by 24-inch stake pads. In firm rock soils, Number 4 steel reinforcing rods or one-half inch pipe is acceptable.
- G. Pruning: All broken or damaged roots shall be cut off smoothly, and the tops of all trees shall be pruned in a manner complying with standard horticultural practice. At the time pruning is completed, all remaining wood shall be alive. All cut surfaces of one inch or more in diameter, above the ground, shall be treated with approved commercial tree paint.
- H. Maintenance: Maintenance shall begin immediately after each plant is planted and shall continue until all work under this Contract has been completed and accepted by the City. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated and otherwise maintained and protected. Settled plants shall be reset to proper grade position, planting saucer restored and dead material removed. Guys shall be tightened and repaired.
- I. Defective work shall be corrected as soon as possible after it becomes apparent. Upon completion of planting, the Contractor shall remove excess soil and debris, and repair any damage to structures, etc., resulting from planting operations.

### 3.03 GRAVEL BEDS

- A. Clean, grade and place geotextile prior to placing gravel in gravel beds.

END OF SECTION

## SECTION 02501

### PIPING, GENERAL

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Contract Requirements shall govern the work under this Section.

##### 1.02 WORK INCLUDED

- A. The CONTRACTOR shall furnish and install all piping systems shown and specified, in accordance with the requirements of the Contract Documents. Each system shall be complete with all necessary fittings, hangers, supports, anchors, expansion joints, flexible connectors, valves, accessories, heat tracing, insulation, lining and coating, testing, disinfection, excavation, backfill and encasement, to provide a functional installation.
- B. The piping shown is intended to define the general layout, configuration, routing, method of support, pipe size, and pipe type. The mechanical drawings are **not** pipe construction or fabrication drawings. It is the CONTRACTOR's responsibility to develop the details necessary to construct all mechanical piping systems, to accommodate the specific equipment provided, and to provide and install all spools, spacers, adapters, connectors, etc., for a complete and functional system.

##### 1.03 RELATED WORK

- A. Division 2 as applicable.

##### 1.04 REFERENCE STANDARDS

- A. **Codes:** All codes, as referenced herein are specified in Section 01070, "Applicable Standards and Codes".

- B. **Commercial Standards:**

AWWA C900-07 POLYVINYL CHLORIDE (PVC) Pressure Pipe and Fabricated Fittings

ANSI/ASME B1.20.1 Pipe Threads, General Purpose (inch).

ANSI B16.5 Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and other Special Alloys.

ANSI/AWWA C207 Steel Pipe Flanges for Water Works Service, Sizes 4 in through 144 in.

ANSI/AWWA C606 Grooved and Shouldered Joints.

ANSI/AWS D1.1 Structural Welding Code.

ASTM A 307	Specification for Carbon Steel Bolts and Studs, 6,000 psi Tensile.
ASTM A 325	Specification for High-Strength Bolts for Structural Steel Joints.
ASTM D 792	Test Methods for Specific Gravity and Density of Plastics by Displacement.
ASTM D 2000	Classification System for Rubber Products in Automotive Applications.

#### 1.05 SUBMITTALS

- A. The CONTRACTOR shall submit complete shop drawings and certificates, test reports, affidavits of compliance, of all piping systems, in accordance with the requirements of the Contract Documents as specified in the individual sections. The shop drawings shall include all necessary dimensions and details on pipe joints, fittings, fitting specials, valves, appurtenances, design calculations, and material lists. The submittals shall include detailed layout, spool, or fabrication drawings which show all pipe spools, spacers, adapters, connectors, fittings, and pipe supports necessary to accommodate the equipment and valves provided in a complete and functional system.
- B. All expenses incurred in making samples for certification of tests shall be borne by the CONTRACTOR.
- C. The CONTRACTOR shall submit as part of the shop drawings a certification from the pipe fabricator stating that all pipes will be fabricated subject to a recognized Quality Control Program. An outline of the program shall be submitted to the ENGINEER for review prior to the fabrication of any pipe

#### 1.06 QUALITY ASSURANCE

- A. **Inspection:** All pipe shall be subject to inspection at the place of manufacture. During the manufacture of the pipe, the ENGINEER shall be given access to all areas where manufacturing is in progress and shall be permitted to make all inspections necessary to confirm compliance with the Specifications.
- B. **Tests:** Except where otherwise specified, all materials used in the manufacture of the pipe shall be tested in accordance with the applicable Specifications and Standards. [Welds shall be tested as specified.] The CONTRACTOR shall perform all tests at no additional cost to the CITY.
- C. **Welding Requirements:** All welding procedures used to fabricate pipe shall be pre-qualified under the provisions of ANSI/AWS D1.1. Welding procedures shall be required for, but not necessarily limited to, longitudinal and girth or spiral welds for pipe cylinders, spigot and bell ring attachments, reinforcing plates and ring flange welds, and plates for lug connections.
- D. **Welder Qualifications:** All welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the methods and materials to be used. Welders shall be qualified under the provisions of ANSI/AWS D1.1 by an independent local, approved testing agency not more than 6 months prior to commencing work on the pipeline. Machines and electrodes similar to those used in the

WORK shall be used in qualification tests. The CONTRACTOR shall furnish all material and bear the expense of qualifying welders.

1.07 MANUFACTURER'S SERVICE REPRESENTATIVE

- A. Where the assistance of a manufacturer's service representative is advisable, in order to obtain perfect pipe joints, supports, or special connections, the CONTRACTOR shall furnish such assistance at no additional cost to the CITY.

1.08 MATERIAL DELIVERY, STORAGE, AND HANDLING

- A. All piping materials, fittings, valves, and accessories shall be delivered in a clean and undamaged condition and stored off the ground, to provide protection against oxidation caused by ground contact. All defective or damaged materials shall be replaced with new materials.

1.09 CLEANUP

- A. After completion of the work, all remaining pipe cuttings, joining and wrapping materials, and other scattered debris, shall be removed from the site. The entire piping system shall be handed over in a clean and functional condition.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All pipes, fittings, and appurtenances shall be furnished in accordance with the requirements of the applicable Sections of Division 2 and as specified herein.
- B. **Color:** Pipe for this project must be green in color.

**Material:** Pipe material shall conform to ANSI/AWWA C900, "Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In.," latest revision, rubber-ring gasket bell end or plain end with elastomeric gasket coupling, DR18 or as shown in the Plans, cast iron equivalent outside diameter, material cell classification 12454 per ASTM D1784, latest revision.

**Fittings:** Fittings shall conform to ANSI/AWWA C153/A21.53 or ANSI/AWWA C110/A21.10. Line and coat fittings with fusion-bonded epoxy.

**Restrained Joints:**

1. Provide restrained joints where indicated in the drawings. All pipe restraints/thrust restraints shall be mechanical joints and shall be provided by restraining systems that incorporate a wedge restraint on the restraint ring to provide positive restraint.
2. Restraint devices for bell-and-spigot joints shall consist of a split restraint ring installed on the spigot, connected to a solid backup ring seated behind the bell.
3. Restraining glands shall be EBAA Iron Series 2000 and 1600 or approved equal.
4. The ASTM A536 ductile iron casting of the restrained gland shall be bonded powder

coated. The wedge and wedge assembly shall have a bonded liquid polymer coating applied for corrosion protection. The gland shall utilize torque limiting twist off wedge actuation screws.

5. T-bolts, studs, and connecting hardware shall be high-strength, low alloy material in accordance with ANSI/AWWA C111/A21.11.
  6. Design restraining devices to have a 2:1 safety factor based on the design strength of the pipe.
- C. Pressure Rating:** Pipe for this project must be a minimum of DR-18 and meet pressure testing requirements of at least 235 psi.
- B. Lining:** All requirements pertaining to thickness, application, and curing of pipe lining, are in accordance with the requirements of the applicable Sections of Division 2, unless otherwise specified.
- C. Coating:** All requirements pertaining to thickness, application, and curing of pipe coating, are in accordance with the requirements of the applicable Sections of Division 2, unless otherwise specified. Pipes above ground or in structures shall be field-painted as directed by the ENGINEER.
- D. Grooved Piping Systems:** Piping systems with grooved joints and fittings may be provided in lieu of screwed, flanged, welded, or mechanical joint systems for ductile iron yard piping. (All piping above and below ground within the property limits of treatment plants, pump stations, and similar installations). All grooved couplings on buried piping must be bonded. To assure uniform and compatible piping components, all grooved fittings, couplings, and valves shall be from the same manufacturer. The CONTRACTOR shall make the coupling manufacturer responsible for the selection of the correct style of coupling and gasket for each individual location.

## 2.02 PIPE FLANGES

- A. Flanges:** Where the design pressure is 150 psi or less, flanges shall conform to either ANSI/AWWA C207 Class D or ANSI B16.5 150-lb class. Where the design pressure is greater than 150 psi, up to a maximum of 275 psi, flanges shall conform to either ANSI/AWWA C207 Class E, Class F, or ANSI B16.5 150-lb class. However, AWWA flanges shall not be exposed to test pressure greater than 125 percent of rated capacity. For higher test pressures, the next higher rated AWWA flange or an ANSI-rated flange shall be selected. Where the design pressure is greater than 275 psi up to a maximum of 700 psi, flanges shall conform to ANSI B16.5 300-lb class. Flanges shall have flat faces and shall be attached with bolt holes straddling the vertical axis of the pipe unless otherwise shown. Attachment of the flanges to the pipe shall conform to the applicable requirements of ANSI/AWWA C207. Flanges for miscellaneous small pipes shall be in accordance with the standards specified for these pipes.
- B. Blind Flanges:** Blind flanges shall be in accordance with ANSI/AWWA C207, or with the standards for miscellaneous small pipes. All blind flanges for pipe sizes 12 inches and over shall be provided with lifting eyes in form of welded or screwed eye bolts.
- C. Flange Coating:** All machined faces of metal blind flanges and pipe flanges shall be



coated with a temporary rust-inhibitive coating to protect the metal until the installation is completed.

- D. **Flange Bolts:** All bolts and nuts shall conform to pipe manufacturers recommendations. Studs and bolts shall extend through the nuts a minimum of 1/4-inch. All-thread studs shall be used on all valve flange connections, where space restrictions preclude the use of regular bolts.
- E. **Insulating Flanges:** Insulated flanges shall have bolt holes 1/4-inch diameter greater than the bolt diameter.
- F. **Insulating Flange Sets:** Insulating flange sets shall be provided where shown. Each insulating flange set shall consist of an insulating gasket, insulating sleeves and washers and a steel washer. Insulating sleeves and washers shall be one piece when flange bolt diameter is 1-1/2-inch or smaller and shall be made of acetal resin. For bolt diameters larger than 1-1/2-inch, insulating sleeves and washers shall be 2-piece and shall be made of polyethylene or phenolic. Steel washers shall be in accordance with ASTM A 325. Insulating gaskets shall be full-face.
- G. **Insulating Flange Manufacturers, or Equal:**
  - 1. **JM Red Devil, Type E;**
  - 2. **Maloney Pipeline Products Co., Houston;**
  - 3. **PSI Products, Inc., Burbank, California.**
- H. **Flange Gaskets:** Gaskets for flanged joints shall be full-faced, 1/16-inch thick compressed sheets of aramid fiber base, with nitrile binder and non-stick coating, suitable for temperatures to 700 degrees F, a pH of one to eleven, and pressures to 1000 psig. Blind flanges shall have gaskets covering the entire inside face of the blind flange and shall be cemented to the blind flange. Ring gaskets shall not be permitted.
- I. **Flange Gasket Manufacturers, or Equal:**
  - 1. **John Crane, style 2160;**
  - 2. **Garlock, style 3000.**

#### 2.03 THREADED INSULATING CONNECTIONS

- A. **General:** Threaded insulating bushings, unions, or couplings, as appropriate, shall be used for joining threaded pipes of dissimilar metals and for piping systems where corrosion control and cathodic protection are involved.
- B. **Materials:** Threaded insulating connections shall be of nylon, Teflon, polycarbonate, polyethylene, or other non-conductive materials, and shall have ratings and properties to suit the service and loading conditions.

#### 2.04 MECHANICAL-TYPE COUPLINGS (GROOVED OR BANDED PIPE)

- A. **General:** Cast mechanical-type couplings shall be provided where shown. The

couplings shall conform to the requirements of ANSI/AWWA C606. All gaskets for mechanical-type couplings shall be compatible with the piping service and fluid utilized, in accordance with the coupling manufacturer's recommendations. The wall thickness of all grooved piping shall conform with the coupling manufacturer's recommendations to suit the highest expected pressure. To avoid stress on equipment, all equipment connections shall have rigid-grooved couplings, or harness sets in sizes where rigid couplings are not available, unless thrust restraint is provided by other means. The CONTRACTOR shall have the coupling Manufacturer's service representative verify the correct choice and application of all couplings and gaskets, and the workmanship, to assure a correct installation.

**B. Couplings for Steel Pipe, Manufacturers, or Equal:**

1. **Gustin-Bacon (banded or grooved);**
2. **Victaulic Style 41 or 44 (banded, flexible);**
3. **Victaulic Style 77 or 07 (grooved).**

**C. Ductile Iron Pipe Couplings, Manufacturers, or Equal:**

1. **Gustin-Bacon;**
2. **Victaulic Style 31.**

Note: Ductile iron pipe couplings shall be furnished with flush seal gaskets.

2.05 SLEEVE-TYPE COUPLINGS

- A. **Construction:** Sleeve-type couplings shall be provided where shown, in accordance with ANSI/AWWA C219 unless otherwise specified, and shall be of steel with steel bolts, without pipe stop, and shall be of sizes to fit the pipe and fittings shown. The middle ring shall be not less than 1/4-inch in thickness and shall be either 5 or 7 inches long for sizes up to and including 30 inches and 10 inches long for sizes greater than 30 inches, for standard steel couplings, and 16 inches long for long-sleeve couplings. The followers shall be single-piece contoured mill section welded and cold-expanded as required for the middle rings. They shall be of sufficient strength to accommodate the number of bolts necessary to obtain adequate gasket pressures without excessive rolling. The shape of the follower shall be of such design as to provide positive confinement of the gasket. Buried sleeve-type couplings shall be epoxy-coated at the factory as specified.
- B. **Pipe Preparation:** The ends of the pipe, where specified or shown, shall be prepared for flexible steel couplings. Plain ends for use with couplings shall be smooth and round for a distance of 12 inches from the ends of the pipe, with outside diameter not more than 1/64-inch smaller than the nominal outside diameter of the pipe. The middle ring shall be tested by cold-expanding a minimum of one percent beyond the yield point, to proof-test the weld to the strength of the parent metal. The weld of the middle ring shall be subjected to air test for porosity.
- C. **Gaskets:** Gaskets for sleeve-type couplings shall be rubber-compound material that will

not deteriorate from age or exposure to air under normal storage or use conditions. Gaskets for wastewater and sewerage applications shall be Buna "N," grade 60, or equivalent suitable elastomer. The rubber in the gasket shall meet the following specifications:

1. Color - Jet Black
2. Surface - Non-blooming
3. Durometer Hardness - 74±5
4. Tensile Strength - 1000 psi Minimum
5. Elongation - 175 percent Minimum

The gaskets shall be immune to attack by impurities normally found in water or wastewater. All gaskets shall meet the requirements of ASTM D 2000, AA709Z, meeting Suffix B13 Grade 3, except as noted above. All gaskets shall be compatible with the piping service and fluid utilized.

- D. **Insulating Couplings:** Where insulating couplings are required, both ends of the coupling shall have a wedge-shaped gasket which assembles over a rubber sleeve of an insulating compound in order to obtain insulation of all coupling metal parts from the pipe.
- E. **Restrained Joints:** All sleeve-type couplings on pressure lines shall be harnessed unless thrust restraint is provided by other means. Harnesses shall be in accordance with the requirements of the appropriate reference standard, or as shown.

**Manufacturers or Equal:**

1. **Dresser, Style 38;**
2. **Ford Meter Box Co., Inc., Style FC1 or FC3;**
3. **Smith-Blair, Style 411.**

2.06 FLEXIBLE CONNECTORS

- A. Flexible connectors shall be installed in all piping connections to engines, blowers, compressors, and other vibrating equipment, and where shown. Flexible connectors for service temperatures up to 180 degrees F shall be flanged, reinforced Neoprene or Butyl spools, rated for a working pressure of 40 to 150 psi, or reinforced, flanged duck and rubber, as best suited for the application. Flexible connectors for service temperatures above 180 degrees F shall be flanged, braided stainless steel spools with inner, annular, corrugated stainless steel hose, rated for minimum 150 psi working pressure, unless otherwise shown. The connectors shall be 9 inches long, face-to-face flanges, unless otherwise shown. The final material selection shall be approved by the manufacturer. The CONTRACTOR shall submit manufacturer's shop drawings and calculations.

## 2.07 EXPANSION JOINTS

- A. All piping subject to expansion and contraction shall be provided with sufficient means to compensate for such movement, without exertion of undue forces to equipment or structures. This may be accomplished with expansion loops, bellow-type expansion joints, or sliding-type expansion joints. Expansion joints shall be of stainless steel, monel, rubber, or other materials, best suited for each individual service. The CONTRACTOR shall submit detailed calculations and manufacturer's shop drawings, guaranteeing satisfactory performance of all proposed expansion joints, piping layouts showing all anchors and guides, and information on materials, temperature and pressure ratings.

## 2.08 PIPE THREADS

- A. All pipe threads shall be in accordance with ANSI/ASME B1.20.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. All pipes, fittings, and appurtenances shall be installed in accordance with the requirements of the applicable Section of Divisions 2. The lining manufacturer shall take full responsibility for the complete, final product and its application. All pipe ends and joints at screwed flanges shall be epoxy-coated, to assure continuous protection.
- B. Where core drilling is required for pipes passing through existing concrete, core drilling locations shall be determined by radiograph of concrete construction to avoid damage to embedded raceways and rebars.
- C. All exposed piping shall be painted. All piping to be painted shall be color coded in accordance with CITY's standard color code. Color samples shall be submitted to ENGINEER for final color selection.

END OF SECTION

SECTION 02502  
VALVES, GENERAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Provide all labor, materials, necessary equipment and services to complete the Wastewater ~~Water~~-Systems work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

1.02 WORK INCLUDED

- A. The CONTRACTOR shall provide all tools, supplies, materials, equipment, and labor necessary for furnishing, epoxy coating, installing, adjusting, and testing of all valves and appurtenant work, complete and operable, in accordance with the requirements of the Contract Documents. Where buried valves are shown, the CONTRACTOR shall furnish and install valve boxes to grade, with covers, extensions, and position indicators.
- B. The provisions of this Section shall apply to all valves and valve operators specified in the various Sections and Division 2 of these Specifications except where otherwise specified in the Contract Documents. Valves and operators in particular locations may require a combination of units, sensors, limit switches, and controls specified in other Sections of these Specifications.

1.03 RELATED WORK

- A. Excavation and Backfilling for Utilities.
- B. Piping, General.
- C. ~~Water Distribution System.~~
- D. Sanitary Sewerage System
- E. Wastewater Flow Control

1.04 REFERENCE STANDARDS

- A. **Codes:** All codes, as referenced herein, are specified in Section 01090, "Applicable Standards and Codes".
- B. **Commercial Standards:**
  - ANSI B16.1 Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800.
  - ANSI B16.5 Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and Other Special Alloys.
  - ANSI/ASME B31.1 Power Piping.

ASTM A 36	Specification for Structural Steel.
ASTM A 48	Specification for Gray Iron Castings.
ASTM A 126	Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
ASTM A 536	Specification for Ductile Iron Castings.
ASTM B 61	Specification for Steam or Valve Bronze Castings.
ASTM B 62	Specification for Composition Bronze or Ounce Metal Castings.
ASTM B 148	Specification for Aluminum-Bronze Castings.
ASTM B 584	Specification for Copper Alloy Sand Castings for General Applications.
ANSI/AWWA C500	Gate Valves for <del>Water and</del> Sewerage Systems.
<del>ANSI/AWWA C502</del>	<del>Dry Barrel Fire Hydrants.</del>
<del>ANSI/AWWA C503</del>	<del>Wet Barrel Fire Hydrants.</del>
ANSI/AWWA C504	Rubber-Seated Butterfly Valves.
ANSI/AWWA C507	Ball Valves 6 Inches Through 48 Inches.
AWWA C508	Swing-Check Valves for Waterwork Service, 2 Inches Through 24 Inches NPS.
ANSI/AWWA C509	Resilient-Seated Gate Valves for <del>Water and</del> Sewage Systems.
ANSI/AWWA C511	Reduced-Pressure Principle Backflow-Prevention Assembly.
AWWA C512	Air Release, Air/Vacuum, and Combination Air Valves
AWWA C515	Resilient Wedge Gate Valve
AWWA C517	Resilient-Seated Cast-Iron Eccentric Plug Valves
AWWA C550	Protective Interior Coatings for Valves and Hydrants.
SSPC-SP-2	Hand Tool Cleaning.
SSPC-SP-5	White Metal Blast Cleaning.

#### 1.05 SUBMITTALS

- A. **Shop Drawings:** Shop drawings of all valves and operators including associated wiring diagrams and electrical data, shall be furnished as specified in Section 01300, "Submittals".
- B. **Valve Labeling:** The CONTRACTOR shall submit a schedule of valves to be labeled

indicating in each case the valve location and the proposed wording for the label.

#### 1.06 QUALITY ASSURANCE

- A. **Valve Testing:** Unless otherwise specified, each valve body shall be tested under a test pressure equal to twice its design water-working pressure.
- B. **Bronze Parts:** Unless otherwise specified, all interior bronze parts of valves shall conform to the requirements of ASTM B 62, or where not subject to dezincification, to ASTM B 584.
- C. **Certification:** Prior to shipment, the CONTRACTOR shall submit for all valves over 12 inches in size, certified, notarized copies of the hydrostatic factory tests, showing compliance with the applicable standards of AWWA, ANSI, ASTM, etc.

### PART 2 - PRODUCTS

#### 2.01 VALVES, GENERAL

- A. **General:** The CONTRACTOR shall furnish all valves, gates, valve-operating units, stem extensions, and other accessories as shown or specified. All valves and gates shall be new and of current manufacture. All shut-off valves, 6-inch and larger, shall have operators with position indicators. Where buried, these valves shall be provided with valve boxes and covers containing position indicators, and valve extensions. Shut-off valves mounted higher than 5 feet-6 inches above working level shall be provided with chain operators.
- B. **Valve Flanges:** The flanges of valves shall be in accordance with Section 02501, "Piping, General".
- C. **Gate Valve Stems:** Where subject to dezincification, gate valve stems shall be of bronze conforming to ASTM B 62, containing not more than 5 percent of zinc nor more than 2 percent aluminum. Gate valve stems shall have a minimum tensile strength of 60,000 psi, a minimum yield strength of 40,000 psi, and an elongation of at least 10 percent in 2 inches, as determined by a test coupon poured from the same ladle from which the valve stems to be furnished are poured. Where dezincification is not a problem, bronze conforming to ASTM B 584 may be used.
- D. **Protective Coating:** Except where otherwise specified, ferrous surfaces, exclusive of stainless steel surfaces, in the water passages of all valves 4-inch and larger, as well as the exterior surfaces of all submerged valves, shall be coated with 2 part thermal setting epoxy coatings. Flange faces of valves shall not be epoxy coated. The valve manufacturer shall certify in writing that such coating has been applied and tested in the manufacturing plant prior to shipment, in accordance with these Specifications.
- E. **Valve Operators:** Where shown, certain valves and gates shall be furnished with electric operators, provided by the valve or gate manufacturer. All operators of a given type shall be furnished by the same manufacturer. Where these operators are supplied by different manufacturers, the CONTRACTOR shall coordinate their selection to provide uniformity of each type of electric operator. All valve operators, regardless of

type, shall be installed, adjusted, and tested by the valve manufacturer at the manufacturing plant.

- F. **Valve Labeling:** Except when such requirement is waived by the ENGINEER in writing, a label shall be provided on all shut-off valves exclusive of hose bibbs and chlorine cylinder valves. The label shall be of 1/16-inch plastic or stainless steel, minimum 2 inches by 4 inches in size, and shall be permanently attached to the valve or on the wall adjacent to the valve as directed by the ENGINEER.
- G. **Nuts and Bolts:** All nuts and bolts on valve flanges and supports shall be in accordance with manufacturers recommendations. Where submerged or buried, all nuts and bolts on valve flanges and valve bodies shall be stainless steel.

## 2.02 GATE VALVES

- A. All buried valves shall be of the inside screw, non-rising stem type. Valves shall be capable of being repacked under line pressure. Valves 14-inch and larger installed vertical pipes with their stems horizontal shall be fitted with bronze slides, tracks, rollers, and scrapers to assist the travel of the gate assembly. Quick opening valves shall have quick opening levers and cams in lieu of handwheel operators.
- B. **Knife Gate Valves:**
  - 1. Knife gate valves shall be provided with raised face and resilient seats for positive seating. Wetted parts shall be constructed of Type 316 stainless steel. Gates shall be finish-ground on both sides to prevent packing or seat damage. Valves 2 to 4 inches in size shall be furnished with cast stainless steel bodies; valves 6 to 24 inches in size shall be furnished with cast semi-steel bodies with stainless steel linings. Valve ends shall be of the flanged or wafer design, as shown. Gate guides and jams shall be steel. Actuator shall be handwheel. Port design shall be full-round.
  - 2. **Manufacturers or Equal:**
    - a. Red Valve Company Inc.;
    - b. DeZurik Corporation;
    - c. Fabri-Valves;
    - d. Rovang, Inc.
- C. **Resilient-Seated Gate Valves:**
  - 1. Resilient-seated gate valves conforming to ANSI/AWWA C509 shall be provided. Resilient-seated gate valves shall have cast iron bodies with flanged, bell, or mechanical joint ends, rubber-coated cast iron disc, flanged bonnet, bronze stem, O-ring seals, and operators with handwheel or square nut, unless otherwise shown.
  - 2. **Manufacturer or Equal:**
    - a. Clow Valve Co.; F-6100



- b. Kennedy Valve; Ken-Seal
- c. Mueller Company; 2370
- d. American - Darling Valve Co.; 80 line

## 2.03 ECCENTRIC PLUG VALVES

A. **Equipment Requirements:** Plug valves shall be conforming to AWWA C517, latest revision, which shall be of the non-lubricated, eccentric type with resilient faced plugs, port areas for valves 100% of full pipe area. The body shall be of cast or ductile iron meeting or exceeding ASTM A-126 or ASTM A-536, and shall have bolted bonnet which gives access to the internals of the valve. Seats shall be welded nickel alloy or stainless steel plate locked in the body cavity. If a plate is used, it shall be replaceable through the bonnet access. Bearings shall be permanently lubricated stainless steel, bronze or Teflon. Bearing areas shall be isolated from the flow. Valves shall have packing bonnets where the shaft protrudes from the valve and the packing shall be self-adjusting chevron type which can be replaced without removing the bonnet. All nuts, bolts, springs and washers shall be stainless steel (type 316).

B. Valves shall be designed for a working pressure of 150 PSI minimum. The valve and actuator shall be capable of satisfactory operation in either direction of flow against pressure drops up to and including 100 PSI (for plug valves over 12 inches in diameter). Valves shall be bubble tight in both directions at 100 psi differential.

Plug valves 12" in diameter and over shall have worm gear operators. The operating mechanism for buried service shall be with a 2 inch square operating nut.

C. Plug valves are to be installed with the seat pointed towards the upstream flow, when specified.

D. **Manufacturers or Equal:**

1. Clow Valve Co.;
2. DeZurik Corporation;
3. U.S. Pipe.
4. Victaulic
5. Kennedy Valve

## ~~2.04 BALL VALVES (4 INCH AND SMALLER)~~

~~A. **General Requirements:** Unless otherwise specified or shown, general purpose ball valves in size up to 4-inch shall have manual operators with lever or handwheel. Ferrous surface of 4-inch valves, which will be in contact with water shall be epoxy-coated. All ball valves shall be of best commercial quality, heavy duty construction.~~

~~B. **Body:** All ball valves up to 1 1/2 inch (incl.) in size shall have bronze or forged brass 2 or 3 piece bodies with screwed ends for a pressure rating of not less than 300 psi WOG. Valves 2-inch to 4-inch in size shall have bronze forged brass or steel 2 or 3 piece~~

bodies with flanged ends for a pressure rating of 125 psi or 150 psi.

- C. ~~**Balls:** The balls shall be solid brass or chrome plated bronze, or stainless steel, with large or full openings.~~
- D. ~~**Stems:** The valves seats shall be of Teflon or Buna N or equal, for bi-directional service and easy replacement.~~
- E. ~~**Ball Valve Manufacturers or Equal:**
  - 1. ~~**Jamesbury Corporation;**~~
  - 2. ~~**Jenkins Bros.;**~~
  - 3. ~~**Lunkenheimer Flow Control;**~~
  - 4. ~~**Wm. Powell Company;**~~
  - 5. ~~**Worcester Controls;**~~
  - 6. ~~**Valve Primer Corporation.**~~~~

#### 2.05 SWING CHECK VALVES (3 INCH AND LARGER)

- A. ~~**General:** Swing check valves for water, sewage, sludge, and general service shall be of the outside lever and spring or weight type, in accordance with ANSI/AWWA C 508 – Swing Check Valves for Waterworks Service, 2 in. through 24 in. NPS (Nominal Pipe Size), unless otherwise indicated, with full opening passages, designed for a water-working pressure of 150 psi. They shall have a flanged cover piece to provide access to the disc.~~
- B. ~~**Body:** The valve body and cover shall be of cast iron conforming to ASTM A 126, with flanged ends conforming to ANSI B 16.1, or mechanical joint ends, as shown.~~
- C. ~~**Disc:** The valve disc shall be of cast iron, ductile iron, or bronze conforming to ASTM B 62.~~
- D. ~~**Seat and Rings:** The valve seat and rings shall be of bronze conforming to ASTM B 62 or B 148, or of Buna N or equal.~~
- E. ~~**Hinge Pin:** The hinge pin shall be of bronze or stainless steel.~~
- F. ~~**Swing Check Valve Manufacturers or Equal:**
  - 1. ~~**American Darling Valve Co.;**~~
  - 2. ~~**Kennedy Valve;**~~
  - 3. ~~**Mueller Company;**~~
  - 4. ~~**Stockham Valves and Fittings.**~~~~

#### 2.06 AIR-VACUUM AND AIR-RELEASE VALVES

- A. **Air and Vacuum Valves:** Air and vacuum valves shall be capable of venting large quantities of air while pipelines are being filled, and allowing air to re-enter while pipelines are being drained. They shall be of the size shown, with flanged or screwed ends to match piping. Bodies shall be of high-strength cast iron. The float, seat, and all moving parts shall be constructed of Type 316 stainless steel. Seat washers and gaskets shall be of a material insuring water tightness with a minimum of maintenance. Valves shall be designed for minimum 150 psi water-working pressure, unless otherwise shown.
  - B. **Air-Release Valves:** Air-release valves shall vent accumulating air while system is in service and under pressure and be of the size shown and shall meet the same general requirements as specified for air and vacuum valves except that the vacuum feature will not be required. They shall be designed for a minimum water-working pressure of 150 psi, unless otherwise shown.
  - C. **Combination Air Valves:** Combination air valves shall combine the characteristics of air and vacuum valves and air release valves by exhausting accumulated air in systems under pressure and releasing or re-admitting large quantities of air while a system is being filled or drained, respectively. They shall have the same general requirements as specified for air and vacuum valves.
  - D. **Air Vacuum and Release Manufacturers or Equal:**
    - 1. **APCO (Valve and Primer Corporation);**
    - 2. **Golden-Anderson Valve Division (GA Industries, Inc);**
    - 3. **Val-Matic (Valve and Manufacturing Corporation).**
- 2.07 CORPORATION STOPS (Ball Valve Type)
- ~~A. Unless otherwise shown, corporation stops shall be made of brass alloy for key operation, with screwed ends with corporation thread or iron pipe thread, as required. AWWA taper thread for inlet thread and compression type fittings for outlet.~~
  - ~~B. **Corporation Stop Manufacturer or Equal:**~~
    - ~~1. **Ford Meter Box Company;**~~
    - ~~2. **James Jones Company;**~~
    - ~~3. **Mueller Company.**~~
- 2.08 VALVE OPERATORS
- A. Electric Motor Operators
    - 1. All motorized valves shall be furnished by the CONTRACTOR through the valve manufacturers as a complete package. Motor driven valve operators shall be furnished and installed in accordance with the applicable requirements shown on the process and instrumentation diagrams and electrical elementary diagrams. Operators shall comply with AWWA requirements for electrical operators.

2. Electric operators including the motor, all required gearing, integral continuous duty rated reversing starter, AC line surge suppressors, controls and switches shall be as manufactured by **Rotork, Limitorque, EIM; or equal.**
3. The motorized operators for modulating service shall be furnished with an integral position indicator/transmitter/controller. The above unit shall be internally powered, factory calibrated and furnished with adjustable zero, span, gain and deadband controls.
4. The position indicator/transmitter shall provide a linear, isolated, 4-20 mA, 24 VDC output to remote instrumentation and controls proportional to 0-100 percent travel span. An external DC power source shall not be required.
5. The position controller shall accept a linear 4-20 mA, 24 VDC input signal proportional to 0-100 percent travel span and shall generate appropriate outputs to the reversing starter to open/close the valve until the desired portion has been reached as determined by the position feedback signal to the position controller. Input signal isolation shall be provided.
6. The controller shall be furnished with circuitry to "lock in the last position" upon loss of control signal. CONTRACTOR shall be responsible for proper transmitter/controller calibration in accordance with the manufacturer's recommendations.
7. Operator capacity shall be adequate to continuously operate the valve under all operating conditions. Unless otherwise indicated, or specified, motor operators shall be furnished complete with motors, limit switch operating mechanisms, travel limit switches, torque switches, transmitters, controllers, starters, lighting and surge suppression, terminal blocks, gear reducers, handwheel, gearing, necessary components, and incidental accessories as follows:
  - a. All phases of the power supply shall be monitored. The contractor shall open de-energizing the motor upon detection of single phasing.
  - b. Logic circuits shall be protected against spurious voltage spikes, using opto-isolators in circuits connected to any remote input or output signals.
8. **Enclosure:** The starter for 240 volt single phase motor operators and all local devices shall be mounted on a common NEMA 4 and PVC coated cast aluminum enclosure. The enclosure shall be permanently affixed to the valve operator housing.
9. **Valve Stops:** Valve stops for the operators shall be positive in action. Closing shall be complete, and opening full. Stops shall be field adjustable to the required settings. The torque switches shall prevent any excessive mechanical stress or electrical overloading any direction of travel.
10. Limit switches and gearing shall be an integral part of the motorized valve operator. The limit switch gearing shall be of the intermittent type, totally enclosed in its own gear case, grease lubricated to prevent direct and foreign

matter from entering the gear train and shall be made of bronze or stainless steel. Limit switches shall be of the adjustable type capable of being adjusted to trip at any point between the normal position (full open, or full closed) and 75 percent of the travel to the opposite position.

11. **Local (Motor) Devices:** Local devices shall include, but not be limited to the following:
  - a. **Torque Switches:** Torque switches, responsive to high torque encountered in either direction of travel. A torque switch which has tripped due to mechanical load shall not reset when the operator motor has come to a halt.
  - b. **Limit Switches:** Travel limit switches, for opening and closing direction of travel. Contract operations shall be as indicated on the Drawings. If not shown on the Drawings, the operator shall be furnished with a minimum of two DPDT switches. All switches shall be furnished with 5 ampere contacts. Switches shall be connected such that when the valve is fully open, or fully closed, the "open" or "close" light shall be illuminated. All limit switch contacts shall be wired out to a terminal strip so that the electrician in the field does not have to connect to the switches.
  - c. Local/remote selector switch with phase motor relay and auxiliary to provide dry contacts for collective indication of placement in the "remote" operating mode, the unit is powered, and that all safety/overload interlocks are satisfied to provide the above signal. For further requirements refer to electrical elementary control schematic.
  - d. Open/close push-button for local manual operation (modulating service).
  - e. Position indicator calibrated to 0-100 percent travel span.
  - f. Terminals for remote indication of full open, full closed and overload (torque).
12. **Operating Unit Gearing:** The actuator shall be double reaction unit with the capability of quickly changing the output speed with a gear change. The power gearing shall consist of generated spur or helical gears of heat-treated steel, and worm gearing where required by the type of operator. Quarter turn or traveling unit operators do not specifically require worm gearing. The worm shall be of hardened alloy steel and the worm gear shall be of alloy bronze. All power gearing shall be grease-lubricated. Ball or roller bearings shall be used throughout for all motor operators. A mechanical dial position indicator to display valve position in percent of valve opening shall be provided. The gearing shall comply with AWWA requirements.
13. **Stem Nuts:** The actuator for other than quarter turn valves shall have a stem nut of high tensile bronze or other material compatible with the valve stem and suited to the application. The nut arrangement, where possible, shall be of the two-piece type to simplify field replacement. The stem nut for rising stem valves must be capable of being removed from the top of the actuator without removing the actuator from the valve, disconnecting the electrical wiring, or disassembling any

of the gearing within the actuator.

14. **Manual Operation:** A handwheel shall be provided for manual operation. The handwheel shall not relocate during hand operation nor shall a fused motor prevent manual operation.
15. When in manual operating position, the volt motor driven unit will remain in this position until motor is energized at which time the valve operator will automatically return to electric operation and shall remain in motor position until handwheel operation is desired. This movement from motor operation to handwheel operation shall be accomplished by a positive declutching knob or lever which will disengage the motor and motor gearing mechanically not electrically. Hand operation must be reasonable fast and require no more than 100 lbs. of rim effort at the maximum required torque. It shall not be possible for the unit to be simultaneously in manual and motor operation.
16. **240 Volt Single Phase Motors:** All motors on valves shall be designed for 240 volts 1-phase 60 Hz power. The motor shall be specifically designed for valve actuator service and shall be of high torque, squirrel cage reversible, totally enclosed, non-ventilated construction, with motor leads brought into the limit switch compartment without having external piping or conduit box. Motor insulation shall be NEMA Class B with maximum continuous temperature rating of 120° C (rise + ambient). Motors shall be sized to have a rated running time at the rated running torque of 15 minutes without exceeding the temperature rating of the insulation system. Running load torque shall be not more than 20 percent of the rated seating/unseating torque.
17. Speed-torque curves for the motors and torque calculations for seating, unseating, and running conditions shall be submitted. The maximum valve torque (seating/unseating) shall be less than 50 percent of stall torque or starting torque potential of the motor whichever is greater.
18. **Operator Type:**
  1. Type A: Remote set-point using a 4-20 mable analog signal
    - (a) Local Operation
      - (1) LOCAL/REMOTE selector
      - (2) OPEN/CLOSE push-buttons
      - (3) Position set-point potentiometer/indicator
      - (4) LOCAL accepts local position set-point
      - (5) OPEN/CLOSE indication
      - (6) Fault (torque) indication
    - (b) Remote operation
      - (1) REMOTE - accept a remote 4-20 mA position set-point

- (2) Position transmitter 4-20mA signal to RTU (Remote Transmitter Unit)
- (3) Available Ready of Auto to RTU
- (4) Fault torque status to RTU

19. **Valve Closure Time:**

Valve closure time shall be 1 minute.

20. **Spare Parts:**

- a. The CONTRACTOR shall furnish loose, one unit valve operator, complete with all the devices specified herein and with all the features and characteristics similar to the equipment supplied in this Contract. The spare operator shall be delivered to the CITY still in crates.

PART 3 - EXECUTION

3.01 VALVE INSTALLATION

- A. **General:** All valves, gates, operating units, stem extensions, valve boxes, and accessories shall be installed in accordance with the manufacturer's written instructions and as shown and specified. All gates shall be adequately braced to prevent warpage and bending under the intended use. Valves shall be firmly supported to avoid undue stresses on the pipe.
- B. **Access:** All valves shall be installed to provide easy access for operation, removal, and maintenance and to avoid conflicts between valve operators and structural members or handrails.
- C. **Valve Accessories:** Where combinations of valves, sensors, switches, and controls are specified, it shall be the responsibility of the CONTRACTOR to properly assemble and install these various items so that all systems are compatible and operating properly. The relationship between interrelated items shall be clearly noted on shop drawing submittals.
- D. **Butterfly Valves:** All exposed butterfly valves shall be installed with a means of removing the complete valve assembly without dismantling the valve or operator.

- END OF SECTION -

SECTION 02507  
PRIME AND TACK COATS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work specified in this section consists of an application of bituminous material on previously prepared base in accordance with these specifications and in conformity with the line, grades, dimensions and notes shown on the Drawings. The Contractor is solely responsible for the cost of prime and tack coats to be provided at various locations within the project corridor, and at potentially varying thicknesses per jurisdictional requirements, or for replacement in kind, as applicable.
- B. Tack coat will be required prior to overlaying existing pavement.

1.02 RELATED WORK

- A. Section 02510 - Asphaltic Concrete Pavement

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Prime Coat: Unless otherwise indicated, the material used for the prime coat shall be cut back asphalt, Grade RC-70 or RC-250 and shall conform with the requirements specified in AASHTO Designated M 81-75 (1982). Unless otherwise indicated, the use of either RC-70 or RC-250 shall be at the CONTRACTOR'S option.
- B. Tack Coat: The material used for the tack coat shall be emulsified asphalt, Grade RS-2 and shall conform to the requirements specified in AASHTO Designation M 140-82.
- C. All materials are required to meet the standards of the jurisdictional agency having authority over the roadway right-of-way limits.

2.02 EQUIPMENT



- A. The pressure distributor used for placing the tack or prime coat shall be equipped with pneumatic tires having sufficient width of rubber in contact with the road surface to avoid breaking the bond of or forming a rut in the surface.  
The distance between the centers of openings of the outside nozzles of the spray bar shall be equal to width of the application required, within an allowable variation of 2-inches. The outside nozzle at each end of the spray bar shall have an area of opening of not less than 25 percent, nor more than 75 percent in excess of other nozzles which shall have uniform openings. When the application covers less than the full width, the normal opening of the end nozzle at the junction line may remain the same as those of the interior nozzle.

### PART 3 - EXECUTION

#### 3.01 PREPARATION

- A. Before applying any bituminous material, all loose material, dust, dirt, and foreign material, which might prevent proper bond with the existing surface, shall be removed. Particular care shall be taken to clean the outer edges of the strip to be treated in order to insure that the prime or tack coat will adhere.
- B. When the prime or tack coat is applied adjacent to curb and gutter, or another concrete surface (except where they are to be covered with a bituminous wearing coarse) such concrete surfaces shall be protected by heavy paper or other protective material while the primer or tack coat is being applied. Any bituminous material deposited on such concrete surfaces shall be removed immediately.

#### 3.02 WEATHER LIMITATIONS

- A. No bituminous material shall be applied when the air temperature is less than 50 degrees Fahrenheit in the shade, or when the weather conditions or the condition of the existing surface is unsuitable. In no case shall bituminous material be applied while rain is falling or when there is water on the surface to be covered.

#### 3.03 APPLICATION OF PRIME COAT

- A. After the base has been finished the full width of surface shall be swept with a power broom supplemented with hand brooms and mechanical blowers prior to the application of prime coat. Care shall be taken to remove all loose dust, dirt and objectionable matter. If deemed necessary, the base shall be lightly sprinkled with water immediately in advance of the prime coat. The prime coat shall be applied to the full width of the base.
- B. The temperature of the prime material shall be such as to insure uniform distribution. The material shall be applied with a pressure distributor as specified

above. The amount to be applied shall be sufficient to coat the surface thoroughly and uniformly without any excess to form pools or to flow off the base. For limerock base, the rate of application shall not be less than 0.10 gallons per square yard; for shell base, the rate of application shall not less than 0.15 gallons per square yard.

- C. If the roadway is to be opened for use following the application of the prime material, a light uniform application of clean sand shall be applied and rolled. The sand shall be nonplastic, shall be free from slit and rock particles and shall not contain any sticks, vegetation, grass roots, or organic matter. After the sand covering has been applied, the surface may be opened to traffic.

#### 3.04 APPLICATION OF TACK COAT

- A. In general, a tack coat will not be used on primed bases except in areas which have become excessively dirty and cannot be cleaned or where the prime has cured and lost all of its bonding effect.
- B. No tack coat shall be applied until the primed base or leveling course has been cleaned and is free from sand, dust or other objectionable material.
- C. The tack coat shall be applied with a pressure distributor as specified above. It shall be heated to a suitable consistency and applied in a thin uniform layer at the rate of between .02 gallons and .08 gallons per square yard.
- D. The tack coat shall be applied sufficiently in advance of the laying of the wearing surface to permit drying, but shall not be applied so far in advance or over such an area as to lose its adhesiveness as a result of being covered with dust or other foreign material. Suitable precautions shall be taken by the Contractor to protect the surface while the tack coat is drying and until the wearing surface is applied.

END OF SECTION

## SECTION 02510

### ASPHALTIC CONCRETE PAVEMENT

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. The work specified in this section consists of the construction of asphaltic concrete surface course composed of a mixture of aggregates, mineral filler and asphalt cement properly laid upon a prepared base or a newly constructed and compacted, primed and tacked roadway base course, in accordance with these specifications and in conformity with the lines, grades, thickness and typical cross section shown on the Drawings. The Contractor shall furnish asphaltic concrete surface course in the locations and to the extent indicated on the Drawings.
- B. The Contractor is solely responsible for the cost of asphaltic concrete pavement to be provided at various locations within the project corridor, and at potentially varying thicknesses per jurisdictional requirements, or for replacement in kind, as applicable.
  - 1. For new asphalt roadway pavement construction or reconstruction, provide asphaltic concrete structural surface course consisting of one of the following:
    - (a) "Superpave Asphalt Concrete" per FDOT Standard Specifications for Road and Bridge Construction.
    - (b) Or as otherwise required by the authority having jurisdiction over the roadway right-of-way and as indicated on the plans and Standard Details.
  - 2. Thickness of the asphalt course shall be two (2") inch thick minimum, or as specified on the Drawings, or by the regulatory agency having jurisdictional authority over the roadway right-of-way limits. In addition, asphaltic pavement may be required to be replaced in kind if deemed necessary by the agency having jurisdictional authority over the right-of-way.

##### 1.02 QUALITY ASSURANCE

- A. Construction of asphaltic concrete surface courses shall be in accordance with the Standard Specifications for Road and Bridge Construction (current edition), of the Florida Department of Transportation, and supplements thereto, hereinafter referred to as FDOT Specifications, except as amended herein. The FDOT Specifications are hereby made a part of this contract to the extent they are

applicable thereto and shall be as binding upon the Contractor as though reproduced herein.

1.03 RELATED SECTIONS

- A. Section 02332 - Limerock Base.
- B. Section 02507 - Prime and Tack Coats.
- C. Section 02582 – Raised Retro-Reflective Pavement Markers.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Bituminous Material: Asphalt cement, Viscosity Gard AC-20 or AC-30, shall conform to the requirements of FDOT Specifications.
- B. Coarse Material: Coarse aggregate, stone or slag shall conform to the requirements of FDOT Specifications.
- C. Fine Aggregate Material: Fine aggregate shall conform to the requirements of FDOT Specifications.
- D. Mineral Filler: Mineral filler shall conform to the requirements of FDOT Specifications.

2.02 GENERAL COMPOSITIONS OF MIXTURE:

- A. The bituminous mixture shall be composed of a combination of aggregate (coarse, fine, or mixture thereof), mineral filler, if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded and combined in such proportion that the resulting mixture will meet the grading and physical properties of the approved job mix formula.
- B. In all cases, the job mix formula shall be within the design ranges specified in the following table.

Gradation Design Range

<u>Sieve Size</u>	<u>% by Weight Passing</u> <u>Type S-III</u>
¾-inch	
½-inch	100
3/8-inch	88-100
No. 4	60-90
No. 10	40-70
No. 40	20-45
No. 80	10-30
No. 200	2-6

### 2.03 JOB MIX FORMULA

- A. No work shall be started on the specific project until the Engineer has approved the job mix formula. FDOT approvals will be required for all materials to be used within their ROW limits.
- B. The job mix formula shall conform to the requirements of FDOT Specifications. In addition, the job mix formula shall include test data showing that the material as produced meets the requirements of the following table:

Mix Type	Minimum Marshall Stability (%)	Flow (0.01 in)	Minimum VMA (%)	Air Voids (%)	Min Effective Asphalt Content (%)
SP-9.5	1,500	8 – 14	15	3 – 7	5.5

## PART 3 - EXECUTION

### 3.01 TRANSPORTATION

- A. The mixture shall be transported in tight vehicles previously cleaned of all foreign material and, if necessary, each load shall be covered with a waterproof canvas cover of sufficient dimensions to protect it from weather conditions. The inside surface of the truck bodies may be thinly coated with soapy water, or a mixture of water with not more than five percent of lubricating oil, but no excess of either shall be used. After the truck bodies are coated and before any mixture is placed therein, they shall be raised so that all excess water will drain out. Kerosene, gasoline or similar products shall not be used to prevent adhesion.

### 3.02 LIMITATION FOR SPREADING

- A. The mixture shall be spread only when the surface is properly prepared and is intact, firm, cured and dry. No mixture shall be spread when the air temperature is less than 40 degree Fahrenheit, nor when the spreading cannot be finished and compacted during the daylight hours. The temperature of the mix at the time of spreading shall not be less than 230 degree Fahrenheit.

### 3.03 PLACING

- A. The mixture shall be placed in accordance with the requirements of FDOT Specifications. The new asphalt pavement shall be placed in two lifts. The second lift shall match the elevation of the adjacent pavement.

### 3.04 COMPACTING

- A. The mixture shall be compacted in accordance with the requirements of FDOT Specifications.

### 3.05 JOINTS

- A. Joints shall conform to the requirements of FDOT Specifications.

### 3.06 FIELD QUALITY CONTROL

- A. Surface Requirements: Depressions which may develop after initial rolling shall be remedied by loosening or removing the mixture and adding new material to bring the areas to a true surface. No skin patching shall be done. Such portions of the completed pavement which are defective in surface compaction or in composition, or that do not comply with all other requirements of these specifications, shall be taken up and replaced with suitable mixture, properly laid in accordance with these specifications and at the expense of the Contractor.
- B. Thickness Requirements: The thickness of the compacted asphaltic concrete surface course shall be no less than that shown on the Drawings as determined by coring. Thickness testing and correction of defective work shall be as specified in FDOT Specifications.
- C. "As-Built" limerock elevations shall be signed and sealed by a registered land surveyor and submitted to the Project Engineer for approval prior to placement of asphalt. Elevation shall be taken at high and low points, midpoint, intersections and breaks in grade at intervals not to exceed 50 feet. No separate pay item is included in bid form for this work. Include limerock as-built cost in asphalt section.
- D. Protection of Pavement: After the completion of the pavement, no vehicular traffic of any kind shall be permitted on the pavement until it has set sufficiently to prevent rutting or other distortion.

END OF SECTION

## SECTION 02526

### CONCRETE PAVEMENT, CURB AND WALKWAY

#### PART 1 - GENERAL

##### 1.01 THE REQUIREMENT

- A. Concrete pavement, curbs and sidewalk shall be constructed to the lines and grades and dimensions required for a complete installation as shown on the Drawings and specified herein. Existing features are to be replaced in kind and at the same grades and elevations.

##### 1.02 SUBMITTALS

- A. Shop drawings for reinforcing, joint material and mix designs shall be submitted for review in accordance with Section 01300 - Submittals.

#### PART 2 - PRODUCTS

##### 2.01 CONCRETE

- A. Concrete shall be Class B, conforming to Section 03300 – Cast-in-place Concrete, Reinforcing and Formwork, unless noted or specified otherwise.

##### 2.02 REINFORCING AND WELDED WIRE FABRIC

- A. Joint reinforcing and welded wire fabric shall conform to Section 03300 – Cast-in-place Concrete, Reinforcing and Formwork.

##### 2.03 JOINT SEALER FOR PAVEMENT

- A. Joint sealer shall be a one- or two-part polysulfide base self-leveling sealant for horizontal surfaces that has been developed for foot and vehicular traffic. The sealant shall conform to FDOT standards.

##### 2.04 PREFORMED JOINT FILLER

- A. Preformed joint filler shall be sponge rubber and conform to the requirements of AASHTO Designated M148, Type 1.



## PART 3 - EXECUTION

### 3.01 SUBGRADE CONDITION

- A. The finished subgrade shall be maintained in a smooth, compact condition and any areas which are disturbed prior to placing of the concrete shall be restored at the Contractor's expense. The subgrade shall be moist at the time the concrete is placed. Water shall be uniformly applied ahead of the paving operations as directed by the Engineer. If the Contractor does not maintain the subgrade in the required moist condition, a vapor barrier sheet will be required between the subgrade and the concrete.
- B. The subgrade shall be accurately trimmed to the required elevation with a 1/4-inch tolerance. High areas shall be trimmed to proper elevation. Low areas may be filled with suitable material and compacted to the specified density or filled with concrete integrally with the placing of the pavement.

### 3.02 SETTING FORMS

- A. The forms shall be accurately set to line and grade and such that they rest firmly, throughout their entire length, upon the compacted subgrade surface. Forms shall be joined neatly and tightly and braces to test the pressure of the concrete and the finishing operations. The alignment and grade of all forms shall be approved before and immediately prior to the placing of concrete.

### 3.03 MIXING CONCRETE

- A. Concrete shall be mixed in accordance with Section 03300, Cast-in-place Concrete, Reinforcing and Formwork.

### 3.04 PLACING CONCRETE

- A. The concrete shall be distributed on the subgrade to such depth, that, when it is consolidated and finished, the slab thickness required by the Drawings will be obtained at all points and the surface will at no point be below the grade specified for the finished surface, after application of the allowable tolerance. The concrete shall be deposited on the subgrade in a manner which will require as little rehandling as possible.
- B. Fabric reinforcement shall be placed at mid slab depth, and the fabric shall be maintained at this location during the placing and finishing operations.
- C. Concrete shall be thoroughly consolidated against and along the faces of all forms, by means of hand-operated, spud-type vibrators. Vibrators shall not be

permitted to come in contact with the subgrade or a side form. Vibration at any one location shall not continue so long as to produce puddling or the accumulation of excessive grout on the surface. In no case shall the vibrator be operated longer than 15 seconds in any one location.

### 3.05 STRIKING-OFF, CONSOLIDATING AND FINISHING CONCRETE

- A. Immediately after the placing, the concrete shall be struck off, consolidated and finished, to produce a finished pavement conforming to the cross section, width and surface. Sequence of operations shall be as follows: strike-off; vibratory consolidation; screeding; floating; removal of laitance; straight-edging; and final surface finish.

### 3.06 STRAIGHTEDGING AND SURFACE CORRECTIONS

- A. After floating has been completed and the excess water removed, but while the concrete is still in a plastic state, the surface of the concrete shall be tested for trueness with an accurate 10-foot straightedge. The straightedge shall be furnished by the Contractor. The straightedge shall be held in successive positions parallel to the road center line, in contact with the surface, and the whole area tested from one side of the slab to the other as necessary. Any depressions shall be immediately filled with freshly mixed concrete and struck-off; consolidated and refinished. High areas shall be cut down and refinished. Straightedge testing and surface correction shall continue until the entire surface appears to conform to the required grade and cross section.

### 3.07 FINAL FINISH

- A. As soon as the water sheen has disappeared from the surface of the pavement and just before the concrete becomes nonplastic, a light broom finish shall be given to the surface.

### 3.08 EDGING

- A. After the final finish has been applied, but before the concrete has become nonplastic, the edges of the pavement along each side of the strip being placed, on each side of construction joints and along any structure extending into the pavement, shall be carefully rounded to a 1/4 inch radius except as otherwise indicated. A well-defined and continuous radius shall be produced and a smoother, dense mortar finish obtained. All concrete shall be completely removed from the top of the joint filler.
- B. All joints shall be checked with a straightedge before the concrete has become nonplastic and, if one side of the joint is higher than the other or the entire joint is higher or lower than the adjacent slabs, corrections shall be made as necessary.



### 3.09 JOINTS

#### A. Construction Joints

1. Construction joints shall be located as shown on the Drawings and/or as directed by the Engineer.

#### B. Expansion Joints Around Structures

1. Expansion joints shall be formed by placing premolded expansion joint material about all structures and features projecting through, into or against the pavement. Unless otherwise indicated, such joints shall be 1/2 inch in width.

#### C. Transverse Expansion Joints

1. Open type transverse expansion joints shall be provided at all sidewalk returns and at 50 feet intervals and wherever indicated on the Drawings. Open type joints shall be formed by staking a 1/4 inch thick metal bulkhead in place and placing concrete on both sides. After the concrete has set sufficiently to preserve the width and shape of the joint, the bulkhead shall be removed. After the sidewalk has been finished over the joint, the slot shall be opened and edged with a tool having a 1/2 inch radius. Transverse expansion joints shall be cleaned and filled with joint filler strips 1/4 inch thick conforming to the requirements of AASHTO M-153.

#### D. Scored Joints

1. Scored joints shall be either formed or sawed at 5 foot intervals and shall extend to a depth of at least one fourth of the sidewalk slab thickness.

### 3.10 CURING

A. After the finishing operations have been completed and as soon as the concrete has hardened sufficiently that marring of the surface will not occur, the entire surface and the edges of the newly placed concrete shall be covered and cured with membrane curing compound.

B. Curing compound shall be uniformly applied to the surfaces to be cured, in a single coat, continuous film, at the rate of one gallon to not more than 200 square feet, by a mechanical sprayer.

C. Curing compound shall not be applied during periods of rainfall. Curing compound shall not be applied to the inside faces of joints to be sealed. Should

the film become damaged from any cause within the required curing period, the damaged portions shall be repaired immediately with additional compound. Upon removal of side forms, the sides of the slabs exposed shall immediately be coated to provide a curing treatment equal to that provided for the surface.

### 3.11 CURB AND SIDEWALK CONSTRUCTION

- A. The concrete curbs and sidewalks shall be constructed on a prepared smooth subgrade of uniform density. Large boulders and other obstructions shall be removed to a minimum depth of 6 inches below the finished subgrade elevation and the space shall be backfilled with sand, base course material or other suitable material which shall be thoroughly compacted by rolling or tamping. The Contractor shall furnish a template and shall thoroughly check the subgrade prior to depositing concrete.
- B. Concrete for curbs, and sidewalks shall be formed, mixed, placed and finished in conformance with the requirements of Division 3, except as modified herein. Concrete shall be cured with a clear membrane curing compound which shall be applied at a uniform rate of one gallon per 200 square feet in accordance with the requirements specified herein. Sidewalks shall be given a light broom finish.

### 3.12 CURBS

- A. Curbs shall be constructed in uniform sections ten feet in length except where shorter sections are necessary for closures or arcs. The sections shall be separated by sheet metal templates set perpendicular to the face and tip of the curve and not less than 2 inches longer than the depth of the curb. The templates shall be held firmly during the placing of the concrete and shall be allowed to remain in place until the concrete has set sufficiently to hold its shape, but shall be removed while the forms are still in place.
- B. After the concrete has sufficiently set for a minimum of 12 hours, the Contractor shall remove the forms and backfill the spaces on each side. The earth shall be compacted in satisfactory manner without damage to the concrete Work. Minor defects shall be filled with a mortar composed of one part Portland cement and two parts fine aggregate.

### 3.13 PAVEMENT CURB AND SIDEWALK REPAIR

- A. All damage to pavement, curb or sidewalk as a result of work under this Contract shall be repaired in a manner satisfactory to the Engineer and at no additional cost to the Owner. The repair shall include all work as specified herein.
- B. The width of all repairs shall extend at least 12 inches beyond the limit of the damage or as required by jurisdictional agencies. The edge of the pavement

curb or sidewalk to be left in place shall be cut to a true edge with a saw or other approved method so as to provide a clean edge to abut the repair. The line of the repair shall be reasonably uniform with no unnecessary irregularities.

- C. All modified, restored, or repaired sidewalks must meet all jurisdictional authority requirements; including but not limited to, thickness, reinforcement, ADA compliance, slopes and safety requirements.

END OF SECTION

## SECTION 02530

### SANITARY SEWERAGE SYSTEM

#### PART 1 – GENERAL

##### 1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Contract Requirements shall govern the WORK under this Section.

##### 1.02 SUMMARY

- A. This section includes sanitary sewer piping and related appurtenances from connection to main to within 5 feet of outside the building limits.
- B. All WORK shall conform to the requirements of the local sewer authority and any other regulatory authorities having jurisdiction, or this specification, whichever is more stringent.

##### 1.03 WORK INCLUDED

- A. The WORK under this Section shall consist of furnishing and installing sewer pipes and service connections as indicated on the plans and in accordance with these Specifications.

##### 1.04 RELATED WORK

- A. Section 02222 - Excavation and Backfilling for Utilities.
- B. Section 02501 - Piping - General.
- C. Section 02502 - Valves - General.
- D. Section 02750 – Wastewater Flow Control

##### 1.05 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
  - 1. A746 - Standard Specification for Ductile Iron Gravity Sewer Pipe
  - 2. D3034 - Standard Specification for Type PSM Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings
  - 3. F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

4. F679 - Standard Specification for Poly Vinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
  5. C476 - Standard Specification for Grout for Masonry
  6. C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
  7. D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
  8. ASTM D 3350 - Standard Specification for Polyethylene (PE) Pipe and Fittings Materials
  9. ASTM F714 - Standard Specifications for Polyethylene (PE) Plastic Pipe (SDR – PR) Based on Outside Diameter
- B. American Society of Sanitary Engineers (ASSE)
- C. American National Standards Institute (ANSI)
- D. American Concrete Institute (ACI)
1. 318 - Building Code Requirements for Structural Plain Concrete
- E. National Sanitation Foundation (NSF)
- F. American Water Works Association (AWWA)
1. C110 - Ductile-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 C153 - Ductile-Iron Compact Fittings, 3 in. through 24 in. (76 mm Through 610 mm) and 54 in. through 64 in. (1,400 mm Through 1,600 mm), for Water Service (revision of ANSI/AWWA C153/A21.53-94)
  3. C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances revision of ANSI/AWWA C600-93)
  4. C150 – ANSI Standard for Thickness Design of Ductile Iron Pipe
  5. C151 – ANSI Standard for Ductile Iron Pipe
  6. C153 – ANSI Standard for Ductile Iron Pipe Compact Fittings
- G. Federal Specifications
1. SS-S-00210 – Sealing Compound Preformed Plastic for Pipe Joints
- H. Uni-Bell PVC Pipe Association



1. UNI-B-6 - Low-Pressure Air Testing of Installed Sewer Pipe

1.06 PERFORMANCE REQUIREMENTS

- A. Gravity-Flow, Non-pressure Piping Pressure Ratings: At least equal to system test pressure.
- B. Force-Main Pressure Ratings: At least equal to system operating pressure, but not less than 150 psig.

1.07 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of the regulatory authorities having jurisdiction; including tapping of sewer mains, installation, and testing.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- C. Comply with requirements of Section 02222, Excavation and Backfilling for Utilities.

1.08 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by OWNER or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify the OWNER not less than two days in advance of proposed utility interruptions; and,
  - 2. Do not proceed with utility interruptions without written permission from the OWNER.

1.09 COORDINATION & FEES

- A. CONTRACTOR shall be responsible for obtaining and payment of all tap and construction permit fees associated with this section.
- B. CONTRACTOR shall install all sewer lines and appurtenances as shown on the DRAWINGS to within 5 feet of building limits. This shall include any taps, pumps, tanks, etc. If CONTRACTOR's WORK terminates at a connection point where WORK by others is complete, CONTRACTOR shall make the connection. If future connections will be required by others, CONTRACTOR shall install plugging and marking apparatus as necessary to protect, identify and locate his WORK.

PART 2 - PRODUCTS

2.01 FORCE MAIN

- A. Ductile Iron Pipe shall conform to AWWA/ANSI C151/A21.51, AWWA C150, AWWA/ANSI C111/A21.11, and AWWA/ANSI C110/A21.1, latest revisions with pressure class 350 for 4" to 24" pipe and pressure class 250 for 30" to 60" pipe. The interior of

the pipe shall be lined with Protecto 401 (40mils). Buried pipe and fittings shall have an exterior bituminous coating and shall be poly wrapped if specified. Above-grade piping shall be flanged piping, class 53, exterior coated with a 100% polyamine epoxy. Material shall be Tnemec Perma-Glaze, Series 435, or approved equal.

## 2.02 CONCRETE

- A. General: Cast-in-place concrete according to ACI 318, 4,000 psi

## PART 3 - EXECUTION

### 3.01 FORCE MAIN INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's instructions and recommendations in the locations shown on the DRAWINGS.
- B. Pipe handling. All loading or unloading of pipe, fittings, valves and accessories shall be done in such a manner so as to avoid damage. The pipe shall not be skidded or rolled against pipe already unloaded.
- C. Force mains shall be constructed of pipe as specified on the Plans. Fittings 4 inches and over shall be properly anchored and braced with restrained joints conforming to the details shown in the plans.
- D. Force main piping shall be laid at continuously ascending or descending grades with restrained joint fittings, concrete encasement and appurtenances shown on the plans or required by these Specifications.
- E. Air release valves shall be installed at all summits in the pipe where air can collect, as shown on the plans or as directed by the ENGINEER. The CONTRACTOR shall provide a record of elevations along the entire length of force main laid in the trench.
- F. The interior of all pipe, fittings and other appurtenances shall be kept free of dirt and foreign matter at all times. Pipe shall be flushed clean before valves and other appurtenances are installed.
- G. Pipe laying. All pipe shall be laid to line and grade with valves stems plumb. All buried pipe shall have a minimum cover of 36 inches for P.V.C. pipe.
- H. All fittings, encasement and appurtenances shall be incidental to the cost of furnishing and installing the force mains, unless separate payment for such items is provided in the Bid Schedule.
- I. The force main shall be flushed full bore with clean water to remove any trapped air, silt, dirt and debris before testing. No cross-connection from any potable water system will be permitted.

### 3.02 TESTS

#### A. Force Mains:

1. Force mains shall be filled with clear water, flushed to evacuate trapped air, then pumped to a pressure of 150 psi and all visible leaks stopped by approved methods. A leakage test shall then be conducted at the above mentioned pressure and no installation will be acceptable until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = \frac{SD P^{1/2}}{148,000}$$

In which L equals the allowable leakage in gallons per hour; S is the pipe length in the force main tested; D is the nominal diameter of the pipe in inches; and P is the average test pressure during the leakage test in pounds per square inch gauge. The test shall be maintained for two hours. Water supplied to the force main during the test to maintain the required pressure shall be measured by a 5/8-inch meter installed on the discharge side of the test pump, or by pumping from a calibrated container.

2. Pipe lines shall be tested before backfilling all joints except where otherwise required by necessity, local ordinance or public convenience. All visible leaks at exposed joints and all leaks evident at the surface where joints are covered shall be made tight, regardless of total leakage as shown by the test. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are met. Defective materials, pipes, valve, and accessories shall be removed and replaced.
3. The ENGINEER shall maintain a record of pipe tested indicating date, time of test, test pressure variations, calculation of allowable leakage and amount of measured leakage.

### 3.03 SEWER-BY-PASS PUMPING AND FLOW CONTROL

- A. The CONTRACTOR shall submit with the Schedule complete and detailed plans describing the CONTRACTOR's proposed method for manning and maintaining the flow control/by-pass pumping management 24-hours a day where and when necessary. The CONTRACTOR shall provide all necessary labor, pumps, piping and other equipment necessary to accomplish this task. By-pass or any other type of pump discharge shall be discharged into a working maintenance access structure or appropriate tank or tanker vehicle. The CONTRACTOR will be responsible for any fines or clean-up expenses incurred for any unlawful or improper discharge or spill. The CONTRACTOR shall keep adequate quantities of chemicals and equipment on site to handle emergency situations including sewage spills.
- B. Comply with requirements of Section 02750, Wastewater Flow Control

### 3.04 WARRANTY

- A. Any repairs or replacement necessitated by mechanical failure due to faulty materials, improper installation or poor workmanship shall be completed within five (5) days after notification by the ENGINEER. At the expiration of this time, the OWNER shall be entitled to have WORK done by others at the expense of the CONTRACTOR. Such repair WORK done by others shall not void the warranty nor the responsibility of the CONTRACTOR as to balance of the installation by the CONTRACTOR.

- END OF SECTION -

SECTION 02580  
PAVEMENT MARKING

PART 1 - GENERAL

1.01 REQUIREMENT

- A. This section consists of striping pavement, pavement markings and parking stall wheel stops as indicated on the Drawings, specified herein, and as required for a complete installation.

1.02 SUBMITTALS

- A. The Contractor shall submit shop drawings and other information to the Engineer for review in accordance with Section 01300, Submittals.
- B. Submittals must be in compliance with the agency having jurisdictional authority over the right-of-way limits of the roadway. The Contractor is responsible for meeting all necessary striping and pavement marking requirements for the various roadways and alleyways included in this project.

1.03 QUALITY CONTROL

- A. The phrase "FDOT Specifications" shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition. The FDOT Specifications, are referred to herein and 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 in their entirety. "BCTED" shall refer to Broward County Traffic Engineering Division.

PART 2 - PRODUCTS

2.01 PAVEMENT MARKING

- A. Pavement stripes shall be thermoplastic.

## PART 3 - EXECUTION

### 3.01 PAVEMENT MARKING

- A. The surface which is to be painted shall be cleaned, by compressed air or other effective means, immediately before the start of painting, and shall be clean and dry when the paint is applied. Any vegetation or soil shall be removed from the pavement before edge striping is begun.
- B. The traffic stripe shall be of the specified width, with clean, true edges and without sharp breaks in the alignment. A uniform coating of paint shall be obtained and the finished stripe shall contain no light spots or paint skips. Any stripes which do not have a uniform, satisfactory appearance, both day and night, shall be corrected.
- C. All newly painted stripes, including edge stripes, shall be protected until the paint is sufficiently dry to permit vehicles to cross the stripe without damage from the tires. While the center line stripes are being painted, all traffic shall be routed away from the painting operations and the newly painted stripe. When necessary, a pilot car shall be used to protect the painting operations from traffic interference.
- D. Any portions of the stripes damaged by passing traffic or from other cause shall be repainted at the Contractor's expense.
  - 1. Thermoplastic Traffic Stripes and Markings: Thermoplastic pavement markings, including stripes, pavement messages, stop bars, directional arrows, reflective pavement markers and other miscellaneous items, will be replaced to match preconstruction conditions.. The thermoplastic compound shall be as specified in the FDOT Specifications. The thermoplastic compound shall be extruded or sprayed onto the pavement surface in a molten state by mechanical means, with surface application of glass spheres, when required, and upon cooling to ambient pavement temperature shall produce an adherent pavement marking of specified thickness and width and capable of resisting deformation.
- E. The portion of the pavement surface or thermoplastic marking to which the marker is attached by the adhesive shall be cleaned of dirt, curing compound, grease, oil, moisture, loose or unsound pavement and any other material which would adversely affect the adhesive. Reflective markers shall be installed in such a manner that the reflective face of the marker is perpendicular to a line parallel to the roadway centerline. No markers shall be installed over longitudinal or transverse joints of the pavement surface. The adhesive shall be spread on the

bonding surface (not the marker) so that 100 percent of the bonding area of the marker will be covered.

- F. The adhesive application shall be of sufficient thickness so that when the marker is pressed into the adhesive, excess adhesive shall be forced out around the entire perimeter of the marker. All excessive adhesive shall be removed from in front of the reflective faces. If any adhesive or foreign matter adheres to the reflective face of the marker, the marker shall be replaced. The Engineer shall determine the minimum time necessary to cure the adhesive for sufficient set to bear traffic.
  
- G. All thermoplastic plastic marking must comply with Section 711 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (latest edition). Thermoplastic striping can only be applied by a contractor that is certified by the FDOT or Broward County. Proof of certification will be required prior to installation. The contractor will also be responsible for costs associated with correcting applied thermoplastic striping that does not meet current code, regardless of whether it existed prior to construction or not.

END OF SECTION

## SECTION 02581

### TRAFFIC SIGNS

#### PART 1 - GENERAL

##### 1.01 REQUIREMENT

- A. This section consists of traffic signs as indicated on the Drawings, specified herein and as required for a complete installation or removal and replacement.

##### 1.02 SUBMITTALS

- A. The Contractor shall submit shop drawings and other information to the Engineer for review in accordance with Section 01300, Submittals.

##### 1.03 CERTIFICATION

- A. The Contractor shall furnish the manufacturer's certification that all signs furnished conform to these specifications and shall replace or repair at its expense all signs that fail to meet this requirement.

##### 1.04 QUALITY CONTROL

- A. The phrase "FDOT Specifications" shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. The FDOT Specifications, are referred to herein and 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 in their entirety. "BCTED" shall refer to Broward County Traffic Engineering Division.

#### PART 2 - PRODUCTS

##### 2.01 TRAFFIC SIGNS

- A. General: Traffic regulating signs shall conform to the colors, dimensions and requirements of the Manual on Uniform Traffic Control Devices (ANSI) and displaying the lettering and symbols indicated on the Drawings.
- B. Sign Panels and Support Members: Sign panels and support members shall conform to Aluminum Association Alloy 6061-T6.
- C. Bolts: Bolts shall conform to Aluminum Association Alloy 2024-T4 with an anodic coating 0.0002-inches thick minimum and chromate sealed.
- D. Nuts: Nuts shall conform to Aluminum Association Alloy 6269-T9.
- E. Reflective Sheeting: Reflective sheeting shall conform to FDOT Type A requirements.



- F. Construction Warning Signs: The Contractor shall install traffic and warning signs during construction in accordance with OSHA, FDOT and Broward County Public Works requirements.
- G. Maintenance of Traffic and Pedestrian safety shall comply with Section 01570, Broward County standards, FDOT Standards and Specifications, or as necessary to meet requirements for the agency having jurisdictional authority over the roadway right-of-way limits.

END OF SECTION

## SECTION 02582

### RAISED RETRO-REFLECTIVE PAVEMENT MARKERS AND BITUMINOUS ADHESIVE

#### PART 1 - GENERAL

##### 1.01 REQUIREMENTS

- A. Place raised retro-reflective pavement markers (RPMs) and adhesive, which upon installation produces a positive guidance system to supplement other reflective pavement markings.

#### PART 2 - PRODUCTS

##### 2.01 PAVEMENT MARKERS

- A. Use only Class B markers unless otherwise shown in the Plans. Meet the requirements of the Florida Department of Transportation, latest edition. Use only reflective pavement markers and bituminous adhesive that are listed on the City's Qualified Products List (QPL). Provide to the Engineer a manufacturer's certification conforming to the requirements of Section 6, which confirms that each product meets the requirements of this Section.

##### 2.02 CONTRACTOR'S RESPONSIBILITY FOR NOTIFICATION

- A. Notify the Engineer prior to the placement of RPMs. At the time of notification, indicate the manufacturer and the LOT numbers of RPMs and bituminous adhesive that are intended for use. Verify that the approved LOT numbers appear on the material packages. Furnish a test report to the Engineer certifying that the materials meet all requirements specified.

#### PART 3 - EXECUTION

##### 3.01 APPLICATION

- A. Use equipment having either thermostatically controlled double boiler type units utilizing heat transfer oil or thermostatically controlled electric heating pots to install hot applied bituminous adhesive. Do not use direct flame melting units with flexible adhesives; however, this type of unit may be used with standard adhesive in accordance with manufacturer's recommendations. Use a melter/applicator unit suited for both melting and pumping the adhesive through heated applicator hoses.
- B. Heat the adhesive to between 375°F and 425°F and apply directly to the bonding surface from the melter/applicator by either pumping or pouring. Maintain the application temperature between 375°F and 425°F. The adhesive may be

reheated. However, do not exceed the manufacturer's recommendations for pot life at application temperatures.

- C. Apply RPMs to the bonding surface using bituminous adhesives only. The Engineer will conduct field testing in accordance with FM 5-566. Correct RPMs not applied in accordance with these requirements at no cost to the Department.
- D. Prior to application of adhesive, clean the portion of the bonding surface of any material which would adversely affect the adhesive.
- E. Apply the adhesive to the bonding surface (not the marker) so that 100% of the bonding area of the marker will be covered, in accordance with adhesive manufacturer's recommendations. Apply sufficient adhesive to ensure, that when the marker is pressed downward into the adhesive, adhesive will be forced out around the entire perimeter of the marker.
- F. Immediately remove excess adhesive from the bonding surface and exposed surfaces of the RPMs. Soft rags moistened with mineral spirits meeting Federal Specifications TT-T-291 or kerosene may be used to remove adhesive from exposed faces of the RPMs. Do not use any other solvent. If any adhesive, pavement marking materials or other foreign matter adheres to the reflective face of the marker, replace the marker at no cost to the Department.
- G. Install RPMs with the reflective face of the RPM perpendicular to a line parallel to the roadway centerline.
- H. Ensure that all final RPMs are in place prior to opening the road to traffic. If more than 2% of the RPMs fail in adhesion or alignment within the first 45 days under traffic, replace all failed markers at no expense to the Department. If more than 5% of the markers fail in adhesion and or alignment during the initial 45 day period, the Engineer will extend the replacement period an additional 45 days from the date that all replacement markers have been installed. If, at the end of the additional 45 day period, more than 2% of all markers (initial installation and 45 day replacements combined) fail in adhesion or alignment, replace all failed markers at no expense to the Department.
- I. Contractor's Responsibility for Notification: Notify the Engineer prior to the placement of RPMs. At the time of notification, indicate the manufacturer and the LOT numbers of RPMs and bituminous adhesive that are intended for use. Verify that the approved LOT numbers appear on the material packages. Furnish a test report to the Engineer certifying that the materials meet all requirements specified.

END OF SECTION

## SECTION 02600

### MISCELLANEOUS PIPING

#### PART 1 - GENERAL

##### 1.01 SCOPE

- A. This Section consists of furnishing water, sewer, piping complete with fittings, couplings, adapters, valves, and other appurtenances required during construction due to piping relocation or replacement.

##### 1.02 GENERAL INFORMATION AND DESCRIPTION

- A. The pipe and fittings shall be furnished by fully qualified manufacturers experienced in the fabrication, casting and manufacture of the pipe materials specified herein. The pipe and fittings shall be designed, fabricated and installed in accordance with the best practice of the trade and the standards specified herein.
- B. Pipe materials shall be the same as the existing pipe being replaced or relocated.
- C. No material furnished under this specification shall be shipped to the job site until all submittals have been reviewed.

##### 1.03 SUBMITTALS

- A. The CONTRACTOR shall submit Shop Drawings in accordance with the procedures and requirements set forth in Section 01300 - Submittals.
- B. Each submittal shall be complete in all aspects incorporating all information and data listed herein and all additional information required to evaluate the proposed piping material's compliance with the Contract Documents. Partial or incomplete submissions will be returned to the CONTRACTOR without review. Data to be submitted shall include, but is not limited to: catalog data consisting of specifications, illustrations and a parts schedule that identifies the materials to be used.
- C. The CONTRACTOR shall submit to the ENGINEER certified shop tests in accordance with the Section 01300 - Submittals.
- D. The CONTRACTOR shall submit to the ENGINEER certified letters of compliance in accordance with the Section 01300 - Submittals.

##### 1.04 RELATED WORK

- A. Section 02501 – Piping, General
- B. Section 02502 – Valves, General
- C. Section 02530 – Sanitary Sewerage Systems

## PART 2 - PRODUCTS

### 2.01 GENERAL

A. All pipe and fittings shall be marked with the manufacturer's name or trade mark, size, class or pressure rating, and the date of manufacture in accordance with the standards specified herein.

#### B. PLUG VALVES:

1. Plug valves shall be conforming to AWWA C517, latest revision, which shall be of the non-lubricated, eccentric type with resilient faced plugs, port areas for valves 100% of full pipe area. The body shall be of cast or ductile iron meeting or exceeding ASTM A-126 or ASTM A-536, and shall have bolted bonnet which gives access to the internals of the valve. Seats shall be welded nickel alloy or stainless steel plate locked in the body cavity. If a plate is used, it shall be replaceable through the bonnet access. Bearings shall be permanently lubricated stainless steel, bronze or Teflon. Bearing areas shall be isolated from the flow. Valves shall have packing bonnets where the shaft protrudes from the valve and the packing shall be self-adjusting chevron type which can be replaced without removing the bonnet. All nuts, bolts, springs and washers shall be stainless steel (type 316).
2. Valves shall be suitable for underground service and designed for working pressure of 150 P.S.I. minimum. The valve and actuator shall be capable of satisfactory operation in either direction of flow against pressure drops to and including 100 P.S.I.
3. The exterior valve surfaces shall be 100% polyamine epoxy coated.
4. The valves shall be tested in accordance with ANSI/AWWA C517. The CONTRACTOR shall furnish certified copies of reports with every valve stating that the valve has met the requirements of the tests.
5. Plug valve shall be as manufactured by DeZurik Company, or equal.
6. Coordinate with the requirements of Section 02502 Valves, General

C. CLEANOUT: PVC cleanouts shall have screw type access plug. Long radius wye connections and fittings shall be used in order to access cleanout operations.

#### D. PIPE-TO-PIPE CONNECTIONS:

Pipe-to-pipe connections shall be made by flexible couplings as manufactured by Fernco (1-800-521-1283), or equal.

### 2.03 WATER PIPE, FITTINGS, AND VALVES

#### A. POLYVINYL CHLORIDE PIPE

1. All PVC pipe shall be continuously and permanently marked with the manufacturer's name, pipe size, and pressure rating in psi.

2. The CONTRACTOR shall also require the manufacturer to mark the date of extrusion on the pipe. This dating shall be done in conjunction with records to be held by the manufacturer for 2 years, covering quality control tests, raw material batch number, and other information deemed necessary by the manufacturer.
3. PVC pipe shall conform to ASTM D1785 and shall be made from a 12454B compound which is a Type 1, Grade 1 plastic as defined by ASTM D1784. Rerun or reclaimed materials will not be acceptable.
4. ~~Pipe to be used for potable water applications shall comply with the National Sanitation Foundation Standard No. 14 and shall have markings on the pipe to indicate that it has been tested and is in compliance.~~
5. Wall Thickness shall be a minimum of Schedule 80, unless otherwise noted in the piping schedule.
6. Coordinate with the requirements of Section 02501 Piping, General
7. Coordinate with the requirements of Section 02502 Valves, General

#### B. JOINTS

1. Pipe joints shall be provided as specified in the pipe schedule.
2. For above ground piping, joints shall be socket welded for nominal pipe sizes less than three inches in diameter. Where threaded connections are required, socket type threaded adapters shall be provided. For above ground piping, three (3) inches in diameter and larger, joints shall be flanged. Socket type flange adapters shall be provided.
3. All PVC pipe less than four inches in diameter intended for buried service shall be socket weld joint.
4. All PVC pipe four (4) inches in diameter and larger, unless otherwise scheduled, intended for buried service shall be push-on type in accordance with AWWA C-900 and shall utilize ductile iron retainers for restraining pipe joints. Retainers shall be cast from 60-42-10 ductile iron and shall have a sufficient number of ductile tie bolts to restrain working and tests pressures as required. The retainer clamp shall be of two piece construction with serrations on the I.D. sufficient to hold the required pressures. The retainers shall be Series 1500 or 6500 as manufactured by EBAA Iron, Inc.
5. Socket type joints shall be made up in accordance with ASTM D2855 with a PVC solvent cement complying with ASTM D2564. The cement shall have a minimum viscosity of 2000 cps.
6. Where flanges are to be used, flanges shall be van stone type with full faced vinyl gaskets.

#### C. FITTINGS

1. Ductile Iron Fitting: Fittings shall be ductile iron mechanical joint (MJ) type, complete with glands, gaskets, bolts and nuts, and shall conform to ANSI/AWWA

C110/A21,10. Inside surfaces shall be cement lined according to AWWA C104. Fitting shall be pressure rated at 250 psi, minimum.

2. PVC FITTINGS

- a. Socket type pipe fittings for Schedule 40 pipe shall conform to ASTM D2466.
- b. Socket type pipe fittings for Schedule 80 pipe shall conform to ASTM D2467.
- c. Fittings shall have the same schedule designation, joint type and be made of the same PVC compound as the connecting pipe.

D. GATE VALVES LESS THAN THREE INCH (3") IPS, BRONZED: Gate valves for use with pipe less than three inches (3") in diameter shall be rated for two hundred (200) psi working pressure, non-shock, block pattern, screwed bonnet, non-rising stem, brass body, and solid wedge. They shall be standard threaded for PVC pipe and have a malleable iron handwheel. Gate valves less than three inches (3") in diameter shall be Nibco-Scott T-133 or T-136 with no substitutions allowed.

E. GATE VALVES THREE INCH (3") TO TWELVE INCH (12"):

1. The valves shall be resilient seated and shall conform in design, material, and workmanship to the standards of AWWA C509. Gate valves shall open counterclockwise and shall be of iron body, non-rising stem, and mechanical cut-in joint ends. All resilient seat valves must be bi-directional.
2. Valves shall be coated with a two-part thermosetting epoxy coating on inside of valve and on valve disc. The coating shall conform with the requirements of AWWA C-550. After the factory test and inspection, all ferrous parts of the valves except finished or bearing surfaces shall be painted with two (2) coats of asphalt varnish, Federal Specification TT-V-51A or approved equal.
3. Gate valves four inches (4") through twelve inches (12") in size shall be Mueller A-2360-20 or Clow F6111, or equal.
4. Coordinate with the requirements of Section 02502 Valves, General

F. BUTTERFLY VALVES:

1. Valves shall conform to all requirements of AWWA C504 Standard Class 150B. Valves shall have mechanical - joint-type ends conforming to AWWA C111 and cast iron body conforming to ASTM A126 Class B standards.
2. Valve bodies shall have two shaft bearing hubs cast integrally with the valve bodies. Valve bearings shall be sleeve type bearings with nylon bearings that are self-lubricating and do not have a harmful effect on water. Valve disc shall be cast iron conforming ASTM A-126 Class B with 316 stainless steel disc edge.
3. Valves shall be Mueller 3211-20, Clow F-5370, or equal.
4. Coordinate with the requirements of Section 02502 Valves, General

G. END CONNECTIONS:

The dimensions of end connections shall conform to AWWA Standard C111-85. The end flanges of flanged valves shall conform in dimensions and drilling to ANSI Standard B16.1 for cast iron flanges and flanged fittings, Class 125, unless specifically provided otherwise. The bolt holes shall straddle the vertical center-line.

H. TAPPING VALVES, SLEEVES AND CROSSES:

1. Tapping valves shall be resilient wedge type meeting ANSI/AWWA C509 and shall be connected by a machined projection on the outlet flanges of the tapping sleeves and crosses. The outlet ends shall conform in mechanical joint connections, except that the outside of the valves shall be larger than normal size to permit full diameter cuts.
2. Tapping valves shall comply in all other respects to the gate valve requirement of these specifications. All tapping valves must have a cast-in-alignment ring and be capable of accepting a full size cutter. Tapping valves shall be Clow or American Darling only.
3. All tapping sleeves shall have duck-tipped end gaskets, flanged outlet with American one hundred, twenty-five pounds (125 lbs) standard template, mechanical joints in the main line, factory tested for 400 psi and with working pressure of two hundred (200) psi, complete with bolts, glands, gaskets, and nuts. They shall be Mueller H-615, Clow F-5205, or equal.
4. All tapping crosses shall have duck tipped end gaskets, flanged outlet with American one hundred twenty-five (125 lbs) standard template, mechanical joints in the main line, factory tested for four hundred (400) psi and with working pressure of two hundred (200) psi, complete with bolts, glands gaskets and nuts. They shall be Mueller H-715, Clow F-5220, or equal.
5. Coordinate with the requirements of Section 02502 Valves, General

I. VALVE BOXES AND COVERS

1. Valve boxes and covers for all size valves shall be of cast iron construction and adjustable screw-on type. The lid shall have cast in the metal the word "SEWER" for the sewer lines. All valve boxes shall be six-inch (6") nominal diameter and shall be suitable for depths of the particular valve. The stem of the buried valve shall be within twenty-four inches (24") of the finished grade unless otherwise approved by the ENGINEER. Valve boxes shall be Opelicka No. 19, no substitutes.
2. Cast iron valve box shall not rest directly upon the body of the valve or upon the pipe. The box shall be placed in proper alignment and to such an elevation that its top will be at the final grade. Backfilling around both units shall be placed and compacted to the satisfaction of the ENGINEER.

J. ~~SERVICE CONNECTIONS~~



- ~~1. Two inch PVC pipe for water services shall be schedule 80 and shall be solvent welded except for threaded nipples and bushings and conform to ASTM D 1785 and ASTM D 2467.~~
  - ~~2. Curb stops shall be ball valves manufactured by Ford Meter Company or CITY approved equal, except for 1 inch and 2 inch meters instead of curb stops, and shall be installed in meter boxes. Control gate valves shall be Nibco Scott T 133 or T 136. No substitutions.~~
  - ~~3. Corporation stops shall be Mueller H 10046 or equal.~~
- K. TAPPING SADDLES: Double strap tapping saddles shall be constructed of tough malleable iron heavily galvanized bodies with neoprene gaskets cemented to body and iron pipe thread, designed to withstand a working pressure of five hundred (500) psi and accurately fit the pipe for which it is intended. The straps shall be forged steel with curvature accurately designed to fit pipe. All nuts and straps including threads shall be heavily cadmium plated. Tapping saddles shall be Mueller K-10509, Clow F-1280, Smith Blair, or approved equal.
- L. DRESSER COUPLINGS: Dresser couplings shall be regular black couplings with plain gaskets. They shall be Dresser Style 90 with no substitutions allowed. Polyethylene liner shall be used to fully encased the dresser couplings.
- M. MEGATAPE: Megatape and locating metal wire to be buried 18 inches below finished grade over the water main and sewage force mains or service lines on PVC pipe (no exceptions).
- N. LINE STOP FITTING: Valve cut-in on the existing water main shall be performed under pressure using line stop fittings. The body of the fittings shall be carbon steel conforming to ASTM A-36. The flange shall be steel flanges Class D, conforming to AWWA C207 with stainless steel bolts and nuts. The line stop fitting shall be manufactured by International Piping Services Company (1-407-843-2800), or equal.
- O. FIRE HYDRANTS:
- ~~1. All fire hydrants shall be of the dry barrel type and shall conform in design, material and workmanship to AWWA C502. Hydrants shall have five and one quarter inch main valve opening and a three way nozzle arrangement. The connection pipe shall be ductile iron pipe conforming to AWWA C151, Class 52.~~
  - ~~2. The depth of bury, measured from the bottom of the connecting pipe to the ground line of the hydrant shall be three feet six inches minimum. Exact depth at each location shall be determined by depth of line to which the hydrant is connected.~~
  - ~~3. Inlet connection shall be six inch mechanical joint. Typical installation detail is shown in the Contract drawing.~~
  - ~~4. Two 2 1/2 inch hose nozzles and one 4 1/2 inch pump nozzle connection threads shall conform to NFPA No. 194 (ANSI B26) Standard for Screw Threads and Gaskets for Fire Hose Couplings.~~

- ~~5. Hydrants shall be furnished with accessories to include mechanical joint follower rings with set screws and at least one adjustable hydrant wrench with spanner included with every ten hydrants supplied. Barrel extension sections shall not be allowed on new fire hydrants, except by special permission from the ENGINEER. All fire hydrants shall be Mueller Super Centurion Model A-423 or American Darting Model B84B, with no substitutions allowed.~~
- ~~6. There shall be no shrubbery planted within 6 feet of any fire hydrant.~~

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Proper and suitable tools and appliances for the safe convenient handling and laying of pipe shall be used and, in general, conform with manufacturer's recommendations. At the time of laying, the pipe shall be examined carefully for defects, and should any pipe be discovered to be defective after being laid, it shall be removed and replaced with sound pipe by the CONTRACTOR at his expense.
- B. Pipe and fittings shall, at all times, be handled with great care to avoid damage. In loading and unloading, they shall be lifted with cranes or hoists or slid or rolled on skidways in such manner as to avoid shock. Under no circumstances shall this material be dropped or allowed to roll or slide against obstructions. Pipe and other material shall be distributed along the right-of-way in advance of installation only to the extent approved by the ENGINEER. Such materials shall be so placed as to keep obstruction to traffic minimum.
- C. Upon satisfactory completion of the pipe bedding, a continuous trough for the pipe barrel and recesses for the pipe bells, or couplings, shall be excavated by hand digging. When the pipe is laid in the prepared trench, true to line and grade, the pipe barrel shall receive continuous, uniform support with no pressure being exerted on the pipe joints from the trench bottom.
- D. Pipe shall be installed in accordance with the manufacturer's recommendation. Before being lowered into the trench, the pipes and accessories shall be carefully examined and the interior of the pipes shall be thoroughly cleaned of all foreign matter and other methods acceptable to the ENGINEER. During suspension of work, for any reason, at any time, a suitable stopper shall be placed in the end of the pipe last laid to prevent mud or other foreign material from entering the pipe. Any pipe which is disturbed or found defective shall be immediately removed and replaced with sound pipe.
- E. Lines shall be laid straight and true to the lines, matching existing grade.
- F. Any work within the pipe and fittings shall be performed with care to prevent damage to the interior wall of the pipe. Damaged interior walls shall be repaired or the pipe section or fitting replaced as required by the ENGINEER. No cables, lifting arms, hooks or other devices shall be inserted into the pipe or fitting. All lifting, pulling or pushing mechanisms shall be applied to the exterior of the pipe or fitting.

- G. After pipe has been laid, reviewed and found satisfactory, sufficient backfill shall be placed along the pipe barrel to hold the pipe securely in place during the conduction of the required tests.

### 3.02 INSTALLATION OF POLYVINYL CHLORIDE (PVC) PIPE

- A. Each length of pipe, immediately prior to being placed in position in the trench, shall be inspected, cleaned and prepared for installation. Gaskets shall be thoroughly checked for brakes, cuts or other damage, and shall be free of oil, grease, dirt or other foreign matter. Pipe joints shall be assembled with care. Lubricant, if required, shall be as recommended by the manufacturer of the pipe, and shall have no deteriorating effects on the gasket and pipe materials. If assembly is underwater, lubricant recommended by the manufacturer for underwater use is required. Good alignment of the pipe is required for assembly. Align the spigot to the bell of the previously laid pipe and insert the spigot into the bell until it uniformly contacts the gasket. Apply steady pressure until the spigot easily slips through the gasket. Do not push or swing the spigot into the bell. Small diameter pipe and fittings may be assembled manually. Mechanical means such as bars and blocks, rackets or jacks shall be used for joining larger pipe and fittings. Power equipment, such as backhoe bucket, shall not be used to assemble pipe and fittings, since excessive force may damage the gasket or bell.
- B. Cutting the pipe in the field shall be done by the CONTRACTOR in a neat and workmanlike manner using manual or power saws. The pipe shall be marked around its entire circumference before cutting to assure a square cut. After cutting, the end shall be beveled using a beveling tool, rasp, or other approved equipment, to the proper taper. Mark the proper insertion depth on the cut and beveled end before installing the cut pipe into the pipeline. Pipe laying shall proceed up-grade from the lowest point of the proposed system, with spigot ends pointing in the direction of flow. All pipe shall be laid straight, true to the lines and matching existing grade, in each section between manholes. The pipe shall be laid so that the identification markings are located on the top of the installed pipelines. At all times when work is not in progress, the exposed ends of all pipes shall be fully protected by an approved stopper to prevent groundwater, dirt, rocks or other substances from entering the pipe.
- C. Each individual length of pipe shall be solidly and evenly bedded and haunched throughout its length on a prepared bed on the floor of the trench and not supported in position on blocks or wedges. Pipe shall only be laid when the two preceding lengths have been thoroughly embedded in place to prevent any movement or disturbance of the finished joint. Any pipe which is disturbed or found to be defective after laying shall be taken up and relaid or replaced.
- D. Mechanical joints shall be made up using annealed high strength cast iron bolts and rubber gaskets as recommended by the manufacturer. All types of mechanical joint pipes shall be laid and jointed in full conformance with the manufacturer's recommendations, which shall be submitted to the ENGINEER for review and approval before work is begun. Only especially skilled workers shall be permitted to make up mechanical joints. Torque wrenches set as specified in AWWA Standard C111 latest revision shall be used. Spanner-type wrenches may be used with the approval of the ENGINEER.
- E. Push-on joints shall be made in strict, complete compliance with the manufacturer's recommendations. Lubricant, if required, shall be an inert, non-toxic, water soluble

compound incapable of harboring, supporting, or culturing bacterial life. Manufacturer's recommendations shall be submitted to the ENGINEER for review and approval before work is begun.

- F. Concrete blocks and restrained joints shall be placed at all bends, lees plugs and other fittings, valves, and pipelines as shown on the Drawings or as directed by the ENGINEER.

### 3.03 VALVE INSTALLATION

- A. All valves, stem extensions, valve boxes, and accessories shall be installed in accordance with the manufacturer's written instructions and as shown and specified.
- B. The CONTRACTOR shall not open or close valves unless otherwise approved by the ENGINEER.
- C. Comply with the requirements of Section 02502 – Valves, General

### ~~3.04 VALVE CUT INS ON WATER MAINS~~

- ~~A. Water system shall be maintained under pressure during entire construction. All valve additions shall be performed while the system is in service. No line shall be shut down during construction by CONTRACTOR or others unless approved by the OWNER.~~

### ~~3.05 GRAVITY SEWER INSTALLATION~~

- ~~A. Gravity sewer installation shall be in accordance with manufacturer's procedures.~~

### ~~3.06 HYDRANT INSTALLATION~~

- ~~A. All fire hydrants shall be installed in strict accordance with the manufacturer's published recommendations, AWWA Standards, and all applicable codes, and the applicable provisions of Section 02502. All installations shall be to the satisfaction of the local fire and building department.~~
- ~~B. All hydrant isolating valves with slip joints, friction type, or caulked joint connections shall be harnessed to the main pipe by means of welded steel harness sets, or clamps and steel rods, designed for this purpose. Dry barrel fire hydrants shall be set on a bed of pea gravel not less than 18 inches deep and 3 feet square, for drainage, or as required by local regulations and conditions.~~
- ~~C. All 6-inch valve additions can be performed with partial-localized system isolation with the approval of the ENGINEER and proper notifications/coordination with the City (i.e. 48 hours minimum prior notice).~~
- ~~D. Existing concrete thrust blocks shall be removed and replaced in accordance to the requirements of the miscellaneous details in the drawings.~~
- ~~E. Restrained joints shall be placed at all joints of fire hydrant, pipe connections, and vales.~~

### 3.07 TESTING SEWER MAIN LINES

- A. Sewer mains shall be tested in accordance with ANSI/AWWA Standard C600.

B. HYDROSTATIC TESTS:

1. Comply with testing requirements as shown in Section 02530 – Sanitary Sewerage Systems

- ~~1. After a new water main has been laid and backfilled, it shall be pumped to a pressure of 150 p.s.i. and all visible leaks stopped by approved methods.~~
- ~~2. A leakage test shall then be conducted at the above mentioned pressure, and no installation will be acceptable by the OWNER until the leakage is less than the number of gallons per hour as determined by the formula:~~

$$L = \frac{S \cdot D \cdot P^{1/2}}{148,000}$$

~~in which L equals the allowable leakage in gallons per hour; S is the length of line in feet being tested; D is the nominal diameter of the pipe in inches; and P is the average test pressure during the leakage test in pounds per square inch. The test is usually maintained for two hours, but it may be continued for one additional hour if it becomes apparent that the leakage is equal to or greater than the amount allowable. Water supplied to the main during the test to maintain the required pressure shall be measured by a 5/8 inch meter installed on the discharge side of the test pump, or by pumping from a calibrated container. A hose bib connection will be provided to accept the test gauge supplied by the OWNER.~~

- ~~3. The section of main being tested shall be limited to a maximum length of 2000 feet. When testing against closed metal seated valves, an additional leakage per closed valve of 0.0078 gallon / hour / inch of nominal valve size shall be allowed. Any questions pertaining to procedures used during the test shall be decided by the ENGINEER.~~
- ~~4. The CONTRACTOR shall supply and install temporary air release valves for purposes of facilitating proper hydrostatic testing conditions. Location of the ARV's shall be as per the instructions given by the ENGINEER. The CONTRACTOR shall be responsible to remove the ARV's upon the successful completion of the testing and shall be responsible for all associated site restorations resulting from his/her work.~~

C. DISINFECTION:

- ~~1. After the water mains have satisfied the leakage requirements, they shall be flushed through openings of the required size as detailed in ANSI/AWWA Standard C601 latest revision. The main shall then be disinfected in accordance with the provisions of the applicable sections of the above named specifications. On main breaks, cut ins, etc., a liberal application of calcium hypochlorite shall be made.~~
- ~~2. Mains shall not be put into domestic service until the necessary bacteriological samples have been approved by the applicable regulatory agencies.~~

### ~~3.08 TESTING WATER SERVICE LINES~~

- ~~A. HYDROSTATIC TESTING: Hydrostatic testing of water service lines shall be done in conjunction with the testing of the lateral or main line. No additional leakage allowance will be made for service lines.~~
- ~~B. DISINFECTION: Disinfection of service lines shall be done in conjunction with the disinfection of the lateral or main line. Sufficient sampling points shall be taken from service line connections to assure uniform results throughout the system being tested.~~

- END OF SECTION -

## SECTION 02750

### WASTEWATER FLOW CONTROL

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. The work specified in this Section includes all labor, materials, accessories, equipment and tools for performing all operations required to bypass pump sewage around a manhole, wet well or piped sewer section in which work is to be performed. The CONTRACTOR shall be prepared to bypass pump sewage as a part of his operations. The purpose of bypassing is to prevent wastewater overflows and provide continuous service to all wastewater customers.
- B. The work specified in this Section also includes all labor, materials, accessories, equipment and tools for performing all operations required to bypass pump sewage around a section of force main or gravity sewer in which work is to be performed, or around a manhole/wet well into which a force main or gravity sewer discharges if work is to be performed at the manhole/wet well. The CONTRACTOR shall be prepared to bypass pump sewage as a part of his operations.
- C. The CONTRACTOR shall provide all pumps, piping, and other equipment to accomplish this task; perform all construction; obtain all permits; pay all costs; and perform complete restoration of all existing facilities to equal or better condition to the satisfaction of the CITY.

##### 1.02 GENERAL

- A. When sewer line flows at the upstream manhole of the line being repaired or replaced are above the maximum allowable requirements for television survey, or do not allow the proper sewer or manhole repair / replacement, the flows shall be reduced to the levels indicated by one of the following methods: manual operation of pumping stations by CITY forces, by the CONTRACTOR plugging / blocking of the flows, or by the CONTRACTOR pumping / bypassing of the flows as acceptable to the CITY.
- B. In some applications, the wastewater flow may be plugged and contained within the capacity of the collection system. This shall only be done when it has been determined the system can accommodate the surcharging without any adverse impact.
- C. For the initial television survey, before and after any repair / replacement with the exception of joint testing and sealing, the sewer line shall be blocked completely. No flow, except infiltration/inflow, will be allowed through the respective sewer line being televised on the television survey.
- D. For all other television surveys, including warranty surveys and joint testing and sealing operations, the depth of flow within the sewer shall not exceed that shown below for the respective pipe sizes as measured in the manhole.

- 1. Maximum Depth of Flow - Warranty Television Survey

6" - 10" Pipe .....	20% of pipe diameter
12" - 24" Pipe .....	25% of pipe diameter
Above 24" Pipe .....	30% of pipe diameter

2. Maximum Depth of Flow – Joint Testing/Sealing

6" - 12" Pipe .....	25% of pipe diameter
15" - 24" Pipe .....	30% of pipe diameter
Above 24" Pipe .....	35% of pipe diameter

- E. When sewer line flows at the upstream manhole of the line being repaired or replaced, in the opinion of the CITY, are too excessive to plug while the rehabilitation is being performed, the CONTRACTOR shall submit a written plan and pump/bypass the flow as acceptable to the CITY.
- F. When flows of sewage through a force main being repaired, or discharging by gravity or force main to a manhole/wet well being repaired or replaced, are in the opinion of the CITY too excessive to plug or stop while the rehabilitation is being performed, the CONTRACTOR shall submit a written plan and pump/bypass the flow as acceptable to the CITY.

1.03 SUBMITTALS

- A. The CONTRACTOR shall submit complete, detailed plans for this aspect of the work to the CITY for review.

1.04 RELATED WORK

- A. Section 02530 – SANITARY SEWERAGE SYSTEM

PART 2 – PRODUCTS

- A. The Contractor shall provide and maintain adequate equipment, piping, bypassing, tankers and other necessary facilities and appurtenances in order to maintain continuous and reliable wastewater service in all wastewater lines as required for construction. Bypass pumping operation to be conducted by manned supervision 24 hours per day (including weekends) and backup emergency auto-dialer installed. The Contractor shall have tankers, backup pumps, linestops with bypass piping as needed, backup generators, plugs, piping and appurtenances ready to deploy immediately.
- B. Bypass equipment shall include discharge flow meter and multiple pressure gauges.
- C. Bypass plan/systems shall have complete redundancy and shall include one (1) back-up pump equal to the primary.



## PART 3 - EXECUTION

### GENERAL

- 3.01 The Contractor shall have scheduled delivery of all materials, equipment and labor necessary to complete the repair, replacement or rehabilitation to the job site prior to isolating the gravity main segment, manhole, or pump station. The Contractor shall demonstrate that the pumping system is in good working order and is sufficiently sized to successfully handle flows by performing a test run for a period of 48 hours prior to beginning the work.

### TRAFFIC CONSIDERATIONS

The Contractor shall locate bypass pumping suction and discharge lines so as to not cause undue interference with the use of streets, private driveways, accessways, and alleys. This requirement may necessitate temporary trenching or bypass ramps. Ingress and egress to adjacent properties shall be maintained at all times. Ramps, steel plates or other methods shall be deployed by the Contractor to facilitate traffic over the bypass or surface piping. High traffic commercial properties may require alternate methods. The Contractor is required to provide maintenance of traffic (MOT) for all bypass piping operations including, but not limited to, permitting, approvals, fees and phased construction at no additional cost to the City.

### 3.01 PLUGGING AND BLOCKING

- A. A sewer line plug shall be inserted into the line at a manhole upstream from the section being surveyed, repaired or replaced. The plug shall be so designed that all or any portion of the operation flows can be released. During the survey portion of the operation, flows shall be shut off or reduced to within the maximum flow limits specified. During repairs or replacement, the flows shall be shut off or pumped / bypassed, as acceptable to the CITY. After the work tasks have been completed, flows shall be restored to normal.

### BYPASS PLAN

- A. The Contractor shall submit a comprehensive written plan according to the submittal specifications, which describes the intended bypass for the maintenance of flows during construction. The Contractor shall also provide a sketch showing the location of bypass pumping equipment for each pump station or line segments around which flows are being bypassed. The plan shall include any proposed tankers, pumps, bypass piping, backup plan and equipment, linestops and bypass piping, ramps, work schedule, phasing, monitoring log for bypass pumping, noise attenuation, monitoring plan of the bypass pumping operation and maintenance of traffic plan. The Contractor shall cease bypass operations and return flows to the new and/or existing sewer when directed by the Owner. All piping shall be designed to withstand at least twice the maximum system pressure or a minimum of 50 psi, whichever is greater. During bypassing, no wastewater shall be leaked, dumped, or spilled in or onto, any area outside of the existing wastewater system. When bypass operations are complete, all bypass piping shall be drained into the wastewater system prior to disassembly.

### BYPASS OPERATION

- A. The Owner shall review and provide written comments to the bypass plan prior to implementation of the bypass. The Contractor shall notify City operations 72 hours prior to commencement of bypassing and to allow time for coordination as necessary. The Contractor shall plug off and pump down the line segment in the immediate work area and shall maintain the wastewater system so that surcharging does not occur.
- B. The Owner shall accept the bypass plan prior to implementation of the bypass. Contractor will plug off and pump down the line segment in the immediate work area. A successful 3-day test period shall be performed during Owner work days (no weekends). If the Contractor is unable to isolate the system prior to installation of the temporary bypass connection, then a wet tap will be required at the expense of the Contractor.
- C. Where work requires the line to be blocked beyond NORMAL WORKING HOURS and bypass pumping is being utilized, the Contractor shall be responsible for on-site monitoring the bypass operation 24 hours per day, 7 days per week, by on-site personnel. Additionally, backup emergency auto-dialer installation is required.
- D. During bypassing, no wastewater will be leaked, dumped, or spilled in or onto, any area outside of the existing wastewater system.
- E. The Contractor shall insure that no damage will be caused to private property as a result of bypass pumping operations. The Contractor shall complete the work as quickly as possible and satisfactorily pass all tests, inspections and repair all deficiencies prior to discontinuing bypassing operations and returning flow to the sewer manhole, line segment, or lift station.
- F. The Contractor shall immediately notify the Owner should a sanitary sewer overflow occur and the Contractor shall take the necessary action to clean up and disinfect the spillage to the satisfaction of the Owner and/or other governmental agency. If sewage is spilled onto public or private property, the Contractor shall wash down, clean up and disinfect the spillage to the satisfaction of the Owner and/or other governmental agency. When bypassing, complete redundancy is required. One back-up pump equal to the primary unit shall be required. Bypass pumps and motors shall have a maximum rating of 55 decibels at 20 feet for sound attenuation.
- G. Contractor shall provide secure temporary fencing around all bypass pumping equipment. Owner shall be given keys to access the bypass equipment.

### 3.02 PUMPING AND BYPASSING

- A. When pumping/bypassing is required, as determined by the CITY, the CONTRACTOR will supply the necessary pumps, conduits and other equipment to divert the flow of sewage around the manhole/wet well section in which work is to be performed. The bypass system shall be of sufficient capacity to handle existing flows plus additional flow that may occur during periods of rain storms. The CONTRACTOR will be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and bypassing system. A "setup" consists of the necessary pumps, conduits and other equipment to divert the flow of sewage around a manhole/wet well section, from the start to finish of work performed in the manhole/wet well section.

- B. Pumps shall have automatic control to turn on and off depending on the water level. The CONTRACTOR shall provide a 24 hour 7 day emergency contact telephone number for anybody to contact a responsible person in his organization in case of an emergency and shall respond without delay to rectify the situation. Pumps and equipment shall be continuously monitored by a maintenance person capable of starting, stopping, refueling and maintaining these pumps during the rehabilitation. If pumping is required on a 24-hour basis, engines shall be equipped in a manner to keep noise to a minimum. Bypass pumps shall meet the noise requirements per City Ordinances.
- C. In the case of bypassing force main/gravity sewer flows, whether such flows normally discharge into a manhole/wet well being repaired/replaced or pass through a force main/gravity sewer being repaired/replaced, bypass shall be accomplished by one of two methods.
  - 1. In the absence of surface conditions that prevent temporary bypass piping, the force main/gravity sewer shall be accessed by excavation and temporary piping shall be installed to bypass the repair/replacement in a manner acceptable to the CITY. In general, for manhole repairs/replacement, the CONTRACTOR shall excavate to the force main outside the manhole, cut the force main, attach bypass piping, and bypass flow to the next downstream manhole. For force main repairs, the CONTRACTOR shall excavate to the force main on each side of the repair, cut the force main on each side of the repair, attach bypass piping on each side of the repair, and bypass flow around the repair. Upon the conclusion of bypass activities and repair work, the CONTRACTOR shall install closure pieces to permanently rejoin and restore the force main to full function.
  - 2. Where surface conditions prevent the use of temporary bypass piping, and where the CITY cannot accomplish the bypass operations in-house, the CITY shall shut down the associated lift station and the CONTRACTOR shall pump from the wet well into tanker trucks for transport to a designated location. The number of tanker trucks deemed necessary for this operation shall be agreed to in advance by the CITY.

### 3.03 FLOW CONTROL PRECAUTIONS

- A. Surcharging Sewers. Where the raw sewage flow is blocked or plugged, sufficient precautions must be taken to protect the public health. No septic conditions shall be allowed due to CONTRACTOR's operations. The sewer lines shall also be protected from damage. The following occurrences shall not be allowed:
  - 1. No sewage shall be allowed to back up into any homes or buildings.
  - 2. No sewage shall overflow any manholes, cleanouts or any other access to the sewers.
  - 3. Users upstream of the repair area shall be able to use all their water and sewer utilities without interruption.
- B. If any of the above unallowable conditions occur or are expected to occur, the CONTRACTOR shall bypass pump to alleviate one or all of the conditions. Additionally, the CONTRACTOR is required to observe the conditions upstream of the plug and be

prepared to immediately start bypass pumping, if needed. It is CONTRACTOR's responsibility to pay for all damage claims.

- C. Pumps. Any sump pumps, bypass pumps, trash pumps or any other type pump which pulls sewage/water or any type of material out of the manhole/wet well or sewer shall discharge this material into another manhole/wet well, or appropriate vehicle or container acceptable to the CITY.

Under no circumstances shall this material be discharged, stored or deposited on the ground, swale, road or open environment.

- D. Traffic Control. The CONTRACTOR shall take appropriate steps to ensure that all pumps, piping and hoses that carry raw sewage are protected from traffic. Traffic control shall be performed in accordance with Section 01570 - Traffic Regulation and Maintenance of Traffic.

- E. Sewage Spills. In the event, during any form of "Sewage Flow Control", that raw sewage is spilled, discharged, leaked or otherwise deposited in the open environment, due to the CONTRACTOR's work, the CONTRACTOR is responsible for any cleanup of solids and disinfection of the area affected. This work will be performed at the CONTRACTOR's expense with no additional cost to the CITY. The CONTRACTOR is also responsible for notifying the sewer system maintenance personnel and complying with any and all regulatory requirements in regard to the size spill with no additional cost to the CITY.

- F. Comply with requirements of Section 02530, Sanitary Sewerage System

### 3.05 CONTRACTOR LIABILITY

- A. The Contractor shall be responsible for all required pumping, equipment, piping and appurtenances to accomplish the bypass and for any and all damage that results directly or indirectly from the bypass pumping equipment, piping and/or appurtenances. The Contractor shall also be liable for all Owner personnel and equipment costs, penalties and fines resulting from sanitary sewer overflows. In addition to the aforementioned costs to be paid by the Contractor, a fine of \$5,000 per overflow occurrence or sanitary sewer disruption shall be assessed. For each 24-hour period following overflow that the wastewater overflow/damage is not completely cleaned, disinfected, and returned to full operational capacity an additional \$5,000 fine will be assessed daily.
- B. It is the intent of these specifications to require the Contractor to establish adequate bypass pumping as required regardless of the flow condition.

- END OF SECTION -

## SECTION 02930

### SODDING

#### Part 1 - GENERAL

##### 1.01 SCOPE

- A. Provide all labor, materials and equipment necessary for the installation of new sodding, or complete sodding of existing grassed areas that may have been damaged or disturbed by CONTRACTOR activities. This shall include, but not be limited to: fertilizing, sodding, tests and all incidentals to make the work complete.

##### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02500 - Landscaping
- B. Section 02210 - Earth Excavation, Backfill, Fill and Grading
- C. Section 02260 - Finish Grading

##### 1.03 WORK INCLUDED

- A. Testing of topsoil.
- B. Raking and leveling topsoil as required for sodding.
- C. Liming and fertilizing of topsoil.
- D. Laying and rolling of sod.
- E. Maintaining

##### 1.04 SUBMITTALS

- A. Submit product source and information sheets in accordance with Section 01300, "Submittals".

#### Part 2 - PRODUCTS

##### 2.01 MATERIALS

- A. Fertilizer
  - 1. Fertilizer shall be commercial fertilizer, as manufactured by International Chemical Company or equal.
  - 2. Said fertilizer shall have a 10-20-6 N.P.K. content and contain a minimum of 60% of organic material.
  - 3. It shall be delivered at the site in the original sealed containers.
- B. Sod

## SECTION 02930

### SODDING

1. Sod within right-of-way swales within the work area shall be Bahia sod or replaced in-kind, whichever is finer quality.
2. Sod shall be first quality sod of firm texture having a compacted growth and good root development.
3. Sod shall be absolutely true to varietal type, live, fresh and free from weeds or objectionable vegetation, fungus, insects and disease of any kind. Sod shall be kept moist from the time it is field cut until it is laid at the proposed site.
4. The sod shall be as grown by a certified turf nursery and CONTRACTOR shall inform ENGINEER as to the source of the sod to be utilized prior to ordering and delivery of sod.
5. Sod shall be furnished and installed in rectangular sod strips measuring 12 to 16-inches in width of standard lengths of not less than 2 feet and delivered on pallets.

#### Part 3 - EXECUTION

##### 3.01 INSTALLATION

- A. Sod shall be placed on all grassed areas disturbed by construction activities, unless otherwise indicated on the Drawings. Sodding shall be in accordance with these specifications and Sections 575 and 981 of FDOT Specifications, whichever is more stringent.
- B. Lawn areas damaged by CONTRACTOR's operations shall be repaired at once by proper sod bed preparation, fertilization and re-sodding, in accordance with these specifications. Regardless of the condition of the lawn area (weed content etc.) prior to the CONTRACTOR working in the area, all repairs shall be made with sod.
- A. These areas shall be fine graded to achieve the finished subgrade after compaction which shall be obtained by rolling, dragging or by an approved method which obtains an equivalent compaction to that produced by a hand roller weighing from 75 to 100 pounds per foot of width. All depressions caused by settlement or rolling shall be filled with additional existing or furnished topsoil and re-graded and prepared as specified above until it presents a reasonably smooth and even finish at the required sod sub-grade.
- B. All sod furnished shall be living sod containing at least 70% of thickly matter grasses as specified and free from noxious weeds. All sod shall be certified free of fire ants.
- C. No broken pads or torn or uneven ends will be accepted. Standard size sections of sod shall be strong enough to support own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10% of the section. Sod shall not be harvested when its moisture content (excessively wet or dry) may adversely affect its survival.

## SECTION 02930

### SODDING

- D. Sod shall be harvested, delivered, and installed within a period of 24 hours. Sod not installed within this time period shall be subject to inspection and rejection by ENGINEER, and shall be removed from the site and a fresh sod supply shall be furnished at no extra cost to CITY.
- E. The topsoil shall not be moist at time of installation; however, it shall contain sufficient moisture so as not be powdery or dusty, both as determined by the supplier's representative.
- F. The overlapping of existing lawn with new sod along limit of work lines will not be permitted. Sod shall be laid in strips, edge to edge, with the lateral joints staggered. All minor or unavoidable openings in the sod shall be closed with sod plugs or with topsoil, as directed by ENGINEER. However, sod laid with joints determined to be too large shall be lifted and re-laid as specified herein at no extra cost to CITY.
- G. Immediately after the sod is laid, the sod shall be watered thoroughly by hand or mechanical sprinkling until the sod and at least 2-inch of the top soil bed have been thoroughly moistened.
- H. Sufficient watering shall be done by the CONTRACTOR to maintain adequate moisture for optimum development of the sodded areas. Sodded areas shall receive no less than 1.5 inches of water per week.
- I. CONTRACTOR shall be responsible to furnish his own supply of water to the site at no extra cost. CONTRACTOR shall apply for temporary meter and pay CITY for water used at current utility billing rates. However, if CITY's water supply is not available or not functioning, CONTRACTOR shall be responsible to furnish adequate supplies at his own cost. All work injured or damaged due to the lack of, or the use of too much water, shall be CONTRACTOR's responsibility to correct.

#### 3.02 MAINTENANCE

- A. Maintain the entire sodded areas at least a 30-day period or until final acceptance at the completion of the Contract, whichever is longer. Maintenance shall include watering as specified, weeding and removal of stones which may appear. All bare or dead spots which become apparent shall be properly prepared, limed and fertilized, and re-sodded at CONTRACTOR's expense as many times as necessary to secure a good growth. In the event that the sod installation is not accepted by ENGINEER, the entire area shall be maintained and cut by CONTRACTOR until final acceptance of the sod installation.
- B. Take whatever measures are necessary to protect the sod while it is developing. These measures shall include furnishing of warning signs, barriers, or any other necessary measures of protection.

- END OF SECTION -

SECTION 03111  
CONCRETE FORMWORK

PART 1 - GENERAL

A. Description

This section describes materials and installation of concrete forms.

B. Related Work Specified Elsewhere

1. Submittals: Section 01300.
2. ~~Leakage Testing of Hydraulic Structures: Section 03051.~~
3. Concrete Joints, Water Stops, and Sealants: Section 03151.
4. Concrete Reinforcement: Section 03210.
5. Concrete: Section 03300.
6. Concrete Finishing and Curing: Section 03350.

C. Submittals

1. Submit shop drawings in accordance with the General Conditions and Section 01300.
2. Submit manufacturer's literature for form ties, spreaders, corner formers, form coatings, and bond breakers.

PART 2 - MATERIALS

A. Form Construction and Design

1. Design formwork in conformance with methodology of ACI 347R for anticipated loads, lateral pressures, depth of concrete placement and rate of concrete placement.
2. Locate bracing and shoring to maintain form stability and comply with finish tolerances specified.



3. Provide temporary openings in wall and column forms to facilitate cleaning, inspection and concrete placement.
4. Provide drop chutes and/or drop pipes to prevent accumulation of hardened concrete on forms and reinforcement above fresh concrete and to prevent concrete segregation.
5. Construct forms with regard for construction and expansion joint locations and architectural lines.
6. Use panels as large as practical to minimize form seam lines.
7. Construct forms to minimize fines leakage during concrete placement at construction joints, bulkheads, base of wall/slab intersections and other areas where fines may migrate from the concrete surface during placement. The level of acceptable fine leakage from the formed surface shall be determined by the Engineer as evidenced by the lack of rock pockets formed during placement of the concrete.
8. Provide form windows or stage forms to allow visual observation at all times of the concrete being placed and vibrated. Provide a formwork design and placement schedule that will limit free fall of concrete in walls 8 inches or less in thickness to 4 feet and for walls thicker than 8 inches, limit this fall to 6 feet. Total vertical lift made in a single pass shall not exceed 2 feet in height.
9. Notify the Owner's Representative prior to concrete placement (48 hours minimum).
10. Steel forms shall be minimum 24 gauge, with tongue-and-groove joints, complete with steel stakes and splice plates.
11. Provide material for forms that is not reactive with concrete. Formwork of aluminum is not acceptable.
12. Expandable metal mesh shall not be used in formwork.

B. Classes of Forms

1. Class I Forms: Use steel forms, ply form, or smooth-surface plywood 3/4-inch minimum thickness for straight surfaces and 1/2-inch minimum thickness for curved surfaces.
2. Class II Forms: Use plywood in good condition, metal, or smooth-planed boards free from large or loose knots with tongue-and-groove or ship-lap joints.
3. Class II forms may be used for exterior concrete surfaces that are 1 foot or more below finished grade. Use Class I forms for all other surfaces.

C. Form Material

1. Use plywood, lumber, and steel of sufficient strength and surface smoothness to produce the specified finish.
2. Lumber used in form construction shall be Southern Yellow Pine, No. 2, S4S, Standard Grade Rules Southern Pine Inspection Bureau. Boards shall be 6 inches or more in width.
3. Plywood used in form construction shall be Grade B-B, Class 1 plyform, mill-oiled, and sanded on both sides in conformance with U.S. Product Standard PS-1.

D. Form Ties

1. Locate form ties on exposed surfaces in a uniform pattern or as indicated in the drawings. Place form ties so they remain embedded in the concrete except for a removable portion at each end and do not leave an open hole through the concrete. Form ties shall have conical or spherical type inserts with a maximum diameter of 1 inch. Construct form ties so that no metal is within 1 inch of the concrete surface when the forms, inserts, and tie ends are removed. Do not use wire ties. Ties shall withstand all pressures and maintain forms within acceptable deflection limits.
2. Flat bar ties for panel forms shall have plastic or rubber inserts having a minimum depth of 1 inch and sufficient dimensions to permit patching of the tie hole.
3. Ties for water-holding structures or dry structures with access, such as basements or pipe galleries, that are below finish grade shall have an integral steel water stop that is tightly and continuously welded to the tie. The water stop shall be at least two times larger in area than the tie cross-sectional area and shall be oriented perpendicular to the tie and symmetrical about the center of the tie. Construct the ties to provide a positive means of preventing rotation or disturbance of the center portion of the tie during removal of the ends.
4. Tapered form ties shall be tapered through-bolts at least 1 inch in diameter at smallest end or through-bolts that utilize a removable tapered sleeve of the same minimum size.

E. Bond Breaker

1. Bond breaker shall be a V.O.C.-compliant nonstaining type that will provide a positive bond prevention, such as Clean Lift 90 W.B. as manufactured by Edoco Burke; Silcoseal 97EC as manufactured by Nox-Crete, Inc.; or equal.
2. Bond breaker shall be certified as meeting the requirements of ANSI/NSF 61 for contact with potable water.

F. Form Release Agent

1. Form releasing agents shall be certified as meeting the requirements of ANSI/NSF 61 for contact with potable water.

2. Form release agent shall effectively prevent absorption of moisture by the form and prevent bond with the concrete. Agent shall be nonstaining, V.O.C.-compliant, leave concrete with a coatable surface, and be nontoxic after 30 days.
3. For steel forms, release agent shall prevent discoloration of the concrete due to rust.

**PART 3 - EXECUTION**

**A. Form Tolerances**

1. The following table indicates tolerances or allowable variations from dimensions or positions of structural concrete work:

	<b>Maximum Tolerance (inch)</b>
Sleeves and inserts	+1/4 -1/4
Projected ends of anchors	+1/4 -0.0
Anchor bolt setting	+1/4 -1/4
Finished concrete, all locations	+1/4 -1/4 in 10 feet
	Max ±1-inch in total length

2. The planes or axes from which the above tolerances are to be measured shall be as follows:

Sleeves and inserts:	Centerline of sleeve or insert.
Projected ends of anchors:	Plane perpendicular to the end of the anchor as located in the drawings.
Anchor bolt setting:	Centerline of anchor bolt.
Finish concrete:	The concrete surface as defined in the drawings.

3. Where equipment is to be installed, comply with manufacturer's tolerances if more restrictive than above.
4. Failure of the forms to produce the specified concrete surface and surface tolerance shall be grounds for rejection of the concrete work. Rejected work shall be repaired or replaced at no additional cost to the Owner.

**B. Form Surface Preparation**

1. Clean form surfaces to be in contact with concrete of foreign material prior to installation. Tape, gasket, plug, and/or caulk joints, gaps, and apertures in forms so that the joint will remain watertight and withstand placing pressures without bulging outward or creating surface irregularities.

2. Coat form surfaces in contact with concrete with a form release agent prior to form installation.
3. Keep form coatings off steel reinforcement, items to be embedded, and the previously placed concrete.
4. Coat face and edges of Class I forms with a two-coat system of one-component polyurethane coating applied by roller at the rate of 500 square feet per gallon.

C. Beveled Edges (Chamfer)

Form 3/4-inch beveled edges on exposed concrete edges and corners, beam soffit corners, and where indicated in the drawings. Reentrant corners in concrete members shall not have fillets, unless otherwise shown in the drawings. The top edges of slabs, walkways, beams, and walls may be beveled with an edging trowel in lieu of using chamfer strips.

D. Form Placement

1. Provide means for holding adjacent edges and ends of form panels tight and in accurate alignment to prevent the formation of ridges, fins, offsets, or similar surface defects in the finished concrete. Forms shall be tight and shall prevent the loss of mortar and fines during placing and vibration of concrete.
2. Provide one cleanout and inspection opening (12 inches wide by 18 inches high) every 7 feet at the bottom of each lift of forms.
3. Provide exterior corners in concrete members with bevels as specified.
4. Provide means for removing forms without injury to the surface of finished concrete.
5. Do not embed any form-tying device or part thereof other than metal in the concrete.
6. Locate large end of taper tie on the "wet" side of the wall.
7. Use only form or form-tying methods that do not cause spalling of the concrete upon form stripping or tie removal.
8. Form surfaces of concrete members except where placement of the concrete against the ground is shown in the drawings or as indicated below. The dimensions of concrete members shown in the drawings apply to formed surfaces, except where otherwise indicated. Add 2 inches of concrete where concrete is placed against trimmed undisturbed ground in lieu of forms. Placement of concrete against the ground shall be limited to footings and other nonexposed concrete and only 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.

E. Form Reuse

Reuse only forms that provide a uniform surface texture on exposed concrete surfaces. Apply light sanding or other surface treatment between uses for uniform texture. Plug unused tie rod holes with corks, shave flush, and sand the concrete surface side. Do not patch forms other than filling tie rod holes, except in the case of Class II forms. Do not use metal patching discs on Class I forms.

F. Removal of Forms

1. Forms and shoring for elevated structural slabs or beams shall remain in place until the concrete has reached a compressive strength equal to the specified 28-day compressive strength as determined by test cylinders. Do not remove supports and reshore. The following table indicates the minimum allowable time after the last cast concrete is placed before forms, shoring, or wall bracing may be removed:

Sides of footings and encasements	24 hours
Walls, vertical sides of beams, girders, columns, and similar members not supporting loads	48 hours
Slabs, beams, and girders	10 days (forms only)
Shoring for slabs, beams, and girders	Until concrete strength reaches specified 28-day strength
Wall bracing	Until top or roof slab concrete reaches specified 28-day strength

2. Do not remove forms from concrete that has been placed with outside air temperature below 50°F without first determining if the concrete has properly set without regard for time. Do not apply heavy loading on green concrete. Immediately after forms are removed, the surface of the concrete shall be carefully examined and any irregularities in the surface shall be repaired and finished as specified.

G. Formed Openings

Openings shall be of sufficient size to permit final alignment of pipes or other items without deflection or offsets of any kind. Allow space for packing where items pass through the wall to ensure watertightness. Provide openings with continuous keyways and water stops. Provide a slight flare to facilitate grouting and the escape of entrained air during grouting. Provide formed openings with reinforcement as indicated in the typical structural details. Reinforcing shall be at least 2 inches clear from the opening surfaces and encased items.

H. Embedded Items

Set anchor bolts and other embedded items accurately before placing concrete and hold securely in position until the concrete is placed and set. Check special castings, channels, or other metal parts that are to be embedded in the concrete prior to and

again after placing concrete. Check nailing blocks, plugs, and strips necessary for the attachment of trim, finish, and similar work prior to placing concrete.

I. Pipes and Wall Spools Cast in Concrete

1. Install wall spools, wall flanges, and wall anchors before placing concrete. Do not weld, tie, or otherwise connect the wall spools or anchors to the reinforcing steel.
2. Support pipe and fabricated fittings to be encased in concrete on concrete piers or pedestals. Carry concrete supports to firm foundations so that no settlement will occur during construction.
3. Pipes or spools located below operating water level shall have water stop ring collars and shall be cast in place. Do not block out such piping and grout after the concrete section is cast. Pipes fitted with thrust rings shall be cast in place.

END OF SECTION

## SECTION 03151

### CONCRETE JOINTS, WATER STOPS, AND SEALANTS

#### PART 1 - GENERAL

##### A. Description

This section describes materials, testing, and installation of construction and expansion joints, PVC water stops, premolded joint filler, joint sealant, bond breaker tape, preformed control joints, backing rod, and steel expansion joint dowels.

##### B. Related Work Specified Elsewhere

1. ~~Leakage Testing of Hydraulic Structures: Section 03051.~~
2. Concrete Formwork: Section 03111.
3. Concrete Reinforcement: Section 03210.
4. Concrete: Section 03300.
5. Concrete Finishing and Curing: Section 03350.

##### C. Submittals

1. Submit shop drawings in accordance with the General Conditions and Section 01300.
2. Submit manufacturer's literature, catalog data, and statement of compliance with referenced standards and specifications for materials specified herein.
3. Submit material samples of PVC water stops.
4. Provide technical data sheets for the Contractor's personnel and the Owner covering joint preparation, priming, and sealant materials application.
5. Submit layouts for construction joints.

##### D. Manufacturer's Services

Prior to joint preparation for joints receiving sealant materials, the Contractor shall require joint manufacturer's technical representative to demonstrate at the site joint preparation, priming, and sealant materials application for the Contractor's personnel performing joint work.

## PART 2 - MATERIALS

### A. PVC Water Stop

Water stop shall be:

1. Water stops shall be extruded from a PVC compound and shall be lock-rib, center-bulb, retro-fit or flat-strip type as manufactured by Greenstreak, A. C. Horn, Kirkhill Rubber Company, Vinylex, or equal. Water stop shall comply with Corps of Engineers Specification CRD-C-572-74.
2. PVC waterstop for construction joints shall be flat ribbed type, 6 inches wide unless otherwise noted on the drawings, with a minimum thickness at any point of 3/8 inches. PVC waterstop shall be Model 732 by Greenstreak or approved equal.
3. PVC waterstop for control joints shall be ribbed with a center bulb, 6 inches wide with a minimum thickness at any point of 3/8 inches. The center bulb shall have an O.D. not less than 1-3/8 inches. PVC waterstop shall be Model 732 by Greenstreak or approved equal.
4. PVC waterstop for expansion joints shall be ribbed with a center bulb, 9 inches wide with a minimum thickness at any point of 3/8 inches. The center bulb shall have an O.D. not less than 1-3/8 inches. PVC waterstop shall be Model 738 by Greenstreak or approved equal.
5. PVC waterstops for sealing existing concrete structures and new concrete placement shall be retro-fit type, 6 inches wide and 3-3/16 inches height with a minimum thickness at any point of 3/8 inches. The waterstop shall be attached to the existing concrete using 1/4" X 2-1/4" SS sleeve exp. Bolt with SS batten bars. PVC waterstop shall be Model 609 by Greenstreak or approved equal.
6. All PVC waterstops shall have an integral fastening system consisting of hog rings and grommets.
7. Extruded from virgin elastomeric PVC compound.
8. Provide factory-made crosses, tees and ells fabricated by the waterstop manufactured using thermostatically controlled electric heat source.
9. Resistant to chemical action with portland cement, alkalies, acids, and not affected by mildew or fungi. It shall show no effect when immersed for 10 days in a 10% solution of sulfuric or hydrochloric acid, saturated lime solution or salt water. Water stops shall be such that any cross section will be dense, homogeneous, and free from porosity and other imperfections. They shall be symmetrical in shape. When tested in accordance with Federal Standard No. 601, the material shall meet the following minimum requirements:



Requirement	ASTM Spec.
Tensile strength, 2,000 psi	D638
Hardness, Shore durometer, 60-70	D2240
Elongation, ultimate, 280%	D638
Water absorption, dry weight, maximum (48 hours) 0.32%	D570
Specific gravity, 1.3	D792
Stiffness in flexure, 920 psi	D747
Cold brittleness, -35°F	D746
Tear resistance, 290 lbs/inch	D624

**B. Joint Sealant for Concrete Structures**

1. Joint sealant shall be a multipart, gray, nonstaining, nonsagging, gun grade polyurethane sealant, which cures at ambient temperature to a firm, flexible, resilient, tear-resistant rubber. Sealant shall comply with ASTM C920, Type M, Grade P, Class 25 for horizontal joints and Grade NS, Class 25 for vertical joints and be recommended by the manufacturer for continuous immersion in water.

Characteristic or Parameter	Technical Requirements
Pot life	1 to 3 hours
Hardness	35 Shore A, ±5
Elongation	650%, ASTM D412
Tensile strength	200 psi, ASTM D412
Peel strength on concrete	No adhesion loss at 25 pounds
Temperature service range	40°F to 167°F
Immersion in water	Continuous

2. Sealant shall be Tremco Vulkem 227 or Sikaflex-2CNS (for Grade NS, Class 25), Sikaflex-2CSL of Sika Corporation or Vulkem 245 (for Type M, Grade P, Class 25), or equal. Troweling of sealants into joints will not be permitted.
3. For wastewater applications, use multi-component chemical resistant polysulfide sealant conforming to ASTM C 920, Type M, Grade NS, Class 25 such as Sonolastic Two-part, Sonneborn, Minneapolis, MN, Hornflex-L, Tamms, Beltsville, MD, or Cormax PSC, DuPont, or approved equal.

C. Backing Rod for Expansion Joints

Backing rod shall be an extruded closed-cell polyethylene foam rod, such as Minicel backer rod, manufactured by Industrial Systems Department, Plastic Products Group of Hercules, Inc., Middletown, Delaware, or equal. The rod shall be 1/4 inch larger in diameter than the joint width. Where possible, provide full-length sections for the joint; minimize splices. Apply backup rod and bond breaker tape in expansion joints.

D. Bond Breaker Tape

Bond breaker tape shall be an adhesive-backed glazed butyl or polyethylene tape that will adhere to the premolded joint material or concrete surface. The tape shall be the same width as the joint. The tape shall be compatible with the sealant.

E. Preformed Control Joint

Preformed control joint shall be a one-piece, flexible, PVC joint former, such as Kold-Seal Zip-Per Strip KSF-150-50-50, manufactured by Vinylex Corp., Knoxville, Tennessee, or a one-piece steel strip with preformed groove, such as Keyed Kold Retained Kap, manufactured by Burke Concrete Accessories, Inc., San Mateo, California, or equal. Provide the preformed control joint material in full-length unspliced pieces.

F. Premolded Joint Filler for Pavements and Slabs

Joint filler shall be preformed, nonextruded type constructed of closed-cell neoprene conforming to ASTM D1752, Type I, as manufactured by W. R. Grace Company of Cambridge, Massachusetts; W. R. Meadows, Inc., Elgin, Illinois; or equal or bituminous-type preformed expansion joint filler conforming to ASTM D994.

G. Premolded Joint Filler for Hydraulic Structures

Sponge rubber per ASTM D1752, Type I or self-expanding cork per ASTM D1752, Type III.

H. Steel Expansion Joint Dowels

1. Steel expansion joint dowels shall conform to the following:
  - a. Stainless steel bar dowels conforming to ASTM A276, Type 316.
2. Expansion joint shall be thoroughly greased prior to placing adjoining wall or slab concrete.

I. Styrofoam Filler Block

Styrofoam filler blocks for future construction and expansion joints shall be Styrofoam SM brand as manufactured by Dow Chemical Company or equal.

## PART 3 - EXECUTION

### A. PVC Water Stops

1. Water stops shall be heat spliced at ends and intersections to ensure continuity. Bend water stops up from footing and slab joints and splice to wall water stop to result in a watertight structure. Construct forms for construction joints in such a manner as to prevent injury to water stops. Hold water stops securely in position in the construction joints by wire ties, continuous bars, and rings as indicated. Install water stops in construction and expansion joints in hydraulic structures or where shown in the drawings.
2. Make field splices with a thermostatically controlled heating iron in conformance with the manufacturer's current recommendations. Allow at least 10 minutes before pulling or straining the new splice in any way. The finished splices shall provide a cross section that is dense and free of porosity with tensile strength of not less than 80% of the unspliced materials.

### B. Construction Joints

1. Layout of construction joints shall be as shown in the drawings and according to the following guidelines:
  - a. Provide horizontal construction joints at top of foundation members and slabs on grade and at the soffit of supported slabs and beams.
  - b. Space horizontal construction joints at least 8 inches below bottom of slabs.
2. For slabs-on-grade that are not subject to hydraulic loading, use formed construction joints. Maximum size of pour shall be 30 feet each way. Allow 24 hours between pours of adjacent slabs. Provide joints as specified or shown. Set continuous expansion joint strips between slabs and abutting vertical surfaces as indicated in the drawings.
3. Place expansion joint fillers every 30 feet in straight runs of walks, at right-angle turns, and wherever concrete walks butt into vertical surfaces.
4. For control joints of nonstructural slabs, provide partial depth plastic strips set flush with finished surface or 1/8-inch-wide joints cut with a diamond saw. Use control joints one-quarter to one-third the depth of the slab unless otherwise indicated.
5. Construction joints shall be keyed, unless otherwise detailed. Form keyways by beveled strips or boards placed at right angles to the formed face. Except where otherwise shown in the drawings or specified, keyways shall be at least 1-1/2 inches in depth over at least 25% of the width of the section.
6. After the pour has been completed to the construction joint and the concrete has hardened, thoroughly clean the entire surface of the joint of surface laitance, loose or defective concrete, and foreign material, and expose clean aggregate by sandblasting the surface of construction joints before placing the new concrete. Cover horizontal construction joints with mortar. Spread uniformly and work

thoroughly into all irregularities of the surface. The water-cement ratio of the mortar in place shall not exceed that of the concrete to be placed, and the consistency of the mortar shall be suitable for placing and working.

7. In case of emergency, place additional construction joints. (An interval of 45 minutes between two consecutive batches of concrete shall constitute cause for an emergency construction joint.)

C. Expansion Joints

Provide expansion joints with continuous edge reservoirs, which shall be filled with a joint sealant. Leave the material used for forming the reservoirs in place until immediately before the grooves are cleaned and filled with joint sealant. After removing edge forms from the reservoir, remove grout, loose concrete, and fins; then sandblast the slots. Allow the reservoirs to become thoroughly dry; then blow out the reservoirs and immediately prime and fill with the expansion joint sealant and backup materials. The primer used shall be supplied by the manufacturer of the joint sealant.

D. Installation of Premolded Joint Filler

Install in joint accurately as shown. Attach to concrete with a bonding agent recommended by the joint sealant and joint filler manufacturer for compatibility.

E. Installation of Joint Sealants

1. Immediately before installing the joint sealant, clean the joint cavity by sandblasting or power wire brushing. Install bond breaker tape per manufacturer's instructions.
2. Apply masking tape along the edges of the exposed surface of the exposed joints.
3. Application criteria for the sealant materials, such as temperature and moisture requirements and primer cure time, shall be in accordance with the recommendations of the sealant manufacturer.
4. After the joints have been prepared as described above, apply the joint sealant. Apply the primer, if required, and joint sealant only with the equipment and methods recommended by the joint sealant manufacturer.
5. Trowel the joints smooth with a tuck pointing tool wiped with a solvent recommended by the sealant manufacturer.
6. After the sealant has been applied, remove the masking tape and any sealant spillage.

F. Installation of Steel Expansion Joint Dowels

Align dowels as indicated in the drawings. Secure tightly in forms with rigid ties. Orient dowels to permit joint movement.

G. Cracking

1. Saw joints in slabs before the formation of uncontrolled cracking (i.e., cracking that occurs at locations other than construction, control, or contraction joints) and as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing. Saw joints both during the day and night as required.
2. If concrete cracks at locations other than construction, control, or contraction joints, the Contractor may be required to remove and replace the defective work (cracked concrete) in accordance with the provisions of this section, at no additional cost to the Owner.

H. ~~Leakage Testing~~

~~Test hydraulic structures in accordance with Section 03051.~~

END OF SECTION

SECTION 03210  
CONCRETE REINFORCEMENT

PART 1 - GENERAL

A. Description

This section describes materials, testing, and installation of reinforcing steel in concrete.

B. Related Work Specified Elsewhere

1. Concrete Formwork: Section 03111.
2. Concrete Joints, Water Stops, and Sealants: Section 03151.
3. Concrete: Section 03300.
4. Concrete Finishing and Curing: Section 03350.

C. Submittals

1. Submit shop drawings in accordance with the General Conditions and Section 01300.
2. Submit mill test certificates identifying chemical and physical analyses of each load of reinforcing steel delivered. If mill test reports are unavailable and the quantity of steel for a structure exceeds 5 tons, provide a laboratory test to prove conformance with the specified ASTM standard.
3. Submit reinforcing bending lists and placing drawings for all reinforcing. Placing drawings shall indicate all openings (mechanical, electrical, equipment, and architectural) including additional reinforcing at openings and corner bar arrangements at intersecting beams, walls, and footings indicated in the typical detail and structural drawings. Placing drawings shall be coordinated with the concrete placing schedule. Each bending list and placing drawing submitted shall be complete for each major element of a structure (grade slabs, footings, walls, deck, floor, or roof slabs) including dowels and corner bars. Furnishing such lists shall not be construed that the lists will be reviewed for accuracy. The Contractor shall be wholly and completely responsible for the accuracy of the lists and for furnishing and placing reinforcing steel in accordance with the details shown in the drawings and as specified. Placing drawings shall be prepared by the Contractor and shall not incorporate photocopies of the contract drawings.

## PART 2 - MATERIALS

### A. Reinforcing Steel

1. Reinforcement shall conform to ASTM A615 or A706, Grade 60.
2. Fabricate reinforcing in accordance with the current edition of the Manual of Standard Practice, published by the Concrete Reinforcing Steel Institute. Bend reinforcing steel cold.
3. Deliver reinforcing steel to the site bundled and with identifying tags.

### B. Welded Wire Reinforcement

Welded wire reinforcement shall conform to ASTM A185.

### C. Tie Wire

Tie wire shall be 16 gauge minimum, black, soft annealed.

### D. Bar Supports

Bar supports in beams and slabs exposed to view after form stripping shall be galvanized and plastic coated. Use concrete supports for reinforcing in concrete placed on grade.

### E. Bar Couplers

Reinforcing steel bar splicing couplers shall be a mechanical type as manufactured by Dayton Barsplice Inc., DYWIDAG, or equal. Use couplers which develop 125% of the specified yield strength of the reinforcing bars. Make field demonstrations and sample splicing prior to splicing bars being included into the work.

## PART 3 - EXECUTION

### A. Placing

1. Place reinforcing steel in accordance with the current edition of Recommended Practice for Placing Reinforcing Bars, published by the Concrete Reinforcing Steel Institute.
2. Place reinforcing in accordance with the following, unless otherwise indicated:
  - a. Reinforcement indicated in the drawings is continuous through the structure to the farthest extent possible. Terminate bars 2 inches clear from faces of concrete.

- b. Splices may be used to provide continuity due to bar length limitations. Minimum length of bars spliced for this reason is 30 feet. Do not splice reinforcement that is detailed to be continuous in the drawings.
3. Reinforcing steel, before being positioned and just prior to placing concrete, shall be free from loose mill and rust scale and from any coatings that may destroy or reduce the bond. Clean reinforcing steel by sandblasting or wire brushing and remove mortar, oil, paint, or dirt to remove materials that may reduce the bond.
4. Do not straighten or rebend reinforcing steel in the field. Do not use reinforcing with bends not shown in the drawings.
5. Position reinforcing steel in accordance with the drawings and secure by using annealed wire ties or clips at intersections and support by concrete or metal supports, spacers, or metal hangers. Do not place metal clips or supports in contact with the forms. Bend tie wires away from the forms to provide the specified concrete coverage. Bars additional to those shown in 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 his own expense.
6. Place reinforcement a minimum of 2 inches clear of any metal pipe or fittings.
7. Secure reinforcing dowels in place prior to placing concrete. Do not press dowels into the concrete after the concrete has been placed.
8. Roll wire mesh used for reinforcement flat before placing concrete. Support and tie wire mesh to prevent movement during concrete placement.
9. Position dowels for masonry walls to occur at reinforced block cells.

B. Splices

Splices shall be as indicated in the drawings. Unless otherwise shown, stagger splices in adjacent horizontal bars 48 bar diameters.

C. Additional Reinforcement Around Openings

Place additional reinforcement around pipe or openings as indicated in the drawings.

D. Welding Reinforcement

Do not weld reinforcing steel unless specifically noted. Welding of reinforcing steel shall be in accordance with AWS D1.4.

E. Placing Welded Wire Fabric

Extend fabric to within 2 inches of the edges of the slab and lap splices at least 1-1/2 courses of the fabric and a minimum of 6 inches. Tie laps and splices securely at ends and at least every 24 inches with 16-gauge black annealed steel wire. Pull fabric into



position as the concrete is placed by means of hooks, and work concrete under the steel to ensure that it is placed at the proper distance above the bottom of the slab.

END OF SECTION

## SECTION 03300

### CONCRETE

#### PART 1 - GENERAL

##### A. Description

This section describes materials, mixing, testing, and placing of concrete and grout.

##### B. Related Work Specified Elsewhere

1. ~~Leakage Testing of Hydraulic Structures: Section 03051.~~
2. Concrete Formwork: Section 03111.
3. Concrete Joints, Water Stops, and Sealants: Section 03151.
4. Concrete Reinforcement: Section 03210.
5. Concrete Finishing and Curing: Section 03350.

##### C. Submittals

1. Submit shop drawings in accordance with the General Conditions and Section 01300.
2. Prepare concrete and mortar mix designs and laboratory 7-day and 28-day compressive tests, or submit test reports of 7- and 28-day compressive tests of the mix where the same mix has been used on two previous projects. Prepare mix designs in accordance with ACI 318, Chapters 4 and 5, except as modified herein. Submit mix design in writing for review by the Owner at least 15 days before placing of any concrete.
3. Provide results of drying shrinkage tests from trial concrete mixes by the Contractor's testing laboratory firm.
4. Provide certificate that cement used complies with ASTM C150 and these specifications.
5. Provide certificates that aggregates comply with ASTM C33 and contain less than 1% asbestos by weight or volume. State weathering region limits of coarse aggregates: severe, moderate, or negligible. State basis of determining that potential reactivity is negligible. Identify certifications and tests to actual materials to be used in the work. Provide additional tests and certifications for each change in material source. Provide an alternate material source of aggregate if tests indicate that aggregates are reactive or possess severe weathering potential. Submit gradation analysis with concrete mix designs.

6. Provide delivery tickets for ready-mix concrete or weighmasters certificate per ASTM C94, including weights of cement and each size aggregate and amount of water added at the plant and record of pours. Record the amount of water added on the job on the delivery ticket. Water added at the plant shall account for moisture in both coarse and fine aggregate.
7. Provide certificate of compliance with these specifications from the manufacturer of the concrete admixtures.
8. Provide epoxy bonding compound manufacturer's specific instructions for use. Provide manufacturer's certifications as to suitability of product to meet job requirements with regard to surface, pot life, set time, vertical or horizontal application, and forming restrictions.
9. Provide non-shrink grout manufacturer's certificate of compliance with these specifications and specific instructions for use.
10. Submit six copies of a report from a testing laboratory verifying that aggregate and gravel material contains less than 1% asbestos by weight or volume and conforms to the specified gradations and characteristics.
11. Plant Qualification: Submit certification from the National Ready Mixed Concrete Association or FDOT indicating compliance with the specified qualification requirements.
12. For potable water, provide certification that all materials used in grout, concrete, or the curing and repair of concrete, meet the requirements of ANSI/NSF 61 for contact with potable water.

D. Plant Qualification

Meet requirements of the Check List for Certification of Ready Mixed Concrete Production facilities of the National Ready Mixed Concrete Association and ASTM C94.

E. Standards

1. Unless otherwise indicated, materials, workmanship, and practices shall conform to the following standards:
  - a. FBC (Latest Edition).
  - b. ACI 301, "Structural Concrete for Buildings."
  - c. ACI 318, "Building Code Requirements for Reinforced Concrete."
  - d. ANSI/NSF 61: "Drinking Water System Components-Health Effects."
2. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions govern.

## F. Shrinkage Tests

1. Perform drying shrinkage tests for the trial batch specified in the paragraph in Part 2 entitled "Trial Batch and Laboratory Tests."
2. Drying shrinkage specimens shall be 4-inch by 4-inch by 11-inch prisms with an effective gauge length of 10 inches. Fabricate, cure, dry, and measure specimens in accordance with ASTM C157 modified as follows:
  - a. Remove specimens from molds at an age of 23 hours  $\pm$ 1 hour after trial batching, place immediately in water at 70°F  $\pm$ 3°F for at least 30 minutes, measure within 30 minutes thereafter to determine original length, then submerge in saturated lime water at 73°F  $\pm$ 3°F. At age seven days, make measurement to determine expansion, expressed as a percentage of original length. This length at age seven days shall be the base length for drying shrinkage calculations (zero days' drying age).
  - b. Then, store specimens immediately in a humidity-controlled room maintained at 73°F  $\pm$ 3°F and 50%  $\pm$ 4% relative humidity for the remainder of the test. Make and report measurements to determine shrinkage expressed as percentage of base length separately for 7, 14, 21, and 28 days of drying after 7 days of moist curing.
3. Compute the drying shrinkage deformation of each specimen as the difference between the base length (at zero days' drying age) and the length after drying at each test age. Compute the average drying shrinkage deformation of the specimens to the nearest 0.0001 inch at each test age. If the drying shrinkage of any specimen departs from the average of that test age by more than 0.0004 inch, disregard the results obtained from that specimen. Report results of the shrinkage test to the nearest 0.001% of shrinkage. Take compression test specimens in each case from the same concrete used for preparing drying shrinkage specimens. These tests shall be considered a part of the normal compression tests for the project. Allowable shrinkage limitations shall be as specified in Part 2.

## PART 2 - MATERIALS

### A. Nondomestic Cement and Additives

1. The use of nondomestic cement and additives in concrete may be permitted only after review of a written request to use such materials. The request to use nondomestic materials shall include a chemical analysis that indicates the material meets the project specifications. Certifications that state the nondomestic materials meet the project requirements will not be accepted.
2. Test reports for concrete materials shall be current to within three months of inclusion into the project and shall be identifiable to the materials supplied.

B. Cement

1. Unless nondomestic cement has been approved, use domestic portland cement that conforms to ASTM C150 and C595, Type IPMS or, in lieu of Type IPMS, provide a mixture of 80% Type II portland cement and 20% pozzolan fly ash II/V or 20% Class F fly ash. Use Type III cement for high early strength concrete only for special locations and only when reviewed in advance by the Resident Project Representative. Use Type I cement for tremie concrete. Pozzolan or fly ash content of Type IPMS cement shall not exceed 20% of the total weight.
2. Use only one brand of cement in any individual structure. Use no cement that has become damaged, partially set, lumpy, or caked. Reject the entire contents of the sack or container that contains such cement. Use no salvaged or reclaimed cement.
3. Maximum tricalcium aluminate shall not exceed 8%. The maximum percent alkalis shall not exceed 0.6%.

C. Aggregates

Aggregates shall be natural rock, sand, or crushed natural rock and shall comply with ASTM C33, and shall contain less than 1% asbestos by weight or volume. Aggregates shall be free from any substances that will react with the cement alkalis, as determined by Appendix X-1 of ASTM C33.

D. Water and Ice

Use water and ice that is clean and free from objectionable quantities of organic matter, alkali, salts, and other impurities that might reduce the strength, durability, or otherwise adversely affect the quality of the concrete. Water shall not contain more than 500 mg/L of chlorides nor more than 500 mg/L of sulfate.

E. Color Additive for Exterior Electrical Duct Encasement

For exterior electrical duct concrete encasements, use a color additive for identification purposes: brick red "Colorfull" as manufactured by Owl Manufacturing Company, Arcadia, California; coral red "Chromix C-22" as manufactured by L. M. Scofield Company, Los Angeles, California; or equal. Add the color additive while the concrete is being mixed using the quantity per cubic yard of concrete recommended by the manufacturer for the class of concrete indicated.

F. Concrete Admixtures

1. Class A concrete shall contain an air-entraining admixture conforming to ASTM C260. Admixtures shall be Master Builders MB-AE 90, Sika AER, or equal.
2. Class A concrete shall contain a water-reducing admixture conforming to ASTM C494, Type A or D. It shall be compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations. Admixtures shall be Master Builders Pozzolith

polymer-type normal setting, Plastocrete 161 or Plastiment, Sika Chemical Corporation, or equal.

3. Do not use any admixture that contains chlorides or other corrosive elements in any concrete. Admixtures shall be nontoxic after 30 days.

G. Fly Ash:

1. Provide fly ash conforming to the following requirements:
  - a. Class F fly ash conforming to ASTM C 618 for chemical and physical properties.
  - b. Supplemental requirements in percent:
    - (1) Maximum carbon content: 3%
    - (2) Maximum sulfur trioxide (SO<sub>3</sub>) content: 4%
    - (3) Maximum loss on ignition: 3%
    - (4) Maximum water requirement (as a percent of control): 100%
    - (5) Fineness, maximum retained on No. 325 sieve: 25%

H. Superplasticizer

Comply with ASTM C1017, Type 1 or 2.

I. Nonshrink Grout

Nonshrink grout shall conform to the Corps of Engineers Specification for Nonshrink Grout, CRD-621-83, and to these specifications. Use a nongas-liberating type, cement base, premixed product requiring only the addition of water for the required consistency. Grout shall be UPCON High Flow, Master Flow 713, or equal. Components shall be inorganic.

J. Ordinary Type Grout (Dry Pack)

One part portland cement to two parts sand (100% passing a No. 8 sieve). Add sufficient water to form a damp formable consistency.

K. Expansive Grout

Premixed, cementitious mixture with a minimum 28-day strength of 3,500 psi. Provide air-entraining admixture as recommended by the manufacturer.

L. Epoxy Grout

1. Mix the two components of epoxy bonding compound in compliance with the manufacturer's instructions.

2. Use sand that is oven dry and meets the following gradation requirements for epoxy grout.

<b>Sieve Size</b>	<b>No. 8</b>	<b>No. 50</b>	<b>No. 100</b>
% Passing	100	30 ±15	5 ±5

M. Epoxy Grout for Machinery Baseplate Installation

1. Epoxy grouts shall meet the following minimum requirements:
  - a. Creep shall be less than 0.005 in./in. when tested per ASTM C1181. The tests shall be at 70°F and 140°F with a load of 400 psi.
  - b. Linear shrinkage shall be less than 0.080% and thermal expansion less than  $17 \times 10^{-6}$  in./in./°F when tested per ASTM C531.
  - c. Compressive strength shall be a minimum of 12,000 psi after seven days when tested per ASTM C579, Method B.
  - d. Bond strength to portland cement concrete shall be greater than 2,000 psi when tested per ASTM C882.
  - e. Epoxy grout shall pass the thermal compatibility test per ASTM C884 when overlaid on portland cement concrete.
  - f. Determine tensile strength and modulus of elasticity per ASTM D638. The tensile strength shall not be less than 1,700 psi and the modulus of elasticity shall not be less than  $1.8 \times 10^6$  psi.
  - g. Determine gel time and peak exothermic temperature per ASTM D2471. Peak exothermic temperature shall not exceed 110°F when a specimen 6 inches in diameter by 12 inches high is used. Gel time shall be at least 150 minutes.
  - h. The grout shall be suitable for supporting precision machinery subject to high impact and shock loading in industrial environments while exposed to elevated temperature as high as 150°F, with a load of 1,200 psi.
  - i. Products: Escoweld 7505E, with 7530 aggregate, or equal.
2. Epoxy primer shall be a lead free, chrome free, rust inhibitive, two-component epoxy primer specifically designed for use on metal substrates and in conjunction with epoxy grout products. Products: Escoweld 1014E Rust Inhibitive Epoxy Primer or equal.
3. Nonbonding Filler for Anchor Bolt Sleeves: Escoweld 7506 or equal.
4. Epoxy Grout Liquid: Escoweld 7502E or 7507E or equal.

N. Joint Mortar Bed

Mortar or grout placed on horizontal construction joints shall be a mixture of cement, sand, and water in the same proportions used in the concrete but with coarse aggregate omitted.

O. Epoxy Bonding Compound

Bonding compound shall be Sikadur 32 Hi-Mod, Sika Chemical Corporation, Lyndhurst, New Jersey; Coneresive by BASF; Euco Epoxy 452 by Euclid Chemical Company; or equal.

P. Nonepoxy Bonding Compound

Use Weldcrete by Larsen Products Corp., Link by Sta-Dry Manufacturing Corp., Euco Weld by Euclid Chemical Co., or equivalent. The compound shall be rewettable for up to two weeks.

Q. Concrete Mix Design

1. Conform to ASTM C94, except as modified by these specifications.
2. Air content as determined by ASTM C231 shall be 2% ±1%.
3. Provide concrete with the following compressive strengths at 28 days and proportion it for strength and quality requirements in accordance with ACI 318, "Proportioning on the Basis of Field Experience," to achieve 28-day compressive strength as follows:

<b>Class</b>	<b>Type of Work</b>	<b>28-Day Minimum Compressive Strength (in psi)</b>	<b>W/C Ratio (Max)</b>	<b>Cement Content (in lbs per C.Y.)</b>
A	Concrete for all structures and concrete not otherwise specified. Concrete fill at structure foundations, cradle, supports across pipe trenches.	4,000	0.44	564
B	Pavement	3,000	0.54	500
C	Floor grout, miscellaneous unreinforced concrete.	2,000	-	376
D	Precast concrete	5,000	0.40	630

4. Measure slump in accordance with ASTM C143. Slump shall be as follows:



- a. Slab on grade or heavy sections wider (in plan view) than 3 feet: 4 inches maximum.
- b. Footings, walls, suspended slabs, beams, and columns: 4 inches maximum.
- c. Pavement: 2 inches maximum.
- d. Floor grout: 4 inches maximum.

Proportion and produce the concrete to have a maximum slump as shown; slump is prior to addition of superplasticizer. A tolerance of up to 1 inch above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated.

- 5. Aggregate size shall be 3/4 inch maximum for slabs and sections 8 inches thick and less. Aggregate size shall be 1 inch maximum for sections greater than 8 inches and less than 17 inches. Aggregate size shall be 1-1/2 inches maximum for all larger slabs and sections. Aggregate size for floor grout shall be maximum 3/8 inch.
- 6. Combined aggregate grading shall be as shown in the following table:

	<b>Maximum Aggregate Size</b>			
	<b>1-1/2"</b>	<b>1"</b>	<b>3/4"</b>	<b>3/8"</b>
Aggregate Grade per ASTM C33	467	57	67	8

- 7. Mix design for pumped concrete shall produce a plastic and workable mix. The percentage of sand in the mix shall be based on the void content of the coarse aggregate.

R. Granular Base

Use structural backfill material as specified in Section 03123.

S. Trial Batch and Laboratory Tests

Before placing any concrete, a testing laboratory designated by the Contractor shall prepare a trial batch of Class A concrete, based on the preliminary concrete mixes submitted. Concrete shall conform to the requirements of this section. Prepare the trial batch using the aggregates, cement, and admixture proposed for the project. The cost of laboratory trial batch tests will be borne by the Contractor. Perform trial batch testing at no additional cost to the Owner.

T. Shrinkage Limitation

- 1. The maximum concrete shrinkage for specimens cast in the laboratory from the trial batch, as measured at 21-day drying age or at 28-day drying age, shall be

0.036% or 0.042%, respectively. Use a mix design for construction that has first met the trial batch shrinkage requirements. Shrinkage limitations apply only to Class A concrete.

2. If the trial batch specimens do not meet the shrinkage requirements, revise the mix design and/or materials and retest.

U. Workability

1. Concrete shall be of such consistency and composition that it can be worked readily into the forms and around the reinforcement without excessive vibrating and without permitting the materials to segregate or free water to collect on the surface.
2. The proportions shall be adjusted to secure a plastic, cohesive mixture, and one that is within the specified slump range.
3. To avoid unnecessary changes in consistency, obtain the aggregate from a source with uniform quality, moisture content, and grading. Handle materials to minimize variations in moisture content that would interfere with production of concrete of the established degree of uniformity and slump.

PART 3 - EXECUTION

A. Site-Mixed Concrete

1. Conform to ACI 304 as modified by these specifications.
2. Use a batch-type mixer capable of combining the aggregates, cement, and water within the specified time into a thoroughly mixed and uniform mass and capable of discharging the mixture without segregation.
3. Use equipment that can accurately proportion cement, coarse and fine aggregates, admixtures, and water. Proportion cement and aggregate by weight.
4. Discharge each entire batch before recharging. Do not allow any batch to exceed the manufacturer's rated capacity of the mixer.
5. Mixing time shall be as follows:
  - a. For mixer of a capacity of 1 cubic yard or less, one and one-half minutes after batching is completed.
  - b. For mixers of capacities larger than 1 cubic yard, one and one-half minutes plus one-half minute for each additional 1/2-cubic-yard capacity or fraction thereof in excess of 1 cubic yard.
  - c. The mixer shall revolve at a uniform rate as specified by the manufacturer for the mixing equipment.

B. Ready-Mixed Concrete

1. Provide ready-mixed concrete conforming to ASTM C94 as modified by these specifications.
2. Convey concrete from the truck to the place of final deposit as rapidly as practicable by methods that will prevent segregation or loss of ingredients to maintain the quality of the concrete. Place no concrete more than 90 minutes after mixing has begun for that particular batch. If it is necessary to add water to obtain the specified slump, add water per ASTM C94, but do not exceed the water content of the reviewed design mix.
3. Use dry-batched concrete or jobsite mix only when haul time is excessive. Do not retemper partially hardened concrete.
4. Keep a record showing time and place of each pour of concrete, together with transit-mix delivery slips certifying the contents of the pour.

C. Prior to Placing Concrete

1. Subgrade: Compact the subgrade and/or bedding. Saturate the subgrade approximately eight hours before placement and sprinkle ahead of the placement of concrete in areas where vapor barrier is not used. Remove all standing water, mud, and foreign matter before concrete is deposited.
2. Contractor has the option to provide mud slabs to obtain a dry and stable working platform for placement of slabs.
3. Granular Base: When indicated in the drawings, install a granular base beneath the slab on grade or a structural foundation. Place the granular material on a compacted subgrade and compact the granular base to the same density as the subgrade.
4. Vapor Barrier: Place under structural slabs and buildings and where indicated in the drawings. Lay vapor barrier sheets as described in Section 071119. Stretch and weight edges and laps to maintain their positions until concrete is placed.

D. Placing Concrete

1. Placement shall conform to ACI 304 as modified by these specifications.
2. Coordinate in advance of concrete placement the sequence of placement to assure that construction joints will occur only as designed. Provide Owner's Representative with a copy of the sequence of placement in advance of placement.
3. Alternate sections of concrete walls and slabs may be cast simultaneously. Do not place adjacent sections of walls and slabs until seven days after placement of first placed concrete.

4. Notify the Owner's Representative of readiness, not just intention, to place concrete in any portion of the work. This notification shall be such time in advance of the operation as the Owner's Representative deems necessary to allow observation of the work at the location of the proposed concrete placing. Failure of sufficient advance notification will be cause for delay in placing until observations can be completed. Forms, steel, screeds, anchors, ties, inserts, and other embedded items shall be in place before the Contractor's notification of readiness is given.
5. Schedule sufficient equipment for continuous concrete placing. Provide for backup equipment and procedures to be taken in case of an interruption in placing. Provide backup concrete vibrators at the project site. Test concrete vibrators the day before placing concrete.
6. Do not place concrete until all free water has been removed or has been diverted by pipes or other means and carried out of the forms, clear of the work. Do not deposit concrete underwater, and do not allow free water to rise on any concrete until the concrete has attained its initial set. Do not permit free or storm water to flow over surfaces of concrete so as to injure the quality or surface finish.
7. Where a vapor barrier is installed, do not puncture the vapor barrier by stakes or any other concrete accessory. Repair any holes in the vapor barrier by patching before placing concrete.
8. Deposit concrete at or near its final position to avoid segregation caused by rehandling or flowing. Do not deposit concrete in large quantities in one place to be worked along the forms with a vibrator.
9. Use mechanical vibration in placing concrete to eliminate rock pockets and voids, to consolidate each layer with that previously placed, to completely embed reinforcing bars and fixtures, and to bring just enough fine material to exposed surfaces to produce a smooth, dense, and even texture. Vibrators shall be of the high-frequency internal type, and the number in use shall be ample to consolidate the incoming concrete to a proper degree within 15 minutes after it is deposited in the forms. In all cases, at least two vibrators shall be available at the site. Use external vibrators for consolidating concrete when the concrete is otherwise inaccessible for adequate consolidating. Construct forms with sufficient strength to resist displacement or damage when external vibrators are used.
10. Do not place concrete during rainstorms. Protect concrete placed immediately before rainstorms to prevent rainwater from coming in contact with freshly placed or uncured concrete. Keep sufficient protective covering ready at all times for this purpose.
11. Elephant Trunks: Use hoppers and elephant trunks or drop chutes to prevent the free fall of concrete that results in separation of coarse particles.
12. Chutes: Use metal or metal-lined chutes with a slope not exceeding one vertical to two horizontal and not less than one vertical to three horizontal. Chutes more than 20 feet long and chutes not meeting the slope requirement may be used only if they discharge into a hopper before distribution.

13. Deposit concrete continuously and in level layers of such thickness (not exceeding 2 feet in depth) so that no concrete will be deposited on concrete that has hardened sufficiently to cause the formation of seams, planes of weakness, or cold joints.

E. Time Between Pours

At least two hours shall elapse after depositing concrete in the columns or walls before depositing in beams, girders, or slabs supported thereon. Place beams, girders, brackets, column capitals, and haunches monolithically as part of the floor or roof system, unless otherwise indicated in the drawings.

F. Maximum Height of Concrete Pours and Free Fall

Do not drop concrete freely into place from a height greater than 6 feet in unexposed work and 4 feet in exposed work. Use tremies or pumps where the drop exceeds these limits. See Section 03111 also.

G. Pumping Concrete

1. Conform to the recommendations of ACI 304.2R except as modified herein.
2. Base pump size on rate of concrete placement, length of delivery pipe or hose, aggregate size, mix proportions, vertical lift, and slump of concrete.
3. Minimum inside diameter of pipe or hose shall be based on the maximum aggregate size as follows:
  - a. 3/4-inch-maximum aggregate: 2 inches minimum inside diameter.
  - b. 1-1/2-inch-maximum aggregate: 4 inches minimum inside diameter.
4. Do not use aluminum pipes for delivery of concrete to the forms.
5. Before pumping is started, prime the delivery pipe or hose by pumping mortar through the line using 5 gallons of mortar for each 50 feet of delivery line. Do not deposit mortar in the forms.

H. Hot Weather Requirements

1. During hot weather, give proper attention to ingredients, production methods, handling, placing, protection, and curing to prevent excessive concrete temperatures or water evaporation in accordance with ACI 301, ASTM C94, and the following.
2. When the weather is such that the temperature of the concrete as placed would exceed 90°F, use ice or other means of cooling the concrete during mixing and transportation so that the temperature of the concrete as placed will not exceed 90°F.

3. Take precautions when placing concrete during hot, dry weather to eliminate early setting of concrete. This includes protection of reinforcing from direct sunlight to prevent heating of reinforcing, placing concrete during cooler hours of the day, and the proper and timely application of specified curing methods.
4. There will be no additional reimbursement to the Contractor for costs incurred for placing concrete in hot weather.

I. Cold Weather Requirements

1. Provide adequate equipment for heating concrete materials and protecting concrete during freezing or near-freezing weather in accordance with ACI 306 and the following.
2. When the temperature of the surrounding atmosphere is 40°F or is likely to fall below this temperature, use heated mixing water not to exceed 140°F. Do not allow the heated water to come in contact with the cement before the cement is added to the batch.
3. When placed in the forms during cold weather, maintain concrete temperature at not less than 55°F. All materials shall be free from ice, snow, and frozen lumps before entering the mixer.
4. Maintain the air and the forms in contact with the concrete at temperatures above 40°F for the first five days after placing, and above 35°F for the remainder of the curing period. Provide thermometers to indicate the ambient temperature and the temperature 2 inches inside the concrete surface.
5. There will be no additional reimbursement made to the Contractor for costs incurred for placing concrete during cold weather.

J. Bonding to Old Concrete

Coat the contact surfaces with epoxy bonding compound. The method of preparation and application of the bonding compound shall conform to the manufacturer's printed instructions and recommendations for specific application for this project.

K. Grouting Machinery Foundations

Block out the original concrete or finish off a sufficient distance below the bottom of the machinery base to provide for the thickness of grout shown on the drawings. After the machinery has been set in position and placed at the proper elevation by steel wedges, the space between the bottom of the machinery base and the original pour of concrete shall be filled with a pourable nonshrink grout. Grout and grouting procedure shall be in accordance with API 686, Chapter 4, paragraphs 3.6 and 3.7, and Chapter 5.

L. Backfill Against Walls

1. Do not place backfill against walls until the concrete has obtained a compressive strength equal to the specified 28-day compressive strength. Where backfill is to be placed on both sides of the wall, place the backfill uniformly on both sides.

2. Do not backfill the walls of structures that will be laterally restrained or supported by suspended slabs or slabs on grade until the slab is poured and the concrete has reached the specified compressive strength.

M. Concrete Tests

1. Concrete quality testing will be performed on the concrete by the Contractor per Section 01400, Testing and Inspection and as follows:
  - a. Frequency of Sampling: Cast four concrete test cylinders from each 50 cubic yards, or fraction thereof, of each class of concrete placed in any one day. Sampling and curing of cylinders shall conform to ASTM C31.
  - b. Strength Testing: Test cylinders in accordance with ASTM C39. Test one cylinder at 7 days for information; test two cylinders at 28 days for acceptance; and hold one cylinder for verification. Strength acceptance will be based on the average of the strengths of the two cylinders tested at 28 days. If one cylinder of a 28-day test manifests evidence of improper sampling, molding, or testing, other than low strength, discard it and use the fourth cylinder for the test result.
  - c. Determine concrete slump by ASTM C143 with each strength test sampling and as required to establish consistency.
  - d. Determine air content of the concrete using ASTM C231 to verify the percentage of air in the concrete immediately prior to depositing in forms.
  - e. Concrete acceptance shall be based on the requirements of ACI 318.
2. To facilitate concrete sampling and testing, the Contractor shall:
  - a. Furnish labor to assist the Owner in obtaining and handling samples at the project site.
  - b. Advise the Owner in advance of concrete placing operations to allow for scheduling and completion of quality testing.
  - c. Provide and maintain facilities for safe storage and proper curing of concrete test specimens on the project site, as required by ASTM C31.

END OF SECTION

## SECTION 03350

### CONCRETE FINISHING AND CURING

#### PART 1 - GENERAL

##### A. Description

This section describes materials and methods of concrete finishes, curing, repair of defects, and surface protection.

##### B. Related Work Specified Elsewhere

1. ~~Leakage Testing of Hydraulic Structures: Section 03051.~~
2. Concrete Formwork: Section 03111.
3. Concrete Joints, Water Stops, and Sealants: Section 03151.
4. Concrete Reinforcement: Section 03210.
5. Concrete: Section 03300.

##### C. Submittals

1. Submit shop drawings in accordance with the General Conditions and Section 01300.
2. Submit curing compound manufacturer's statement of compliance with these specifications and recommended coverage to meet or exceed the specified tests. Submit manufacturer's application instructions.

#### PART 2 - MATERIALS

##### A. Epoxy Bonding Compound

See Section 03300.

##### B. Curing Compound

1. Curing compound shall conform to ASTM C309, Type 1-D, Class A.
2. Curing compound shall be compatible with required finishes and coatings.

##### C. Mortar for Repair of Concrete

Mortar used for repair of concrete shall be made of the same materials as used for concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than one part cement to two and one-half parts sand by damp loose volume.

The quantity of mixing water shall be no more than necessary for handling and placing.



D. Clear Floor Hardener (Surface Applied)

Floor hardener shall be a colorless, aqueous solution of zinc and/or magnesium fluosilicate. Each gallon of the fluosilicate solution shall contain not less than 2 pounds of crystals. Hardener shall be Mastertop CST, a product of Master Builders Company, Cleveland, Ohio; Burke-O-Lith, a product of Edoco Burke Company; or equal. The solution shall be delivered ready for use in the manufacturer's original sealed containers.

E. Burlap Mats

Conform to AASHTO M182.

F. Sisal-Kraft Paper and Polyethylene Sheets for Curing

Conform to ASTM C171.

G. DUSTPROOF/SEALER (DPS):

1. Manufacturers:

- Armorseal Rextthane 1 manufactured by Sherwin Williams.
- Duraguard 300HS manufactured by ChemMasters.
- Eucothane manufactured by the Euclid Chemical Company.
- Or acceptable equivalent product.

2. Provide a high solids, single component, moisture cure urethane with VOC compliance.

3. Provide surface primer in accordance with manufacturer's printed instructions.

4. Colors to be selected by Engineer.

### PART 3 - EXECUTION

A. Concrete Finishes

1. Finish concrete surfaces in accordance with the following schedule:

<b>Finish Designation</b>	<b>Area Applied</b>
F-1	Beams, columns, and exterior walls not exposed to water or view.
F-2	Exterior and interior walls, beams, and columns exposed to water, unless such items are to be coated.
F-3	Walls, beams, and columns of structures or buildings exposed to view and to 1 foot below water level or finished grade. Underside of formed floors or slabs. EXCEPTION: surfaces that are to be coated.
F-4	Exterior and interior surfaces to be coated.
S-1	Slabs and floors to be covered with concrete or grout.
S-2	Slabs and floors not water bearing.
S-3	Slab surfaces on which mechanical equipment moves. Slab surfaces to receive hardener.
S-4	Slabs and floors of structures or buildings exposed to view, which are water bearing, or to receive crystalline waterproofing.
S-5	Slabs and floors at slopes greater than 10% and stairs.
E-1	Exposed edges. EXCEPTION: edges normally covered with earth.
E-2	Top of walls, beams, and similar unformed surfaces.

2. Finish F-1: Repair defective concrete, fill depressions deeper than 1/2 inch, and fill tie holes.

Finish F-2: Repair defective concrete, remove fins, fill depressions 1/4 inch or deeper, and fill tie holes.

Finish F-3: In addition to Finish F-2, fill depressions and airholes with mortar. Dampen surfaces and then spread a slurry consisting of one part cement and one and one-half parts sand by damp loose volume, over the surface with clean burlap pads or sponge rubber floats. Remove any surplus by scraping and then rubbing with clean burlap.

Finish F-4: Repair defective concrete, remove fins, fill depressions 1/16 inch or deeper, fill tie holes, remove mortar spatter, and remove bulges higher than 1/16 inch.

Finish S-1: Screed to grade without special finish.

Finish S-2: Smooth steel trowel finish.

Finish S-3: Steel trowel finish free from trowel marks and all irregularities.

Finish S-4: Steel trowel finish without local depressions or high points and apply a light hair-broom finish. Do not use stiff bristle brooms or brushes. Leave hair-broom lines parallel to the direction of slab drainage.

Finish S-5: Steel trowel finish without local depressions or high points. Apply a stiff bristle broom finish. Leave broom lines parallel to the direction of slope drainage.

Finish E-1: Provide chamfer or beveled edges per Section 03111.

Finish E-2: Strike smooth and float to an F-3 or F-4 finish.

**B. Finishing of Formed Surfaces**

1. Water cure surfaces until finishing and repairing are completed.
2. Perform finish work as soon as possible after forms are removed. Remove fins and irregularities by grinding or rubbing, fill depressions deeper than specified with mortar, and fill tie holes.
3. Ream tie holes with toothed reamers until surface of hole is rough and clean. Coat surface with epoxy bonding compound and fill with mortar.
4. Finish tapered tie holes as follows:
  - a. Sandblast tie rod hole and blow clean prior to filling.
  - b. Drive rubber plug, with one end open, to the center of the hole. Plug size shall be larger in diameter than the diameter of the hole at the center of the wall.
  - c. Coat entire annular surface of the hole with epoxy prior to filling with mortar. Apply epoxy in accordance with manufacturer's instructions.
  - d. Fill each side of hole with mortar. Apply mortar to the "wet" side of the wall first. Consolidate mortar solidly into the hole.
  - e. Notify Owner's Representative of tie rod filling schedule.

**C. Repair of Defects**

1. Do not repair defects until concrete has been reviewed by the Owner's Representative.
2. Surface Defects:
  - a. Repair surface defects that are smaller than 1 foot across in any direction and are less than 1/2 inch in depth.
  - b. Repair by removing the honeycombed and other defective concrete down to sound concrete, make the edges perpendicular to the surface and at least 3/8 inch deep, thoroughly dampen the surface, work into the surface a

bonding grout (one part cement to one part fine sand), fill the hole with mortar, match the finish on the adjacent concrete, and cure as specified.

3. Severe Defects:
  - a. Repair severe defects that are larger than surface defects but do not appear to affect the structural integrity of the structure.
  - b. Repair by removing the honeycombed and other defective concrete down to sound concrete, make the edges of the hole perpendicular to the surface, sandblast the surface, coat the sandblasted surface with epoxy bonding compound, place nonshrink grout as specified in Section 03300, match the finish on the adjacent concrete, and cure as specified.
4. Major Defects: If the defects are serious or affect the structural integrity of the structure or if patching does not satisfactorily restore the quality and appearance to the surface, the Owner's Representative may require the concrete to be removed and replaced, complete, in accordance with the provisions of this section.

#### D. Repair of Cracks in Concrete

1. Repair concrete cracks in liquid containment structures that are greater than 0.01 inch and less than 0.1 inch in width by epoxy pressure injection. Epoxy pressure injection shall be Sikadur 52, or equal.
  - a. Preparation: Insert and anchor a one-way polyethylene valve or pipe nipple in holes drilled into crack. Position them every 6 inches or 18 inches on center depending on the width of the crack. The injecting operation for vertical cracks shall consist of pumping the epoxy grout into the lowest position first and working vertically up in the cracks. Maintain a slow, steady pressure rather than a rapid buildup of pressure. When grouting material reaches the next tube, stop off the present position and follow the same procedure on the next position.
  - b. Upon completion of the epoxy grouting, remove the epoxy gel used to hold the valve or nipple by applying a direct flame to the epoxy and scraping it off. Fill the holes with the same material as used for patching the surface.
  - c. While the valves or nipples are installed first, the grouting operation shall not commence until after the patchwork has been completed and has sufficiently cured.
2. Repair cracks in concrete structures that are wider than 1/10 inch by cutting out a square edged and uniformly aligned joint 3/8 inch wide by 3/4 inch deep, preparing exposed surfaces of the joint, priming the joint, and applying polyurethane joint sealant in accordance with Section 03151.
3. If the cracks are serious or affect the structural integrity or function of the element, the Owner's Representative may require the concrete to be removed and

replaced, complete, in accordance with the provisions of this section. Where concrete is removed or has spalled, wire brush the exposed rebar, if any, and apply Sika Armatec 110 or equal, before repairing the concrete.

4. After leakage testing per Section 03051, dewater the structure, repair leaking concrete cracks from inside the structure, and retest the structure.

E. Curing and Protection

1. Water cure cast-in-place concrete for liquid containment walls, slabs, channels, and footings by Method 1, 2, or 3 for a period of five days (minimum) prior to applying other curing methods. Do not submerge concrete placed in the dry until it has attained sufficient strength to adequately sustain the stress involved and do not subject it to flowing water across its surface until it has cured four days. Start curing of concrete as soon as possible without damaging surface and not later than two hours after placing.
2. Cure concrete surfaces in accordance with the methods specified herein for the different parts of the work and described in the following paragraphs. These methods are considered to be minimum for curing. The conditions that exist in the field during placement and curing may require additional curing procedures and efforts to ensure proper protection and curing of the concrete. Select and implement the appropriate method commensurate with climatic conditions.

Curing Method	Area Permitted
1	All surfaces.
2	All surfaces.
3	Slabs and floors.
4	All surfaces of non-hydraulic structures when maximum ambient temperature will not exceed 80°F and humidity will not drop below 40% on the day of concrete placement and for the three days following.

3. Where wooden forms are used, wet forms immediately before concreting and keep moist by sprinkling until removed. Keep exposed surfaces of formed concrete moist until commencement of curing.
4. Use proper concrete placing and curing methods at all times to limit the amount of crazing and cracking of the structures during initial setting and shrinking of the concrete. Repair cracks and coat with a cementitious crystalline waterproofing system per Section 099740.
5. Cure concrete for not less than 14 days after placing in accordance with one of the following methods.
  - a. Method 1, Water Spray Method:

Tightly close off concrete surfaces to be cured by bulkheads or other means or entirely surround by tight enclosures, and keep the concrete surfaces moist by sprinkling, spraying, or other means.

b. Method 2, Wet-Burlap-Mat Method:

Thoroughly wet and cover concrete surfaces to be cured with wet burlap mats as soon as the forms have been stripped or as soon as the concrete has set sufficiently to avoid marring the surface. Keep entire concrete surface and burlap continuously and completely wet during the entire curing period.

c. Method 3, Curing Blanket Method:

Thoroughly wet concrete surfaces to be cured and cover with curing blankets as soon as the concrete has set sufficiently to avoid marring the surface. The curing blankets shall be weighted to maintain close contact with the concrete surface during entire curing period. Should the curing blankets become torn or otherwise ineffective, keep surfaces moist and replace damaged sections. The curing blankets shall consist of one of the following two types:

- (1) Sheets of heavy waterproof sisal-kraft paper laid with the edges butted together and with the joints between strips sealed with 2-inch-wide strips of sealing tape or with the edges lapped not less than 3 inches and fastened together with waterproof cement to form continuous watertight joints; or
- (2) Sheets of clean polyethylene, having a minimum thickness of 4 mils, layed with edges butted together, and with the joints between sheets sealed with 1-inch-wide strips of acetate tape.

During the curing period, do not permit traffic of any nature or depositing of objects, temporary or otherwise, on the curing blankets.

d. Method 4, Curing Compound Method:

- (1) Do not use curing compound on surfaces that are to be coated in accordance with Section 09900.
- (2) Spray the surface with two coats of liquid curing compound. Apply in accordance with the manufacturer's instructions to cover the surface with a uniform film that will seal thoroughly. Apply second coat at 90 degrees for the first coat.
- (3) Apply curing compound immediately after completion of the finish on unformed surfaces and within two hours after removal of forms on formed surfaces. Repair formed surfaces within the said two-hour period; provided, however, that any such repairs which cannot be made within the said two-hour period shall be delayed until after Method 1, 2, or 3 has been applied. When repairs are to be made to

an area on which curing compound has been applied, first sandblast the area to remove the compound, then repair.

- (4) Wherever curing compound may have been applied to surfaces against which concrete subsequently is to be placed and to which it is to adhere, remove the curing compound entirely by sandblasting prior to the placing of new concrete.
  - (5) Where the curing compound method is used, exercise care to avoid damage to the seal during the curing period. Should the seal be damaged or broken before the expiration of the curing period, repair the damaged portions immediately by the application additional curing compound.
6. It is the responsibility of the Contractor to select the appropriate curing method in response to climatical and/or site conditions occurring at the time of concrete placement. Take appropriate measures as described in ACI 305 and 306 for protecting and curing concrete during hot and cold weather.

F. Clear Hardener Application (Surface Applied)

1. Cure, clean, and keep floors dry to receive hardener. Complete work immediately above floors prior to applying hardener. Apply hardener evenly, using three coats, allowing 24 hours between coats. The first coat shall be one-third strength, second coat one-half strength, and third coat two-thirds strength. Apply each coat so as to remain wet on the concrete surface for 15 minutes. Apply proprietary hardeners in conformance with the manufacturer's instructions. After the final coat is completed and dry, remove surplus hardener from the surface by scrubbing and mopping with water.
2. Apply hardener to the surfaces designated in the drawings.

G. Dustproof/Sealer (DPS):

1. Apply primer in accordance with manufacturer's printed instructions.
2. Give particular attention to priming of concrete substrate and time laps between coats when more than one conditioning coat is required.
3. Mix colored polyurethane dustproof/sealer surface treatment and apply to sound, fully cured, dry and thoroughly clean concrete slabs in strict accordance with manufacturer's printed instructions.
  - a. Total dry film thickness for both primer and topcoat shall be 4 mils.

END OF SECTION

SECTION 03375

FLOWABLE FILL

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Section specifies the requirements for flowable fill used for trenches, support for pipe structures, culverts, utility cuts and other works where cavities exist and where firm support is needed for pavements and structural elements. Flowable fill may also be used to fill water and sewer lines, and fuel tanks placed out of service, and at other locations approved by the Engineer of Record.

PART 2 - PRODUCTS (NOT USED)

2.01 MATERIALS

The materials used shall conform with the requirements specified in Division III of the F.D.O.T. Standard Specifications for Road and Bridge Construction, latest edition, and herein. Specific references are as follows:

- A. Portland Cement (Types I, II or III).....Section 921
- B. Fly Ash, Slag and other Pozzolanic  
Materials for Portland Cement Concrete..... Section 929
- C. Fine Aggregate (Sand)\*.....Section 902
- D. Water.....Section 923

\*Any clean sand with 100% passing 3/8" sieve and not more than 10% passing with 200 mesh may be used.

2.02 MIX PROPORTIONS

- A. The Contractor shall be responsible for producing a flowable mixture using these guidelines and by adjusting his mixture design as called for by circumstances or as may be directed by the Engineer of Record.
- B. Excavatable flowable fill material shall be proportioned to produce a 28-day compressive strength of 100 psi.

- C. General mix quantities are as follows:



<b>Components</b>	<b>Pounds per Cubic Yard</b>
Cement	50-100*
Fly Ash or Granulated Blast Furnace Slag	0-600
Fine Sand	2,750 (adjust to yield one CY)
Water	500 (Maximum)

\*The percentage of cement may be increased above these limits only when early strength is required and future removal is unlikely.

- D. Weights for fine aggregate and water shall be adjusted according to cementious content. The mix proportions shall be adjusted for removability, pumpability and flowability. If required, strength test data shall be provided prior to batching.
- E. If required by the Engineer of Record, the flowability can be measured by afflux time determined in accordance with ASTM C 939 and shall be 30 seconds  $\pm$  5 seconds as measured on mortar passing the No. 4 sieve. The equipment required to perform this test shall be provided by the Contractor.

### 2.03 APPROVED MIXES OF "EXCAVATABLE FLOWABLE FILL"

FDOT - Approved Design Mixes:

<b>Plant</b>	<b>Mix Number</b>
Tarmac	04-FF-65
Rinker Materials Corp.	04-FF-52
Central Concrete Supermix Inc.	06-FF-41
Cemex	06-FF-48

## PART 3 - EXECUTION

- 3.01 Flowable fill shall be produced and delivered using concrete construction equipment. Placing flowable fill shall be done by chute, pumping or other methods approved by the Engineer of Record.

### 3.02 CONSTRUCTION REQUIREMENTS

The flowable fill shall be placed to the designated fill line without vibration or other means of compaction. Placement shall be avoided during inclement weather, e.g. rain or ambient temperatures below 40 degrees F. The Contractor shall take all necessary precautions to prevent any damages caused by the hydraulic pressure of the fill during placement prior to hardening. Also, necessary means to confine the material within the designated space shall be provided by the Contractor.

### 3.03 ACCEPTANCE

- A. If required by the Engineer of Record, the flowability can be measured by afflux time determined in accordance with ASTM C 939 and shall be 30 seconds  $\pm$  5 seconds as measured on mortar passing the No. 4 sieve. The equipment required to perform this test shall be provided by the Contractor.
- B. The fill shall be left undisturbed until material obtains sufficient strength. Sufficient strength is 250 psi penetration resistance as measured using a hand held penetrometer. The penetrometer shall be provided by the Contractor.
- C. All flowable fill areas subject to traffic loads must have a durable riding surface.
- D. An approved type of accelerator may be approved for the placement of "Flowable Fill" in traffic areas when submitted to the City for F.D.O.T. approval.

END OF SECTION

## SECTION 03401

### PRECAST CONCRETE UTILITY STRUCTURES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: The work under this Section includes furnishing and installing precast concrete units for manholes, valve vaults, and valve boxes as indicated on the Drawings and specified herein.

##### 1.02 SUBMITTALS

- A. See Section 01300 for a complete description of submittal requirements.
- B. Shop drawings of the concrete units, including bottom and top slabs showing details of construction, reinforcing and joints shall be submitted to and approved by the Engineer prior to the manufacture of the units. The shop drawings shall include structural design calculations for all slabs and walls which do not have reinforcement detailed on the Drawings. The design calculations shall demonstrate compliance with the specified standards and shall be signed and sealed by a professional engineer licensed in the State of Florida.
- C. Manufacturer's data sheets and shop drawings shall be submitted on the following:
  - 1. Joint mastic and gaskets.
  - 2. Grout material.
  - 3. Pipe connections.
  - 4. Castings.
  - 5. Reinforcement.
  - 6. Hatches.

##### 1.03 INSPECTION

- A. The quality of all materials, the process of manufacture and the finished sections shall be subject to inspection and approval by the Engineer. Such inspection may be made at the place of manufacture or at the site after delivery, or at both places and the sections shall be subject to Specification requirements; even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. All sections which have been damaged after delivery will be rejected and, if already installed, shall be removed and replaced entirely at the Contractor's expense.

## 1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM A48 - Standard Specification for Gray Iron Castings.
  - 2. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
  - 3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
  - 4. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale).
  - 5. ASTM C150 - Standard Specification for Portland Cement.
  - 6. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
  - 7. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
  - 8. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
  - 9. ASTM D4101 - Standard Specification for Propylene Plastic Injection and Extrusion Materials.
- B. American Concrete Institute (ACI)
  - 1. ACI 318 - Building Code Requirement for Structural Concrete.
  - 2. ACI 350 - Code Requirements for Environmental Engineering Concrete Structures
- C. American Association of State Highway and Transportation Officials (AASHTO)
- D. Occupational Safety and Health Administration (OSHA)
- E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

## PART 2 - PRODUCTS

### 2.01 STRUCTURES

- A. Circular precast concrete structures shall conform to the requirements of ASTM Designation C-478, Precast Reinforced Concrete Manhole Sections, except as otherwise specified or as shown on the Drawings. All circular precast concrete structures, including bottom slabs, walls, and top slabs, shall be designated to support an AASHTO H-20 loading plus all other soil and hydrostatic loads. Signed and sealed design calculations demonstrating compliance with these requirements shall be submitted in accordance with Paragraph 1.02. Details of precast sections shown on the Drawings shall supersede ASTM C-478 when such details are more stringent than ASTM C-478. The structures shall meet the following additional requirements.
1. Minimum wall thickness shall be as indicated on the Drawings.
  2. Cement shall be Type II Portland Cement conforming to ASTM Designation C150.
  3. Sections shall have tongue and groove joints. Joints shall be filled with preformed flexible plastic joint sealer. The sealer shall be "Ram-Nek" as manufactured by the K.T. Snyder Co. or approved equal.
  4. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the inside of each precast section.
  5. The tops of bases shall be suitably shaped to mate with the precast barrel section.
  6. Lift rings or non-penetrating lift holes shall be provided for handling precast sections. Non-penetrating lift holes shall be filled with non-shrinking grout after installation of the structure.
  7. Barrel and base sections shall be constructed with preformed openings properly located for making gravity sewer line connections. The diameter of such openings shall not be more than two inches larger than the outside diameter of the pipe or pipe bell to be connected. The distance between the crown of such openings and the shoulder of the barrel joint shall be six inches minimum.
  8. Gravity pipe connections to manholes and wet well shall conform to ASTM C923 and be Kor-N-Seal Model WS, Atlantic Rubber A-Lok, or an approved equal.
  9. Where force main and drain piping penetrates a wall of a wet well, a Type 316 stainless steel wall sleeve, with intermediate wall collar, shall be provided. The annular space between the carrier pipe and sleeve shall be

sealed with a compression type wall seal with Type 316 stainless steel hardware.

- B. Rectangular precast concrete structures shall comply with ASTM C-913-79 and ASTM C-890-78 except as otherwise specified or shown on the Drawings. All rectangular precast concrete structures including bottom slabs, walls, and top slabs, shall be designed to support an AASHTO H-20 loading plus all other soil, hydrostatic loads with a buoyancy safety factor of 1.25. Signed and sealed design calculations demonstrating compliance with these requirements shall be submitted in accordance with Paragraph 1.02. Details shown on the Drawings shall supersede the stated ASTM standards when such details are more stringent than the referenced standards. The structures meet the following additional requirements.
1. Minimum wall thickness shall be as indicated on the Drawings.
  2. Cement shall be Type II Portland Cement conforming to ASTM Designation C150.
  3. Sections shall have tongue and groove joints. Joints shall be filled with preformed flexible plastic joint sealer. The sealer shall be "Ram-Nek" as manufactured by the K.T. Snyder Co. or approved equal.
  4. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the inside of each precast section.
  5. The tops of bases shall be suitably shaped to mate with the precast wall section.
  6. Lift rings or non-penetrating lift holes shall be provided for handling precast sections. Non-penetrating lift holes shall be filled with non-shrinking grout after installation of the structure.
  7. Where force main or chemical feed piping penetrates a valve vault or pull-box wall, a Type 316 stainless steel wall sleeve, with intermediate wall collar, shall be provided. The annular space between the carrier pipe and sleeve shall be sealed with a compression type wall seal with Type 316 stainless steel hardware.
- C. Interior and exterior surfaces of all precast concrete structures shall have a protective coal tar epoxy coating equal to Carbolite Bitumastic 300-M unless otherwise noted on the drawings. The coating shall be applied in two (2) coats to provide a dry film thickness of at least 24 mils. Interior surfaces of sanitary sewer manholes shall have a calcium aluminate aggregate mortar equal to HITEC 100 as manufactured by A.W. Cook Cement Products.

## 2.02 CASTINGS

- A. Castings for manhole and air release valve vault frames, covers, adjustment rings, and other items shall be of gray cast iron and conform to ASTM Designation A48, Class 30. The castings shall be true to pattern in form and dimensions and free of pouring faults and other defects which would impair their strength, or otherwise make them unfit for the service intended. The sealing surfaces between the frames and covers shall be machined to fit true. No plugging or filling will be allowed. Lifting or "pick" holes shall be provided, but shall not penetrate the covers. Casting patterns shall conform to those shown on the Drawings. All frames and covers shall be traffic bearing to accommodate AASHTO H-20 loadings. Frames shall be suitable for the future addition of a cast iron ring for upward adjustment of the top elevation. Manhole and air release valve vault frames and covers shall be manufactured by U.S. Foundry, Vulcan or an approved equal.

#### 2.03 CEMENT MORTAR

- A. Cement mortar shall be one-part cement and three-parts clean sharp sand to which may be added lime in the amount of not over ten percent volume of cement. It shall be mixed dry and then wetted to proper consistency for use. No mortars that have stood for more than one (1) hour shall be used.

#### 2.04 HATCHES

- A. Aluminum access hatches shall be provided for pump station wetwell and valve vaults, meter vaults, and other vaults as shown on the Drawings. Hatches shall conform to requirements set forth in Division 05.

#### 2.05 GROUT

- A. Where shown on the Drawings, structure floors shall be grouted to provide slopes for drainage and the creation of sump areas for drainage collection and removal. Grouting shall comply with the requirements of Division 3.

#### 2.06 COATINGS

- A. Apply bituminous damp proofing on all below-grade, exterior surfaces of precast concrete structures.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. All openings for gravity sewer pipes shall be sealed watertight.
- B. Precast structures shall be constructed to the dimensions shown on the Drawings and as specified herein. Install at elevations and locations shown on the Drawings or as otherwise directed by the Engineer.
- C. Place the precast base unit on a thoroughly compacted gravel subbase. Drain all water from the bottom of the excavation before placing base.

- D. Construct the floor of the wetwell and valve vault using cement mortar to the requirements of the Drawings.
- E. Set precast concrete sections so that the sections are vertical and in true alignment with a 1-14-inch maximum tolerance allowed. Fill the outside and inside joint with a comparatively dry mortar (one part cement to two parts sand) and finish flush with the adjoining surfaces. Backfill in a careful manner, bringing the fill up evenly on all sides. The Contractor shall install precast sections in a manner that will result in a watertight joint.
- F. Plug holes in the concrete sections made for handling or other purposes with a non-shrinking grout or by grout in combination with concrete plugs.
- G. Manhole flow channels shall be as shown on the Drawings, with smooth and carefully shaped bottoms, build up sides, and benching constructed using cement and brick. Channels shall conform to the dimensions of the adjacent pipes and provide changes in size, grade, and alignment evenly. Cement shall be Portland Cement Type II.
- H. Castings shall be fully bedded in mortar with adjustment brick courses placed between the frame and manhole. Bricking shall include a minimum of two (2) and a maximum four (4) courses. Mortar shall conform to ASTM C-270, Type M, and the bricks shall be clay and conform to ASTM C-216, Grade SW, size 3 1/2" (w) X 8" (1) X 2 1/4" (h).
- I. The tops of manhole castings located in pavement, shouldered areas, and sidewalks shall be set flush with grade. The tops of manhole castings located outside paved areas shall be placed two (2) inches above grade.
- J. Coatings shall be touched up after installation.

### 3.02 LEAKAGE TESTS

- A. Test each manhole and wet well for leakage. Engineer shall observe each test. Perform tests as described below and/or in other applicable specifications:
  - 1. Assemble manhole or wet well in place. Fill and point all lifting holes and exterior joints with an approved nonshrink mortar. Test before filling and pointing the horizontal joints. Lower ground water table below bottom of the structure for the duration of the test. Plug all pipes and other openings into the structure and brace to prevent blow out.
  - 2. Fill manhole or wet well with water to the top of the section. If the excavation has not been backfilled and no water is observed moving down the surface of the structure, it is satisfactorily watertight. If the test, as described above is unsatisfactory as determined by the Engineer, or if the excavation has been backfilled, continue the test. A period of time may be permitted to allow for absorption. Following this period, refill structure to



the top, if necessary, and allow at least 8 hours to pass. At the end of the test period, refill the structure to the top again, measuring the volume of water added. Extrapolate the refill amount to a 24-hour leakage rate. The leakage for each structure shall not exceed 1 gallon per vertical foot for a 24-hour period. If the structure fails this requirement, but the leakage does not exceed 3 gallons per vertical foot per day, repairs by approved methods may be made as directed by the Engineer. If leakage due to a defective section or joint exceeds 3 gallons per vertical foot per day, the structure shall be rejected. Uncover the rejected structure as necessary and disassemble, reconstruct or replace it as directed by the Engineer. Retest the structure and, if satisfactory, fill and paint the interior joints.

3. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc. It will be assumed that all loss of water during the test is a result of leaks through the joins or through the concrete.

B. An infiltration test may be substituted for an exfiltration test if the ground water table is above the highest joint in the structure. If there is no leakage into the structure as determined by the Engineer, it will be considered watertight. If the Engineer is not satisfied, testing shall be performed as described herein before.

### 3.03 CLEANING

A. Thoroughly clean all structures of all silt, debris, and foreign matter of any kind prior to final inspections.

END OF SECTION

SECTION 03420  
PRECAST REINFORCED CONCRETE STRUCTURES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide factory-built precast reinforced concrete underground structures as indicated and as specified.

1.02 RELATED WORK:

- A. Section 02210: Earth Excavation, Backfill, Fill and Grading
- B. Section 03200: Concrete Reinforcement
- C. Section 03300: Cast-in-Place Concrete
- D. Other sections.

1.03 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO):
  - 1. AASHTO: Standard Specifications for Highway Bridges.
- B. American Concrete Institute (ACI):
  - 1. ACI 211.1: Standard Practice for Selecting Proportions for Normal, Heavy Weight, and Mass Concrete.
  - 2. ACI 301: Standard Specifications for Structural Concrete.
  - 3. ACI 304R: Guide for Measuring, Mixing, Transporting and Placing Concrete
  - 4. ACI 305R: Hot Weather Concreting
  - 5. ACI 306R: Cold Weather Concreting
  - 6. ACI 308: Standard Practice for Curing Concrete

7. ACI 309R: Guide for Consolidation of Concrete
  8. ACI 318: Building Code Requirements for Structural Concrete and Commentary
- C. American Society for Testing and Materials (ASTM)  
Publications:
1. ASTM A48: Specification for Sewer Manhole Frames and Covers
  2. ASTM C31: Practice for Making and Curing Concrete Test Specimens in the Field
  3. ASTM C33: Specification for Concrete Aggregates
  4. ASTM C39: Test Method for Compressive Strength of Cylindrical Concrete Specimens
  5. ASTM C143: Test method for Slump of Hydraulic Cement Concrete
  6. ASTM C150: Specification for Portland Cement
  7. ASTM C172: Practice for Sampling Freshly Mixed Concrete
  - 8.
  9. ASTM C192: Practice for Making and Curing Concrete Test Specimens in the Laboratory
  10. ASTM C231: Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
  11. ASTM C260: Specification for Air-Entraining Admixtures for Concrete
  12. ASTM C494: Specification for Chemical Admixtures for Concrete
  13. ASTM C858: Specification for Underground Precast Utility Chambers
  14. ASTM C1064: Test Method for Temperature of Freshly Mixed Portland Cement Concrete
  15. ASTM D75: Practice for Sampling Aggregates

1.04 SUBMITTALS:

- A. Shop Drawings: Submit the following in accordance with Section 01300:
1. Completely detailed shop drawings for all precast concrete structures. Indicate all dimensions, details, reinforcing steel, inserts, connections, openings, joint and opening seals, and lifting devices. Mark each component for identification. Show mark on erection plan and place legibly on unit at time of manufacture.
  2. Properly completed Certificate of Design as specified under Section 01300.

- B. Drawings of modifications or changes in features or details, which are necessitated by, design requirements. Make all such modifications without additional compensation.
- C. Do not fabricate precast concrete structures before shop drawings are accepted by the Engineer.
- D. A certificate of design shall be submitted to the Engineer prior to the production of the precast concrete structures. The certificate of design shall be signed and sealed by a Professional Structural Engineer employed by the structure manufacturer and holding current registration in the state in which the structure is to be installed.

1.05 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01400 and as specified.
- B. Design Responsibility:
  - 1. Complete the Certificate of Design form in Section 01300 and submit to Engineer prior to manufacture of precast reinforced concrete structures.
  - 2. Submit the following support data along with Certificate of Design:
    - a. Certification, signed and sealed by a Florida Professional Engineer employed by the structure manufacturer and holding current registration in the state in which the structure is to be installed stating that all elements and connections are designed to withstand required loads and forces.
    - b. Codes and specifications to which structural design conforms.
    - c. Do not submit calculations.

1.06 DELIVERY, STORAGE AND HANDLING:

- A. Provide in accordance with Section 01610 and as specified herein.
- B. Coordinate the delivery, storage, handling and installation of the concrete structures.
- C. Store structures on clean blocking, off the ground and protected from rain and ground splatter.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS:

- A. Oldcastle Precast, Inc.
- B. U.S. Precast Corp.
- C. Or equal.

### 2.02 MATERIALS:

- A. Concrete shall have a minimum concrete compressive strength of 5000 PSI at 28 days and shall conform to Section 03300.
- B. Steel reinforcement shall conform to ASTM A615, Grade 60.
- C. Portland cement shall be ASTM C150, Type II.
- D. Admixtures causing accelerated setting of cement in concrete shall not be used.
- E. Screened Gravel: As specified in Section 02223.
- F. Butyl rubber-based sealants shall conform to AASHTO M198, Type B but with no bitumen content.
- G. External heat shrink seal per details and specifications.
- H. Non-Shrink Grout:
  - 1. Masterflow 713 Grout by Master Builders, Cleveland, OH.
  - 2. Fire Star Grout by U.S. Grout Corp., Old Greenwich, CT.
  - 3. Upcon by Upcon Co., Cleveland, OH.
  - 4. Or equal.

2.03 PRECAST REINFORCED CONCRETE STRUCTURES:

A. Design Criteria:

1. Design precast reinforced concrete structure to withstand earth and groundwater loads. Groundwater elevation shall be assumed to be at the top of the structure. Provide design based on the following geotechnical information.

Depth (ft)	Soil Type	Density/Consistency	Frictional Angle (degrees)	Total Unit Weight (pcf)	Submerged Unit Weight (pcf)	Lateral Earth Pressure Coefficients		
						Active, Ka	Passive, Kp	At Rest, Ko
0-12	Sand	Loose to Medium Dense	30	110	48	0.333	3.000	0.500
12-22	Rock	Soft	40	120	58	0.217	4.599	0.357
22-40	Sand	Medium Dense	32	115	53	0.307	3.255	0.470

2. Design precast reinforced concrete structure to withstand an H-20 vehicle loading with an impact factor of 1.3. Design shall account for vehicle positions both above and alongside structure including directly on each manhole cover.
  3. Design precast reinforced concrete structure ceiling to withstand additional concentrated loads from lifting hooks located directly above each valve, meter or other equipment. Each lifting hook shall be capable of supporting the appropriate load, but not less than 2,500 pounds.
  4. Design and install structures to withstand hydrostatic uplift caused by a groundwater elevation at grade level or equal to the top of the structure, whichever produces the most severe condition. Use only the weight of the structure and hold-down slab to resist hydrostatic uplift with a minimum safety factory of 1.5. Do not include side friction of soil on walls.
  5. Walls and floor slab shall be a minimum of 6 inches in thickness. Cast lower wall section and floor slab together in one placement. Precast reinforced concrete structure roof shall be a minimum of 8 inches in thickness.
- B. Provide precast reinforced concrete structure as indicated on the drawings. Structure shall be a complete watertight enclosure including sumps and entrance tubes as indicated.
- C. Fabricate precast reinforced concrete structure in sections as required for ease of installation and shipment.

- D. Provide pipe sleeves with water stops, rubber pipe boots or other devices at pipe penetrations as indicated.
- E. Manhole Frames and Covers:
  - 1. Castings to be free from scale, lumps, blisters and sandholes.
  - 2. Machine contact surfaces to prevent rocking.
  - 3. Thoroughly clean and hammer inspect.
  - 4. Capable of withstanding AASHTO H-20 loading unless otherwise indicated or specified.
- F. Bituminous Waterproofing Material:
  - 1. H.B. Tnemecol 46-46S by Tnemec Company, Inc.
  - 2. Amercoat 78HB by Ameron International.
  - 3. Bitumastic 300M by Carboline.
  - 4. Or acceptable equivalent product.
- G. Entrance Hatches:
  - 1. Manufacturers:
    - a. U.S. Foundry
    - b. Bilco Co.
    - c. Halliday
    - d. Babcock-Davis Associates, Inc.
    - e. Or equal.
  - 2. Provide aluminum hatches of the type and size indicated and as follows:
    - a. Fabricate hatch and frame with ¼ inch extruded aluminum frame and ¼ inch diamond checkered aluminum plate covers.
    - b. Reinforce cover, with aluminum bars and angles welded to underside of covers, to withstand 300-lbs per square foot, unless AASHTO H-20 wheel loading indicated on drawings.
    - c. Provide hatch with hinges, hold-open safety-lock bars and flush lift handles, factory assembled, and shipped complete for installation.

- d. Provide stainless steel hardware throughout. Hinge covers to frames with heavy duty stainless steel concealed hinges and stainless steel pins. Attach hinges to covers and frames with countersunk/flathead stainless steel machine screws. Covers shall fit flush to frame.
  - e. Provide slam latch, flush mounted grip handle, and removable plug and key wrench.
  - f. Provide ladder-up safety post.
  - g. Provide Type 316 Stainless Steel safety chains.
- H. Provide lifting hooks in the ceiling above pumps, valves and meters. Each hook shall have the capacity to hoist the equipment located below, but not less than 2,500 pounds).
- I. Apply waterproofing to outside of walls, floor, and ceiling.
- J. Provide aluminum access ladders as follows:
- 1. Fabricate from 1½ inch IPS, Schedule 80 aluminum pipe upright and 1inch solid round aluminum rod rungs, mortised and welded to uprights. All welds shall be ground smooth. Tops of uprights shall be closed, sealed and ground smooth.
  - 2. Space aluminum rungs 12 inches on centers.
  - 3. Securely fasten ladder to entrance tube and precast reinforced concrete structures with aluminum brackets and ½ inch diameter stainless steel expansion bolts.
  - 4. Ladders shall conform to OSHA Standards 29 CFR Chapter 1926.1053.



## PART 3 - EXECUTION

### 3.01 PROTECTION:

- A. Protect aluminum from contact with dissimilar metals, concrete, masonry or mortar.
- B. Before coating application, clean contact surfaces, remove dirt, grease, oil, foreign substances, followed by immersing in, or wipe thoroughly with, an acceptable solvent. Rinse with clean hot water and dry thoroughly.

### 3.02 FINISHES:

- A. Finishes: After fabrication, aluminum ladders and entrance tube hatches to receive an Aluminum Association Standard Anodic finish, Designation C22A31, followed by a shop coat of methacrylate lacquer.
- B. Damaged or worn coating of methacrylate lacquer shall be recoated with a new coating of lacquer of the same type.

### 3.03 INSTALLATION:

- A. Install precast reinforced concrete structure, and related appurtenances in accordance with manufacturer's instructions.
- B. Place precast reinforced concrete structure onto level prepared bedding as indicated in details and specifications. Provide uniform bearing over entire base of structure.
- C. Seal all joints inside and out with specified sealant to ensure joints are waterproof.
- D. Repair or replace damaged waterproofing.
- E. Backfill structure excavation in such a manner so as not to damage the waterproofing.

### 3.04 CONTRACT CLOSEOUT:

- A. Provide in accordance with Section 01700.

END OF  
SECTION

## SECTION 03600

### GROUTING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: The scope of work involves the grouting of the space left void in the abandonment of the existing pipelines and structures. The work consists of furnishing all labor, equipment and materials and performing all work connected with the placement of the cementitious grout to fill the void.

##### 1.02 QUALITY ASSURANCE

- A. Grouting shall be performed by a crew under the direct supervision of a superintendent that has experience in grouting of this nature.
- B. Storage, mixing, handling and placement shall be in accordance with manufacturer's instructions and specifications.
- C. Contractor is to provide all field tickets for grout mix deliveries for review by the City.

##### 1.03 SUBMITTALS

- A. Shop Drawings: Shop drawings shall be submitted in accordance with Section 01300. In addition, the following shall be submitted to the Engineer for acceptance prior to construction.
  - 1. A detailed description of equipment and operational procedures to accomplish the grouting operation, including grout mixture design, grout mixer type, grout samples, and test data.
  - 2. A detailed description of the grouting time schedule and a plan showing the location of grouting injection ports and vent ports to ensure that the pipe is fully grouted for each section, from end to end.
  - 3. Submittals for caps to be installed on each end of the piping.

#### PART 2 - PRODUCTS

##### 2.01 GROUT MATERIAL

- A. The grout shall be a "flowable fill" consisting of a mixture of Type 1 Portland Cement, Type "F" Flyash (ASTM 618), sand and water.
- B. The mixture shall contain a minimum of 50 pounds cement and minimum of 400 pounds flyash per cubic yard of grout.

## 2.02 EQUIPMENT

- A. All grout shall be mixed with a high shear, high energy colloidal type mixer to achieve the best uniform density.
- B. The grout shall be pumped with a non-pulsating centrifugal or tri-plex pump.
- C. The mixer shall be capable of continuous mixing. Batch mixing shall not be permitted.

## PART 3 - EXECUTION

### 3.01 GROUTING

- A. Grouting of the annular space due to the abandonment of the existing water pipe will be allowed in continuous individually bulkheaded segments of up to 500 linear feet for 6" diameter piping, 750 linear feet for 8" to 12" diameter piping, and 1000 linear feet for greater than 12" diameter piping. Note that these lengths are recommended standards but each section and diameter of piping may vary from these maximum lengths on a case-by-case basis. The lengths of piping and locations of caps are to be included on the plan submitted by the Contractor as required in the Submittal section herein.
- B. Grout shall be placed in a maximum of three stages, with the initial stage volume equal to or greater than 50% of the total volume for that section of pipe being grouted. The maximum time wait between grouting stages shall be 24 hours.
- C. For each stage, mix and pump the material in one continuous process so as to avoid partial setting of some grout material during that stage, thus, eliminating voids and possible subsequent surface damage due to "cave-ins".
- D. Each section shall be grouted by injecting grout from the lowest point and allowing it to flow toward the highest point to displace water from the annulus and assure complete void-free coverage. Grout shall be placed through tubes installed in the bulkheads at the insertion pits or manholes. Grout tubes shall be at least 2-inch nominal diameter.
- E. After the ends of each section of pipe are exposed, the entire space, not to exceed 300 linear feet end to end, shall be sealed by controlled pumping of grout until it flows from the pipe at the opposite end of the grouting. **Grouting shall be carried out until the entire space is filled.**
- F. Grout pressure in the void space is not to exceed five (5) psi above maximum hydrostatic groundwater level. An open ended, highpoint tap or equivalent vent must be provided and monitored at the bulkhead opposite to the bulkhead through which grout is injected. This bulkhead will be blocked closed as grout escapes to allow the pressuring of the annular space.

### 3.02 FIELD QUALITY CONTROL

- A. The quality of the grout, application of the equipment and installation techniques are the responsibility of the Contractor. The review and acceptance or approval of specific mix design, equipment or installation procedures shall in no way relieve the Contractor of his obligation to provide the final product as specified herein.

END OF SECTION

## SECTION 05530

### GRATING, COVER PLATES, AND ACCESS HATCHES

#### PART 1 - GENERAL

##### A. Description

This section describes materials, fabrication, and installation of steel and aluminum grating, cover and floor plates, and access hatches.

##### B. Related Work Specified Elsewhere

1. Submittals: Section 01300.
2. Concrete: 03300.

##### C. Design Criteria

Grating, Floor Plates, and Miscellaneous Cover Plates: Design live load of 100 psf, maximum deflection of 1/240 of span or 1/4" Maximum.

Hatches: Design live load of 300 psf.

##### D. Submittals

1. Submit shop drawings in accordance with the General Conditions and Section 01330.
2. Submit drawings of grating, cover plates, and access hatches. Show dimensions and reference materials of construction by ASTM designation and grade. Show design criteria.
3. Submit placing or erection drawings that indicate locations of fabricated items. Reproductions of contract documents will not be accepted for this purpose.

#### PART 2 - MATERIALS

##### A. Design of Grating, Floor Plates, and Miscellaneous Cover Plates

1. Grating, floor plates, and miscellaneous cover plates shall be as detailed in the drawings or, if not detailed, shall be designed per subsection on "Design Criteria" in Part 1. No single piece of grating, floor plate, or miscellaneous cover plate shall weigh more than 80 pounds. Length of individual pieces shall not exceed one and one-half times the width, unless limited by the installation.
2. Field measure grating and cover plates for proper cutouts and size.

3. Grating shall be completely banded. For pipe and conduits (including electrical conduit) larger than 1 inch in diameter penetrating grating, cut and band grating before galvanizing.

B. Stainless Steel Plate and Members

Except where otherwise specified, stainless steel plate and members shall be Type 316 or 316L, ASTM A240 or A666.

C. Aluminum Sheet

Aluminum sheet shall conform to ASTM B209, Alloy 3003, H 14 temper.

D. Aluminum Access Hatches

1. Access hatches shall be Bilco Type JAL of the size and configuration shown in the drawings. Aluminum doors shall be anodized. Latch and lifting mechanism assemblies, hold-open arms and guides, and all brackets, hinges, pins, and fasteners shall be 316 stainless steel.

2. Locking and Latching Devices:

- a. Lugs welded to the exterior door surface to receive a padlock.
- b. Hinged hasp on exterior door surface.
- c. Recessed hasp covered by a hinged lid flush with the exterior surface.
- d. Provide fall protection grating system. Grating panel(s) shall be fiberglass molded in one piece with load bearing bars in both directions to allow for use without continuous side support. Panels shall be designed to support a 300 PSF (1464 Kg/m<sup>2</sup>) live load and be high visibility safety yellow in color. Torsion rod lift assistance shall be provided for ease of operation and a hold open arm shall also be included to automatically lock the panel in the fully open 90 degree position. A release handle shall be provided to allow the grating panel to be closed and there shall be a provision for locking the panel to prevent unauthorized access. Hold-open arm shall be stainless steel with a stainless steel release handle. All other hardware, including mounting brackets, hinges, torsion rod, padlock loop, and fasteners, shall be type 316 stainless steel.

E. Grating

Grating shall be aluminum (Alloy 6061 or 6063, Temper T6, as indicated in the drawings. Main bars shall be of the thickness and of the depth indicated in the drawings.

F. Checkered Cover Plates

Checkered cover plates shall be aluminum. Minimum thickness shall be as shown in the drawings. Provide U-bolt lifting handles located at opposite ends on each removable section. Handles shall be recessed to reduce tripping hazards. Steel plates, including

angle edgings, support angles, and lifting handles, shall be stainless steel. Aluminum plates shall comply with ASTM A786, Pattern 4, with material conforming to ASTM B209, Alloy 6061-T6.

G. Frames and Supports for Grating and Checkered Plates

Fabricated frames and supports for grating and checkered cover plates shall be aluminum or as indicated in the drawings. Corners of embedded angle frames shall be mitered and welded with the welds ground smooth.

H. Welding Electrodes

1. Welding electrodes for structural steel shall conform to AWS A5.5. Use electrodes in the E-70 series.
2. Welding electrode for aluminum shall be ER4043 filler metal.
3. Welding electrodes for stainless steel shall conform to AWS A5.4. Use electrodes as follows:

Stainless Steel Material	Welding Electrode Material
Type 304	E 308
Type 304L	E 347
Type 316	E 316
Type 316L	E 318

PART 3 - EXECUTION

A. Storage of Materials

Store structural material, either plain or fabricated, above ground on platforms, skids, or other supports. Keep material free from dirt, grease, and other foreign matter and protect from corrosion.

B. Installation and Erection

1. Clean the surfaces of metalwork to be in contact with concrete of rust, dirt, grease, and other foreign substances before placing concrete.
2. Set grating seats and frames and checkered plate frames and supports accurately in position when concrete is placed and support it rigidly to prevent displacement or undue vibration during or after the placement of concrete. Unless otherwise specified, where metalwork is to be installed in recesses in formed concrete, said recesses shall be made, metalwork installed, and recesses filled with dry-pack mortar in conformance with Section 03300.

3. Set seat angles for grating so that the grating will be flush with the floor. Maintain the grating and floor plates flush with the floor. Seat angles and anchors shall be aluminum or as indicated in the drawings.

C. Fastening

Fasten grating panels to supporting members as indicated in the drawings. Saddle clips shall be the same material as the grating.

D. Galvanizing

Zinc coating for plates, bolts, anchor bolts, and threaded parts shall be in accordance with ASTM A 153.

E. Welding

1. Perform welding on steel by the SMAW process. Welding shall conform to AWS D1.1-2006, except as modified in AISC Section J2.
2. Perform welding on aluminum by the gas metal arc (MIG) or gas tungsten arc (TIG) process. Welding shall conform to AWS D1.2-2003.
3. Perform welding on stainless steel by the gas tungsten arc (TIG) process. Welds shall be full penetration and smooth. Provide inert gas on the inside of pipe during welding to reduce oxidation.
4. Provide a minimum of two passes for metal in excess of 5/16-inch thickness.
5. Produce weld uniform in width and size throughout its length with each layer of weldment smooth; free of slag, cracks, pinholes, and undercuttings; and completely fused to the adjacent weld beads and base metal. Avoid irregular surface, nonuniform bead pattern, and high crown. Form fillet welds of the indicated size of uniform height and fully penetrating. Accomplish repair, chipping, and grinding of welds in manner that will not gouge, groove, or reduce the base metal thickness.

F. Repair of Galvanized Surfaces

Repair or replace metal with damaged galvanized surfaces at no additional cost to the City. Repair galvanized surfaces per Section 09900, System No. 55.

G. Corrosion Protection of Aluminum Surfaces

1. Coat aluminum surfaces to be embedded or which will be in contact with concrete or masonry with Bituminous coating before installation. Allow the coating to dry before the aluminum is placed in contact with the concrete.
2. Where aluminum surfaces come in contact with dissimilar metals, keep the dissimilar metallic surfaces from direct contact by use of neoprene gaskets or washers.



END OF SECTION

## SECTION 09940

### PAINTING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the surface preparation and application of shop primers and finish coats.

##### 1.02 RELATED WORK

- A. Factory prefinished items as specified.
  - 1. Coordinate with Section 02530 – Sanitary Sewerage Systems
  - 2. Coordinate with Section 09960 – High Performance Coatings

##### 1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01300:
  - 1. Manufacturer's specifications and data on the proposed primers and detailed surface preparation, application procedures and dry mil thicknesses, including list of items and surfaces to receive shop painting.

##### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with Section 01600 and as specified.
  - 1. Deliver materials to application area in original, unbroken containers, plainly marked with name and analysis of product, manufacturer's name, and shelf life date. Do not store or use contaminated, outdated, prematurely opened, or diluted materials.
  - 2. Store coated items to prevent damage or dirtying of coatings. Avoid need for special cleaning, and store coated items out of contact with ground or pavement. Place suitable blocking under coated items during storage.
  - 3. Do not expose surfaces to weather for more than six months before being top coated, or less time if recommended by coating manufacturer.
  - 4. Protect surfaces not to receive paint coatings during surface preparation, cleaning, and painting.

5. Protect coatings from damage during shipment and handling by padding, blocking, use canvas or nylon slings, and use care when handling.
6. At time of delivery of shop painted items to job site, ensure coatings are undamaged and in good condition.

#### 1.05 JOB CONDITIONS

##### A. Environmental Requirements:

1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
2. Do not apply coatings when dust is being generated.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

##### A. Shop coating shall be the following service type, as determined by conditions:

###### 1. Non-Potable Water:

- (a) All ferrous metals not subject to potable water provide one coat with a dry film thickness of 2.5 to 3.0 mils with one of the following or equal:

- (1) #1 Purple Prime made by Tnemec Co.
- (2) Carbozinc 859 by Carboline Co.
- (3) Multiprime EFD Epoxy Fast Day Inhibitive Primer 94-109 made by PPG Protective & Marine Coatings (4.0 – 6.0 DFT).
- (4) Or acceptable equivalent product.

- ##### B. Shop prime with primers guaranteed by the manufacturer to be compatible with their corresponding primers and finish coats for use in the field and which are recommended for use together.

## PART 3 - EXECUTION

### 3.01 APPLICATION

- A. Surface Preparation and Priming:
  - 1. Sandblast clean in accordance with SSPC-SP-6, Commercial Grade, immediately prior to priming non-submerged components scheduled for priming, as defined above.
  - 2. Sandblast clean in accordance with SSPC-SP-10, Near White, immediately prior to priming submerged components scheduled for priming, as defined above.
  - 3. Before priming, provide surfaces dry and free of dust, oil, grease and other foreign material.
  - 4. Shop prime in accordance with approved manufacturer's printed recommendations.
- B. Non-primed Surfaces: Apply approved coating in accordance with manufacturer's printed recommendation.

### 3.02 TOUCH-UP

- A. Repair or replace damaged or defective coated areas. Resultant shop painting: Paint items as specified.
- B. Remove damaged or defective coatings by specified blast cleaning to meet surface cleaning requirements, just before recoating. When small areas of coating need touch up, surface preparation may be done with suitable power needle gun to match specified blast cleaning.

### 3.03 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION

## SECTION 09960

### HIGH PERFORMANCE COATINGS

#### PART 1 - GENERAL

##### 1.01 WORK OF THIS SECTION

- A. This section includes general repairs, coating and lining of newly installed pump/lift stations by a monolithic application of high-build, solvent-free UME (Urethane-Modified-Epoxy) hybrid epoxy system to eliminate infiltration/exfiltration, repair concrete voids, and provide corrosion protection as a total lining system. Procedures for surface preparation, cleaning, application and testing are described herein. Different repair methods and procedures are listed in this section. All structures scheduled for coating shall be cleaned, prepared, patched and/or sealed as required prior to the application of the hybrid epoxy system.

##### 1.02 SCOPE OF WORK

- A. The Contactor shall be responsible for furnishing all labor, supervision, materials, and equipment required to complete all lift station coating work, testing, surface repairs and lining in accordance with this Specification.
- B. All Sections of this Specification are mutually complimentary and the overall intent is that the Contractor shall provide for everything in his portion of the work required to make a complete and operable job in every respect unless specifically noted otherwise.
- C. It is the intent of this Specification to ensure that the work, as completed shall meet all applicable codes, ordinances, rules and regulations of every authority having jurisdiction in the area where the construction is located. Failure of the Contractor to point out items that do not meet such requirements does not relieve the Contractor or the Subcontractors of the responsibility of meeting them.
- D. All supplies shall be stored and maintained by the Contractor in accordance with manufacturer's recommendations. Materials shall not be exposed to adverse conditions prior to the work. All materials shall be kept in secured area and away from general public access. The Contractor shall review and maintain all Material Safety Data Sheets (MSDS), product labeling, and technical literature at the project site.

##### 1.03 REFERENCES

- A. The latest codes and standards referenced herein and belonging to the following organizations shall be followed:
1. American Society for Testing and Materials (ASTM)
  2. National Association of Corrosion Engineers, NACE International (NACE)
  3. The Society for Protective Coatings (SSPC)
  4. International Concrete Repair Institute (ICRI)
  5. National Association of Sewer Service Companies (NASSCO)
  6. EPA Environmental Technology Verification Program (EPA ETV)
  7. American Association of State Highway and Transportation Officials (AASHTO)
  8. Occupational Safety and Health Administration (OSHA)

#### 1.04 SUBMITTALS

A. Product Data

1. Technical data sheets on each product proposed shall be furnished. The technical data, by validation of ASTM testing results, shall demonstrate conformity with these specifications. If submitting an alternative product, please follow procedures set forth in Section 1.4 (C).
2. Material Safety Data Sheets (MSDS) for each product proposed shall be furnished.

B. Application Data

1. Project specific guidelines and recommendations.
2. Proof of any required federal, state or local permits and/or licenses.
3. Design details for any ancillary systems and equipment to be used on site for surface preparation, application and testing. Confined space entry, flow diversion and/or bypass plans shall be presented by Contractor to Owner as necessary to perform the specified work.
4. Applicator: Company specializing in performing work of this section with minimum one year documented experience and approved by manufacturer.
5. Three (3) recent references of Applicator indicating successful application of coating product(s) of the same or similar material type as specified herein, within municipal wastewater environments.
6. Written warranty:

- (a) Materials and labor shall be warranted by the Contractor per Division 1, "General Requirements", from date of project completion, once correctly applied by an approved applicator and inspected.
- (b) Contractor shall warrant with bond all workmanship of applied material systems per Division 1, "General Requirements", unless otherwise noted, from the date of final acceptance of the project.
- (c) Failure will be deemed to have occurred if the protective system fails to:
  - (1) Prevent the internal damage or corrosion of the underlying structure due to bacteriological, chemical, gaseous (hydrogen sulfide), erosive and abrasive attack, including internal damage or corrosion incurred from vibration and stress cracking. It does not include excessive atypical non-wastewater induced chemical abuse or atypical acts of God which cause structural damage.
  - (2) Seal and protect the substrate and environment from contamination by effluent.
  - (3) Seal and protect from influent.
- (d) Contractor shall, within a reasonable time after receipt of written notice thereof, repair defects in materials or workmanship which may develop during said warranty period, and any damage to other work caused by such defects or the repairing of same, at his own expense and without cost to the Owner.

C. Or Equal Submittal

- 1. In order to be considered as an equal product, said product will have to meet the minimum physical and performance properties described herein as measured by the applicable ASTM standards referenced. Testing results must be performed and presented in the form of technical data sheets. Said product manufacturer must provide documentation supporting product's success and history in closed-wastewater-environments for at least ten (10) years.
- 2. Equal products' technical specifications/data and material safety data must be submitted to Owner a minimum of three (3) weeks prior to bid date. Samples of raw material and cured material must be submitted in order to cover at least one (1) square foot of surface.

3. Written product pre-approval is required to determine if the prospective product may be bid and utilized on this project. A product will be rejected as unacceptable should submittal to Owner not be received by the deadline and should the bid package not have enclosed a written approval from the Owner.



## PART 2 - COATING/LINING METHODS AND PROCEDURES

### 2.01 GENERAL

- A. All work shall be in strict accordance with the specifications and in accordance with manufacturer's directions, including application of all products.
- B. Contractor shall conform to all local, state and federal regulations including those set forth by OSHA, RCRA and the EPA and any other applicable authorities.
- C. When freezing temperatures are expected in the area, the Contractor shall take measures to keep applied materials warm and provide the required heat in the structure before repair work is started and the 24-hour period following application.
- D. Any inverts or flow channels shall be covered during construction operations to prevent loose materials from collection in the invert.
- E. Bypassing and/or blocking of the flow shall be done only with Owner's prior approval.
- F. The Owner shall supply water necessary for the project to the Contractor at no cost, from locations indicated by Owner prior to the start of the project. Contractor shall be responsible for transporting the water.
- G. It shall be the contractor's responsibility to provide traffic control and required by the particular location and/or jurisdiction.
- H. Use approved equipment designed, recommended and/or manufactured by the material supplier specifically for the application of all materials.
- I. Examine surface to receive coating. Notify Owners in writing if surfaces are not acceptable for coating.
- J. Applicator shall initiate and enforce quality control procedures consistent with applicable ASTM, NACE, and SSPC standards and the UME (Urethane-Modified-Epoxy) hybrid epoxy system manufacturer's recommendations.
- K. Products are to be kept dry, in a climate controlled environment, protected from weather and stored under cover.
- L. Products are to be stored and handled according to their material safety data sheets.

### 2.02 CLEANING AND PREPARATION

- A. The surfaces to be rehabilitated and lined shall be thoroughly cleaned and made free of all foreign materials including dirt, grit, roots, grease, sludge and all debris or material that may be attached to the wall or bottom of the station.
- B. Surface preparation must achieve clean and sound concrete in accordance with SSPC-SP13/NACE No. 6 "Surface Preparation of Concrete." High pressure water cleaning or jetting, and/or pre-approved abrasive blasting may be necessary in order to achieve acceptable surface preparation free of all foreign material, laitance, oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, and/or other contaminants.
- C. When grease and oil are present within the structure, an approved detergent or degreaser may be used integrally with the high pressure cleaning water.
- D. All materials resulting from the cleaning shall be caught at the base of station and removed prior to applying specified coatings.
- E. All loose or defective brick, grout, ledges, steps and protruding ledges shall be removed to provide an even surface prior to application of coating.

#### 2.03 SEAL ACTIVE LEAKS

- A. Stop active leaks with patching material or infiltration control materials applied according to manufacturer's recommendations.
- B. Materials
  - 1. Hydraulic cement
    - (a) Quick setting, hydraulic cement compound designed for minor patching, and as a leak stopper and water plug, which instantly stops running water and/or seepage through concrete.
  - 2. Chemical grout
    - (a) Chemical grout material used for grouting active leaks shall be hydrophobic polyurethane or prior approved equal. Mixing and handling of all the chemical grout materials shall be in strict accordance with manufacturer's recommendations. Application of materials shall be by injection method only.
- C. Execution

1. When leaks are not readily identifiable upon cleaning operation use blower to dry interior for positive identification of leaks and weep areas.
2. Infiltration control material shall be a rapid product specifically formulated for leak control to stop minor water infiltration and making repairs in concrete and brick structures, mixed and applied according to manufacturer's recommendations.
3. Hydraulic cement
  - (a) The work consists of hand applying a dry quick-setting cementitious mix designed to instantly stop running water or seepage in all types of concrete and concrete structures. The certified applicator shall apply material in accordance with manufacturers' recommendations.
  - (b) The area to be repaired must be clean and free of all debris.
  - (c) Proper applications should not require any special mixing of product or special curing requirements after application.
4. Chemical grout
  - (a) While being injected, the chemical sealant must be able to react/perform in the presence of water.
  - (b) The cured material must withstand submergence in water, without degradation.
  - (c) The resultant sealant (grout) formation must be impervious to water penetration.
  - (d) The final sealant must withstand freeze-thaw and wet-dry cycles without causing adverse changes to the sealant.
  - (e) The final sealant formation must not be biodegradable.
  - (f) Chemical grouting material final cure must not exceed one (1) hour.
  - (g) Chemical grouting material must be compatible to other specified top and repair coating material and the final topcoat UME (Urethane-Modified-Epoxy) hybrid epoxy system. Any grouting material used, must be approved by the UME (Urethane-Modified-Epoxy) hybrid epoxy system manufacturer.

- (h) All excess chemical grout must be removed from the surface via mechanical grinding means and top patched with Hydraulic cement.

## 2.04 CONCRETE CONDITIONING, FILLING AND REPAIR

A. Concrete conditioning, filling and repair shall be performed to minimize the occurrence of outgassing and pin-holing. In addition, filling and repairs will be performed to remedy any deep spalls, voids, gaps, holes, or defects from form release, damage, impact, and other compromises.

### B. Materials

#### 1. Conditioners/Primers

- (a) To assist with the occurrence of outgassing. A manufacturer recommended concrete conditioner/primer may be utilized.
- (b) The material must set to cure within a 24 hour window to allow for coating.
- (c) The material must be a penetrating, epoxy-based conditioning coating, and/or a high density cementitious-based material designed to reduce out-gassing and provide a compatible base coat to assist with porous and pinhole resulting substrates.

#### 2. Filling and repair

- (a) The material is epoxy filler and patching material to fill in bug holes, spalled concrete, smooth deteriorated concrete surfaces.
  - (1) Material must be epoxy based.
  - (2) Material must have excellent moisture tolerance, adhere to wet concrete and cure submerged in water.
  - (3) Material must be able to be a stand-alone system in the event that limitations of certain environments prevent the ability to topcoat. Therefore, filler and patching material must be able to withstand wastewater environments with similar chemical resistance expected of an epoxy structural topcoat.
  - (4) Filler and patching material must be compatible to other specified repair coating material and the final topcoat structural epoxy coating.
  - (5) Specified material(s) are listed below, or prior approved equal (see Section 1.4 C):

Epoxytec CPP Gel (#C311) by Epoxytec International, Inc.  
Tel. - 1 (877) GO EPOXY Fax - 1 (954) 961-2395

- (b) Concrete conditioning, filling and repair materials shall be in conformity to coating manufacturer recommendations.

C. Execution

1. Conditioners/Primers

- (a) The material thickness for conditioning the concrete in order to reduce the occurrence of outgassing will depend on the material recommended for the specific condition of the surface. Refer to manufacturer's published data for the material selected and recommended.

2. Filling and repair

- (a) Thickness is determined based on filling and patching voids to bridge sharp peaks and irregularities resulting from deteriorated concrete, spalls, cracks, bug holes in order to achieve an acceptable profile for the UME (Urethane-Modified-Epoxy) hybrid epoxy system to be applied. Use putty knife, spatulas and other trowel-applied tools as needed. Refer to manufacturer's published data for application specifics.

2.05 COATING/LINING

A. General

- 1. It is the intent of this specification to provide for the waterproofing and sealed corrosion protection of wet wells and similar underground structures by the safe, quick and economical application of a coating/lining system incorporating a 100% solids UME hybrid.

B. Materials

- 1. The UME hybrid epoxy coating system must be a hybrid epoxy exhibiting the following features:
  - (a) The hybrid epoxy coating must be a urethane-modified-epoxy (UME).
  - (b) The hybrid epoxy coating must be self-priming, requiring no primer.
  - (c) The hybrid epoxy coating must adhere to concrete with adhesion testing results in PSI that outperformed the cohesion of concrete (CIGMAT CT-2/3).
  - (d) Hybrid epoxy coating must be moisture tolerant to moisture levels of concrete up to 90%.

- (e) The hybrid epoxy coating must be able to react/perform in the presence of water.
- (f) The hybrid epoxy coating must withstand freeze-thaw and wet-dry cycles without causing adverse changes to the cure and performance properties.
- (g) The hybrid epoxy coating must be able to be applied by brush, roller, or spray in order to have options in mobilization requirement and apply in limited access areas.
- (h) The hybrid epoxy coating must hang with vertical and overhead thickness capability of 60 mils in one pass without sag.
- (i) The hybrid epoxy coating must have an indefinite recoat window without preparation for simple repair requirements.
- (j) The hybrid epoxy coating shall be resistant to all forms of chemical or bacteriological attack found in municipal sanitary sewer systems, including severe hydrogen sulfide (up to 600ppm).
- (k) The hybrid epoxy coating must have undergone testing and verified by the University of Houston's CIGMAT program for verification of technology exposed to underground sanitary sewer environments.
- (l) The hybrid epoxy coating must be a modified epoxy (epoxide) coating system exhibiting elongation (ASTM D2370) of 30% (minimum) to 40% (maximum) to ensure properties which withstand movement, vibration, and access induced mechanical impact.

2. Approved material shall exhibit the following physical properties:

- (a) Type hybrid, urethane-modified-epoxy
- (b) Solids by Volume ASTM D2697 100%
- (c) Solvent (VOC) ASTM D3960 none
- (d) Adhesion Strength (concrete, dry) CIGMAT CT-2/3 substrate failure
- (e) Adhesion Strength (brick, wet) CIGMAT CT-2/3 substrate failure
- (f) Adhesion Strength (steel) ASTM D4541 1,500+ psi
- (g) Water Absorption ASTM D1653 < 0.1 g/sq.m.
- (h) Acid Exposure (pH 1, H2SO4) CIGMAT CT-1passed
- (i) Tensile Strength ASTM D638 5,500+ psi
- (j) Flexural Modulus ASTM D790 55,000+ psi
- (k) Flexural Strength ASTM D790 8,000+ psi
- (l) Compressive Strength ASTM D695 7,000+ psi
- (m) Elongation ASTM D2370 30-40%
- (n) Complete Cure 18 hours (77F)

3. Specified material(s) are listed below, or prior approved equal (see Section 1.4 C):

EpoxytecUroflex (#UME38) by Epoxytec International, Inc.  
Tel. - 1 (877) GO EPOXY                      Fax – 1 (954) 961-2395

C. Execution

1. Examination

- (a) All structures to be coated shall be readily accessible to the Applicator.
- (b) Appropriate actions shall be taken to comply with local, state and federal regulatory and other applicable agencies with regard to environment, health and safety.
- (c) Any active flows shall be dammed, plugged or bypassed as required to ensure that the liquid flow is maintained below the surfaces to be coated and that concrete to be coated has not reached moisture levels surpassing 90%. All extraneous flows into the structures at or above the area coated shall be plugged and/or diverted until the UME (Urethane-Modified-Epoxy) hybrid epoxy system has set hard to the touch.
- (d) Temperature of the surface to be coated must be maintained between 65F and 110F during application. Prior to and during application, care should be taken to avoid exposure of direct sunlight or other intense heat source to the structure being coated. Specified surfaces should be shielded to avoid exposure of direct sunlight or other intense heat source. Where varying surface temperatures do exist, coating installation should be scheduled when the temperature is falling versus rising.
- (e) New Portland cement concrete structures shall have endured a minimum of 28 days since installation, prior commencing the conditioning, filling and repair, and coating installation.
- (f) Prior to commencing surface preparation, Contractor shall inspect all surfaces specified to receive the coating and notify Owner, of any noticeable disparity in the site, structure or surfaces which may interfere with the work, use of materials or procedures as specified herein.
- (g) Allow at least 24 hours (77F) for all repair, filling, patching, and conditioning materials to cure prior to coating, unless otherwise stated by the manufacturer.

2. Hybrid epoxy coating



- (a) If spraying, the spray equipment shall be specifically designed to accurately ratio and apply the specified hybrid epoxy coating materials and shall be regularly maintained and in proper working order.
- (b) Top coating or additional coats of the hybrid epoxy coating should occur as soon as the prior coat becomes tacky to tack-free, but no later than the recoat window for the specified material(s). Additional surface preparation procedures will be required if this recoat window is exceeded.
- (c) Follow all published and manufacturer recommended application methods. Properly mix and apply materials to all specified surfaces.
- (d) Material thickness
  - (1) For exterior buried conditions, the application shall cover all specified surfaces to a minimum DFT of 24-30 mils.
  - (2) As an interior liner, the application shall cover all specified surfaces to a minimum DFT of 40 mils.

## 2.06 QUALITY ASSURANCE AND ACCEPTANCE

- A. Surface preparation inspection must take place prior to proceeding to material applications. Applicator must record pH level, record psi level of water pressure and/or abrasive media type, and ICRI conditions and submit to coating manufacturer's representative or designated inspector.
- B. During application, Applicator shall regularly perform and record epoxy coating thickness readings with a wet film thickness gage, such as those meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, to ensure uniform thickness during application or other similar measuring probe.
- C. Applicator shall perform holiday detection on all surfaces coated with the UME epoxy coating in the presence of the coating manufacturer's representative or designated inspector. After the UME epoxy coating has set hard to the touch, surfaces shall first be dried. An induced holiday shall then be made onto the coated concrete surface and shall serve to determine the minimum/maximum voltage to be used to test the coating for holidays at that particular area. The spark tester shall be initially set at 100 volts per 1 mil (25 microns) of film thickness applied but may be adjusted as necessary to detect the induced holiday (refer to NACE RPO188-99). All detected holidays shall be marked by the coating manufacturer's approved marking methods and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional epoxy coating material can be hand applied to

the repair area. All touch-up/repair procedures shall follow the coating manufacturer's recommendations.

- D. A final visual inspection shall be made by the Applicator, coating manufacturer's representative or designated inspector. Any deficiencies in the finished coating shall be marked and repaired by Applicator according to the procedures set forth herein.

END OF SECTION

## SECTION 11312

### COLLECTION SYSTEM BYPASS

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. The work covered by this Section consists of providing all temporary bypassing to perform all operations in connection with the flow of wastewater around pipe segment(s) or lift stations. The purpose of bypassing is to prevent wastewater overflows and provide continuous service to all wastewater customers. The Contractor shall maintain wastewater flow in the construction area in order to prevent backup and/or overflow and provide reliable wastewater service to the users of the wastewater system at all times. Temporary bypass is required at multiple locations through the project duration and will be based on phased construction, as necessary. In addition, noise attenuation, maintenance, MOT and permitting for bypass pumping operations will be required at no additional cost to the City.

#### PART 2- PRODUCTS

##### 2.01 GENERAL

- A. The Contractor shall provide and maintain adequate equipment, piping, bypassing, tankers and other necessary facilities and appurtenances in order to maintain continuous and reliable wastewater service in all wastewater lines as required for construction. Bypass pumping operation to be conducted by manned supervision 24 hours per day (including weekends) and backup emergency auto-dialer installed. The Contractor shall have tankers, backup pumps, linestops with bypass piping as needed, backup generators, plugs, piping and appurtenances ready to deploy immediately.
- B. Bypass pumps shall be skid mounted diesel pumps/systems as manufactured by Thompson Pumps, Godwin Pumps, Rain for Rent, or an approved equal.
- C. Blocked gravity lines shall include two (2) line stops, one (1) primary and one (1) redundant.
- D. Bypass equipment shall include discharge flow meter and multiple pressure gauges.
- E. Bypass plan/systems shall have complete redundancy and shall include one (1) back-up pump equal to the primary.

## PART 3- EXECUTION

### 3.01 GENERAL

- A. The Contractor shall have scheduled delivery of all materials, equipment and labor necessary to complete the repair, replacement or rehabilitation to the job site prior to isolating the gravity main segment, manhole, or pump station. The Contractor shall demonstrate that the pumping system is in good working order and is sufficiently sized to successfully handle flows by performing a test run for a period of 48 hours prior to beginning the work.

### 3.02 TRAFFIC CONSIDERATIONS

- A. The Contractor shall locate bypass pumping suction and discharge lines so as to not cause undue interference with the use of streets, private driveways, accessways, and alleys. This requirement may necessitate temporary trenching or bypass ramps. Ingress and egress to adjacent properties shall be maintained at all times. Ramps, steel plates or other methods shall be deployed by the Contractor to facilitate traffic over the bypass or surface piping. High traffic commercial properties may require alternate methods. The Contractor is required to provide maintenance of traffic (MOT) for all bypass piping operations including, but not limited to, permitting, approvals, fees and phased construction at no additional cost to the City.

### 3.03 BYPASS PLAN

- A. The Contractor shall submit a comprehensive written plan according to the submittal specifications, which describes the intended bypass for the maintenance of flows during construction. The Contractor shall also provide a sketch showing the location of bypass pumping equipment for each pump station or line segments around which flows are being bypassed. The plan shall include any proposed tankers, pumps, bypass piping, backup plan and equipment, linestops and bypass piping, ramps, work schedule, phasing, monitoring log for bypass pumping, noise attenuation, monitoring plan of the bypass pumping operation and maintenance of traffic plan. The Contractor shall cease bypass operations and return flows to the new and/or existing sewer when directed by the Owner. All piping shall be designed to withstand at least twice the maximum system pressure or a minimum of 50 psi, whichever is greater. During bypassing, no wastewater shall be leaked, dumped, or spilled in or onto, any area outside of the existing wastewater system. When bypass operations are complete, all bypass piping shall be drained into the wastewater system prior to disassembly.

### 3.04 BYPASS OPERATION

- A. The Owner shall review and provide written comments to the bypass plan prior to implementation of the bypass. The Contractor shall notify City operations 72 hours prior to commencement of bypassing and to allow time for coordination as necessary. The Contractor shall plug off and pump down the line segment in the

immediate work area and shall maintain the wastewater system so that surcharging does not occur.

- B. The Owner shall accept the bypass plan prior to implementation of the bypass. Contractor will plug off and pump down the line segment in the immediate work area. A successful 3-day test period shall be performed during Owner work days (no weekends). If the Contractor is unable to isolate the system prior to installation of the temporary bypass connection, then a wet tap will be required at the expense of the Contractor.
- C. Where work requires the line to be blocked beyond NORMAL WORKING HOURS and bypass pumping is being utilized, the Contractor shall be responsible for on-site monitoring the bypass operation 24 hours per day, 7 days per week, by on-site personnel. Additionally, backup emergency auto-dialer installation is required.
- D. During bypassing, no wastewater will be leaked, dumped, or spilled in or onto, any area outside of the existing wastewater system.
- E. The Contractor shall insure that no damage will be caused to private property as a result of bypass pumping operations. The Contractor shall complete the work as quickly as possible and satisfactorily pass all tests, inspections and repair all deficiencies prior to discontinuing bypassing operations and returning flow to the sewer manhole, line segment, or lift station.
- F. The Contractor shall immediately notify the Owner should a sanitary sewer overflow occur and the Contractor shall take the necessary action to clean up and disinfect the spillage to the satisfaction of the Owner and/or other governmental agency. If sewage is spilled onto public or private property, the Contractor shall wash down, clean up and disinfect the spillage to the satisfaction of the Owner and/or other governmental agency. When bypassing, complete redundancy is required. One back-up pump equal to the primary unit shall be required. Bypass pumps and motors shall have a maximum rating of 55 decibels at 20 feet for sound attenuation.
- G. Contractor shall provide secure temporary fencing around all bypass pumping equipment. Owner shall be given keys to access the bypass equipment.

### 3.05 CONTRACTOR LIABILITY

- A. The Contractor shall be responsible for all required pumping, equipment, piping and appurtenances to accomplish the bypass and for any and all damage that results directly or indirectly from the bypass pumping equipment, piping and/or appurtenances. The Contractor shall also be liable for all Owner personnel and equipment costs, penalties and fines resulting from sanitary sewer overflows. In addition to the aforementioned costs to be paid by the Contractor, a fine of \$5,000 per overflow occurrence or sanitary sewer disruption shall be assessed. For each 24-hour period following overflow that the wastewater overflow/damage is not completely cleaned, disinfected, and returned to full operational capacity an additional \$5,000 fine will be assessed daily.

It is the intent of these specifications to require the Contractor to establish adequate bypass pumping as required regardless of the flow condition.

END OF SECTION

# APPENDIX 1

The information shown in these appendices with the exception of approved permits are for informational purposes only. This information was not prepared by the Engineer of Record and therefore the accuracy of the information cannot be guaranteed. The Contractor is fully responsible for performing his/her own due diligence prior to preparing their final bid price. The Contractor is also responsible to adhere to all permit conditions and requirements shown in the attached permits

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# **REPORT OF GEOTECHNICAL EXPLORATION**

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**WATER MAIN REPLACEMENT PROGRAM FROM JOHNSON STREET TO TAFT  
STREET AND FROM N. 66TH AVENUE TO NW 76TH AVENUE  
(excluding segment between NW 72nd Avenue and N. 76th Terrace and  
segment between NW 72nd Avenue and N. 66th Avenue)  
Hollywood, Broward County, Florida**

Prepared for:

**EAC Consulting, Inc.  
815 NW 57th Avenue, Suite 402  
Miami, FL 33126**

Prepared By

**ADVANCE CONSULTING ENGINEERING SERVICES, INC.  
7800 West Oakland Park Blvd.  
Suite 109  
Sunrise, FL 33351**

February 13, 2015

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# ACES, Inc

## Consulting Engineers

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February 13, 2015

EAC Consulting, Inc.  
815 NW 57th Avenue, Suite 402  
Miami, FL 33126

Attention: Ms. Sharmin Siddique, P.E.  
Sr. Project Manager, Civil Engineering

Reference: Report of Geotechnical Exploration  
**Water Main Replacement Program from Johnson Street to Taft Street and  
From N. 66<sup>th</sup> Avenue to NW 76<sup>th</sup> Avenue (excluding segment between NW  
72<sup>nd</sup> Avenue and N. 76<sup>th</sup> Terrace and segment between NW 72<sup>nd</sup> Avenue  
and N. 66<sup>th</sup> Avenue)**  
**Hollywood, Broward County, Florida**  
ACES Project No. 21405

Dear Ms. Siddique:

Advance Consulting Engineering Services, Inc. (ACES) is pleased to present this Report of Geotechnical Exploration for the above referenced project.

We appreciate the opportunity to work with you during this phase of the project, and look forward to our continued association during the course of this project or any future projects. If you have any questions concerning this report, please contact us.

Sincerely,

**ADVANCE CONSULTING ENGINEERING SERVICES, INC.**

Juan G. Soto, P.E.  
Principal Engineer  
Florida Registration No. 42759

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Advance Consulting Engineering Services, Inc.

7800 West Oakland Park Blvd.,  
Suite 109, Sunrise, FL 33351  
Phone: (954) 746-6868 Fax: (954) 697-2230

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## **1.0 INTRODUCTION**

Project information was provided via email by Ms. Sharmin Siddique, P.E. from EAC Consulting, Inc. on July 14 to 24, 2014, and on September 2, 2014.

We understand that the proposed Water Main Replacement Program will take place in Hollywood, Florida in the area bounded by N. 66th Avenue on the east, N.W. 76th Terrace on the west, Johnson Street on the South and Taft Street on the North.

## **2.0 FIELD EXPLORATION**

In order to explore the subsurface conditions in the area of the planned construction, ACES has performed 75 Standard Penetration Test Borings (SPT borings) to an approximate depth of 10 feet below the existing ground surface in the vicinity of the locations included in our proposal of September 3, 2014.

The approximate locations of these borings are provided in the Field Exploration Plans presented in Appendix A of this report.

These field tests were performed during the period from December 14, 2014 to January 6, 2015.

These locations were selected by ACES and EAC Consulting, Inc. and established in the field by our personnel using tape measurements from existing landmarks such as the buildings, and roads in the study area.

The Test Boring Records, in the Appendix, graphically show the penetration resistances and present the soil descriptions for each test boring. The stratification lines and depth designations on the boring records represent the approximate boundaries between soil types. In some instances, the transition between soil types may be gradual.

Ground surface elevation at the approximate test boring locations were provided by Gibbs Land Surveyors on February 12, 2015. These ground surface elevations refer to NAVD88 datum.

A brief description of the exploratory drilling and sampling techniques used is presented in the Field Procedures section of the Appendix B of this report.

### 3.0 LABORATORY TESTING

Samples of various soil material types encountered in our field exploration program for the project were selected for soil classification tests.

The laboratory classification testing program consisted of 6 grain sieve analysis, and 5 organic content tests. These tests were performed on selected disturbed samples obtained from the SPT test borings.

Table 1 below presents the applicable ASTM standards used for these tests.

***TABLE 1 - TEST STANDARDS FOR PHYSICAL LABORATORY TESTING***

Type of Test	Number of Tests Performed	Applicable Test Procedure
Grain Sieve Analysis	6	ASTM D-422
Organic Content Determination Test	5	ASTM D-2974

A Summary of the results of these tests is presented in Appendix C of this report in a table titled “SUMMARY OF LABORATORY TEST RESULTS”. Individual grain sieve analysis curves are also included for each of the soil samples tested.

A brief description of the laboratory test procedures used is presented in Laboratory Procedures section in the Appendix C of this report.

## 4.0 GENERAL SITE GEOLOGY, SITE AND SUBSURFACE CONDITIONS

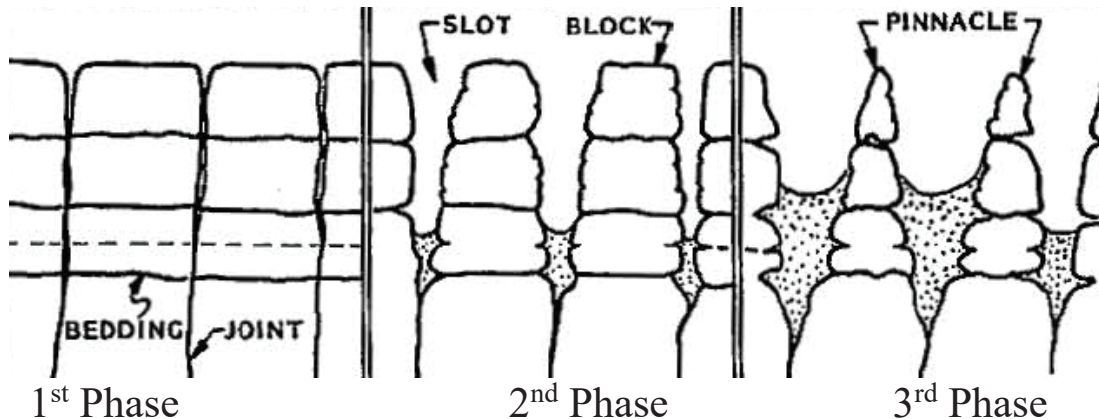
### 4.1 General Site Geology

The proposed project is located on the southern flank of the Florida Plateau, a stable carbonate platform on which thick deposits of limestones, dolomites, and evaporites have accumulated. In the study area, the upper 200 feet of this platform are composed predominantly of quartz Pamlico Sand, Miami Limestones, and sands of Anastasia Formations as well as limestones and calcareous sandstones of Anastasia Formations. The sediments were deposited during several glacial and interglacial stages during the Pleistocene Epoch of geologic time.

Within the explored depths of this study, soil and rock materials which appear to be associated with two major geological formations were encountered below the fill materials and recent deposits. These formations were in descending order: Pamlico Sand, and Miami Limestone Formation.

The Pamlico Sand from the Late Pleistocene consists mainly of nonfossiliferous, very fine to coarse (averaging medium) quartz sands. In many portions of the project area, these materials have been replaced and/or combined with fill materials and organic soils. The underlying rock formation is highly eroded where solution cavities are present relatively frequent. The sandy materials from the Pamlico Sand tend to ravel and trickle down into the solution cavities of the underlying Miami Limestone by downward percolation of the water.

As mentioned above, underlying the Pamlico Formation, materials similar to those associated with the Miami Limestone Formation were encountered. This Miami Limestone Formation is typically the uppermost geological formation of the Biscayne Aquifer in Southern Florida. In the project area, this formation appears to be highly eroded. The process of erosion of the limestone may be typically described as follows:



In the first phase, vertical joints are developed in the rock formation; in the second phase, the cracks get widened through solution narrowing the blocks of limestone; and in the 3<sup>rd</sup> phase, the blocks are narrowed into pinnacles. In this final phase, the soils above the limestone pinnacles

show higher densities that start decreasing with depth as the soils start to ravel into the cavities and/or in between the limestone pinnacles. From the frequent presence of cavities, and the relatively low N-values observed in the Miami Limestone formation in nearby projects, we believe that Miami Limestone Formation in this project is in the 3<sup>rd</sup> Phase of erosion.

The Miami Limestone Formation is a geological formation from the Pleistocene Epoch which consists of a porous, sometimes sandy, fossiliferous, pelletal, oolitic packstone or grainstone (oolitic limestones). Solution holes filled or partially filled with detritus are commonly encountered in this limestone formation in the project area.

## **4.2 Site Conditions**

The existing site conditions were observed by Mr. Juan G. Soto several times during the period from December 14, 2014 to January 6, 2015. At the time of our visit, the ground cover, where encountered, in the project area consisted of asphalt, concrete and grass.

The topography encountered was generally level throughout the site. The approximate difference in ground surface elevations between the highest and lowest points was as much as 2.6 feet based on the ground surface elevations provided to our office.

Standing water was not noted in the project area at the time of our visits.

## **4.3 Subsurface Conditions**

### **4.3.1 General**

The subsurface conditions outlined below highlight the major subsurface stratifications. The SPT test boring records presented in Appendix B, should be consulted for a detailed description of the subsurface conditions encountered at each boring locations. When reviewing the boring records, it should be understood that soil conditions may vary between boring locations.

### **4.3.2 Soils**

The ground cover, when present, generally consisted mostly of grass or asphalt. Topsoil layer consisting mostly of organic sands was typically encountered in the upper 2 to 14 inches of depth. The asphalt cover, when encountered, was 3 inches thick. Below these materials, very loose to medium dense, clean to silty sands and very loose to loose dense sands combined with different proportions of limerock were observed to the boring termination depth of 10 feet.

A pocket of sands combined with coarse roots was encountered at the location of SPT boring TB-03 in the approximate depth range from +3-1/2 to +4 feet.

### 4.3.3 Groundwater

The groundwater level was measured at the test locations at the time of drilling.

The depths to the groundwater at the time of drilling ranged vary approximately from 3.8 feet to 6.1 feet below the ground surface elevation existing at the time of testing. The average groundwater level elevation measured at the time of drilling at the SPT boring locations ranged from approximately -0.9 to +1.5 feet.

A review of the contours of average water table altitude in Broward County for April (dry season) September (wet season) during the period from 1974 to 1982 suggests that the average water table elevation in the project area may range from +2.1 feet to +2.3 feet.

Fluctuation in the observed groundwater levels should be expected due to seasonal climatic changes, tidal changes, construction activity, rainfall variations, surface water runoff, and other site specific factors. Since groundwater level variations are anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based on the assumption that variations will occur.

## **5.0 ENGINEERING RECOMMENDATIONS FOR SITE PREPARATION**

### **5.1 Basis of Recommendations**

The recommendations and evaluations provided in the following sections of this report are based upon the previously presented project information and structural conditions along with the data obtained in this exploration. The field and laboratory data have been evaluated based on commonly accepted geotechnical methods for foundation design of structures bearing on soils similar to those encountered at this site. If the structural information is incorrect or the location of the structure changed, please contact us so that our recommendations can be reviewed. The discovery of any site and/or subsurface conditions during construction which deviates from the data obtained in this exploration should also be reported to us for our evaluation.

The assessment of site environmental conditions or the presence of pollutants in the soil, rock or groundwater of the site is beyond the proposed scope of this exploration.

### **5.2 Geotechnical Recommendations**

#### **5.2.1 General**

This section focuses on the geotechnical evaluation of the suitability of the different soil materials encountered in the vicinity of the proposed Perimeter Road improvements.

#### **5.2.2 Recommended Geotechnical Parameters**

This section presents the estimated geotechnical parameters for the different soils encountered at the locations of the SPT borings performed in the proposed study area.

The estimated geotechnical parameters of the soil layers include:

- Moist Unit Weight of Soil or Rock, and
- Friction Angle of Soil or Rock

The above geotechnical parameters were estimated from established correlations between SPT N-value and these parameters. A summary of these estimated geotechnical parameters is presented in a spreadsheet titled “Summary of Estimated Geotechnical Parameters” in Appendix D.

*Moist Unit Weight:* The moist unit weight as presented in the above mentioned spreadsheet was estimated based exclusively on the SPT N-values without giving a consideration to the presence of the ground water level. In order to obtain the buoyant unit weight of the soil, the unit weight of the water should be subtracted from the value of the unit weight as presented in Appendix D.



The correlation used to estimate the unit weight was that presented for cohesionless soils by Joseph E. Bowels in his book titled “Foundation Analysis and Design” printed by McGraw-Hill Book Company in 1977.

*Friction Angle:* The friction angle as presented in the above mentioned spreadsheet was estimated based exclusively on the SPT N-values.

The correlation used to estimate the friction angle was that presented for cohesionless soils by Joseph E. Bowels in his book titled “Foundation Analysis and Design” printed by McGraw-Hill Book Company in 1977.

### **5.2.3 Allowable Side Slopes for Shallow Trench Excavation**

The maximum depth of the trenches is anticipated to be 10 feet below the existing ground surface. Following the guidelines provided in OSHA Regulations (Standards -29 CFR) - Sloping and Benching - 1926 Subpart P App B, the materials encountered are granular soils that may be classified as Type C materials.

Following the above referenced OSHA regulations, the recommended maximum allowable slope for the shallow excavations into these materials is 1.5 Horizontal to 1 Vertical.

## **6.0 CONSTRUCTION PLANS AND SPECIFICATIONS REVIEW**

It is recommended that this office be provided the opportunity to make a general review of the pavement design, site preparation, and earthwork plans and specifications prepared from the recommendations presented in this report. We would then suggest any modifications so that our recommendations are properly interpreted and implemented. Our report has been written in a guideline recommendation format and is not appropriate for use as a specification without in-part being reworded into a specification-type format.

It is recommended that this report not be made a part of the contract documents, however, it should be made available to prospective contractors for information purposes.

## **7.0 LIMITATIONS**

The recommendations presented herein are applicable only for the anticipated construction at the locations explored. This study was performed in accordance with generally accepted geotechnical engineering practices. However, subsurface conditions may change between boring locations. If construction plans change or, if soil conditions are found to change significantly during construction, we should be notified immediately so that we can reevaluate our recommendations. It should be noted that analysis was performed based on limited soil test results.

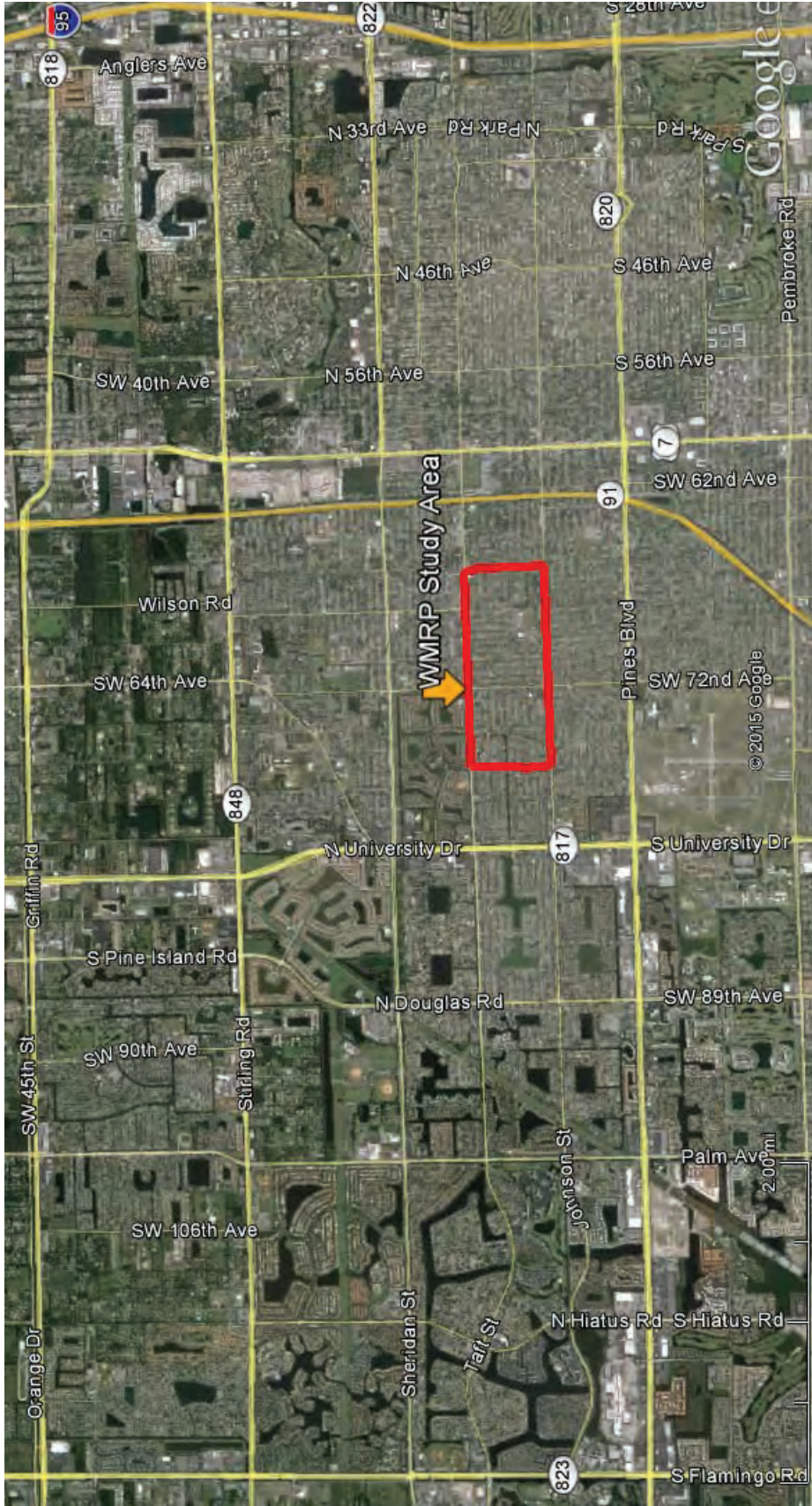
The information in this report is intended for the exclusive use of EAC Consulting, Inc. and the design team for this project. Advance Consulting Engineering Services, Inc. will not be responsible for conclusions, opinions, or recommendations made by others based on the data presented herein.

# APPENDIX A

**AERIAL PHOTO SHOWING  
APPROXIMATE PROJECT LOCATION**

WATER MAIN REPLACEMENT PROGRAM FROM JOHNSON STREET TO TAFT STREET AND  
FROM N. 66<sup>TH</sup> AVENUE TO NW 76<sup>TH</sup> AVENUE  
(excluding segment between NW 72<sup>nd</sup> Avenue and N. 76<sup>th</sup> Terrace  
and segment between NW 72<sup>nd</sup> Avenue and N. 66<sup>th</sup> Avenue)

SITE LOCATION MAP  
ACES JOB No. 21405



Approximate Scale -- 1 inch = 6,000 feet

Advance Consulting Engineering Services, Inc.

7800 West Oakland Park Blvd.,  
Suite 109, Sunrise, FL 33351  
Phone: (954) 746-6868 Fax: (954) 697-2230

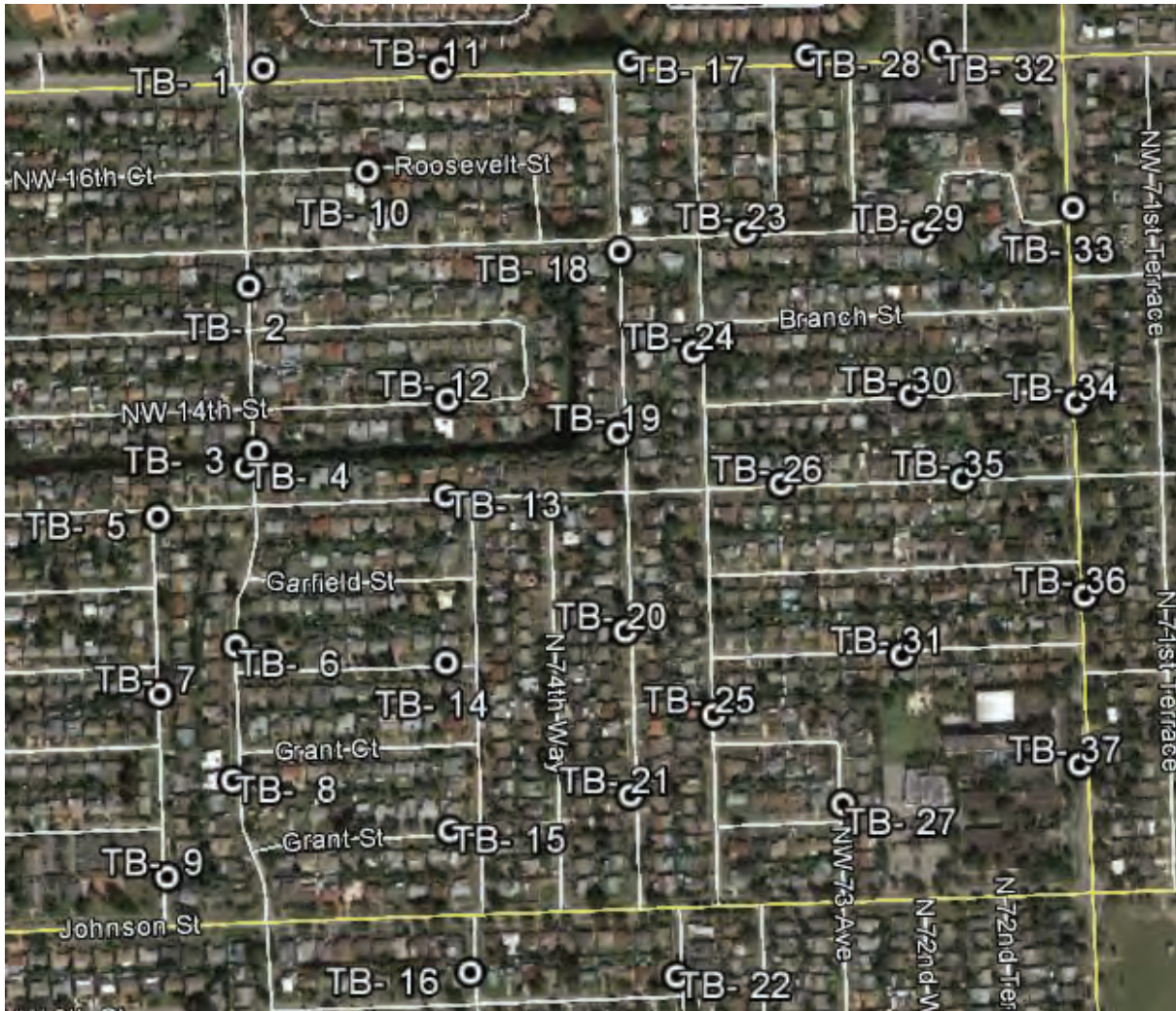
# FIELD EXPLORATION PLANS

WATER MAIN REPLACEMENT PROGRAM  
FROM JOHNSON STREET TO TAFT STREET AND  
FROM N. 66<sup>TH</sup> AVENUE TO NW 76<sup>TH</sup> AVENUE

(excluding segment between NW 72<sup>nd</sup> Avenue and N. 76<sup>th</sup> Terrace  
and segment between NW 72<sup>nd</sup> Avenue and N. 66<sup>th</sup> Avenue)

FIELD EXPLORATION PLAN (1 of 2)  
ACES JOB No. 21405

NORTH



Approximate Scale -- 1 inch = 600 feet

Advance Consulting Engineering Services, Inc.

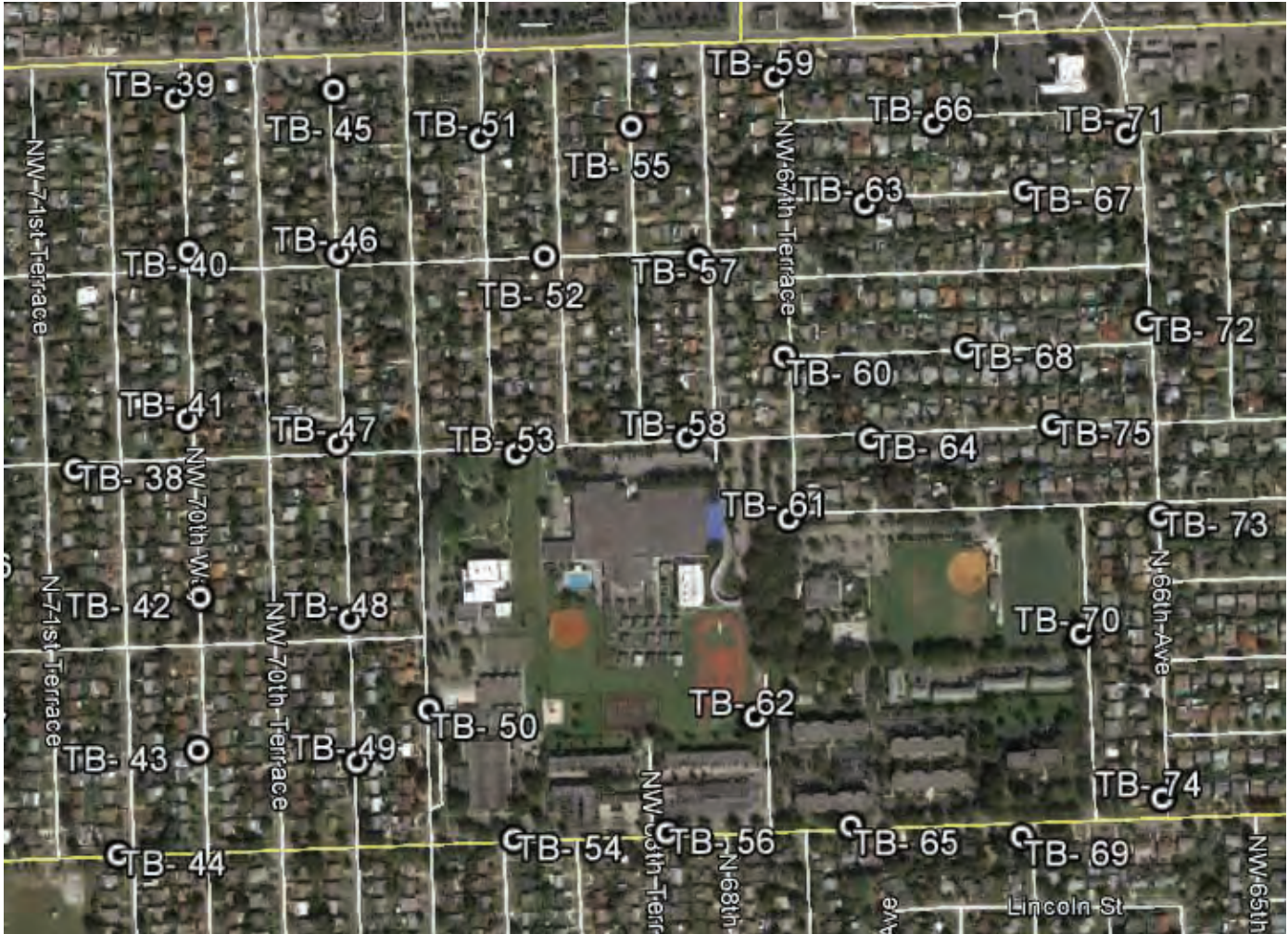
7800 West Oakland Park Blvd.,  
Suite 109, Sunrise, FL 33351  
Phone: (954) 746-6868 Fax: (954) 697-2230

WATER MAIN REPLACEMENT PROGRAM  
FROM JOHNSON STREET TO TAFT STREET AND  
FROM N. 66<sup>TH</sup> AVENUE TO NW 76<sup>TH</sup> AVENUE

(excluding segment between NW 72<sup>nd</sup> Avenue and N. 76<sup>th</sup> Terrace  
and segment between NW 72<sup>nd</sup> Avenue and N. 66<sup>th</sup> Avenue)

FIELD EXPLORATION PLAN (2 of 2)  
ACES JOB No. 21405

NORTH



Approximate Scale -- 1 inch = 600 feet

Advance Consulting Engineering Services, Inc.

7800 West Oakland Park Blvd.,  
Suite 109, Sunrise, FL 33351  
Phone: (954) 746-6868 Fax: (954) 697-2230



# APPENDIX B

# TEST BORING RECORDS

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-01*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.6*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)		LL		Standard Penetration Test			
		+	○	+	X										
						10	20	30	40	50	60	70	80	90	
0				Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)											
5				LOOSE, light brown, fine to medium SAND with trace of limerock (SP)											
				VERY LOOSE, tan, fine to medium SAND (SP)											
				VERY LOOSE, brown, fine to medium SAND (SP)	▽										
5				LOOSE, brown, silty, fine to medium SAND (SM)		13.0									
				LOOSE, tan to light gray, fine to medium SAND (SP)											
10															
	-5														
15															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/14/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/14/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1





# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-04*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*4.5*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)					LL		
		+-----○-----+ X Standard Penetration Test													
						10	20	30	40	50	60	70	80	90	
0				Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)											
				LOOSE, light brown, silty, fine to coarse SAND with some limerock (SM)		X	10								
				VERY LOOSE, light gray and brown, fine to medium SAND (SP)		X	3								
				VERY LOOSE, reddish brown, slightly silty, fine to medium SAND (SP-SM)											
	0			VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)		X	2								
5						X	4								
						X	6								
	-5														
10															
	-10														
15															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/14/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/14/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-05*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.0*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)		LL										
										+	○	+								
										✕ Standard Penetration Test										
										10	20	30	40	50	60	70	80	90		
0	5			LOOSE, black, organic, silty, fine to medium SAND with little limerock (OL)																
				LOOSE to MEDIUM DENSE, tan, fine to medium SAND (SP)																
				VERY LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)	▽															
5	0			LOOSE, tan, fine to medium SAND (SP)																
				LOOSE, tan, fine to medium SAND (SP)																
10	-5																			
15	-10																			

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/15/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/15/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-06*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*4.6*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS													
						PERCENT FINES	PL	W(%)		LL									
							+-----+ X Standard Penetration Test												
						10	20	30	40	50	60	70	80	90					
0				Dark brown to black, organic, silty, fine to medium SAND (OL)															
				LOOSE, tan, silty, fine to coarse SAND and LIMEROCK (SM)															
				LOOSE, tan, fine to medium SAND (SP)															
				VERY LOOSE, brown, fine to medium SAND (SP)															
	0			VERY LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)															
5				VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
				VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
				VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
	-5			VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
10				VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
				VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
				VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
	-10			VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
15				VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/14/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/14/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	



# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-07*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.2*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS											
						PERCENT FINES	PL	W(%)		LL		Standard Penetration Test					
		+	○		+		X										
0	5			Black, organic, silty, fine to medium SAND with trace of roots (OL)													
				Tan, fine to medium SAND and LIMEROCK (SW)													
				LOOSE, tan, fine to medium SAND (SP)													
				VERY LOOSE, dark reddish brown, silty, fine to medium SAND (SM)													
5	0			VERY LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)													
				LOOSE, tan, slightly silty, fine to medium SAND (SP-SM)													
10	-5																
15																	

REMARKS:	DRILLED BY:	STARTED:	
	<i>S. Correa</i>	<i>12/14/14</i>	
	LOGGED BY:	COMPLETED:	
	<i>J. Soto</i>	<i>12/14/14</i>	
CHECKED BY:	APPROVED BY:	SHEET 1 OF 1	
<i>AZS</i>	<i>JGS</i>		

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-08*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.0*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)		LL					
							+-----+ X Standard Penetration Test								
						10	20	30	40	50	60	70	80	90	
0	5			Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)											
				LOOSE, tan, silty, fine to coarse SAND and LIMEROCK (SM)											
				LOOSE to VERY LOOSE, tan, fine to medium SAND (SP)											
					▽										
5	0			VERY LOOSE, dark brown to reddish brown, slightly silty, fine to medium SAND (SP-SM)											
				LOOSE to VERY LOOSE, tan, fine to medium SAND (SP)											
10	-5														
15	-10														

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/14/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/14/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-09*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.2*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS										
						PERCENT FINES	PL	W(%)		LL						
		+-----+-----+		○-----○-----○												
		X Standard Penetration Test														
								10	20	30	40	50	60	70	80	90
0	5			Dark gray, organic, silty, fine to medium SAND with trace of roots (OL)												
				LOOSE, tan, fine to medium SAND (SP)												
				VERY LOOSE, dark brown, silty, fine to medium SAND (SM)	▽											
5	0			VERY LOOSE to LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)												
				LOOSE, tan, fine to medium SAND (SP)												
10	-5															
15																

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/14/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/14/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
21405

BOREHOLE NUMBER:  
**TB-10**

EQUIPMENT & METHODS:  
Diedrich D-90 / Automatic Hammer  
Rotary /Mud

PROJECT/LOCATION:  
WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida

CLIENT/OWNER:  
EAC Consulting, Inc.

GROUND LEVEL(ft):  
4.6

COORDINATES:  
See Field Exp. Plan

DATE:  
January 2015

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)		LL										
							+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
						* Standard Penetration Test														
						10	20	30	40	50	60	70	80	90						
0				Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)																
				MEDIUM DENSE, tan, silty, fine to coarse SAND and LIMEROCK (SM)																
				LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE, dark brown, slightly silty, fine to medium SAND (SP-SM)																
	0			VERY LOOSE, brown, fine to medium SAND (SP)																
5				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
	-5			VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
10				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
	-10			VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
15				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																

REMARKS:	DRILLED BY: S. Correa	STARTED: 12/15/14	SHEET 1 OF 1
	LOGGED BY: J. Soto	COMPLETED: 12/15/14	
	CHECKED BY: AZS	APPROVED BY: JGS	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-11*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*6.5*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS															
						PERCENT FINES	PL	W(%)					LL								
							+	-----○-----+	× Standard Penetration Test 10 20 30 40 50 60 70 80 90												
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)																	
5				VERY LOOSE, brown, slightly organic, slightly silty, fine to medium SAND (SP-SM)			×														
				VERY LOOSE, tan to light brown, slightly silty, fine to medium SAND with some limerock (SP-SM)																	
				LOOSE, light brown, fine to medium SAND (SP)			×														
				LOOSE, tan to light brown, fine to medium SAND (SP)																	
5							×														
10							×														
							×														
							×														
							×														
15							×														

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/14/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/14/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-12*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*4.2*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
		+-----○-----+		X Standard Penetration Test																
				10 20 30 40 50 60 70 80 90																
0				Black, organic, silty, fine to medium SAND (OL)																
				LOOSE, brown, slightly silty, fine to medium SAND with some limerock (SP-SM)																
				LOOSE, tan, fine to medium SAND (SP)																
				LOOSE to VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)																
5				VERY LOOSE to LOOSE, brown, fine to medium SAND (SP)																
-5																				
10				LOOSE, tan to light brown, fine to medium SAND (SP)																
-10																				
15																				

REMARKS:	DRILLED BY:	STARTED:	
	<i>S. Correa</i>	<i>12/16/14</i>	
	LOGGED BY:	COMPLETED:	
<i>J. Soto</i>	<i>12/16/14</i>		
CHECKED BY:	APPROVED BY:	SHEET 1 OF 1	
<i>AZS</i>	<i>JGS</i>		

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-13*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*4.9*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
							+	- - - - -					+							
						✕ Standard Penetration Test														
						10	20	30	40	50	60	70	80	90						
0				Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)																
				VERY LOOSE, light brown, fine to medium SAND (SP)			✕													
				VERY LOOSE, tan, fine to medium SAND (SP)			✕													
				VERY LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)	▽		✕													
5	0			LOOSE, light brown to tan, fine to medium SAND (SP)			✕													
							✕													
							✕													
10	-5																			
15	-10																			

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/15/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/15/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-14*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.4*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS													
						PERCENT FINES	PL	W(%)		LL									
							+-----+-----+ X Standard Penetration Test												
						10	20	30	40	50	60	70	80	90					
0	5			Black, organic, silty, fine to medium SAND with trace of roots (OL)															
				LOOSE, tan, silty, fine to coarse SAND with some limerock (SM)															
				LOOSE, tan, fine to medium SAND (SP)															
				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)	▽														
				LOOSE, tan, fine to medium SAND (SP)															
10	-5																		
15																			

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/16/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/16/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	



# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
21405

BOREHOLE NUMBER:  
**TB-15**

EQUIPMENT & METHODS:  
Diedrich D-90 / Automatic Hammer  
Rotary /Mud

PROJECT/LOCATION:  
WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida

CLIENT/OWNER:  
EAC Consulting, Inc.

GROUND LEVEL(ft):  
5.5

COORDINATES:  
See Field Exp. Plan

DATE:  
January 2015

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)		LL										
										+	○	+								
										✕ Standard Penetration Test										
										10	20	30	40	50	60	70	80	90		
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)																
5				LOOSE, tan and brown, silty, fine to coarse SAND with some limerock (SM)																
				LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)																
5																				
				LOOSE, tan, fine to medium SAND (SP)																
10																				
15																				

REMARKS:	DRILLED BY:	STARTED:	
	S. Correa	12/16/14	
	LOGGED BY:	COMPLETED:	
J. Soto	12/16/14		
CHECKED BY:	APPROVED BY:	SHEET 1 OF 1	
AZS	JGS		

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-16*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.6*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)		LL	Standard Penetration Test				
		+	○	+	X										
						10	20	30	40	50	60	70	80	90	
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)											
5				MEDIUM DENSE, tan, silty, fine to coarse SAND with some limerock (SM)			X <sub>12</sub>								
				MEDIUM DENSE to LOOSE, tan, fine to medium SAND (SP)				X <sub>9</sub>							
5				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)			X <sub>1</sub>								
				LOOSE, tan, fine to medium SAND (SP)				X <sub>6</sub>							
								X <sub>5</sub>							
10															
	-5														
15															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/16/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/16/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
21405

BOREHOLE NUMBER:  
**TB-17**

EQUIPMENT & METHODS:  
Diedrich D-90 / Automatic Hammer  
Rotary /Mud

PROJECT/LOCATION:  
WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida

CLIENT/OWNER:  
EAC Consulting, Inc.

GROUND LEVEL(ft):  
6.3

COORDINATES:  
See Field Exp. Plan

DATE:  
January 2015

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS										
						PERCENT FINES	PL	W(%)		LL						
							+	○		+		X Standard Penetration Test				
								10	20	30	40	50	60	70	80	90
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)												
5				LOOSE to VERY LOOSE, tan, fine to medium SAND (SP)			X <sub>5</sub>									
5				VERY LOOSE, brown, fine to medium SAND (SP)			X <sub>4</sub>									
0				LOOSE, tan, fine to medium SAND (SP)			X <sub>5</sub>									
10							X <sub>5</sub>									
-5																
15																

REMARKS:

DRILLED BY:

S. Correa

STARTED:

12/14/14

LOGGED BY:

J. Soto

COMPLETED:

12/14/14

CHECKED BY:

AZS

APPROVED BY:

JGS

SHEET 1 OF 1



# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-19*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.1*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL		W(%)		LL		Standard Penetration Test		
							10	20	30	40	50	60	70	80	90
0	5			Black, organic, sandy SILT with trace of roots (OL)											
				MEDIUM DENSE, tan, silty, fine to coarse SAND and LIMEROCK (SM)											
				LOOSE, tan, slightly silty, fine to medium SAND with some limerock (SP-SM)											
				LOOSE, brown, fine to medium SAND (SP)											
				VERY LOOSE, tan, fine to medium SAND (SP)											
5	0			VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)											
				VERY LOOSE, tan, fine to medium SAND (SP)											
				VERY LOOSE, dark brown, slightly silty, fine to medium SAND (SP-SM)											
				VERY LOOSE, tan, fine to medium SAND (SP)											
10	-5														
15															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/16/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/16/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
21405

BOREHOLE NUMBER:  
**TB-20**

EQUIPMENT & METHODS:  
Diedrich D-90 / Automatic Hammer  
Rotary /Mud

PROJECT/LOCATION:  
WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida

CLIENT/OWNER:  
EAC Consulting, Inc.

GROUND LEVEL(ft):  
6.3

COORDINATES:  
See Field Exp. Plan

DATE:  
January 2015

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)		LL										
										+	○	+								
										✕ Standard Penetration Test										
										10	20	30	40	50	60	70	80	90		
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)																
5				LOOSE, tan and brown, silty, fine to coarse SAND with some limerock (SM)																
				LOOSE, tan, fine to medium SAND (SP)																
5				VERY LOOSE, dark reddish brown to brown, slightly silty, fine to medium SAND (SP)																
10																				
15																				

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: 12/16/14	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: 12/16/14	
	CHECKED BY: AZS	APPROVED BY: JGS	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-21*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*6.3*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
							+	- - - - -					+							
						✕ Standard Penetration Test														
						10	20	30	40	50	60	70	80	90						
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)																
5				LOOSE, light brown, silty, fine to medium SAND with some limerock (SM)																
				LOOSE to VERY LOOSE, tan, fine to medium SAND (SP)																
5																				
				VERY LOOSE to LOOSE, dark brown to brown, slightly silty, fine to medium SAND (SP-SM)																
				LOOSE, brown, slightly silty, fine to medium SAND with trace of subangular and subrounded limestone fragments (SP-SM)																
10																				
-5																				
15																				

REMARKS:	DRILLED BY:	STARTED:	
	<i>S. Correa</i>	<i>12/16/14</i>	
	LOGGED BY:	COMPLETED:	
	<i>J. Soto</i>	<i>12/16/14</i>	
CHECKED BY:	APPROVED BY:	SHEET 1 OF 1	
<i>AZS</i>	<i>JGS</i>		

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-22*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*6.2*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)					LL		
							+-----+-----+ X Standard Penetration Test								
						10	20	30	40	50	60	70	80	90	
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)											
5				LOOSE, brown and tan, slightly silty, fine to medium SAND with some limerock (SP-SM)			X								
				LOOSE to VERY LOOSE, tan, fine to medium SAND (SP)			X								
5				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)			X								
0				LOOSE, light brown, fine to medium SAND (SP)			X								
10							X								
-5															
15															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/16/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/16/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	



# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-23*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*4.4*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)		LL					
							+-----+ X Standard Penetration Test								
						10	20	30	40	50	60	70	80	90	
0				Black, organic, silty, fine to medium SAND (OL)											
				LOOSE, brown, slightly silty, fine to medium SAND and LIMEROCK (SP-SM)											
				LOOSE, tan, fine to medium SAND (SP)											
				LOOSE to VERY LOOSE, brown to dark reddish brown, slightly silty, fine to medium SAND (SP-SM)	▽										
5				LOOSE, tan, fine to medium SAND (SP)											
				LOOSE, tan, fine to medium SAND (SP)											
				LOOSE, tan, fine to medium SAND (SP)											
-5				LOOSE, tan, fine to medium SAND (SP)											
10				LOOSE, tan, fine to medium SAND (SP)											
				LOOSE, tan, fine to medium SAND (SP)											
				LOOSE, tan, fine to medium SAND (SP)											
-10				LOOSE, tan, fine to medium SAND (SP)											
15				LOOSE, tan, fine to medium SAND (SP)											

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/16/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/16/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-24*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.6*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS										
						PERCENT FINES	PL	W(%)		LL						
		+-----○-----+		X Standard Penetration Test												
								10	20	30	40	50	60	70	80	90
0				Dark brown, organic, silty, fine to medium SAND (OL)												
5				MEDIUM DENSE, tan and brown, silty, fine to medium SAND with some limerock (SM)			X									
				LOOSE to VERY LOOSE, tan, fine to medium SAND (SP)				X								
5				VERY LOOSE, brown, fine to medium SAND (SP)				X								
				LOOSE, tan, fine to medium SAND (SP)				X								
10								X								
15																

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-25*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.8*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)		LL										
										+	○	+								
										✕ Standard Penetration Test										
										10	20	30	40	50	60	70	80	90		
0				Dark brown, organic, silty, fine to medium SAND (OL)																
5				MEDIUM DENSE, tan, silty, fine to coarse SAND and LIMEROCK (SM)																
				MEDIUM DENSE, tan, fine to medium SAND (SP)																
				VERY LOOSE to LOOSE, light brown to brown, fine to medium SAND (SP)																
5																				
0				VERY LOOSE to LOOSE, tan and gray, fine to medium SAND (SP)																
10																				
15																				

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

<b>ACES, Inc.</b>	7800 W. Oakland Pk. Blvd. #109 Sunrise, FL 33351 (954) 746-6868	PROJECT NUMBER: <p style="text-align: center;">21405</p>	BOREHOLE NUMBER: <p style="text-align: center;"><b>TB-26</b></p>
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EQUIPMENT & METHODS: <i>Diedrich D-90 / Automatic Hammer Rotary /Mud</i>	PROJECT/LOCATION: <i>WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr Hollywood, Florida</i>
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CLIENT/OWNER: <i>EAC Consulting, Inc.</i>	GROUND LEVEL(ft): <p style="text-align: center;">5.6</p>	COORDINATES: <p style="text-align: center;"><i>See Field Exp. Plan</i></p>	DATE: <p style="text-align: center;"><i>January 2015</i></p>
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DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS										
						PERCENT FINES	PL	W(%)		LL						
							◆	○	◆	X Standard Penetration Test						
						10	20	30	40	50	60	70	80	90		
0				Black, organic, silty, fine to medium SAND with trace of roots (OL)												
5				LOOSE, tan LIMEROCK and silty, fine to coarse SAND (SM)												
				VERY LOOSE, light brown, fine to medium SAND (SP)												
5				VERY LOOSE, dark brown, slightly silty, fine to medium SAND (SP-SM)	▽											
				LOOSE, light brown to tan, fine to medium SAND (SP)												
10																
15																

REMARKS:	DRILLED BY: <p style="text-align: center;"><i>S. Correa</i></p>	STARTED: <p style="text-align: center;"><i>12/15/14</i></p>	
	LOGGED BY: <p style="text-align: center;"><i>J. Soto</i></p>	COMPLETED: <p style="text-align: center;"><i>12/15/14</i></p>	
	CHECKED BY: <p style="text-align: center;">AZS</p>	APPROVED BY: <p style="text-align: center;">JGS</p>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-27*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.6*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS													
						PERCENT FINES	PL	W(%)		LL									
							+-----○-----+ X Standard Penetration Test			10	20	30	40	50	60	70	80	90	
0				Black, organic, silty, fine to medium SAND (OL)															
5				MEDIUM DENSE, tan to light yellow, silty, fine to coarse SAND with some limerock (SM)															
				MEDIUM DENSE to LOOSE, tan, fine to medium SAND (SP)															
				VERY LOOSE, brown to dark reddish brown, slightly silty, fine to medium SAND (SP-SM)															
5				LOOSE, tan, fine to medium SAND (SP)															
				LOOSE, tan and gray, fine to medium SAND (SP)															
10																			
15																			

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/16/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/16/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-28*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*6.3*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)		LL					
		+	-		+										
						X Standard Penetration Test									
						10	20	30	40	50	60	70	80	90	
0				Dark brown to black, organic, silty, fine to medium SAND with trace of roots (OL)											
5				LOOSE, brown, fine to medium SAND with trace of limerock (SP)		X									
				LOOSE, tan, fine to medium SAND (SP)											
5				LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)	▽	X									
10				LOOSE, light brown to tan, fine to medium SAND (SP)		X									
						X									
						X									
15															

REMARKS:

DRILLED BY:

*S. Correa*

STARTED:

*12/14/14*

LOGGED BY:

*J. Soto*

COMPLETED:

*12/14/14*

CHECKED BY:

*AZS*

APPROVED BY:

*JGS*

SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-29*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.1*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS												
						PERCENT FINES	PL	W(%)		LL								
		+-----○-----+		X Standard Penetration Test														
										10	20	30	40	50	60	70	80	90
0	5			Black, organic, silty, fine to medium SAND (OL)														
				LOOSE, brown and tan, silty, fine to coarse SAND with some limerock (SM)														
				LOOSE, tan, fine to medium SAND (SP)														
5	0			VERY LOOSE, reddish brown, slightly silty, fine to medium SAND (SP-SM)														
				LOOSE, tan, fine to medium SAND (SP)														
10	-5																	
15																		

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/16/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/16/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-30*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.7*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS									
						PERCENT FINES	PL	W(%)		LL					
							+-----+ X Standard Penetration Test								
						10	20	30	40	50	60	70	80	90	
0				Dark brown, organic, silty, fine to medium SAND (OL)											
5				MEDIUM DENSE, tan, silty, fine to medium SAND with some limerock (SM)											
				MEDIUM DENSE to VERY LOOSE, tan, fine to medium SAND (SP)											
5															
	0			VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)	▽										
				VERY LOOSE to LOOSE, light brown to tan, fine to medium SAND (SP)											
10															
	-5														
15															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1



# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-31*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.6*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS												
						PERCENT FINES	PL	W(%)					LL					
◆-----○-----◆ ✕ Standard Penetration Test																		
										10	20	30	40	50	60	70	80	90
0				Dark brown, organic, silty, fine to medium SAND (OL)														
5				LOOSE, light brown, silty, fine to medium SAND with some limerock (SM)			✕											
				LOOSE, tan to light brown, fine to medium SAND (SP)				✕										
				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)				✕										
5				LOOSE, tan and gray, fine to medium SAND (SP)				✕										
10								✕										
15																		

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-32*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*6.0*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
+-----+ X Standard Penetration Test																				
										10	20	30	40	50	60	70	80	90		
0				LOOSE, brown, organic, slightly silty, fine to medium SAND with trace of roots (OL)																
5				LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE, reddish brown, fine to medium SAND (SP)																
5																				
				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
0																				
10																				
-5																				
15																				

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/14/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/14/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-33*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.6*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)		LL	Standard Penetration Test									
		+-----○-----+																		
		X																		
		10	20	30	40	50	60	70	80	90										
0				Dark brown, organic, silty, fine to medium SAND (OL)																
5				LOOSE, brown, slightly silty, fine to medium SAND with little limerock (SP-SM)																
				LOOSE, brown, fine to medium SAND (SP)																
				MEDIUM DENSE to VERY LOOSE, tan, fine to medium SAND (SP)																
5				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)	▽															
				LOOSE, tan, fine to medium SAND (SP)																
10																				
15																				

REMARKS:	DRILLED BY:	STARTED:	SHEET 1 OF 1
	<i>S. Correa</i>	<i>12/17/14</i>	
	LOGGED BY:	COMPLETED:	
	<i>J. Soto</i>	<i>12/17/14</i>	
	CHECKED BY:	APPROVED BY:	
	<i>AZS</i>	<i>JGS</i>	

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-34*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.5*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
		+-----○-----+ X Standard Penetration Test																		
				10 20 30 40 50 60 70 80 90																
0	5			Dark brown, organic, silty, fine to medium SAND with trace of limerock (OL)																
				LOOSE, tan to light brown, fine to medium SAND (SP)																
				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)																
5	0			LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)																
				LOOSE, tan, fine to medium SAND (SP)																
10	-5																			
15																				

REMARKS: <i>Groundwater was not encountered in the upper 6 feet at the time of drilling before the drilling mud was used.</i>	DRILLED BY:	STARTED:	
	<i>S. Correa</i>	<i>12/17/14</i>	
	LOGGED BY:	COMPLETED:	
<i>J. Soto</i>	<i>12/17/14</i>		
CHECKED BY:	APPROVED BY:	SHEET 1 OF 1	
<i>AZS</i>	<i>JGS</i>		

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-35*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.8*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
							+	-----○-----+	× Standard Penetration Test 10 20 30 40 50 60 70 80 90											
0				Dark brown, organic, silty, fine to medium SAND (OL)																
5				LOOSE, tan, silty, fine to coarse SAND with some limerock (SM)																
				LOOSE to VERY LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)	▽															
5				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
10				VERY LOOSE to LOOSE, tan, fine to medium SAND (SP)																
15																				

REMARKS:	DRILLED BY:	STARTED:	
	<i>S. Correa</i>	<i>12/17/14</i>	
	LOGGED BY:	COMPLETED:	
	<i>J. Soto</i>	<i>12/17/14</i>	
CHECKED BY:	APPROVED BY:	SHEET 1 OF 1	
<i>AZS</i>	<i>JGS</i>		

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
21405

BOREHOLE NUMBER:  
**TB-36**

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
5.6

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)		LL										
							+	-	-	+										
						✖	Standard Penetration Test													
						10	20	30	40	50	60	70	80	90						
0				Dark brown, organic, silty, fine to medium SAND (OL)																
5				LOOSE, brown, slightly silty, fine to medium SAND with little limerock (SP-SM)																
				LOOSE, tan, fine to medium SAND (SP)																
				VERY LOOSE, reddish brown to brown, slightly silty, fine to medium SAND (SP-SM)																
5				LOOSE, tan and gray, fine to medium SAND (SP)																
10				LOOSE, tan and gray, fine to medium SAND (SP)																
15																				

**REMARKS:**

*Groundwater was not encountered in the upper 6 feet at the time of drilling before the drilling mud was used.*

DRILLED BY:

*S. Correa*

STARTED:

*12/17/14*

LOGGED BY:

*J. Soto*

COMPLETED:

*12/17/14*

CHECKED BY:

**AZS**

APPROVED BY:

**JGS**

SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-37*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.4*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS															
						PERCENT FINES	PL	W(%)					LL								
							+	-----○-----+	× Standard Penetration Test 10 20 30 40 50 60 70 80 90												
0	5			Dark brown, organic, silty, fine to medium SAND (OL)																	
				LOOSE, light brown, slightly silty, fine to medium SAND with little limerock (SP-SM)																	
				LOOSE, tan to light brown, fine to medium SAND (SP)																	
				VERY LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)																	
5	0			LOOSE, tan, fine to medium SAND (SP)																	
10	-5																				
15																					

REMARKS: <i>Groundwater was not encountered in the upper 6 feet at the time of drilling before the drilling mud was used.</i>	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-38*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.4*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS													
						PERCENT FINES	PL	W(%)					LL						
							+-----+-----+ X Standard Penetration Test												
						10	20	30	40	50	60	70	80	90					
0	5			Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)															
				LOOSE, light brown, fine to medium SAND (SP)															
				VERY LOOSE, brown, slightly silty, fine to medium SAND with trace of limestone fragments (SP-SM)															
				VERY LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)	▽														
5	0			VERY LOOSE to LOOSE, light brown, fine to medium SAND (SP)															
10	-5																		
15																			

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/15/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/15/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1



# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-39*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*6.1*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS																
						PERCENT FINES	PL	W(%)		LL												
										+	○		+									
										✕ Standard Penetration Test												
										10	20	30	40	50	60	70	80	90				
0				Dark brown, organic, silty, fine to medium SAND (OL)																		
5				LOOSE, light brown, silty, fine to medium SAND with some limerock (SM)																		
				LOOSE, tan, fine to medium SAND (SP)																		
				VERY LOOSE, reddish brown, slightly silty, fine to medium SAND (SP-SM)																		
5																						
				LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)																		
				LOOSE, tan, fine to medium SAND (SP)																		
10																						
15																						

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	SHEET 1 OF 1
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	



# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-41*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.9*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS													
						PERCENT FINES	PL	W(%)					LL						
							◆-----○-----◆ ✕ Standard Penetration Test												
						10	20	30	40	50	60	70	80	90					
0				Dark brown, organic, silty, fine to medium SAND (OL)															
5				MEDIUM DENSE, brown, silty, fine to coarse SAND and LIMEROCK (SM)															
				MEDIUM DENSE to LOOSE, tan, fine to medium SAND (SP)															
5				VERY LOOSE, dark reddish brown, slightly silty, fine to medium SAND (SP-SM)	▽														
10				LOOSE, tan and gray, fine to medium SAND (SP)															
15																			

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-42*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.9*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS													
						PERCENT FINES	PL	W(%)		LL									
							+-----○-----+ X Standard Penetration Test			10	20	30	40	50	60	70	80	90	
0				Dark brown, organic, silty, fine to medium SAND (OL)															
5				LOOSE, light brown to tan, silty, fine to coarse SAND with some limerock (SM)															
				LOOSE, tan, fine to medium SAND (SP)															
				VERY LOOSE, light brown to brown, fine to medium SAND (SP)															
5				LOOSE, tan, fine to medium SAND (SP)															
0				LOOSE, tan, fine to medium SAND (SP)															
				LOOSE, tan, fine to medium SAND (SP)															
10				LOOSE, tan, fine to medium SAND (SP)															
				LOOSE, tan, fine to medium SAND (SP)															
15				LOOSE, tan, fine to medium SAND (SP)															

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/17/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/17/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-43*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.8*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
							+-----○-----+ X Standard Penetration Test													
						10	20	30	40	50	60	70	80	90						
0				Dark brown, organic, silty, fine to medium SAND (OL)																
5				MEDIUM DENSE, tan, silty, fine to coarse SAND with some limerock (SM)																
				LOOSE, light brown, fine to medium SAND (SP)																
				LOOSE, tan, fine to medium SAND (SP)																
5				VERY LOOSE, brown, silty, fine to medium SAND (SM)																
				LOOSE, tan, fine to medium SAND (SP)																
				LOOSE, tan, fine to medium SAND with some subangular and subrounded limestone fragments (SP)																
10																				
15																				

REMARKS: <i>Groundwater was not encountered in the upper 6 feet at the time of drilling before the drilling mud was used.</i>	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/18/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/18/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

<b>ACES, Inc.</b>	7800 W. Oakland Pk. Blvd. #109 Sunrise, FL 33351 (954) 746-6868	PROJECT NUMBER: <p style="text-align: center;">21405</p>	BOREHOLE NUMBER: <p style="text-align: center;"><b>TB-44</b></p>
EQUIPMENT & METHODS: <i>Diedrich D-90 / Automatic Hammer Rotary /Mud</i>		PROJECT/LOCATION: <i>WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr Hollywood, Florida</i>	
CLIENT/OWNER: <i>EAC Consulting, Inc.</i>	GROUND LEVEL(ft): <p style="text-align: center;">5.2</p>	COORDINATES: <p style="text-align: center;"><i>See Field Exp. Plan</i></p>	DATE: <p style="text-align: center;"><i>January 2015</i></p>

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS										
						PERCENT FINES	PL	W(%)		LL		Standard Penetration Test				
		+	○	+	X											
								10	20	30	40	50	60	70	80	90
0	5			Dark brown to brown, organic, slightly silty, fine to medium SAND (OL)												
				LOOSE, brown, fine to medium SAND with some limerock (SP)			X <sub>6</sub>									
				LOOSE, tan, fine to medium SAND (SP)												
				LOOSE, brown, fine to medium SAND (SP)												
				LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)			X <sub>5</sub>									
				LOOSE, yellowish brown, slightly silty, fine to medium SAND (SP-SM)		11.1										
5	0			LOOSE, light brown, fine to medium SAND (SP)			X <sub>5</sub>									
				LOOSE, tan, fine to medium SAND (SP)			X <sub>7</sub>									
							X <sub>5</sub>									
10	-5															
15																

REMARKS: <i>Groundwater was not encountered in the upper 6 feet at the time of drilling before the drilling mud was used.</i>	DRILLED BY: <p style="text-align: center;">S. Correa</p>	STARTED: <p style="text-align: center;">12/18/14</p>	
	LOGGED BY: <p style="text-align: center;">J. Soto</p>	COMPLETED: <p style="text-align: center;">12/18/14</p>	
	CHECKED BY: <p style="text-align: center;">AZS</p>	APPROVED BY: <p style="text-align: center;">JGS</p>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-45*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*6.0*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS														
						PERCENT FINES	PL	W(%)					LL							
							+	-----○-----+						+						
						✕ Standard Penetration Test														
						10	20	30	40	50	60	70	80	90						
0				Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)																
5				LOOSE, tan, silty, fine to coarse SAND with some limerock (SM)																
				LOOSE, brown, slightly silty, fine to medium SAND (SP-SM)																
				LOOSE to VERY LOOSE, tan to light brown, fine to medium SAND (SP)																
5				VERY LOOSE, brown, fine to medium SAND (SP)																
0				VERY LOOSE, tan, fine to medium SAND (SP)																
				LOOSE, tan, fine to medium SAND with trace of limestone fragments (SP)																
10																				
-5																				
15																				

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/15/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/15/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1

# TEST BORING RECORD

**ACES, Inc.**

7800 W. Oakland Pk. Blvd. #109  
Sunrise, FL 33351  
(954) 746-6868

PROJECT NUMBER:  
*21405*

BOREHOLE NUMBER:  
*TB-46*

EQUIPMENT & METHODS:  
*Diedrich D-90 / Automatic Hammer  
Rotary /Mud*

PROJECT/LOCATION:  
*WMRP - Johnson St. to Taft St. from N. 66th Ave to NW. 76th Terr  
Hollywood, Florida*

CLIENT/OWNER:  
*EAC Consulting, Inc.*

GROUND LEVEL(ft):  
*5.9*

COORDINATES:  
*See Field Exp. Plan*

DATE:  
*January 2015*

DEPTH(ft)	ELEVATION(ft)	SAMPLE TYPE	LEGEND	MATERIAL DESCRIPTION	STRATUM	TEST RESULTS											
						PERCENT FINES	PL	W(%)		LL		Standard Penetration Test					
		+	○		+		X										
								10	20	30	40	50	60	70	80	90	
0				Dark brown, organic, silty, fine to medium SAND with trace of roots (OL)													
5				LOOSE, tan, fine to medium SAND (SP)			X <sub>5</sub>										
							X <sub>7</sub>										
5				VERY LOOSE to LOOSE, light brown to tan, fine to medium SAND (SP)			X <sub>4</sub>										
0					▽												
							X <sub>8</sub>										
							X <sub>8</sub>										
10																	
15																	

REMARKS:	DRILLED BY: <i>S. Correa</i>	STARTED: <i>12/15/14</i>	
	LOGGED BY: <i>J. Soto</i>	COMPLETED: <i>12/15/14</i>	
	CHECKED BY: <i>AZS</i>	APPROVED BY: <i>JGS</i>	SHEET 1 OF 1