Cut along the outer border and affix this label to your sealed bid envelope to identify it as a “Sealed Bid”. Be sure to include the name of the company submitting the bid where requested.

SEALED BID ● DO NOT OPEN

SEALED BID NO. : 17-021UO-LG

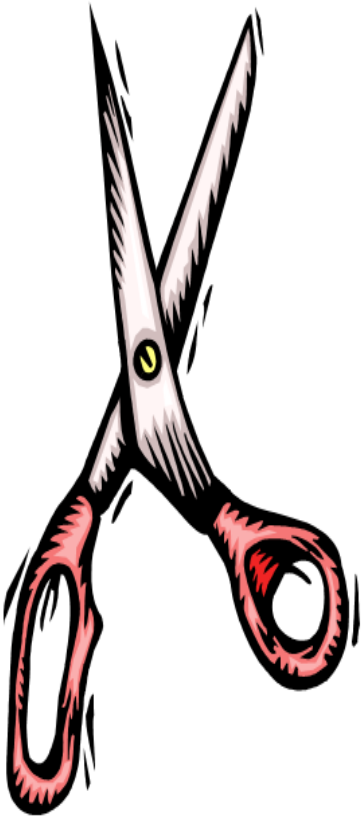
BID TITLE: SR 574 Utility Relocation Project

DUE DATE/TIME: Prior to 2:00 PM January 5, 2017

SUBMITTED BY: _____

(Name of Company)

DELIVER TO: PROCUREMENT DEPARTMENT
302 W. Reynolds Street, 3rd Floor
Plant City, FL 33563



PLANT CITY, FLORIDA

INVITATION FOR BIDS
SR 574 Utility Relocation
IFB NO. 17-021UO-LG

MANDATORY PRE-BID CONFERENCE
December 21, 2016 10:00 AM

City of Plant City
Procurement Department
302 West Reynolds Street
Plant City, FL 33563
Phone: 813-659-4270
E-mail: wstorey@plantcitygov.com

CITY OF PLANT CITY
PLANT CITY, FLORIDA
SR 574 Utility Relocation
IFB NO. 17-021UO-LG

Table of Contents

ATTACHMENTS:
Draft Contract
Plans/Drawings
Technical Specifications
As-Built Requirements
Close-Out Requirements

CITY OF PLANT CITY, FLORIDA
Invitation for Bids
SR 574 Utility Relocation
IFB NO. 17-021UO-LG

Project Summary

The City of Plant City, Florida seeks bids to furnish all labor, materials, and equipment necessary to construct the SR 574 Utility Relocation as specified in the attached documents. This Invitation for Bids and related documents are open for public inspection online at BidSync.com and www.plantcitygov.com.

Submittal Location & Deadline and Bid Opening

Sealed bids must be delivered to 302 W. Reynolds Street, 3rd Floor, Plant City, Florida 33563. The submittal deadline is prior to **2:00 PM on January 5, 2017,** after which, the bids will be opened and the names of each bidder and their total price will be announced.

Pre-Bid Conference

A mandatory pre-bid conference has been scheduled for, **December 21, 2016 at 10:00 AM.**

1st Floor, City Hall
Commission Chambers
302 W. Reynolds Street
Plant City, Florida 33563

Questions

Procurement Manager, Buddy Storey is the **only** staff designated and authorized to answer questions about this bid. Bidders may rely only on written responses or interpretations from the Interim Procurement Manager. Verbal and/or written responses given by other City staff in response to bidder questions shall not be binding on the City. The City will recognize written addenda issued by the Procurement Manager as the only legitimate method of responding to questions about this bid or the project described within this bid.

The deadline to submit questions is **December 29, 2016 at 3:00 PM** All answers will be issued in writing via addendum. Questions shall be submitted in writing to Mr. Storey at wstorey@plantcitygov.com.

Buddy Storey
Procurement Manager

SECTION 1 – BIDDER INSTRUCTIONS

1. Submittal Location & Deadline. Bids must be submitted to the City of Plant City Procurement Department, 302 W. Reynolds Street, 3rd. Floor, Plant City, Florida 33563 prior to **2:00 PM on January 5, 2017**. Bids will be time stamped upon receipt. **Bids submitted by fax, e-mail, or telephone will not be accepted. Late bids shall not be accepted.**

2. Submittal Envelope. Bids shall be submitted in a sealed envelope or box clearly marked "**IFB NO. 17-021UO-LG SR 574 Utility Relocation**". Bidder shall write its name on the outside of the envelope. (Bid Label is provided herein)

3. Valid Term. Bids shall be valid for no less than 60 days from the submittal deadline.

4. Rejection. The City reserves the right to reject any or all bids at any time and for any reason. Bids submitted after the deadline shall be rejected. Bids submitted in an unsealed or incorrectly marked envelope or box shall be rejected. Fax, e-mail, or telephone bids shall be rejected. Bids which are incomplete, unbalanced, conditional, obscure, or which contain terms or additions not called for, alterations or irregularities of any kind, or which do not comply with the Contract Documents may be rejected at the at the sole discretion of the City.

5. Response Form. Bids shall be made only on the form included in this packet. Bid forms shall be signed by the owner or other authorized individual.

6. **ITEMS THAT MUST BE INCLUDED WITH BID:**

    a. **Completed Bid Response Form**
    b. **Evidence that the bidder is qualified to transact business in the State of Florida.**
    c. **A copy of bidder's Contractor's License**
    d. **Current "ACORD" insurance certificate with at least $1,000,000 in coverage per incident including worker's comp certificate or a photocopy of state certificate of exemption from Worker's Compensation.**
    e. **Bid Bond. A cashier's check or bid bond equal to 5% of the total price for the work proposed must be included with each bid. Checks or bonds must be made payable to "City of Plant City, Florida". The calculation for the bid**

bond should be based on the total price as indicated on the Bid Response Form.

f. Bidder references using forms under Bidder's Qualification and References

g. Completed form "SWORN STATEMENT UNDER SECTION 287.133(3)(A), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES."

h. Non-Collusion Affidavit

7. Bid Bond. A cashier's check or bid bond equal to 5% of the total price for the work proposed must be included with each bid. Checks or bonds must be made payable to "City of Plant City, Florida".

8. Number of Copies. Bids shall be submitted in the following formats

   a. Two (2) paper copies of all required forms and documents, **and;**
   b. One electronic copy of all required forms and documents. (PDF on a CD or Thumb Drive)

9. Completeness. The City may reject bids that are incomplete, conditional, deficient in any way, or which contain unsolicited additions/alterations.

10. Review Documents. Bidders must review all specifications and Contract Documents related to this bid and project. Failure to review all specifications, forms, Contracts, addenda, or other documents shall not relieve a bidder from any obligations contained in this bid or a subsequent Contract with the City.

11. Familiarity with Project Area. Prior to submitting a bid, bidders shall become fully acquainted with the project areas. Please see "Scope of Work" for more detail about the project. Submittal of a bid shall serve as bidder's acknowledgement that they are fully familiar with the service area.

12. Fill-In Required Forms & Seal Envelope. Bidders must accurately and completely fill-in all required bid forms included in this packet. Bidder shall submit all documents listed in this Invitation for Bids. Authorized signatures must be included on forms/documents. Incomplete or missing forms/documents may result in rejection of the bid.

13. Certification. Submittal of a bid shall be deemed as certification that a bidder has fully considered all factors associated with this Invitation for Bids, including any addenda.

14. Project Owner. The City of Plant City, Florida owns this project. The City Manager or designee is the City's authorized representative on this project.

15. Verification of Bidder's Capability. The City will verify Bidder's ability to complete the work specified in this bid. The City may, at its sole discretion, determine Bidder's capacity to perform this contract based on, but not limited to, evaluation of the following:
    a. Comparable prior project experience (particularly ones similar to this project size/scope).
    b. Financial resources.
    c. Prior bond history.
    d. Licensure and certifications.
    e. Equipment, machinery, and/or facilities.
    f. Background & references.

    Bidders deemed to be unqualified to perform the work may have their bid rejected.

16. Award. City personnel will evaluate the bids. Determination of the lowest responsive and responsible bid may be made on the basis of the base bid.

    City staff will recommend the lowest responsive and responsible bid to the City Commission. The City Commission makes the final decision regarding award or rejection of bids.

    The City may award a Contract based on bid responses received from bidders without further discussion of such bids with the selected bidder. Therefore, bids should be submitted based on the most favorable terms available.

17. Local Preference. The City has adopted a local preference policy (Section 2-161, Plant City Code). As part of this Invitation for Bids, the local preference policy provides qualifying bidders with an amount not to exceed 1½ percent of the lowest bid, provided that the cost differential from the lowest bid shall not exceed $2,500. Non-qualifying bidders will not receive the 1½ percent. A bidder qualifies for a local preference if it meets all of the following:

    a. Paid its applicable City business tax for the current year in which this Invitation for Bids is issued. Bidders that request local preference must include in their submittal packets a copy of the receipt proving payment of the City's business tax.
    b. Obtained a license issued by the State of Florida allowing it to engage in the business of providing the services requested in this Invitation for Bids.
    c. Maintains a physical office located within the city limits of Plant City. The office must be staffed by at least one full-time equivalent employee, and must have been established at least six

months before the submittal deadline. Post Office boxes are not verifiable and will not be accepted as proof of a physical office location.

d. A bidder that does not meet the criteria above will not receive 1½ percent calculated to the bid price submitted.

18. Sec. 2-152. Protest procedure. Any bidder or proposer who is allegedly aggrieved in connection with the issuance of the Procurement Manager's recommendation and intent to make a competitive award of a contract may protest to the City Manager in accordance with the City Code, Sec. 2-152. Protest Procedure.

19. Waiver of Irregularities. The City may waive informalities or irregularities that in the City's opinion do not materially affect a bid.

20. Notice of Award. Upon review of the bids and when a determination has been made as to the lowest responsive and responsible bid, the Procurement Manager will issue a Notice of Intent to Award to the selected bidder. This notice shall be posted to the City's website and sent to the recommended bidder with copies to all bidders.

21. Contract Execution & Bid Bond. The selected bidder must sign and return the Contract, any required bonds or letter of credit, insurance certificates, and all other required documents within fourteen calendar days after the City sends the documents to the selected bidder. Once the City receives the signed Contract and all other required documents back from the selected bidder, then the City's authorized representative will sign the Contract.

    Failure to sign and return the Contract and all other required documents within 14 days may result in the City calling the bid bond or cashing the cashier's check submitted by the selected bidder with its proposal; barring the selected bidder from consideration on future projects; or both. The City may then select another bidder to perform the work or provide the goods/services specified in this bid.

22. Notice to Proceed. Following Contract signing by the City, the Procurement Manager will issue a formal "Notice to Proceed" in writing to the selected vendor.

    If the Contractor begins work before receiving the Notice to Proceed, then the City may stop work on the project, may require the work to be redone at the Contractor's expense and without additional compensation from the City, or both. The City also may revoke the project award and select another bidder to perform the work.

23. Revocation of Award. If the City discovers that the Contractor has

misrepresented anything in their bid or that the Contractor – in the City's opinion – is no longer reasonably capable of performing the work as bid, then the City may revoke the award at any time **before** issuing the formal Notice to Proceed. The Procurement Manager will issue the revocation in writing.

24. Bid Interpretations. The City has the right to define and interpret bid terms, specifications, and conditions.

25. Changes or Modifications. The City may at any time make changes within the general scope of the contract in any of the following areas:

    a. Time of Performance (i.e., hours of the day, days of the week, etc.).
    b. Location of performance of the services.
    c. Quantities to be ordered.

    The Contractor shall not commence the performance of additional work or other changes not covered by this contract without an executed notice to proceed or purchase order issued by the City. If the Contractor performs additional work beyond the specific requirements of this contract without an executed change order, it shall be at the Contractor's own risk. The City assumes no responsibility for any additional costs for work not specifically authorized by an executed change order.

26. Pre Bid Conference. Each Bidder shall visit the site of the proposed work and fully acquaint itself with conditions relating to construction and labor so that the Bidder may fully understand facilities, difficulties and restrictions attending the execution of work under this Contract. A mandatory pre-bid meeting has been scheduled for, **December 21, 2016 at 10:00 AM, 1st Floor, City Hall, Commission Chambers, 302 W. Reynolds Street, Plant City, Florida 33563.**

27. Conditions of Performance. Bidders are required to inform themselves fully of the conditions relating to performance of the work required, including but not restricted to labor and operating conditions under which the work will be or is now being performed; and the successful bidder must apply, so far as possible, such methods and means in carrying out the work that will not cause any interruption or interference with any other work, construction or operation the Owner has underway.

28. Indefinite Quantity. The quantities of goods and services specified herein are estimates only and are not purchased by the resulting contract. Delivery or performance shall be as authorized by purchase or approved change orders in accordance with the terms of the resulting contract. The City may issue orders requiring delivery to multiple destinations or performance at multiple locations.

29. Contract Documents. The Contract attached hereto is a draft of the Contract required by the City to award the project described in this bid. It is the Bidder's responsibility to review and understand the Contract. If the Bidder requires any modifications or additional terms and conditions to the Contract, the Bidder shall detail the desired changes on a separate page clearly titled "Additional Terms/Modifications". That page then must be attached to the bid response form and submitted as part of the bidder's proposal. **Contract modification requests after the Bidder's bid has been submitted shall not be considered.**

30. Payment and Performance Bond. A Payment and Performance Bond is required for the amount of the contract. Contractor shall be responsible for recording the payment and performance bond and before commencing the work, Contractor shall provide to the City Clerk a certified copy of the recorded bond. As required by 255.05, Florida Statutes, the City may not make any payments to the Contractor until the City Clerk receives the certified copy of the recorded bond.

31. Insurance and Bonds. Insurance and bonds specified in this bid document and the Contract shall conform to and shall be insured by companies meeting the criteria outlined below and within the contract document in Section 8 - Exhibits.
    a. Insurance and bonds shall be countersigned by an agent licensed to do business in the State of Florida.
    b. Surety must be permitted to do business in the State of Florida and shall have been in business and have a record of successful, continuous operation for at least five years.
    c. The surety shall have at least the following minimum rating as listed in Best's Financial Rating:
        i. Financial Strength Rating of "A".

32. Sworn Statement on Public Entity Crimes. A person or affiliate as defined in Section 287.133, Florida Statutes, who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, proposal, or reply on a Contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a Contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a Contractor, supplier, subcontractor, or consultant under a Contract with any public entity; and may not transact business with any public entity in excess of $25,000 for a period of 36 months following the date of being placed on the convicted vendor list.

    Bidders must fill out and sign the form titled "SWORN STATEMENT UNDER SECTION 287.133(3)(A), FLORIDA STATUTES, ON PUBLIC

ENTITY CRIMES." Failure to do so may disqualify the bid.

33. Other Forms & Documents. Bidders are responsible for reviewing and understanding all plans, photos, specifications, forms or other documents associated with the project described in this bid. Submittal of a bid shall serve as bidder's acknowledgement that it has reviewed and understood all such documents.

34. Indemnification. Section 1-16, Plant City Code, prohibits the City from indemnifying other parties to an agreement. Therefore, the City cannot indemnify bidders.

35. All-Inclusive Cost. The bid shall include all expenses necessary to complete the project or provide the services described in this Invitation for Bids. If selected by the City, the Bidder must pay applicable sales tax on any goods or services it purchases. The City is exempt from paying federal and state taxes, including sales tax. The City's sales tax exemption is not assignable and cannot be applied toward items the Contractor purchases, regardless of whether Contractor transfers those items to the City.

36. Bid Preparation & Submittal Expenses. The City shall not be responsible for any expense incurred by a bidder in reviewing, evaluating, preparing, or submitting a bid. Bidders are solely responsible for the entire expense of responding to this bid.

37. Legal Requirements. Bidders are required to comply with all provisions of federal, state, county and local laws, ordinances, rules and regulations that are applicable to the services being solicited in this bid. A bidder's lack of knowledge shall in no way be a cause for relief from responsibility, nor shall it constitute a cognizable defense against the legal effects thereof.

    Submittal of a bid shall constitute the bidder's affirmation that they are familiar with and shall comply with all federal, state, and local laws, ordinances, rules and regulations which affect those engaged or employed in the provision of such services, or equipment used in the provision of such services, or which in any way affects the conduct of the provision of such services. No plea of misunderstanding shall be considered on account of the bidder's ignorance thereof. If a bidder believes provisions in the bid documents are contrary to or inconsistent with any law, ordinance, or regulation, then the Bidder shall promptly report those provisions in writing to the City.

38. Public Records. Bidders understand that Florida has a broad public records law, and that documents in the possession of the City can only be maintained confidential to the extent allowed under the Florida Public Records Act, Florida Statute 119.

39. Cooperative Procurement Agreement. The City of Plant City is a member of the Government Procurement Council of Hillsborough County in accordance with Chapter 69-1119, Laws of Florida. It is hereby made a part of this Invitation to Bid that the submission of any bid in response to this request shall constitute a bid made under the same conditions for the Contract price as this bid to all public entities in Hillsborough County.

The Procurement Departments of each of the following agencies represented will place their own orders as needs and availability of funds dictate:

GPC LISTING

City of Tampa
Procurement Department
Tampa Municipal Office Building,
2nd Floor
306 E. Jackson St.
Tampa, FL 33602

City of Temple Terrace
P.O. Box 16930
Temple Terrace, FL 33687
813-506-6420 – Telephone
813-989-7185 – Fax

Clerk of Circuit Court
601 E. Kennedy Blvd.-13th Floor
P.O. Box 1110
Tampa, FL 33601
Phone: (813) 276-8100 Ext.7721
FAX: (813) 272-5521
www.hillsclerk.com

Tampa-Hillsborough County Expressway Authority
1104 East Twiggs St. Suite #300
Tampa, Florida 33602
813-272-6740 – Telephone
813-276-2492 – Fax
Nancy@tampa-xway.com

Hillsborough Area Regional Transit Authority
4305 E. 21st Street
Tampa, FL 33605
813-623-5835 – Telephone
813-664-1119 – Fax

Hillsborough Community College
39 Columbia Drive
Tampa, FL 33606
813-253-7060 – Telephone
813-253-7561 – Fax
vmelchoir@hcc.fl.us

Hillsborough County Board of County Commissioners
601 E. Kennedy Blvd., 18th Floor
P. O. Box 1110,
Tampa, FL 33601-1110
Phone: (813) 272-5790
FAX: (813) 272-6290
www.hillsboroughcounty.org

Hillsborough Co. Sheriff's Office
P.O. Box 3371
Tampa, FL 33601
813-247-8033 – Telephone
813-247-8246 – Fax
Jshillady@hcso.tampa.fl.us

State Attorney's Office
Tampa, FL 33602
813-272-5400 – Telephone
813-272-7014 – Fax
Ober_M@SAO13th.com

Tampa Port Authority
P.O. Box 2192
Tampa, FL 33601
813-905-5164 – Telephone
813-905-5109 – Fax

Tampa Sports Authority
4201 N. Dale Mabry Highway
Tampa, FL 33607
813-673-4300 – Telephone
813-673-4312 – Fax
jhaugabrook@tampasportsauthority.com

Tax Collector
601 E. Kennedy Blvd., 14th Floor
Tampa, FL 33602
Phone: (813) 307-6222
FAX: (813) 307-6521
www.hillstax.org

The Children's Board of Hills. County
1002 E. Palm Avenue
Tampa, FL 33605
Phone: (813) 229-2884
FAX: (813) 228-8122
www.childrensboard.org

University of South Florida
Procurement Services
3702 Spectrum Blvd. UTC135-P
Tampa, FL 33612
813-974-2481 – Telephone
813-974-5362 – Fax
gcotter@admin.usf.edu

Housing Authority of Plant City
1306 Larrick Ln.
Plant City, FL 33563
813-752-0569

Hillsborough Co. Aviation Authority
P. O. Box 22287
Tampa International Airport
Tampa, FL 33622-2287
Phone: (813) 870-8730
FAX: (813) 875-6670
www.tampaairport.com

Hillsborough County School Board
P. O. Box 3408
Tampa, FL 33601-3408
Phone: (813) 272-4329
FAX: (813) 272-4007

Supervisor of Elections
601 E. Kennedy Blvd., 16th Floor
Tampa, FL 33602
Phone: (813) 276-8274
FAX: (813) 272-7043
www.votehillsborough.org

City of Tampa Housing Auth.
1614 Union Street
Tampa, FL 33607
813-253-0551 – Telephone
813-4522 – Fax
irenew@thafl.com

Property Appraiser
601 E. Kennedy Blvd., 16th Floor
Tampa, FL 33602
Phone: (813) 272-6100
FAX: (813) 272-5519
www.hcpafl.org

Tampa Palms Community Dev. Dist.
16311 Tampa Palms Blvd W
Tampa, FL 33647
Phone: (813) 977-3933
Fax: (813) 977-6571
www.tpoa.net

SECTION 2 – BID RESPONSE AND FORM

Pursuant to and in compliance with your Invitation to Bid, Instruction to Bidders, the fixed Price Construction Contract between Owner and Contractor, Special Conditions and other documents related thereto, the undersigned does hereby propose to furnish all labor, materials and other equipment necessary to complete the work as specified herein. All work is to be performed in accordance with the City of Plant City Standards, complete and ready to use; as required by and in strict accordance with the contract documents, specifications, drawings and all addenda, if any issued prior to the date of this proposal at the prices listed herein as follows:

SR 574 Utilities Relocation					
ITEM NO	**DESCRIPTION**	**QUANTITY**	**UNITS**	**UNIT COST**	**TOTAL COST**
1	12" PVC Water Main	460	LF	$	$
2	6" PVC Water Main	150	LF	$	$
3	12" FPVC Dir. Bore, ±620 LF	1	LS	$	$
4	Jack and Bore 24" Casing, ±40 LF	1	LS	$	$
5	8" San PVC	620	LF	$	$
6	1" Service Line	30	LF	$	$
7	12" 22-1/2 degree bend	1	EA	$	$
8	12" - 90 degree bend	2	EA	$	$
9	12" 45 degree Bend	8	EA	$	$
10	6" 90 degree bend	1	EA	$	$
11	12" x 6" Tee	1	EA	$	$
12	1" Service Taps	3	EA	$	$
13	12" Gate Valve	4	EA	$	$
14	6" Gate Valve	1	EA	$	$
15	Temporary Sample Points	6	EA	$	$
16	Permanent Sample Station	1	EA	$	$
17	Pavement Removal and Replacement	560	LF	$	$
18	Seeding and Mulching	980	LF	$	$
19	Sodding	980	LF	$	$
20	Trench Safety	1180	LF	$	$
21	Dewatering	1	LS	$	$
22	Bypass Pumping	1	LS	$	$
23	Erosion/Water Pollution Control	1	LS	$	$
24	Maintenance of Traffic	1	LS	$	$
25	Mobilization/ Demobilization	1	LS	$	$
26	Bond/Insurance	1	LS	$	$
Total Items 1 - 26					**$**

Total Price .....$ _____

Total Price in Words: _____

Authorized Signature: _____Printed Name:_____

Email Address: _____Date:_____

THE FOLLOWING SECTION MUST BE COMPLETED BY ALL BIDDERS:

Bidder Name: _____

NOTE: BIDDER NAME MUST MATCH LEGAL NAME ASSIGNED TO TIN NUMBER. CURRENT W9 MUST BE SUBMITTED WITH BID/PROPOSAL.

TIN#: _____ D-U-N-S® # _____

_____

(Street No. or P.O. Box Number) (Street Name) (City)

_____

(County) (State) (Zip Code)

Contact Person: _____

Phone Number: _____ Fax Number: _____

Email Address: _____

EMERGENCY CONTACT

Emergency Contact Person: _____

Telephone Number: _____ Cell Phone Number: _____

ACKNOWLEDGEMENT OF ADDENDA

The Bidder shall acknowledge receipt of any addenda issued to this solicitation by completing the blocks below or by completion of the applicable information on the addendum and returning it not later than the date and time for receipt of the bid. Failure to acknowledge an addendum that has a material impact on this solicitation may negatively impact the responsiveness of your bid. Material impacts include but are not limited to changes to specifications, scope of work, delivery time, performance period, quantities, bonds, letters of credit, insurance, or qualifications.

Addendum No._____, Date_____ Addendum No._____, Date_____

Addendum No._____, Date_____ Addendum No._____, Date_____

BIDDER'S QUALIFICATIONS AND REFERENCES

Bidder shall identify experience as the general Contractor of record in the construction or modification of 3 similar projects completed during the previous 10 years in Florida. If firm is less than 3 years in existence, references could include similar projects performed by the principal(s) of the firm within the last 3 years.

Reference #1			
Organization Name:			
Location (City, State):			
Contact Name:			
Telephone:		Date Service Began:	
Email:		Date Service Ended:	
Description of Service:			

Reference #2			
Organization Name:			
Location (City, State):			
Contact Name:			
Telephone:		Date Service Began:	
Email:		Date Service Ended:	
Description of Service:			

Reference #3			
Organization Name:			
Location (City, State):			
Contact Name:			
Telephone:		Date Service Began:	
Email:		Date Service Ended:	
Description of Service:			

SECTION 00401
BID BOND

1. KNOW ALL PERSONS that we, _____as Principal, and _____ as Surety, are held and firmly bound unto the City of Plant City, Florida (hereafter called the ("Owner") in the penal sum of _____dollars ($), (5%of the Total Base Bid) as hereinafter set forth and for the payment of which sum well and truly to be made we bind ourselves, our executors, administrators, successors and assigns, jointly and severally, by these presents;

2. The Principal has submitted a proposal to the Owner for the project known as the _____.

3. The condition of this obligation is such that if the Owner shall accept the proposal of the Principal, and

(a) the Principal shall execute such contract documents, if any, as may be required by the terms of the bid and give such Contractor's bond or bonds for the performance of the contract and for the prompt payment of labor and material furnished for the project as may be specified in the proposal or

(b) in the event of the failure of the Principal to execute such contract documents, if any, and give such Contractor's bond or bonds, if the Principal shall pay to the Owner the difference, not to exceed the penal sum hereof between the amount specified in the proposal and such larger amount for which the Owner may in good faith contract with another party to complete the project, then this obligation shall be void, otherwise to remain in full force and effect.

4. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid Due Date without Surety's written consent.

5. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the county and state in which the Project is located.

6. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

7. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

IN WITNESS WHEREOF, the undersigned have caused this instrument to be executed and their respective corporate seals to be affixed and attested by their duly authorized representatives this

_____day of _____,20_____.

_____*(Seal)*

Principal

ATTEST: _____ *By*_____

_____ _____

Secretary *Title*

(Seal)

Surety

ATTEST: _____ *By*_____

_____ _____

Secretary *Title*

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 sworn statement is submitted with Bid, Proposal, or Contract No. _____

   for _____
   [print name of the public entity]

2. This sworn statement is submitted by _____
   [print individual's name and title]

   for _____
   [print name of entity submitting sworn statement]

   whose business address is _____

   and (if applicable) its Federal Employer Identification Number (FEIN) is _____

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

3. I understand that a "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 in Florida or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any Proposal or Contract for goods or services to be provided to any public entity or an agency or political subdivision involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

4. 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 any federal or state trial court of record relating to charges brought by indictment of information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

5. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:

   a. Predecessor or successor of a person convicted of a public entity crime; or

b. 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.

c. 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.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. [Check the one statement that applies.]

_____Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in 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 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 Bidder or Vendor (Bidder) or any affiliate of the Bidder or Vendor (Bidder) has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies):

_____There has been a proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings. The Final Order entered by the Hearing Officer did not place the person or affiliate on the convicted vendor list. [Attach a copy of the final order]

_____The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order).

_____The person or affiliate has not been placed on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services).

_____ _____

[Signature] [Date]

STATE OF FLORIDA_____COUNTY OF_____

PERSONALLY APPEARED BEFORE ME, the undersigned authority, who, after first_____

_____being sworn by me, affixed his/her signature in the space
[Name]

provided above on this day of_____, 20___.

Notary Public My commission expires_____

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
(SUBMITTAL PAGE)

State of_____)

County of_____)

_____,
being first duly sworn, deposes and says that:

1. He/She is _____ of _____, the Bidder that has submitted the attached Bid;

2. He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstance respecting such Bid;

3. Such Bid is genuine and is not a collusive or sham Bid;

4. Neither the said Bidders 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 Bidder, firm or person to submit a collusive or sham Bid in connection with such Contract or has in any manner, directly or indirectly, sought by agreement or collusion of communication or conference with any other Bidder, firm or person to fix the price or prices in the attached bid of any other Bidder, or to fix any overhead, profit or cost element of the Bid Price or the Bid Price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the County or any person interested in the proposed Contract; and

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

Signed:_____

Title:_____

Subscribed and sworn to before me this _____ day of _____, 20_____

(Title)

My Commission Expires:_____

PAYMENT AND PERFORMANCE BOND

Surety's Bond No. _____
City's Contract No. _____

Contractor (Principal):

Name: _____
Address: _____
_____
Phone ( )_____

Surety:

Name: _____
Address: _____
_____
Phone ( )_____

Owner:

City of Plant City, Florida
302 West Reynolds Street
Plant City, FL 33563
(813) 659-4200

BY THIS BOND, We _____,

as Principal and _____, a Corporation,

as Surety, are bound to the City of Plant City, Florida, a Florida Municipal Corporation, herein called Owner, in the sum of $_____ for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, 20____, between Principal and Owner for construction of _____

_____

_____, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and

3. Pays Owner all losses and damages, including, but not limited to, delay damages, and all expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety's obligation under this bond.

DATED ON _____, 20____.

WITNESSES: _____
Name of Principal

_____ By: _____

Print name: _____
Title: _____

_____

Print name: _____

_____ _____

Print name: _____ Name of Surety

_____ By: _____

Print name: _____ Attorney-in-fact*

*(As Attorney in Fact) attach Power of Attorney and Current Certificate with Original Signature

SECTION 3 – SCOPE OF WORK

The scope of work for this project includes all activities required for the relocation and replacement of the existing water and sewer utilities along State Road 574 as shown on the attached plans (Reynolds Street), bounded by Turkey Creek Road to the west and Thonotosassa on the east. Generally, the work will include approximately 1000 linear feet of water main relocation and 600 linear feet of gravity sewer replacement. Along with the aforementioned, the work shall include maintenance of traffic (MOT) and by-pass pumping. Utility service to the customers shall be maintained except for brief, periodic outages as may be required to change over services. The Contractor shall provide written notification to the customers when and if outages will occur. The type of materials to be utilized and well as other project requirement are provided in the Technical Specifications and the Design Plans which are made part of these bid documents.

All construction shall be coordinated with City of Plant City Staff.

This is a very time sensitive and critical project and the Contactor will be held responsible for completing the project on time. In the occurrence of delays foreseen by the Contractor, liquidated damages will be applied.

SECTION 4 – SPECIAL PROVISIONS

1. Definitions

Wherever used in any of the Contract Documents, the meaning shall be given to the terms herein defined:

1.1 The term "Contractor" means the person, Bidder or corporation to whom the herein Contract is awarded by the Owner and who is subject to the terms hereof.

1.2 The term "Subcontractor" means a person, Bidder or corporation supplying services and materials, labor and materials, or only services or labor for work in connection with the project.

2. Accident Prevention

Precaution shall be exercised the use of modern safety rules and practices at all times for the protection of persons (including employees) and property, and hazardous conditions shall be guarded against or eliminated.

3. Qualifications for Employment

No person shall be employed in violation of the State or the National Labor Laws. No person under the age of sixteen years shall be employed on the project under this Contract. No person whose age or physical condition is such as to make this 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 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.

4. Substitutions

Unless otherwise stated, reference in the specifications to any article, device, product, materials, fixture, form, or type of construction, etc., by name, make or catalogue number, shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. The determination of whether any article, device, product, material, fixture, form or type of construction is equal to that named is solely in the determination of the Owner. No Substitutions shall be permitted without the prior express written authorization from the Owner.

5. Patents

The Contractor shall hold and save the Owner and his officers, agents, servants, and employees harmless from liabilities of any nature or kind, including costs and expenses for, or on account

of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the Contract, including its use by the Owner at any time during the prosecution or after completion of the work unless otherwise specifically stipulated in the Contract Documents.

6. Use of Premises

6.1 The Contractor shall confine his apparatus, storage of materials, and construction operations to such limits as may be directed by the Owner and shall not unreasonably encumber the premises with his materials. Any damage done to public or private property shall be repaired at the Contractor's expense to the preconstruction condition or better. It is mandatory that a preconstruction video be made to determine actual preconstruction conditions should a dispute arise. Be sure to note address, type of sod, any existing damage and show these items on the video.

6.2 The Contractor shall not load or permit any part of any structure to be loaded to such an extent as to endanger its safety.

6.3 The Contractor shall provide and maintain at his own expense, in a sanitary condition, such accommodations for the use of his employees as is necessary to comply with the requirements and regulations of the State Department of Environmental Regulation and Health Department. He shall commit no public nuisance.

7. Overtime Work by Owner Employees

Where the Contractor elects to work on a Saturday, Sunday or other holiday, or longer than an eight-hour work shift on a regular working day, such work shall be considered as overtime work. On all such overtime work an inspector will be present. The Contractor shall reimburse the Owner for the full amount of the straight time plus overtime costs for employees of the Owner required to work overtime hours. The Contractor by these specifications does hereby authorize the Owner to deduct the cost of overtime work at the rate of $35 per hour from the amount due or to become due him.

Overtime due to special construction problems such as concrete, finishing, asphalt rolling, making live sewer hookups, alleviating traffic problems, etc., may not be charged if the City Manager considers the overtime to be mutually justified. Normal engineering inspection hours are 7:00 a.m. to 5:00 p.m. Monday through Friday.

Recognized Holidays shall be as follows:

1. New Year's Day
2. Martin Luther King Day
3. Strawberry Festival Parade Day
4. Memorial Day
5. Independence Day
6. Labor Day
7. Veteran's Day
8. Thanksgiving Day
9. Day after Thanksgiving
10. Christmas Eve's Day
11. Christmas Day

8. References

Any reference in this document to any specification, publication, or test method shall be construed as meaning the latest edition, revision, change, or modification of same.

FIXED PRICE CONSTRUCTION CONTRACT BETWEEN OWNER AND CONTRACTOR

This FIXED PRICE CONSTRUCTION CONTRACT BETWEEN OWNER AND CONTRACTOR (the "Contract") is made and entered into by and between the City of Plant City, a Florida Municipal Corporation (the "Owner") and _____ (the "Contractor"). This Contract is executed under seal, and shall be effective on _____ ("Effective Date").

This Contract is for the construction of a project identified as SR 574 Utility Relocation (the "Project").

NOW, THEREFORE, in consideration of the mutual promises, covenants and agreements stated herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree:

1.

DOCUMENTS INCORPORATED BY REFERENCE

This Contract includes the plans and specifications for the Project identified thereon as such, plus the following (if any): Invitation to Bid # 17-021UO-LG, Instructions to Bidders, Executed Bid Form, Special Provisions, Technical Specifications, As-Built Requirements, Close-Out requirements, Payment and Performance Bond, and Plans and drawings dated November 18, 2016 prepared by Chastain Skillman, Inc., all of which are hereby incorporated herein by reference and made a part hereof, except that no deviations in the Contractor's Executed Bid Form from the Invitation to Bid, Special Provisions, Technical Specifications, As-Built Requirements, Close-Out requirements, Payment and Performance Bond, and Plans and drawings dated November 18, 2016 prepared by Chastain Skillman, Inc. shall be incorporated herein unless expressly provided in this Contract. Any conflict with the Contractor's Executed Bid Form and the documents prepared by the City shall be construed in favor of the documents prepared by the City. Change Orders issued hereafter, and any other amendments executed by the Owner and the Contractor, shall become and be a part of this Contract. Documents not included or expressly contemplated in this Paragraph 1 do not, and shall not, form any part of this Contract.

2.

REPRESENTATIONS OF THE CONTRACTOR

In order to induce the Owner to execute this Contract and recognizing that the Owner is relying thereon, the Contractor, by executing this Contract, makes the following express representations to the Owner:

(A) The Contractor is fully qualified to act as the contractor for the Project and has, and shall maintain, any and all licenses, permits or other authorizations necessary to act as the contractor for, and to construct, the Project;

(B) The Contractor has become familiar with the Project site and the local conditions under which the Project is to be constructed and operated;

(C) The Contractor has received, reviewed and carefully examined all of the documents which make up this Contract, including, but not limited to, the plans and specifications, and has found them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient for construction; and

(D) Contractor warrants good right and title to all material, supplies, and equipment installed or incorporated in the work and agrees upon completion of all work to deliver to Owner all material, supplies, and equipment installed or incorporated in the work constructed free of any claims, liens, or charges.

3.

INTENT AND INTERPRETATION

With respect to the intent and interpretation of this Contract, the Owner and the Contractor agree as follows:

(A) This Contract, including all documents incorporated by reference to this Contract pursuant to Paragraph 1 herein, shall constitute the entire and exclusive agreement between the parties with reference to the Project, and said Contract supersedes any and all prior discussions, communications, representations, understandings, negotiations, or agreements;

(B) Anything that may be required, implied or inferred by the documents which make up this Contract, or any one or more of them, shall be provided by the Contractor for the Contract Price;

(C) Nothing contained in this Contract shall create, nor be interpreted to create, privity or any other relationship whatsoever between the Owner and any person except the Contractor;

(D) When a word, term, or phrase is used in this Contract, it shall be interpreted or construed first, as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage;

(E) The words "include", "includes", or "including", as used in this Contract, shall be deemed to be followed by the phrase, "without limitation";

(F) The specification herein of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence or condition shall be deemed not to constitute a material breach of this Contract;

(G) The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the documents which make up this Contract, shop drawings, and other submittals and shall give written notice to the Owner and the Design Professional of any conflict, ambiguity, error or omission which the Contractor may find with respect to these documents before proceeding with the affected work. The express or implied approval by the Owner or the Design Professional of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Owner has requested the Design Professional to prepare documents for the Project, including the plans and specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction. HOWEVER, THE OWNER MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. The Contractor again hereby acknowledges and represents that it has received, reviewed and carefully examined such

documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that the Contractor has not, does not, and will not rely upon any representations or warranties by the Owner concerning such documents, as no such representations or warranties have been or are hereby made;

(H) In the event of any conflict, discrepancy, or inconsistency among any of the documents which make up this Contract, the following shall control:

(1) As between figures given on plans and scaled measurements, the figures shall govern;

(2) As between large scale plans and small scale plans, the large scale plans shall govern;

(3) As between plans and specifications, the requirements of the specifications shall govern;

(4) As between this document and the plans or specifications, this document shall govern.

(I) The Owner's representative shall be the City Manager.

4.

OWNERSHIP OF THE DOCUMENTS WHICH MAKE UP THE CONTRACT

The documents which make up this Contract, and each of them, as well as any other documents furnished by the Owner, shall remain the property of the Owner. The Contractor shall have the right to keep one (1) copy of the Contract upon completion of the Project; provided, however, that in no event shall the Contractor use, or permit to be used, any portion or all of such Contract on other projects without the Owner's prior written authorization.

5.

CONTRACTOR'S PERFORMANCE

The Contractor shall perform all of the work required, implied or reasonably inferable from this Contract including, but not limited to, the following:

(A) Construction of the Project;

(B) The furnishing of any required surety bonds and insurance;

(C) The provision or furnishing, and prompt payment therefor, of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, fuel, heat, light, cooling, or other utilities, required for construction and all necessary building permits and other permits required for the construction of the Project; and

(D) The creation and submission to the Owner of detailed and comprehensive as-built drawings depicting all as-built construction. Said as-built drawings shall be submitted to the Owner upon final completion of the Project and receipt and approval of same by the Owner shall be a condition precedent to final payment to the Contractor.

6.

TIME FOR CONTRACTOR'S PERFORMANCE

(A) The Contractor shall commence the performance of this Contract within one (1) calendar day of the Owner's written notice to proceed and shall diligently continue its performance to and until final

completion of the Project. The Contractor shall accomplish Substantial Completion of the Project on or before seventy (70) days from the Owner's written notice to proceed;

(B) The Contractor shall pay the Owner the sum of Five Hundred and No/100 Dollars ($500.00) per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth herein for Substantial Completion. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at the time of executing this Contract. When the Owner reasonably believes that Substantial Completion will be unexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages;

(C) The term "Substantial Completion", as used herein, shall mean that point at which, as certified in writing by the Design Professional, the Project is at a level of completion in strict compliance with this Contract such that the Owner or its designee can enjoy beneficial use or occupancy and can use or operate it in all respects, for its intended purpose. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion;

(D) All limitations of time set forth herein are material and are of the essence of this Contract.

7.

FIXED PRICE AND CONTRACT PAYMENTS

(A) The Owner shall pay, and the Contractor shall accept, as full and complete payment for the Contractor's timely performance of its obligations hereunder the fixed price of _____ Dollars ($_____). The price set forth in this Subparagraph 7(A) shall constitute the Contract Price, which shall not be modified except by Change Order as provided in this Contract;

(B) The Owner shall pay the Contract Price to the Contractor in accordance with Section 218.70, Florida Statutes ("Local Government Prompt Payment Act") and the procedures set forth in this Paragraph 7. **As provided in Section 255.05(b), Florida Statutes, no payment shall be made to the Contractor until Contractor has provided the Owner with a certified copy of the recorded payment and performance bond.** On or before the 1st day of each month after commencement of performance, but no more frequently than once monthly, the Contractor may submit a Payment Request for the period ending the 15th day of the prior month to the following:

Design Professional:

Raj Vaidya, PHD, PE
Director of Environmental Engineering
Chastain Skillman, Inc.
P.O. Box 5710
Lakeland, FL 33807-5710

With a copy to:

Kenneth W. Buchman, Esq.
City Attorney
City of Plant City

302 West Reynolds Street
Plant City, FL 33563

Said Payment Request shall be in such format and include whatever supporting information as may be required by the Owner. Therein, until such time as the Contractor has reached fifty percent (50%) completion of construction services, the Contractor may request payment for ninety percent (90%) of that part of the Contract Price allocable to Contract requirements properly provided, labor, materials and equipment properly incorporated in the Project, and materials or equipment necessary for the Project and properly stored at the Project site (or elsewhere if offsite storage is approved in writing by the Owner), less the total amount of previous payments received from the Owner. After Contractor has reached fifty percent (50%) completion of construction services, the Contractor may request payment for ninety-five percent (95%) of that part of the Contract Price allocable to Contract requirements properly provided, labor, materials and equipment properly incorporated in the Project, and materials or equipment necessary for the Project and properly stored at the Project site (or elsewhere if offsite storage is approved in writing by the Owner), less the total amount of previous payments received from the Owner. In accordance with Section 255.078(4), Florida Statutes, after fifty percent (50%) completion of the construction services provided pursuant to this Contract, the Contractor may present to the Owner a payment request for up to one-half of the retainage held by the Owner. The Owner shall promptly make payment to the Contractor, unless the Owner has grounds pursuant to Section 255.078(6), Florida Statutes for withholding the payment of retainage.

Notwithstanding anything herein to the contrary, Contractor shall not be paid for equipment and materials until after installation.

Each such Payment Request shall be signed by the Contractor and shall constitute the Contractor's representation that the quantity of work has reached the level for which payment is requested, that the work has been properly installed or performed in strict compliance with this Contract, and that the Contractor knows of no reason why payment should not be made as requested. Thereafter, the Owner shall review the Payment Request and may also review the work at the Project site or elsewhere to determine whether the quantity and quality of the work is as represented in the Payment Request and is as required by this Contract. The Owner shall approve in writing the amount which, in the opinion of the Owner, is properly owing to the Contractor. The Owner shall make payment to the Contractor in accordance within twenty-five (25) business days after the date of which the Payment Request is stamped as received as provided in Section 218.74(1), Florida Statutes. The amount of each such payment shall be the amount approved for payment by the Owner less such amounts, if any, otherwise owing by the Contractor to the Owner or which the Owner shall have the right to withhold as authorized by this Contract. The submission by the Contractor of a Payment Request also constitutes an affirmative representation and warranty that all work for which the Owner has previously paid is free and clear of any lien, claim, or other encumbrance of any person whatsoever. As a condition precedent to payment, the Contractor shall provide the Owner a certified copy of the bond as required in Section 255.05, Florida Statutes, and if required by the Owner, also furnish to the Owner a properly executed release from the surety or a Waiver of Right of Claim Against the Payment Bond in the form as provided in Section 255.05, Florida Statutes, from all subcontractors, materialmen, suppliers and other person or entity who has, or might have a claim against the Owner for the work done on the Owner's property. Furthermore, the Contractor warrants and represents that, upon payment of the Payment Request submitted, title to all work included in such payment shall be vested in the Owner;

(C) When payment is received from the Owner, the Contractor shall immediately pay all subcontractors, materialmen, laborers and suppliers the amounts they are due for the work covered by such payment. In the event the Owner becomes informed that the Contractor has not paid a subcontractor, materialman, laborer, or supplier within 10 days after the Contractor's receipt of payment, the Owner shall have the right, but not the duty, to issue future checks and payment to the Contractor of amounts otherwise due hereunder naming the Contractor and any such subcontractor, materialman, laborer, or supplier as joint payees. Such joint check procedure, if employed by the Owner, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check

and shall not be deemed to commit the Owner to repeat the procedure in the future. The joint check procedure shall not be required by the Owner if Contractor has provided Owner with a written consent from the surety regarding the project or payment as provided in Section 255.05(11), Florida Statutes;

(D) Neither payment to the Contractor, utilization of the Project for any purpose by the Owner, nor any other act or omission by the Owner shall be interpreted or construed as an acceptance of any work of the Contractor not strictly in compliance with this Contract;

(E) The Owner shall have the right to refuse to make payment and, if necessary, may demand the return of a portion or all of the amount previously paid to the Contractor due to:

(1) The quality of a portion, or all, of the Contractor's work not being in accordance with the requirements of this Contract;

(2) The quantity of the Contractor's work not being as represented in the Contractor's Payment Request, or otherwise;

(3) The Contractor's rate of progress being such that, in the Owner's opinion, Substantial Completion or final completion, or both, may be unexcusably delayed;

(4) The Contractor's failure to use Contract funds, previously paid the Contractor by the Owner, to pay Contractor's Project-related obligations including, but not limited to, subcontractors, laborers and material and equipment suppliers;

(5) Claims made, or likely to be made, against the Owner or its property;

(6) Loss caused by the Contractor;

(7) The Contractor's failure or refusal to perform any of its obligations to the Owner.

In the event that the Owner makes written demand upon the Contractor for amounts previously paid by the Owner as contemplated in this Subparagraph 7(E), the Contractor shall promptly comply with such demand;

(F) If within thirty (30) days from the date payment to the Contractor is due, the Owner, without cause or basis hereunder, fails to pay the Contractor any amounts then due and payable to the Contractor, the Contractor shall have the right to cease work until receipt of proper payment after first providing ten (10) days' written notice of its intent to cease work to the Owner. Any payment not made within thirty (30) days after the date due shall bear interest at the rate of twelve percent (12%) per annum;

(G) When Substantial Completion has been achieved, the Contractor shall notify the Owner and the Design Professional in writing and shall furnish to the Design Professional a proposed punch list listing those matters yet to be finished. The Design Professional will thereupon conduct an inspection to confirm that the work is in fact substantially complete and shall upon determining that the work is substantially complete, shall review and revise, if necessary, the proposed punch list. Upon its confirmation that the Contractor's work is substantially complete, the Design Professional will so notify the Owner and Contractor in writing and will therein set forth the date of Substantial Completion and furnish the final punch list of items that need to be completed for final completion. If the Design Professional, through its inspection, fails to find that the Contractor's work is substantially complete, and is required to repeat all, or any portion, of its Substantial Completion inspection, the Contractor shall bear the cost of such repeat inspection(s) which cost may be deducted by the Owner from any payment then or thereafter due to the Contractor. Guarantees and equipment warranties required by this Contract shall commence on the date of Substantial Completion. Upon Substantial Completion, the Owner shall pay the Contractor an amount sufficient to increase total payments to the Contractor to ninety percent (90%) of the Contract Price less any amounts attributable to liquidated damages, and less the reasonable costs as determined

by the Owner for completing all incomplete work, correcting and bringing into conformance all defective and nonconforming work, and handling any outstanding or threatened claims;

(H) When the Project is finally complete and the Contractor is ready for a final inspection, it shall notify the Owner and the Design Professional thereof in writing. Thereupon, the Design Professional will perform a final inspection of the Project. If the Design Professional confirms that the Project is complete in full accordance with this Contract and that the Contractor has performed all of its obligations to the Owner hereunder, the Design Professional will furnish a final Approval for Payment to the Owner certifying to the Owner that the Project is complete and the Contractor is entitled to the remainder of the unpaid Contract Price, less any amount withheld pursuant to this Contract. If the Design Professional is unable to issue its final Approval for Payment and is required to repeat its final inspection of the Project, the Contractor shall bear the cost of such repeat inspection(s), which costs may be deducted by the Owner from the Contractor's final payment;

(I) If the Contractor fails to achieve final completion within 30 days of (i) Substantial Completion, or (ii) the Design Professional's delivery to the Contractor of the punch list described in Subparagraph 7(G) herein, whichever is later, the Contractor shall pay the Owner the sum of Two Hundred Fifty Dollars ($250.00) per day for each and every calendar day of unexcused delay in achieving final completion beyond the date set forth herein for final completion of the work. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at or before the time of executing this Contract. When the Owner reasonably believes that final completion will be unexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving final completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages;

(J) Prior to being entitled to receive final payment, and as a condition precedent thereto, the Contractor shall furnish the Owner, in the form and manner required by Owner, if any, with a copy to the Design Professional:

(1) An affidavit that all of the Contractor's obligations to subcontractors, laborers, equipment or material suppliers, or other third parties in connection with the Project, have been paid or otherwise satisfied;

(2) Separate Waiver of Right of Claim Against the Payment Bond in the form as provided in Section 255.05, Florida Statutes from each subcontractor, lower tier subcontractor, laborer, supplier or other person or entity who has, or might have a claim against the Owner, or written consent from the surety regarding the project or payment as provided in Section 255.05(11), Florida Statutes; and

(3) All product warranties, operating manuals, instruction manuals and other record documents, drawings (including as-built drawings), satisfactory test results and things customarily required of the Contractor, or expressly required herein or set forth in the bid documents, as a part of or prior to Project closeout.

(K) The Owner shall, subject to its rights set forth in Subparagraph 7(E) above, make final payment of all sums due the Contractor within ten (10) days of the Design Professional's execution of a final Approval for Payment.

(L) In accordance with Section 218.76, Florida Statutes, if a dispute arises between the Contractor and the Owner concerning payment of a Payment Request which is not resolved within 30 days of the Payment Request, the dispute shall be determined by the City Manager pursuant to the following. Proceedings before the City Manager shall commenced within 45 days and concluded within 60 days

after the date of the Payment Request was received by the Owner's representative listed in Subparagraph 7(B) herein. The proceedings are not subject to Chapter 120, Florida Statutes and do not constitute an administrative proceeding that prohibits a court from deciding de novo any action arising out of the dispute. If the dispute is resolved in favor of the Owner, interest charges begin to accrue 15 days after the City Manager's final determination. If the dispute is resolved in favor of the Contractor, then interest begins to accrue as of the original date the payment became due. Notwithstanding, nothing herein shall prevent the Contractor and City from resolving the matter prior to final determination of the City Manager.

8.

INFORMATION AND MATERIAL SUPPLIED BY THE OWNER

(A) The Owner shall furnish to the Contractor, prior to the execution of this Contract, any and all written and tangible material in its possession concerning conditions below ground at the site of the Project. Such written and tangible material is furnished to the Contractor only in order to make complete disclosure of such material as being in the possession of the Owner and for no other purpose. By furnishing such material, the Owner does not represent, warrant, or guarantee its accuracy either in whole, in part, implicitly or explicitly, or at all, and shall have no liability therefor. The Owner shall also furnish, if appropriate, the legal description of the Project site, and any required survey;

(B) The Owner shall obtain all required authorizations, approvals, easements, and the like excluding the building permit and other permits or fees required of the Contractor by this Contract, or permits and fees customarily the responsibility of the Contractor;

(C) The Owner will provide the Contractor two copies of the complete Contract. The Contractor will be charged, and shall pay the Owner, the actual cost of duplication for any additional copy of the Contract which it may require.

9.

CEASE AND DESIST ORDER

In the event the Contractor fails or refuses to perform the work as required herein, the Owner may instruct the Contractor to cease and desist from performing further work in whole or in part. Upon receipt of such instruction, the Contractor shall immediately cease and desist as instructed by the Owner and shall not proceed further until the cause for the Owner's instructions has been corrected, no longer exists, or the Owner instructs that the work may resume. In the event the Owner issues such instructions to cease and desist, and in the further event that the Contractor fails and refuses within seven (7) days of receipt of same to provide adequate assurance to the Owner that the cause of such instructions will be eliminated or corrected, then the Owner shall have the right, but not the obligation, to carry out the work with its own forces, or with the forces of another contractor, and the Contractor shall be fully responsible and liable for the costs of performing such work by the Owner. The rights set forth herein are in addition to, and without prejudice to, any other rights or remedies the Owner may have against the Contractor.

10.

DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR

In addition to any and all other duties, obligations and responsibilities of the Contractor set forth in this Contract, the Contractor shall have and perform the following duties, obligations and responsibilities to the Owner:

(A) The Contractor is again reminded of its continuing duties set forth in Subparagraph 3(G), which are by reference hereby incorporated in this Subparagraph 10(A). The Contractor shall not perform work

without adequate plans and specifications, or, as appropriate, approved shop drawings, or other submittals. If the Contractor performs work knowing or believing it involves an error, inconsistency or omission in the Contract without first providing written notice to the Design Professional and Owner, the Contractor shall be responsible for such work and pay the cost of correcting same;

(B) All work shall strictly conform to the requirements of this Contract;

(C) The work shall be strictly supervised, the Contractor bearing full responsibility for any and all acts or omissions of those engaged in the work on behalf of the Contractor;

(D) The Contractor hereby warrants that all labor furnished under this Contract shall be competent to perform the tasks undertaken, that the product of such labor shall yield only first-class results, that all materials and equipment provided shall be new and of high quality, that the completed work will be complete, of high quality, without defects, and that all work strictly complies with the requirements of this Contract. Any work not strictly complying with the requirements of this Subparagraph shall constitute a breach of the Contractor's warranty;

(E) The Contractor shall obtain and pay for all required permits, fees and licenses customarily obtained by the Contractor. The Contractor shall comply with all legal requirements applicable to the work;

(F) The Contractor shall employ and maintain at the Project site only competent supervisory personnel. Key supervisory personnel assigned by the Contractor to this Project are as follows:

NAME	FUNCTION
_____	_____
_____	_____
_____	_____

So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Owner agrees to the contrary in writing. In the event one or more individuals not listed above subsequently assumes one or more of those functions listed above, the Contractor shall be bound by the provisions of this Subparagraph 10(F) as though such individuals had been listed above;

(G) Prior to the Pre-Construction conference which shall be held at 1500 Victoria Street, Plant City, Florida 33563 within five (5) calendar days of the Effective Date of this Agreement, the Contractor shall provide to the Owner and the Design Professional the Contractor's schedule for completing the work. Such schedule shall be in a form acceptable to the Owner and the Contractor shall comply with the schedule. The Contractor's schedule shall be updated no less frequently than monthly (unless the parties otherwise agree in writing) and shall be updated to reflect conditions encountered from time to time and shall apply to the total Project. Each such revision shall be furnished to the Owner and the Design Professional. Strict compliance with the requirements of this Subparagraph 10(G) shall be a condition precedent to payment to the Contractor, and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract;

(H) The Contractor shall keep an updated copy of this Contract at the site. Additionally, the Contractor shall keep a copy of approved shop drawings and other submittals. All of these items shall be available to the Owner and the Design Professional at all regular business hours. Upon final completion of the work, all of these items shall be finally updated and provided to the Owner and shall become the property of the Owner;

(I) Shop drawings and other submittals from the Contractor do not constitute a part of the Contract. The Contractor shall not do any work requiring shop drawings or other submittals unless such shall have been approved in writing by the Design Professional. All work requiring approved shop drawings or other submittals shall be done in strict compliance with such approved documents. However, approval by the Design Professional or the Owner shall not be evidence that work installed pursuant thereto conforms with the requirements of this Contract. The Owner and the Design Professional shall have no duty to review partial submittals or incomplete submittals. The Contractor shall maintain a submittal log which shall include, at a minimum, the date of each submittal, the date of any resubmittal, the date of any approval or rejection, and the reason for any approval or rejection. The Contractor shall have the duty to carefully review, inspect and examine any and all submittals before submission of same to the Owner or the Design Professional;

(J) The Contractor shall maintain the Project site in a reasonably clean condition during performance of the work. Upon final completion, the Contractor shall thoroughly clean the Project site of all debris, trash and excess materials or equipment;

(K) At all times relevant to this Contract, the Contractor shall permit the Owner and the Design Professional to enter upon the Project site and to review or inspect the work without formality or other procedure;

(L) Prior to the Pre-Construction Conference which shall be held at 1500 Victoria Street, Plant City, Florida 33563 within five (5) calendar days of the Effective Date of this Agreement, the Contractor shall prepare and present to the Owner and the Design Professional the Contractor's Schedule of Values apportioning the Contract Price among the different elements of the Project for purposes of periodic and final payment. The Contractor's Schedule of Values shall be presented in whatever format, with such detail, and backed up with whatever supporting information the Design Professional or the Owner requests. The Contractor shall not imbalance its Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Contract. The Contractor's Schedule of Values will be utilized for the Contractor's Payment Requests but shall only be so utilized after it has been acknowledged in writing by the Design Professional and the Owner.

11.

INDEMNITY

Contractor shall indemnify and hold the City, and its officers and employees, harmless from liabilities, damages, losses and costs, including, but not limited to, attorneys' fees, to the extent caused by the negligence, recklessness or intentional wrongful conduct of Contractor or other persons employed or utilized by Contractor in the performance of the Contract; provided however, that this indemnification shall be limited to the amount of this Contract.

12.

THE PROJECT DESIGN PROFESSIONAL

The Design Professional for this Project is Chastain Skillman, Inc. (the "Design Professional"). In the event the Owner should find it necessary or convenient to replace the Design Professional, the Owner shall retain a replacement Design Professional and the role of the replacement Design Professional shall be the same as the role of the Design Professional. Unless otherwise directed by the Owner in writing, the Design Professional will perform those duties and discharge those responsibilities allocated to the Design Professional in this Contract. The duties, obligations and responsibilities of the Design Professional shall include, but are not limited to, the following:

(A) Unless otherwise directed by the Owner in writing, the Design Professional shall act as the Owner's agent from the effective date of this Contract until final payment has been made, to the extent expressly set forth in this Contract;

(B) Unless otherwise directed by the Owner in writing, the Owner and the Contractor shall communicate with each other in the first instance through the Design Professional;

(C) When requested by the Contractor in writing, the Design Professional shall render interpretations necessary for the proper execution or progress of the work;

(D) The Design Professional shall draft proposed Change Orders;

(E) The Design Professional shall approve, or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor;

(F) The Design Professional shall be authorized to refuse to accept work which is defective or otherwise fails to comply with the requirements of this Contract. If the Design Professional deems it appropriate, the Design Professional shall be authorized to call for extra inspection or testing of the work for compliance with requirements of this Contract;

(G) The Design Professional shall review the Contractor's Payment Requests and shall approve in writing those amounts which, in the opinion of the Design Professional, are properly owing to the Contractor as provided in this Contract;

(H) The Design Professional shall, upon written request from the Contractor, perform those inspections required in Paragraph 7 hereinabove;

(I) The Design Professional shall be authorized to require the Contractor to make changes which do not involve a change in the Contract Price or in the time for the Contractor's performance of this Contract consistent with the intent of this Contract;

(J) THE DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR UNDER THIS CONTRACT SHALL IN NO MANNER WHATSOEVER BE CHANGED, ALTERED, DISCHARGED, RELEASED, OR SATISFIED BY ANY DUTY, OBLIGATION OR RESPONSIBILITY OF THE DESIGN PROFESSIONAL. THE CONTRACTOR IS NOT A THIRD-PARTY BENEFICIARY OF ANY CONTRACT BY AND BETWEEN THE OWNER AND THE DESIGN PROFESSIONAL. IT IS EXPRESSLY ACKNOWLEDGED AND AGREED THAT THE DUTIES OF THE CONTRACTOR TO THE OWNER ARE INDEPENDENT OF, AND ARE NOT DIMINISHED BY, ANY DUTIES OF THE DESIGN PROFESSIONAL TO THE OWNER.

13.

CLAIMS BY THE CONTRACTOR

Claims by the Contractor against the Owner are subject to the following terms and conditions:

(A) All Contractor claims against the Owner shall be initiated by a written claim submitted to the Owner and the Design Professional. Such claim shall be received by the Owner and the Design Professional no later than seven (7) calendar days after the event, or the first appearance of the circumstances, causing the claim, and same shall set forth in detail all known facts and circumstances supporting the claim;

(B) The Contractor and the Owner shall continue their performance hereunder regardless of the existence of any claims submitted by the Contractor;

(C) In the event the Contractor discovers previously concealed and unknown site conditions which are materially at variance from those typically and ordinarily encountered in the general geographical location of the Project, the Contract Price shall be modified, either upward or downward, upon the written claim made by either party within seven (7) calendar days after the first appearance to such party of the circumstances. As a condition precedent to the Owner having any liability to the Contractor due to concealed and unknown conditions, the Contractor must give the Owner and the Design Professional written notice of, and an opportunity to observe, such condition prior to disturbing it. The failure by the Contractor to give the written notice and make the claim as provided by this Subparagraph 13(C) shall constitute a waiver by the Contractor of any rights arising out of or relating to such concealed and unknown condition. As there may be a number of factors which may delay the performance of the contract, the measured mile method shall not be used to calculate additional compensation pursuant to this paragraph. All such claims shall be based on actual documented costs;

(D) In the event the Contractor seeks to make a claim for an increase in the Contract Price, as a condition precedent to any liability of the Owner therefor, the Contractor shall strictly comply with the requirements of Subparagraph 13(A) above and such claim shall be made by the Contractor before proceeding to execute any additional or changed work. Failure of the condition precedent to occur shall constitute a waiver by the Contractor of any claim for additional compensation;

(E) In connection with any claim by the Contractor against the Owner for compensation in excess of the Contract Price, any liability of the Owner for the Contractor's cost shall be strictly limited to direct cost incurred by the Contractor and shall in no event include indirect cost or consequential damages of the Contractor. The Owner shall not be liable to the Contractor for claims of third-parties including subcontractors, unless and until liability of the Contractor has been established therefor in a court of competent jurisdiction;

(F) In the event the Contractor should be delayed in performing any task which at the time of the delay is then critical, or which during the delay becomes critical, as the sole result of any act or omission by the Owner or someone acting in the Owner's behalf, or by Owner-authorized Change Orders, unusually bad weather not reasonably anticipatable, fire or other Acts of God, the date for achieving Substantial Completion, or, as applicable, final completion, shall be appropriately adjusted by the Owner upon the written claim of the Contractor to the Owner and the Design Professional. Contractor’s sole remedy against Owner in the event of such delay of a critical task shall be the right to seek an extension of time. Under no circumstances shall any delay give rise to any right to damages or additional compensation from the Owner. A task is critical within the meaning of this Subparagraph 13(F) if, and only if, said task is on the critical path of the Project schedule so that a delay in performing such task will delay the ultimate completion of the Project. Any claim for an extension of time by the Contractor shall strictly comply with the requirements of Subparagraph 13(A) above. If the Contractor fails to make such claim as required in this Subparagraph 13(F), any claim for an extension of time shall be waived.

14.

SUBCONTRACTORS

Upon execution of this Contract, the Contractor shall identify to the Owner and the Design Professional, in writing, those parties intended as subcontractors on the Project. The Owner shall, in writing, state any objections the Owner may have to one or more of such subcontractors. The Contractor shall not enter into a subcontract with an intended subcontractor with reference to whom the Owner objects. All subcontracts shall afford the Contractor rights against the subcontractor which correspond to those rights afforded to the Owner against the Contractor herein, including those rights of Contract termination as set forth hereinbelow.

15.

CHANGE ORDERS

One or more changes to the work within the general scope of this Contract, may be ordered by Change Order. The Contractor shall proceed with any such changes, and same shall be accomplished in strict accordance with the following terms and conditions:

(A) Change Order shall mean a written order to the Contractor executed by the Owner and the Design Professional after execution of this Contract, directing a change in the work and may include a change in the Contract Price or the time for the Contractor's performance, or any combination thereof;

(B) Any change in the Contract Price resulting from a Change Order shall be determined as follows:

(1) By mutual agreement between the Owner and the Contractor as evidenced by (a) the change in the Contract Price being set forth in the Change Order, (b) such change in the Contract Price, together with any conditions or requirements relating thereto, being initialed by both parties and (c) the Contractor's execution of the Change Order, or,

(2) If no mutual agreement occurs between the Owner and the Contractor, the change in the Contract Price, if any, shall be derived by determining the reasonable actual costs incurred or savings achieved, resulting from revisions in the work. Such reasonable actual costs or savings shall include a component for direct jobsite overhead and profit but shall not include home-office overhead or other indirect costs or components. Any such costs or savings shall be documented in the format, and with such content and detail as the Owner or the Design Professional requires.

(C) The execution of a Change Order by the Contractor shall constitute conclusive evidence of the Contractor's agreement to the ordered changes in the work, this Contract as thus amended, the Contract Price and the time for performance by the Contractor. The Contractor, by executing the Change Order, waives and forever releases any claim against the Owner for additional time or compensation for matters relating to or arising out of or resulting from the work included within or affected by the executed Change Order;

(D) The Contractor shall notify and obtain the consent and approval of the Contractor's surety with reference to all Change Orders if such notice, consent or approval are required by the Owner, the Design Professional, the Contractor's surety or by law. The Contractor's execution of the Change Order shall constitute the Contractor's warranty to the Owner that the surety has been notified of, and consents to, such Change Order and the surety shall be conclusively deemed to have been notified of such Change Order and to have expressly consented thereto.

(E) The Owner’s representative in this agreement is the City Manager. No change orders or other modifications to this agreement shall be effective unless in writing and signed by the City Manager.

16.

DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK

(A) In the event that the Contractor covers, conceals or obscures its work in violation of this Contract or in violation of a directive from the Owner or the Design Professional, such work shall be uncovered and displayed for the Owner's or Design Professional's inspection upon request, and shall be reworked at no cost in time or money to the Owner;

(B) If any of the work is covered, concealed or obscured in a manner not covered by Subparagraph 16(A) above, it shall, if directed by the Owner or the Design Professional be uncovered and displayed for the Owner's or Design Professional's inspection. If the uncovered work conforms strictly with this

Contract, the costs incurred by the Contractor to uncover and subsequently, replace such work shall be borne by the Owner. Otherwise, such costs shall be borne by the Contractor;

(C) The Contractor shall, at no cost in time or money to the Owner, correct work rejected by the Owner or by the Design Professional as defective or failing to conform to this Contract. Additionally, the Contractor shall reimburse the Owner for all testing, inspections and other expenses incurred as a result thereof;

(D) In addition to its warranty obligations set forth elsewhere herein, the Contractor shall be specifically obligated to correct any and all defective or nonconforming work for a period of twelve (12) months following final completion upon written direction from the Owner.

(E) The Owner may, but shall in no event be required to, choose to accept defective or nonconforming work. In such event, the Contract Price shall be reduced by the greater of (1) the reasonable costs of removing and correcting the defective or nonconforming work, and (2) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming work. If the remaining portion of the unpaid Contract Price, if any, is insufficient to compensate the Owner for the acceptance of defective or nonconforming work, the Contractor shall, upon written demand from the Owner, pay the Owner such remaining compensation for accepting defective or nonconforming work.

17.

TERMINATION BY THE CONTRACTOR

If the Owner repeatedly fails to perform its material obligations to the Contractor for a period of thirty (30) days after receiving written notice from the Contractor of its intent to terminate hereunder, the Contractor may terminate performance under this Contract by written notice to the Owner and the Design Professional. In such event, the Contractor shall be entitled to recover from the Owner as though the Owner had terminated the Contractor's performance under this Contract for convenience pursuant to Subparagraph 19(A) hereunder.

18.

OWNER'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE

(A) The Owner shall have the right at any time to direct the Contractor to suspend its performance, or any designated part thereof, for any reason whatsoever, or without reason, for a cumulative period of up to ten (10) calendar days. If any such suspension is directed by the Owner, the Contractor shall immediately comply with same;

(B) In the event the Owner directs a suspension of performance under this Paragraph 18, through no fault of the Contractor, the Owner shall pay the Contractor as full compensation for such suspension the Contractor's reasonable costs, actually incurred and paid, of:

(1) demobilization and remobilization, including such costs paid to subcontractors;

(2) preserving and protecting work in place;

(3) storage of materials or equipment purchased for the Project, including insurance thereon;

(4) performing in a later, or during a longer, time frame than that contemplated by this Contract.

19.

TERMINATION BY THE OWNER

The Owner may terminate this Contract in accordance with the following terms and conditions:

(A) The Owner may, for any reason whatsoever, terminate performance under this Contract by the Contractor for convenience. The Owner shall give written notice of such termination to the Contractor specifying when termination becomes effective. The Contractor shall incur no further obligations in connection with the work and the Contractor shall stop work when such termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The Owner may direct the Contractor to assign the Contractor's right, title and interest under termination orders or subcontracts to the Owner or its designee. The Contractor shall transfer title and deliver to the Owner such completed or partially completed work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has. When terminated for convenience, the Contractor shall be compensated as follows:

(1) The Contractor shall submit a termination claim to the Owner and the Design Professional specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the Owner or the Design Professional. If the Contractor fails to file a termination claim within one (1) year from the effective date of termination, the Owner shall pay the Contractor, an amount derived in accordance with Subparagraph (3) below;

(2) The Owner and the Contractor may agree to the compensation, if any, due to the Contractor hereunder;

(3) Absent agreement to the amount due to the Contractor, the Owner shall pay the Contractor the following amounts:

(a) Contract prices for labor, materials, equipment and other services accepted under this Contract;

(b) Reasonable costs incurred in preparing to perform and in performing the terminated portion of the work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for direct jobsite overhead and profit thereon (such profit shall not include anticipated profit or consequential damages); provided however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any;

(c) Reasonable costs of settling and paying claims arising out of the termination of subcontracts or orders pursuant to Subparagraph 19(A) of this Paragraph. These costs shall not include amounts paid in accordance with other provisions hereof.

The total sum to be paid the Contractor under this Subparagraph 19(A) shall not exceed the total Contract Price, as properly adjusted, reduced by the amount of payments otherwise made, and shall in no event include duplication of payment.

(B) If the Contractor does not perform the work, or any part thereof, in a timely manner, supply adequate labor, supervisory personnel or proper equipment or materials, or if it fails to timely discharge its obligations for labor, equipment and materials, or proceeds to disobey applicable law, or otherwise commits a violation of a material provision of this Contract, then the Owner, in addition to any other rights it may have against the Contractor or others, may terminate the performance of the Contractor and

assume possession of the Project site and of all materials and equipment at the site and may complete the work. In such case, the Contractor shall not be paid further until the work is complete. After final completion has been achieved, if any portion of the Contract Price, as it may be modified hereunder, remains after the cost to the Owner of completing the work, including all costs and expenses of every nature incurred, has been deducted by the Owner, such remainder shall belong to the Contractor. Otherwise, the Contractor shall pay and make whole the Owner for such cost. This obligation for payment shall survive the termination of the Contract. In the event the employment of the Contractor is terminated by the Owner for cause pursuant to this Subparagraph 19(B) and it is subsequently determined by a Court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination for Convenience under Subparagraph 19(A) and the provisions of Subparagraph 19(A) shall apply.

20.

INSURANCE

The Contractor shall have and maintain insurance in accordance with the requirements of Exhibit "A" attached hereto and incorporated herein by reference.

21.

PAYMENT AND PERFORMANCE BOND

The Contractor shall furnish a payment and performance bond to the Owner. The bond shall set forth a penal sum in an amount not less than the Contract Price. In the event the Contract Price is adjusted by Change Order executed by the Contractor, the penal sum of the payment and performance bond shall be deemed increased by like amount. The payment and performance bond furnished by the Contractor shall be in form suitable to the Owner and shall be executed by a surety, or sureties, reasonably acceptable to the Owner. The form of the payment and performance bond shall be approved by the City Attorney prior to recording.

22.

PROJECT RECORDS

All documents relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Contractor, or any subcontractor of the Contractor, shall be made available to the Owner or the Design Professional for inspection and copying upon written request by the Owner. Furthermore, said documents shall be made available, upon request by the Owner, to any state, federal or other regulatory authority and any such authority may review, inspect and copy such records. Said records include, but are not limited to, all drawings, plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos, or other writings or things which document the Project, its design, and its construction. Said records expressly include those documents reflecting the cost of construction to the Contractor. The Contractor shall maintain and protect these documents for no less than five (5) years after final completion of the Project, or for any longer period of time as may be required by law or good construction practice.

23.

PUBLIC RECORDS

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

Kerri J. Miller
City Clerk
302 W. Reynolds Street
Plant City, FL 33563
Phone: 813-659-4200
kmiller@plantcitygov.com

Contractor shall comply with the requirements of Florida's Public Records law. In accordance with Section 119.0701, Florida Statutes, Contractor shall (a) keep and maintain public records required by Owner in order to perform the service under this Agreement; (b) upon request from the City Clerk, provide Owner with a copy of the requested records or allow the records to be inspected or copied within a reasonable time and at a cost that does not exceed the cost provided under Florida's Public Records 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 for the duration of this Agreement term and following completion of this Agreement if Contractor does not transfer the records to Owner; and (d) upon completion of this Agreement, transfer, at no cost, to Owner all public records in possession of Contractor or keep and maintain public records required by Owner to perform the service. If Contractor transfers all public records to Owner upon completion of this Agreement, Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If Contractor keeps and maintains public records upon completion of this Agreement, Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to Owner, upon request from Owner's custodian of public records, in a format that is compatible with the information technology system of Owner.

24.

APPLICABLE LAW

The law applicable to this Contract is hereby agreed to be the law of the State of Florida.

25.

SUCCESSORS AND ASSIGNS

Each party binds itself, its successors, assigns, executors, administrators or other representatives to the other party hereto and to successors, assigns, executors, administrators or other representatives of such other party in connection with all terms and conditions of this Contract. The Contractor shall not assign this Contract without prior written consent of the Owner.

26.

NOTICES

All notices required or permitted hereunder shall be in writing and shall be deemed to have been duly delivered hereunder if mailed by first class certified mail, postage prepaid, to the respective parties at the respective addresses:

Owner:

City of Plant City
Lynn Spivey
Utilities Operations Director
1500 West Victoria Street
Plant City, FL 33563

With a copy to:

Kenneth W. Buchman, Esquire
City Attorney
City of Plant City
302 W. Reynolds Street
Plant City, FL 33563

Contractor:

_____
_____
_____
_____

Any party may at any time change its address for such notices by delivering or mailing to the other parties hereto, in the manner provided above, a notice of such change.

OWNER

City of Plant City

_____ [Seal]
(*TYPED NAME)*

By:_____
(*SIGNATURE)*

Michael Herr, City Manager
302 West Reynolds Street
Plant City, FL 33563

_____
(DATE OF EXECUTION)

CONTRACTOR

_____ [Seal]
(TYPED NAME)

By:_____
(SIGNATURE)

_____
(PRINTED NAME, TITLE & ADDRESS)

_____
(DATE OF EXECUTION)

ATTEST:

_____
KERRI J. MILLER
CITY CLERK

APPROVED AS TO FORM AND CORRECTNESS:

BY: _____
KENNETH W. BUCHMAN
CITY ATTORNEY

EXHIBIT "A"

Contractor's and Subcontractor's Insurance:

1. Compensation Insurance: The Contractor shall procure and maintain during the life of this contract Workmen's Compensation Insurance for all of his employees to be engaged in work on the project under this contract, and in case any such work is sublet, the Contractor shall require the Subcontractor similarly to provide Workmen's Compensation Insurance for all the labor's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Insurance. In case any class of employees engaged in hazardous work on the project under this contract is not protected under the Workmen's Compensation statute, the Contractor shall provide and shall cause each Subcontractor to provide adequate insurance for the protection of such of his employees not otherwise protected. The Contractor shall indemnify and hold the City harmless for any claim made by the Subcontractor for workmen's compensation.

2. Contractor's Comprehensive Liability and Property Damage Insurance: The Contractor shall procure and shall maintain during the life of this contract Contractor's Comprehensive Liability Insurance in an amount satisfactory to the Owner, but not less than $300,000.00 for injuries, including accidental death, to any one person, and subject to the same limit for each person, in an amount not less than $1,000,000.00, on account of one accident, and the Contractor's Property Damage Insurance in an amount not less than $1,000,000.00. This insurance shall be maintained with an insurance company or companies licensed to do business in the state in which the Contractor shall perform his contractual services. Owner shall be named as additional insured on the policy.

3. Comprehensive Automobile Liability Insurance: The Contractor shall procure and shall maintain during the life of this contract Comprehensive Automobile Liability Insurance in an amount of $500,000.00. This insurance shall be maintained with an insurance company or companies licensed to do business in the state in which the Contractor shall perform his contractual services. Owner shall be named as additional insured on the policy.

4. Subcontractor's Comprehensive Liability and Property Damage Insurance: The Contractor shall require each of his Subcontractor's to procure and maintain during the life of his contract Subcontractor's Comprehensive Liability and Property Damage Insurance coverage in amounts satisfactory to the Contractor for his own protection, with an insurance company or companies licensed to do business in the state in which the Subcontractor shall perform his contractual services.

5. Scope of Insurance and Special Hazards: The insurance required shall provide adequate protection for Contractor and his Subcontractors, respectively, against damage claims which may arise from operations under this contract, whether such operations be by the insured or by anyone directly or indirectly employed by the insured, and also against any of special hazards which may be encountered in the performance of this contract.

6. Proof of Carriage of Insurance: The Contractor shall furnish the Owner with satisfactory proof of carriage of the insurance required, but the failure to provide adequate insurance shall not relieve the Contractor's responsibility to protect the Owner wholly from all such claims and damages.

The certificate of insurance shall include as a certificate holder:

City of Plant City
Attn: City Manager
302 West Reynolds Street
Plant City, FL 33563

City of Plant City

SR 574 Relocation 2015-2016

CS FILE NO. 9680.38

Project Manual

Prepared by:
Chastain-Skillman, Inc.
Certificate of Authorization No CA262
4705 Old Highway 37 (33813)
Post Office Box 5701
Lakeland, FL 33807
Lakeland, FL 33807-5701
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Prepared for:
City of Plant City
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Auburndale, FL 33823

Engineer:
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Fla. Reg. No 39118

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SECTION 01 10 00
SUMMARY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Work by Contractor.

B. Work by Owner.

D. Contractor use of site (and premises).

F. Work sequence.

G. Owner occupancy.

1.02 WORK BY CONTRACTOR

A. Work under this contract includes:
   1. Construction of the relocation of approximately 1,000 linear feet of new 12-inch PVC water main in 3 locations on State Route 574.
   2. Sanitary sewer repairs at two locations on State Route 574 including the replacement of approximately 650 linear feet of buried piping including all restoration and incidental work.

B. Work shall include valves, fittings, appurtenances, connections, maintenance of traffic, testing, paving, restoration and all other work necessary for a complete project as described in the Contract Documents.

C. Provide all labor, material, tools, and equipment that may be necessary to perform the work required in this contract in a satisfactory and acceptable manner.

D. Coordinate connections of new water mains to existing system and connection of existing customers with owner.

E. Contractor shall be responsible for obtaining all construction permits and licenses, except those permits listed in paragraph 1.03 of this section.

F. Contractor will be responsible for complying with NPDES Stormwater Program. Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) and filing a Notice of Intent (NOI) to use a general permit with FDEP. The NOI must be filed 48 hours prior to the start of construction activity. Permit fee is

$300.00. Contractor shall be responsible for maintaining erosion control and other devices to comply with the SWPPP. The Contractor shall provide two (2) copies of the NOI and SWPPP to the Owner and Engineer prior to the start of construction.

1.03 WORK BY OWNER

A. Owner will obtain permits listed below that affect the installation of the Work.
   1. Water Main Construction Permit – Florida Department of Health
   2. Hillsborough County Sewer Construction Permit – Hillsborough County Environmental Protection Commission
   3. Utility Construction Permit – Florida Department of Transportation
   4. Environmental Resource Permit – Florida Department of Environmental Protection

B. Copies of all permits obtained by the Owner are included in Appendix A. All provisions and restrictions in these permits shall be part of the Contract requirements.

1.04 OWNER FURNISHED ITEMS

A. Contractor shall supply all materials. There are no Owner furnished items.

1.05 CONTRACTOR USE OF SITE (AND PREMISES)

A. Nothing in this Contract shall imply that the Contractor shall have exclusive use of roadways on public and private lands for the execution of this Work.

B. All other lands including temporary construction easements deemed necessary by the Contractor for construction operations, temporary facilities, the storage of materials and equipment and other facilities required for the execution of the Work shall be obtained by the Contractor.

C. Limit use of site for Work and construction operations.

D. Schedule work activities at the site during daylight hours on regular week days. Any scheduled work activities outside this period shall be approved in writing by both the Owner and the Engineer.

E. Contractor shall not limit ingress and egress of adjacent public and private properties.

1.05 WORK SEQUENCE

A. Contractor shall sequence work to allow continued operation of the existing facilities without interruption of service.

B. Coordinate any connections or shut-down of existing facilities with Owner. In the event that the City-owned facilities are disrupted, Contractor shall work continuously to restore proper operations.

C. Contractor shall follow a sequence of work activity that minimizes disturbances of the public and adjacent property owners and minimizes damage to components of the new work.

D. Where installation of pipes is allowed by open cutting trenches in streets and driveways, the Contractor shall maintain alternative ingress and egress at all times of all such open-cut activities. Affected parties shall be notified at least 48 hours in advance.

E. Pavement restoration shall be completed and the traveled way restored to service within one week of open cutting. Within residential or commercial areas, Work shall be performed in approximately one city-block sections and shall be completed prior to processing to other sections.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

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SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Procedure for Measurement.

B. Incidental Work.

D. Unit Prices.

E. Alternates.

F. Substitution Procedures.

G. Schedule of Values.

H. Application for Progress Payments.

I. Contract Modification Procedures.

J. Application for Final Payment.

1.02 RELATED SECTIONS

A. Section 01 30 00 – Submittal Procedures.

1.03 ALLOWANCES

A. No Allowances are included in this project.

1.04 PROCEDURE FOR MEASUREMENT

A. For lump sum items, payment shall be made based on the lump sum prices set forth in the Bid Form based on level of completed Work as determined by the accepted Schedule of Values.

B. For field measure unit-price items, payment shall be based on the actual amount of Work accepted and for the actual amount of materials in place, as shown by the final measurements.

1. All units of measurement shall be standard United States convention as applied by the specific items of work by tradition and as interpreted by the Engineer.
2. After the Work is completed and before final payment is made, the Engineer will make final field measurements to determine the quantities of various items of Work accepted as the basis for final settlement.

1.05 INCIDENTAL WORK

A. Incidental work items are items, specifically identified or not, that are an integral part of the completed project as required under the Contract Documents for which separate payment is not made. These items may include but are not limited to the following:
   1. Pre-construction photographs and videos.
   2. Schedules, bonds, insurance, shop drawings, warranties, and other submittals required.
   3. Permits not obtained by the Owner.
   4. Project identification signs.
   5. Horizontal and vertical survey control and construction staking.
   6. Clearing, grubbing, stripping, and disposal of vegetation.
   8. Providing additional fill material.
   9. Transport and disposal of excess material and debris.
   10. Containment, clean-up, and disposal of water from existing mains and water used for pipeline flushing.
   11. Dust and erosion control, including the cost of implementing and maintaining controls in accordance with the Stormwater Pollution Prevent Plan for the project.
   12. Utility crossings and minor relocations unless payment is otherwise made.
   13. Materials, labor, and equipment necessary to protect the structural integrity of existing paved roadways. Incidental damage to paved roadways, including damage to the existing subbase, base, and/or asphalt concrete pavement, shall be restored/repaired at the Contractor's sole expense to the satisfaction of the Owner.
   14. Materials, labor, and equipment necessary to protect the integrity and operation of existing utilities. Any damage to existing utilities shall be repaired/replaced at the Contractor's sole expense to the satisfaction of the Owner.
   15. Temporary utility service.
   16. Temporary barriers and fences for the protection and security of the work site and adjoining properties.
   17. Final or temporary right-of-way restoration. All materials and Work for right-of-way restoration shall be in accordance with FDOT Standard Specifications for Road and Bridge Construction, latest edition.

18. Repair and restoration of property, including the removal and replacement of stabilized roadway and driveways, guard rails, curbs, drainage structures, signs, traffic loop detectors, pavement markings, utility poles, mailboxes, seeding and sodding, landscaping and irrigation, and other items impacted by construction.
19. On-going and final cleanup.
20. Project record documentation, including the provision of "as-built" drawings certified by a Registered Professional Land Surveyor.
21. All other items required for completion of the Contract.

1.06 UNIT PRICES

A. ITEMS 1, 2 & 6 – Water Main

1. Water main shall be paid at the Contract Unit Price per linear foot of installed pipe. The measurement shall be made in place, along the center line of the pipe.
2. Contract Unit Price shall be payment in full for furnishing all labor, materials, tools, and equipment required for all clearing, cutting, excavating, bedding, pipe and joint restraints, testing, backfilling, restoration, aggregate drives, final cleanup, and all other incidental items of Work not paid for under other items.

B. ITEM 3 – Horizontal Directional Bores

1. Horizontal directional bores shall be paid for at the Contract Lump Sum Price for each bore installed of the size, type of pipe, and length identified.
2. The Contract Unit Price shall be payment in full for furnishing all labor, materials, tools, and equipment required for all clearing, excavating, directional drilling of pilot holes, pull-back of piping, drilling mud pumping/recirculation systems, pipe, testing, backfilling, restoration, final cleanup, and all other incidental items of Work not paid for under other items.

C. ITEM 4 – Jack & Bore Steel Casings

1. Jack and Bore Steel Casings shall be paid at the Contract Lump Sum Price per casing installed of the size, wall thickness, and length identified.
2. The Contract Lump Sum Price shall be payment in full for all clearing, cutting, excavating pits, furnishing and installing the casing, installing blocking and grout, backfilling, restoration, erosion control, final cleanup, and all other incidental items of Work not paid for under other items. Pipe installed in the casing shall be measured and paid under the pay item for pipe.

D. ITEM 5 – Gravity Sewer Pipe

1. Gravity sewer pipe shall be paid at the Contract Unit Price per linear foot of installed pipe. The measurement shall be made in place, along the center line of the pipe.
2. The Contract Unit Price shall be payment in full for furnishing all labor, materials, pipe, fittings (including wyes and stubout for services), joint restraints, tools, and equipment required for all clearing, cutting, excavating, dewatering, bedding, backfilling, erosion control, restoration, post-construction sewer cleaning, television, and testing, final cleanup, and all other incidental items of Work not paid for under other items. This pay item includes work required to meet the recommendations of the Geotechnical Report.

E. ITEM 7 thru 12– Pipe Fittings
1. Pipe fittings shall be paid at the Contract Unit Price for each fitting installed of the size and type identified.
2. The Contract Unit Price shall be payment in full for all excavation, furnishing and installing the fitting with joint restraint, testing, backfilling, restoration, erosion control, final cleanup, and all other incidental items of Work not paid for under other items.

F. ITEM 13 & 14 – Valves
1. Valves shall be paid at the Contract Unit Price for each valve installed of the size and type identified.
2. The Contract Unit Price shall be payment in full for all excavation, furnishing and installing the valve, valve box, and joint restraint, testing, backfilling, restoration, final cleanup, and all other incidental items of Work not paid for under other items.

G. ITEM 15 & 16 – Sample Points
1. Temporary and permanent sample points shall be paid at the Contract Unit Price for each sample point installed of the type identified.
2. The Contract Unit Price shall be payment in full for all excavation, furnishing and installing the sample points including all pipe fittings, testing, backfilling, restoration, final cleanup, and all other incidental items of Work not paid for under other items.

H. ITEM 17 – Relocate Fire Hydrant Assembly
1. The payment for relocation of fire hydrant assemblies shall be paid at the Contract Unit Price for each fire hydrant assembly relocated.
2. The Contract Unit Price shall be payment in full for all excavation, furnishing and installing the relocated fire hydrant assembly, valve box, restraints, testing, backfilling, restoration, final cleanup, and all other incidental items of Work not paid for under other items.

I. ITEM 18 - Utilities Conflict Resolution

1. Include the sum of $20,000 for payment of approved work related to relocating and protecting existing utilities.
2. Prior to expending Utilities Allowance, an estimate of relocation costs shall be submitted to the Engineer for approval. Approval of these estimates shall be incorporated into a Work Change Directive.
3. Allowance shall be paid at the cost charged by the utility and shall be full reimbursement of invoices submitted from utility companies for protecting and relocating existing utilities to allow Contractor to accomplish installation of this Work.
4. Payment procedure: Submit two (2) copies of the utility owner's invoice with the next Application for Payment. Funds will be drawn from utilities allowance based on approved invoices as specified above

J. ITEM 19 – Pavement Removal & Replacement

1. Removal and Replacement of Existing Asphalt Pavement shall be paid for at the Contract Unit Price per linear foot of asphalt pavement removed and replaced.
2. The Contract Unit Price shall be full compensation for removal and disposal of the existing asphalt, base material, and stabilized subgrade; furnishing and installing new subgrade material and new limerock per Drawings and specifications; furnishing and installing any necessary sealer or tack coat; furnishing and installing new asphalt per Drawings and specifications; furnishing and installing pavement markings to match existing; testing in accordance with FDOT standards; final clean-up; and any other incidental items of Work not paid for under other items. All materials and Work shall be in accordance with FDOT Standard Specifications for Road and Bridge Construction, latest edition and the Hillsborough County Transportation Department. The width of pavement replacement to be paid under this item will be no greater than 16 feet.

K. ITEM 20 & 21 – Seeding and Mulching/Sodding

1. Seed and Mulch / Sod Restoration shall be paid at the Contract Unit Price per linear foot, measured along the horizontal centerline of the installed pipe and the width installed. Measurement shall be measured to the nearest linear foot.
2. The Contract Unit Price shall be payment in full for restoration of ground preparation, fertilizer, equipment, water, and all other incidental items of Work not paid for under other items. Sod shall be provided within D.O.T. and County rights-of-way, within two feet of all other roads and driveways within established yards. Restoration within D.O.T. and County rights-of-way shall comply with D.O.T. standards. Sod type shall match existing predominate type. All areas of this item

disturbed due to the Contractor's operations which are not along the centerline of the pipe construction shall also be satisfactorily repaired at no additional cost to the owner.

L. ITEM 22 – Trench Safety

1. Trench Safety shall be paid at the Contract Unit Price per linear foot of pipe installed. The measurement shall be made in place, along the center line of pipe, excluding the pipe installed in casings, by horizontal direction drilling, or pipe installed shallower than five feet in depth.
2. The Contract Unit Price shall be full compensation for all trench boxes, sheeting, bracing and shoring in excavations and all other incidental items of Work not paid for under other items. The nature and extent shall be as described in the Florida Trench Safety Act and OSHA Standard 29 CFR Part 1926.650 Subpart P.

M. ITEM 23 - Dewatering

1. Dewatering shall be paid at the Contract Unit Price for each foot of pipe installed where trench dewatering is required. No payment will be made where dewatering is not necessary for pipe installation.
2. The Contract Unit Price shall be full compensation for all dewatering including wellpointing, sumping, pumping, controlling and disposing of water in excavations, and all other incidental items of Work not paid from under other items.

N. ITEM 24 – Bypass Pumping

1. Bypass Pumping shall be paid at the Contract Unit Price. Payment shall be made for each day bypass pumping is required.
2. The Contract Lump Sum Price shall be full compensation for furnishing, installing, and maintaining all temporary equipment necessary for bypass pumping as required to maintain gravity sewer system in operation during construction of new sewer system.

O. ITEM 25 – Prevention, Control, and Abatement of Erosion/Water Pollution

1. Prevention, Control, and Abatement of Erosion/Water Pollution shall be paid at the Contract Lump Sum Price.
2. The Contract Lump Sum Price shall be full compensation for all work including labor, materials, and equipment necessary for the prevention, control, and abatement of erosion and water pollution related to the construction of the Work required by the Contract Documents. Work under this item shall also include all regulatory permitting including NPDES NOI for General Permit for Construction Projects and the preparation of the erosion and sediment control plan.

P. ITEM 26 - Maintenance of Traffic

1. Maintenance of Traffic shall be paid at the Contract Lump Sum Price. Payment for Maintenance of Traffic shall be made in proportion to the pipe installed in road rights-of-way.
2. The Contract Lump Sum Price shall be full compensation for all traffic control including plan preparation and submittal, signs and barricades, flaggers, uniformed officers and all other incidental items of Work not paid for under other items. The nature and extent shall be as described in the Florida DOT Standard Specifications for Road and Bridge Construction.

Q. ITEM 27 – Mobilization

1. Mobilization shall be paid at the Contract Lump Sum Price. Payment for Mobilization shall be made as follows: 30% of the item shall be complete at the end of the first month (or pay period) of the contact time; 60% of the item shall be complete when 30% of the original contract is complete; 100% of the item shall be complete when 60% of the original contract is complete.
2. The Contract Lump Sum Price shall be full compensation for transporting equipment, labor and materials to the site at the beginning of and throughout the Project and removing said items at the end of the Project. The nature and extent shall be as described in the Florida DOT Standard Specifications for Road and Bridge Construction.

R. ITEM 28 – Indemnification Acceptance

1. Indemnification Acceptance shall be paid at the Contract Lump Sum Price. No separate payment shall be made.
2. The Contract Lump Sum Price shall constitute the compensation received by the Contractor for granting indemnification from liability damages as required pursuant to Section FS 725.06, Florida Statutes.

1.07 SUBSTITUTION PROCEDURES

A. Engineer will consider requests for Substitutions only within 30 days after date established in Notice to Proceed following procedure required in Section 01 60 00 – Product Requirements.

1.08 SCHEDULE OF VALUES

A. Submit typed schedule on a standard Application for Payment form (EJCDC. AIA) or equivalent Contractor's standard form or electronic media printout acceptable to the Owner and Engineer.

B. Submit final Schedule of Values based on Bid unit prices in duplicate within fifteen (15) days after date of Owner-Contractor Agreement.

C. Include within each line item a direct proportional amount of Contractor's overhead and profit as included in the Bid submittal.

D. Revise schedule to list approved Change Orders with each Application for Payment.

1.09 APPLICATION FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Present required information in typewritten form.

C. Application for Payment Form: Contractor's standard form or electronic media printout will be considered.

D. Execute certification by signature of authorized officer.

E. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for units of work performed and for stored Products.

F. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

G. Submit three copies of each Application for Payment. Electronic copy shall be acceptable with prior approval by Engineer and Owner.

H. Include the following with the application:
   1. Transmittal letter identifying project and Contractor.
   2. Updated Construction Progress Schedule as specified in Section 01 30 00.
   3. Current construction photographs specified in Section 01 30 00.

I. When Engineer requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.10 CONTRACT MODIFICATION PROCEDURES

A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions.

B. The Engineer may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and

specifications, and a change in Contract Time for executing the change. Contractor will prepare and submit an estimate within five (5) days.

C. Stipulated Sum/Price Change Order: Based on Notice of Change and Contractor's fixed price quotation.

D. Unit Price Change Order: For pre-determined unit prices, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of Work which are not pre-determined, execute Work under a Work Directive Change. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.

E. Work Directive Change: Engineer may issue a directive, Work Directive Change signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.

F. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.

G. Maintain detailed records of Work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

I. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.11 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Management and Coordination.

B. Construction Progress Documentation.

C. Submittal Procedures.

1.02 PROJECT MANAGEMENT AND COORDINATION

A. Project Coordination
   1. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
   2. Verify that utility requirements characteristics of operating equipment are compatible with utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connection to, and placing in service, such equipment.
   3. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
   4. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

B. Preconstruction Conference
   1. Owner will schedule a conference after Notice of Award.
   2. Attendance Required: Owner, Engineer and Contractor.
   3. Agenda:
      a. Execution of Owner-Contractor Agreement.
      b. Submission of executed bonds and insurance certificates.
      c. Distribution of Contract Documents.
      d. Submission of list of Subcontractors, list of products, Schedule of Values, and progress schedule.
      e. Designation of personnel representing the parties in Contract, and the Engineer.

f. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
g. Scheduling.
h. Scheduling activities of geo-technical Engineer.

C. Site Mobilization Conference
1. Engineer will schedule a conference at the Project site prior to Contractor occupancy.
2. Attendance Required: Owner, Engineer, Special Consultants, Contractor, Contractor's Superintendent, and major Subcontractors.
3. Agenda:
a. Use of premises by Owner and Contractor.
b. Owner's requirements and partial occupancy.
c. Construction facilities and controls provided by Owner.
d. Temporary utilities provided by Owner.
e. Survey layout.
f. Security and housekeeping procedures.
g. Schedules.
h. Procedures for testing.
i. Procedures for maintaining record documents.
j. Requirements for start-up of equipment.
k. Inspection and acceptance of equipment put into service during construction period.

D. Progress Meetings
1. Attend and participate in meetings throughout progress of the Work at maximum monthly intervals.
2. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Engineer, as appropriate to agenda topics for each meeting.
3. Agenda:
a. Review minutes of previous meetings.
b. Review of Work progress.
c. Field observations, problems, and decisions.
d. Identification of problems which impede planned progress.
e. Review of submittals schedule and status of submittals.
f. Review of off-site fabrication and delivery schedules.
g. Maintenance of progress schedule
h. Corrective measures to regain projected schedules.
i. Planned progress during succeeding Work period.
j. Coordination of projected progress.
k. Maintenance of quality and Work standards.
l. Effect of proposed changes of progress schedule and coordination.
m. Other business relating to Work.

4. Engineer will have the responsibility for preparing the agenda, presiding at the meeting, recording the minutes, and distributing copies to the Owner, Contractor, participants, and those affected by decisions made.

E. Pre-Installation Conferences
   1. When required in individual specification Section, convene a pre-installation conference at Work site prior to commencing Work of the Section.
   2. Require attendance of parties directly affecting, or affected by, Work of the specific Section.
   3. Notify Engineer four days in advance of meeting date.
   4. Prepare agenda, preside at conference, record minutes, and distribute copies within two days after conference to participants, with two copies to Engineer.
   5. Review conditions of installation, preparation and installation procedures, and coordination with related Work.

1.03 CONSTRUCTION PROGRESS SCHEDULES

A. Submit network analysis diagram using the critical path method, generally as outlined in Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry

B. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.

C. Indicate estimated percentage of completion for each item of Work at each submission.

D. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner.

E. Submit initial Progress Schedules in duplicate within 15 days after date of Owner-Contractor Agreement. After review by Engineer revise and resubmit as required. Submit revised schedules with each Application for Payment, reflecting changes since previous submittal.

1.04 SUBMITTAL PROCEDURES

A. Procedures.
   1. Deliver submittals to Engineer at Chastain-Skillman, Inc., 4705 Old Highway 37, Lakeland, Florida 33813.

2. Transmit each item with a transmittal form identifying project, Contractor, subcontractor, major supplier; identify pertinent drawing sheet and detail number, and Specification section number, as appropriate. Submittals shall only be accepted from the Contractor.
3. Comply with progress schedule for submittals related to Work progress. Submit all Shop Drawings, Product Data, and Samples in a prompt and timely manner so that there will be no delay to Work due to absence of data. Coordinate submittal of related items.
4. Review Shop Drawings, Product Data and Samples prior to submission. Contractor shall stamp, date and sign each submittal to indicate that the subject matter conforms to the requirements of the Contract Documents.
5. Determine and verify:
    a. Field measurements.
    b. Field construction criteria.
    c. Catalog numbers and similar data.
    d. Conformance with specifications.
6. Coordinate each submittal with requirements of the Work and of the Contract Documents.
7. Notify the Engineer in writing, at time of submission, identifying any deviations in the submittals from requirements of the Contract Documents.
8. Should any submitted item require modification to any surrounding structure or appurtenance detailed on the drawings, details of the modifications shall also be submitted. The cost of any modifications shall be completed at no additional cost to the Owner.
9. Begin no fabrication or Work which requires submittals until return of submittals with Engineer review comments.
10. Provide submittals in a prompt and timely manner so as not to delay the Work. Delays in Work caused by incomplete or incorrect submittals or re-submittals shall not be grounds for time extensions or additional costs to the Owner.
11. After Engineer review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
12. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
13. Provide reasonable assurance that materials and equipment delivered to worksite conforms to the reviewed shop drawings. Notify the Engineer of any observed deviations from the shop drawings.

B. Shop Drawings.
1. Shop drawings shall be assigned a sequential number for ease in identification. Re-submittals shall retain the assigned number with an alphabetic suffix.

2. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to drawing and detail number, and specification section number.
3. Minimum sheet size: 8-1/2" x 11".
4. After review, distribute in accordance with Procedures, above.

C. Product Data
1. Preparation
   a. Clearly mark each copy to identify pertinent products or models.
   b. Show performance characteristics and capacities.
   c. Show dimensions and clearances required.
   d. Show wiring or piping diagrams and controls.
2. Manufacturer's standard schematic drawings and diagrams:
   a. Modify drawings and diagrams to delete information which is not applicable to the Work.
   b. Supplement standard information to provide information specifically applicable to the Work.
3. After review, distribute in accordance with Article on Procedures above.

D. Manufacturer's Instructions
1. When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.
2. Identify conflicts between manufacturer's instructions and Contract Documents.

E. Manufacturer's Certifications
1. When specified in individual specification Sections, submit manufacturer's certificate to Engineer for review.
2. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
3. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

F. Samples
1. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing Work.
2. Submit samples of finishes from the full range of manufacturers' standard colors and textures for Engineer's selection.
3. Include identification on each sample, with full Project information.
4. Reviewed samples which may be used in the Work are indicated in individual specification sections.

G. Submission Requirements

1. Hard copy submittals:
    a. Shop Drawings: Submit the number of opaque reproductions which the Contractor requires, plus four (4) copies which will be retained by the Engineer.
    b. Product Data: Submit the number of copies which the Contractor requires, plus four (4) which will be retained by the Engineer.
    c. Samples: Submit the number of samples which the Contractor requires (minimum three), plus four (4) which will be retained by the Engineer.
    d. Submittals shall include all information required in paragraph 1.04.G.3. of this Section.
2. Electronic Submittals:
    a. Alternatively an electronic submittal may be made for Shop Drawings and Product Data. Submit one (1) PDF to the Engineer via email or other electronic transmission method approved by the Engineer. PDF format shall allow inserting comments into the document.
    b. A PDF transmittal sheet shall be included with the submittal.
    c. Submittals shall include all information required in paragraph 1.04.G.3. of this Section.
3. Submittals shall contain:
    a. The date of submission.
    b. The Project title and number.
    c. Contract identification.
    d. The names of:
        i. Contractor
        ii. Subcontractor
        iii. Supplier
        iv. Manufacturer
    e. Identification of the product, with the specification section number.
    f. Field dimensions, clearly identified as such.
    g. Relation to adjacent or critical features of the Work or materials.
    h. Applicable standards, such as ASTM or Federal Specification numbers.
    i. Identification of deviations from Contract Documents.
    j. A 4" x 4" blank space for Engineer stamps.
    k. Contractor's stamp, initialed or signed, certifying to review of submittals, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of Contract Documents.

4. Resubmissions shall contain:

a. Date of previous submission.
b. Revised drawings and data responding to comments of initial review.
c. Identification of other revisions made on shop drawings and reason for revisions.

5. Failure of Contractor to comply with these requirements shall be cause for rejection of any non-complying submittal.

1.05 PHOTO DOCUMENTATION

A. Preconstruction Video Route/Site Survey

1. A video route/site survey is required for all construction areas.
2. All video recording must be made in a digital, continuous running audio-video format. Audio-video recordings to be provided on standard DVD format suitable for play-back on standard DVD players and computer drives.
3. All video recording shall be done during times of good visibility. No taping shall be done during periods of visible precipitation.
4. All DVDs shall be properly identified as to location, time, and date. Locations must be identified with respect to street name and station numbering.
5. Two copies of the DVD(s) shall be provided to the Engineer/Owner prior to construction.

B. Progress Photographs

1. Submit photographs with each application for payment, taken not more than two weeks prior to submission of application for payment.
2. Photography Type: digital images in jpeg format.
3. Provide photographs of site and construction throughout progress of Work produced by an experienced photographer, acceptable to the Owner/Engineer.
4. Views:
   a. Provide a minimum of twelve (12) photos at each specified time. Views shall be selected to record maximum information regarding construction progress and to document location/condition of elements of the construction that will be buried or otherwise concealed when construction is complete.
   b. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
5. Digital Images
   a. Full color, minimum 300 dpi, 8 x 10 inch equivalent.
   b. Provide on CD-ROM with key sheet in Microsoft Excel readable file.

c. Key sheet shall reference each photograph by file name. For each photograph, identify name of Project, contract number, phase, location of view, orientation of view, date and time of view.
d. Provide two (2) copies of CD-ROM at each specified time.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Regulatory Requirements.

B. References.

C. Quality Assurance.

D. Quality Control.

1.02 RELATED SECTIONS

A. Section 01 20 00 – Price and Payment Procedures: Allowances.

B. Section 01 30 00 – Administrative Requirements: Submission of Manufacturers' Instructions and Certificates.

C. Section 01 45 29 – Testing Laboratory Services

D. Section 01 60 00 – Product Requirements: Requirements for material and product quality.

1.03REFERENCES

A. Conform to reference standard by date of issue current on date of Contract Documents.

B. Obtain copies of standards when required by Contract Documents.

C. Should specified reference standards conflict with Contract Documents, request clarification for Engineer before proceeding.

D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.04 QUALITY ASSURANCE

A. Manufacturers' Field Services and Reports
   1. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.
   2. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
   3. Submit report in duplicate within 30 days of observation to Engineer for review.

B. Field Samples
   1. Install field samples at the site as required by individual specifications Sections for review.
   2. Acceptable samples represent a quality level for the Work.
   3. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Engineer.

C. Mock-Up
   1. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
   2. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by Engineer.

1.05 QUALITY CONTROL

A. Field Quality Control Procedures
   1. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
   2. Comply fully with manufacturers' instructions, including each step in sequence.
   3. Should manufacturers' instructions conflict with Contract Documents, request written clarification from Engineer before proceeding.
   4. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
   5. Perform Work by persons qualified to produce workmanship of specified quality.
   6. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

B. Testing and Inspection Services

1. Contractor shall appoint, employ, and pay for services of an independent testing laboratory to perform specified inspection and testing.
2. If allowance is specified in Section 01 20 00, Contractor shall pay for services from Allowance.
3. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
4. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by Engineer. Payment for retesting will be charged to Contractor by deducting inspection or testing charges from the Contract Sum/Price.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

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SECTION 01 45 29
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Selection and payment.

B. Contractor submittals.

C. Laboratory responsibilities.

D. Laboratory reports.

E. Limits on testing laboratory authority.

F. Contractor responsibilities.

G. Schedule of inspections and tests.

1.02 RELATED SECTIONS

A. Section 01 20 00 – Price and Payment Procedures: Testing allowance, if specified.

B. Section 01 30 00 - Submittals: Manufacturer's certificates.

C. Section 01 40 00 – Quality Requirements: Testing and Inspection Services.

D. Section 01 70 00 - Contract Closeout: Project Record Documents.

E. Individual Specification Sections: Inspections and tests required, and standards for testing.

1.03 REFERENCES

A. ANSI/ASTM D3740 - Practice for Evaluation for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

B. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.04 SELECTION AND PAYMENT

A. Refer to Section 01 40 00 – Quality Requirements for testing laboratory selection and payment.

1.05 QUALITY ASSURANCE

A. Comply with requirements of ANSI/ASTM E329 and ANSI/ASTM D3740.

B. Laboratory: Authorized to operate in state in which project is located.

C. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.

D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

1.06 CONTRACTOR SUBMITTALS

A. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer and responsible officer.

B. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards (NBS) during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.07 LABORATORY RESPONSIBILITIES

A. Test samples of mixes submitted by Contractor.

B. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.

C. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.

D. Ascertain compliance of materials and mixes with requirements of Contract Documents.

E. Promptly notify Engineer and Contractor with copies to Owner of observed irregularities or non-conformance of Work or Products.

F. Perform additional inspections and tests required by Engineer.

G. Attend pre-construction conferences and progress meetings.

1.08 LABORATORY REPORTS

A. After each inspection and test, promptly submit two copies of laboratory report to Engineer, to Owner and to Contractor.

B. Include:
1. Date issued
2. Project title and number
3. Name of inspector
4. Date and time of sampling or inspection
5. Identification of product and Specifications Section
6. Location in the Project
7. Type of inspection or test
8. Date of test
9. Results of tests
10. Conformance with Contract Documents.

C. When requested by Engineer, provide interpretation of test results.

1.09 LIMITS ON TESTING LABORATORY AUTHORITY

A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.

B. Laboratory may not approve or accept any portion of the Work.

C. Laboratory may not assume any duties of Contractor.

D. Laboratory has no authority to stop the Work.

1.10 CONTRACTOR RESPONSIBILITIES

A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.

B. Cooperate with laboratory personnel, and provide access to the Work.

C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.

D. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Temporary Utilities

B. Temporary Controls

C. Construction Facilities

1.02 RELATED REQUIREMENTS

A. Section 01 70 00 – Execution and Closeout Procedures: Final Cleaning.

1.03 ELECTRICITY, LIGHTING

A. Provide and pay for power service required from utility source.

B. Provide separate metering and pay for cost of energy used.

C. Provide power outlets for construction operations, with branch wiring and distribution boxes located to allow service by means of construction-type power cords.

D. Provide main service disconnect and over-current protection at convenient location.

1.04 TEMPORARY VENTILATION

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.05 TEMPORARY WATER SERVICE

A. Connect to the City system.

B. Owner will pay cost of water used. Exercise measures to conserve water.

C. Extend branch piping with outlets located so water is available by hoses with threaded connections.

1.06 SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures.

B. Existing sanitary facilities within buildings may not be utilized.

1.07 BARRIERS

A. Provide as required to prevent public entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials and puddling or continuous running water.

1.08 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification Sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to minimize damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic and storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

F. Prohibit traffic from landscaped areas.

1.09 SECURITY

A. Provide security program and facilities to protect Work, existing facilities and Owner's operations from unauthorized entry, vandalism and theft. Coordinate with Owner's security program.

1.10 WATER CONTROL

A. Grade site to drain. Maintain excavations free of water. Provide, operate and maintain pumping equipment as required to comply with Specifications.

B. Comply with County, City, Water Management District, and Department of Environmental Protection standards for runoff water quality.

1.11 PARKING

A. Arrange for temporary surface parking areas to accommodate construction personnel.

B. When site space is not adequate, provide additional off-site parking.

1.12 CLEANING DURING CONSTRUCTION

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove waste materials, debris and rubbish from site periodically and dispose of off-site.

1.13 REMOVAL

A. Remove temporary above-ground or buried utilities, materials, equipment, services and construction prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities.

C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 51 10
TEMPORARY BYPASS PUMPING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Furnish and install all labor, materials, and equipment necessary to furnish and install new pumping equipment as well as various mechanical, piping, and electrical modifications.

B. Contractor shall provide, operate, and maintain all necessary by-pass pumping equipment required to complete the project. No work requiring shutting down the existing utilities shall be initiated until the by-pass pumping system is installed and fully operational. Upon completion of the work, the bypass pumping system shall be removed, and any disturbed areas returned to original condition.

1.02 PROJECT SEQUENCE

A. Construction sequence shall be in general accordance with that shown on the Contract Drawings.

B. All bypass piping must be complete, and accepted by the City, and the bypass pumping system installed and fully operational, prior to modifying existing piping.

C. Construction Schedule prepared by Contractor shall be based on the Project Sequence and shall clearly indicate critical milestones such as completion of the bypass piping, completion of the modifications to the existing piping, and removal of the bypass pumping system.

1.03 TEMPORARY BYPASS PUMPING

A. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The Contractor shall employ the services of a vendor who can demonstrate to the Engineer that he specializes in the design and operation of temporary bypass pumping systems. The vendor shall provide at least five (5) references of projects of a similar size and complexity as this project performed by his firm within the past five (5) years. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

B. Submittals:

1. The Contractor shall prepare a specific, detailed description of the proposed pumping system to be provided as part of the project submittals prior to beginning work.
2. The Contractor shall submit to the Engineer detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials, and all other incidental items necessary and/or required to ensure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows and compliance with the requirements specified in these Contract Documents. No construction shall begin until all provisions and requirements have been reviewed by the Engineer.
3. The plan shall include, but not be limited to, details of the following, as appropriate:
    a. Staging areas for pumps.
    b. Sewer plugging method and types of plugs.
    c. Number, size, material, location and method of installation of suction piping
    d. Number, size, material, method of installation and location of installation of discharge piping.
    e. Bypass pump sizes, capacity, number of each size to be on-site and power requirements.
    f. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted).
    g. Standby power generator size, location
    h. Downstream discharge plan
    i. Method of protecting discharge manholes or structures from erosion and damage
    j. Thrust and restraint block sizes and locations.
    k. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill, as appropriate.
    l. Method of noise control for each pump and/or generator.
    m. Any temporary pipe supports and anchoring required.
    n. Design plans for access to bypass pumping locations indicated on drawings.
    o. Calculations for selection of bypass pumping pipe size.
    p. Schedule for installation of and maintenance of bypass pumping lines.
    q. Plan indicating selected location of bypass pumping lines.

C. Equipment:
    1. All pumps used shall be fully automatic self-priming units. The

pumps may be electric or diesel powered. All pumps shall be constructed to allow dry running for long periods of time to accommodate the cyclical nature of influent flows.

2. All equipment shall be designed to minimize noise levels. Critical grade silencers and noise attenuation shall be provided on any diesel or gasoline operated equipment.
3. The Contractor shall provide the necessary stop/start controls for each pump.
4. The Contractor shall include one stand-by pump of each size to be maintained on site. Back-up pumps shall be on-line, isolated from the primary system by a valve.
5. Discharge piping. In order to prevent the accidental spillage of flows, all discharge systems shall be temporarily constructed of rigid pipe with positive, welded or restrained joints. Under no circumstances will aluminum "irrigation"-type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections, and by specific permission from the Engineer.

D. Design Requirements:

1. Bypass pumping system shall have sufficient capacity to pump a peak flow as outlined below. The Contractor shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the work area. Bypass pumping system will be required to be operational 24 hours per day.

2. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.
3. Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performance of work.
4. The Contractor shall make all arrangements for bypass pumping during the time when the main is shut down for any reason. System must overcome any existing force main pressure on discharge.

E. Performance Requirements:

1. It is essential to the operation of the existing sewerage system that there be no interruption in the flow of sewage throughout the duration of the project. To this end, the Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (Both primary and back-up units as required), conduits, all

necessary power, and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work, and return it to the existing sewer downstream of his work.

2. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
3. The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstance.
4. Prior to removing the existing pump station from operation, the Contractor shall place the proposed bypass system in operation, and shall successfully operate the system for a minimum of 24 hours. Contractor shall make any adjustments necessary to maintain proper operation of the bypass system. The existing pump station can only be removed from service after completion of this pumping test and acceptance by the City.
5. Contractor shall provide for continuous monitoring of bypass pumping operation at all times that bypass pumping is occurring.
6. The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewer, damage to sewers and that will protect public and private property from damage and flooding.
7. The Contractor shall protect water resources, wetlands, and other natural resources.

F. Construction Schedule prepared by Contractor shall be based on the Project Sequence and shall clearly indicate critical milestones such as completion of the bypass piping, completion of the modifications to the existing piping, and removal of the bypass pumping system.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 55 26
TRAFFIC CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Reference Standards.

B. Maintenance of Traffic Plan.

C. Maintaining Traffic.

D. Signs, Signals and Devices.

E. Road and Lane Closing.

F. Traffic Signs and Signals.

1.02 RELATED SECTIONS

A. Section 01 50 00 – Construction Facilities and Temporary Controls.

1.03 REFERENCE STANDARDS

A. Manual on Uniform Traffic Control Devices – USDOT FHWA

B. Roadway and Traffic Design Standards - FDOT

C. Policy on Geometric Design of Highways and Streets (Green Book) - AASHTO

D. Plans Preparation Manual (PPM) – FDOT

E. Standard Specifications for Road and Bridge Construction (SSFR & BC) – FDOT

F. Roadside Design Guide - AASHTO

1.04 MAINTENANCE OF TRAFFIC PLAN

A. Contractor shall submit for review and approval by FDOT or local agencies, a Maintenance of Traffic (MOT) plan for all operations conducted within the right of way as required by permit or with in 20 feet of the edge of the travel way if operations are outside the right of way. MOT shall conform to local and FDOT requirements.

B. MOT plan shall be signed and sealed by a professional engineer licensed in the State of Florida. Professional engineer shall possess an advanced MOT certificate of qualification.

C. Contractor shall designate a Worksite Traffic Supervisor responsible for implementation and ongoing operation of the MOT Plan. The name and 24 hour phone numbers for the Worksite Traffic Supervisor shall be provided to the Owner and Engineer.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECTUION

3.01 MAINTAINING TRAFFIC

A. Contractor shall be responsible for maintaining traffic flow and providing a safe work zone for construction workers, motorists and pedestrians. Contractor will avoid inhibiting traffic flow through the work zone as much as possible.

B. When an existing pedestrian or bicycle way is located within the work zone, accommodation shall be maintained including provisions for the disabled.

C. Contractor shall provide access for local traffic to property along the Project by means of temporary roads, drives, culverts or other means approved by the Engineer. The Contractor shall grade, add surfacing materials, and dust palliatives to such temporary roads and drives as necessary for the proper maintenance of traffic.

D. Where the shoulder is used to maintain traffic, the shoulder shall be graded, surfaced, treated for dust, constructed, or reconstructed, as specified herein or as shown on the Plans. If the construction work is suspended due to weather conditions or for any other reason, sufficient labor, materials and equipment shall be ready for immediate use at all times for the proper maintenance of traffic. Surfacing materials and dust palliatives shall be applied at such times and locations and in such amounts as directed by the Engineer.

E. Where shoulders are low, high, soft or rough, adequate provisions shall be taken to inform and protect the traveling public by means such as construction warning signs, barricades, lighted devices, etc. Such shoulder hazards shall be eliminated as soon as practicable.

F. Contractor shall provide properly trained flaggers to regulate traffic when required by the MOT Plan.

3.02 SIGNS, SIGNALS, AND DEVICES

A. All traffic control devices used in FDOT rights of way shall be included on the FDOT Qualified Products List (QPL).

B. The Contractor shall furnish, erect and maintain all work zone warning and regulatory signs, barriers, channelizing and lighting devices, temporary pavement marking, and traffic regulators, in accordance with the requirements of the current "Manual of Uniform Traffic Control Devices" (14.15.010, F.A.C.), FDOT Roadway and Traffic Standards Index 412 through 417, 600 through 670, and FDOT SSFR & BC Section 1.02 as appropriate.

C. Flaggers shall be equipped with high visibility safety apparel and hand signaling devices in accordance with the requirements of the current "Manual of Uniform Traffic Control Devices" (14.15.010, F.A.C.), FDOT Roadway and Traffic Standards Index 600.

D. Contractor shall remove temporary traffic control devices to a location outside the clear zone when work is completed or the devices are no longer required to protect traffic from hazards.

E. Failure to comply with these requirements may be cause to issue a stop Work order, which shall remain in effect until all necessary devices are in place and operational. The issuance of a stop Work order shall not be reason for granting additional compensation or and extension to the Contract time.

3.03 ROAD AND LANE CLOSING

A. No street, road or section thereof shall be closed to through traffic unless otherwise provided for on the Plans, Specifications, or authorized by the agency with jurisdiction over the roads. Prior to closing a street, road, or section thereof, the Contractor shall provide the Engineer with a copy of a detour, diversion, lane shift or lane closure plan approved by the agency having jurisdiction over the roads.

B. In the event roads or streets are to be closed, the Contractor shall notify daily the local fire department, police department, local road authority, ambulance and emergency services, Department of Public Works, public transit authority, public school system, and post office what streets will be partly blocked or closed, the length of time the streets will be blocked or closed and when the streets will be reopened to traffic. The Contractor shall designate one responsible employee to carry out the requirements of this condition.

3.04 TRAFFIC SIGNS AND SIGNALS

A. No traffic sign, traffic control signal or warning device shall be taken down, covered or operation disabled or altered until the agency having jurisdiction over the road and device has approved the action and arrangements for the temporary devices and a schedule for reinstallation has been defined.

B. The Contractor shall provide temporary signs, traffic control devices, warning devices, or watchmen continuously from the time the item is removed until it is reinstalled. All signs removed shall be replaced with signs meeting requirements of the agency having jurisdiction over the roads.

END OF SECTION

SECTION 01 57 13
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provision of temporary storm water pollution prevention measures.

1.02 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

B. ASTM D 4439 – Geosynthetics

C. ASTM D 4491 - Water Permeability of Geotextiles by Permittivity

D. ASTM D 4533 - Trapezoid Tearing Strength of Geotextiles

E. ASTM D 4632 - Grab Breaking Load and Elongation of Geotextiles

F. ASTM D 4751 - Determining Apparent Opening Size of a Geotextile

G. ASTM D 4873 - Identification, Storage, and Handling of Geosynthetic Rolls and Samples

H. FDOT Standard Specifications for Road and Bridge Construction

1.03 GENERAL

A. The Contractor shall implement the storm water pollution prevention measures specified in this section in a manner which will meet the requirements of the National Pollution Discharge Elimination System (NPDES) permit.

1.04 SUBMITTALS

A. The following shall be submitted in accordance with Section 01 30 00 – Administrative Requirements:
   1. Mill Certificate or Affidavit: Certificate attesting that the Contractor has met all specified requirements.

1.05 EROSION AND SEDIMENT CONTROLS

A. Stabilization Practices: The stabilization practices to be implemented shall include temporary seeding, mulching, protection of trees, preservation of mature vegetation, etc. On his daily CQC Report, the Contractor shall record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated.

Except as provided in paragraphs UNSUITABLE CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS below, stabilization practices shall be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have temporarily or permanently ceased.

1. Unsuitable Conditions: Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.
2. No Activity for Less Than 21 Days: Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased.

B. Structural Practices: Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Structural practices shall include the following devices. Location and details of installation and construction are shown on the drawings.

1. Silt Fences: The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Silt fences shall be installed in the locations indicated on the drawings. Final removal of silt fence barriers shall be upon approval by the Engineer.
2. Straw Bales: The Contractor shall provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly placed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and

grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in a area between a ridge and drain, bales shall be placed as work progresses, bales shall be removed/replaced/relocated as needed for work to progress in the drainage area). Areas where straw bales are to be used are shown on the drawings. Final removal of straw bale barriers shall be upon approval by the Engineer. Rows of bales of straw shall be provided as follows:

a. Along the downhill perimeter edge of all areas disturbed.
b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.
c. Along the toe of all cut slopes and fill slopes of the construction areas.
d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas. Rows shall be spaced as shown on the drawings.
e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Rows shall be spaced as shown on the drawings.

3. Floating Turbidity Barrier: The Contractor shall provide floating turbidity barriers as a temporary structural practice to minimize sediment runoff. Turbidity barriers shall be properly installed to effectively retain sediment prior to starting any work where erosion may occur and sediment discharged. Turbidity barriers shall be installed in the locations indicated on the drawings. Final removal of barriers shall be upon approval by the Engineer.

PART 2 - PRODUCTS

2.01 COMPONENTS FOR SILT FENCES

A. Filter Fabric: The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of -18 to 49 degrees C (0 to 120 degrees F). The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (%)		30 % max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec^{-1}
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

B. Silt Fence Stakes and Posts: The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction shall have a minimum cross section of 2 inches by 4 inches for softwoods or 2 inches by 2 inches for hardwoods, and shall have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum mass of 1.33 pounds per linear foot and a minimum length of 3 feet.

C. Mill Certificate or Affidavit: A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. The mill certificate or affidavit shall specify the actual Minimum Average Roll Values and shall identify the fabric supplied by roll identification numbers. The Contractor shall submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

D. Identification Storage and Handling: Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.

2.02 COMPONENTS FOR STRAW BALES

A. The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as bahia, bermuda, etc., furnished in air dry condition. The bales shall have a standard cross section of 14 inches by 18 inches. All bales shall be either wire-bound or string-tied. The Contractor may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimension of 2 inches x 1 inch in cross section and shall have a minimum length of 4 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 3 feet.

2.03 COMPONENTS FOR FLOATING TURBIDITY BARRIERS

A. Floating Turbidity Barriers shall be either Type I or Type II, in accordance with FDOT standard specifications and details.

PART 3 - EXECUTION

3.01 INSTALLATION OF SILT FENCES

A. Silt fences shall extend a minimum of 15 inches above the ground surface and shall not exceed 18 inches above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6 inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 8 inches deep on the upslope side of the location of the silt fence. The 4-inch by 8-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Engineer.

3.02 INSTALLATION OF STRAW BALES

A. Straw bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked (gaps filled by wedging with straw), the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side. Loose straw shall be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake or steel post in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or steel pickets shall be driven 18 inches deep into the ground to securely anchor the bales.

3.03 INSTALLATION OF FLOATING BARRIER

A. Floating barriers shall be installed in accordance with FDOT Standard Details and manufacturer's instructions.

3.04 MAINTENANCE

A. The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

1. Silt Fence Maintenance: Silt fences shall be inspected in accordance with paragraph INSPECTIONS, below. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be sodded.
2. Straw Bale Maintenance: Straw bale barriers shall be inspected in accordance with paragraph INSPECTIONS, below. Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Bale rows used to retain sediment shall be turned uphill at each end of each row. When a straw bale barrier is no longer required, it shall be removed. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be sodded.

3.05 INSPECTIONS

A. General: The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 0.5

inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.

B. Inspections Details: Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

C. Inspection Reports: For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The report shall be furnished to the Engineer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report shall be maintained on the job site.

END OF SECTION

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SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. General product requirements

B. Transportation and handling

C. Storage and protection

D. Product option requirements

E. Substitution limitations and procedures

F. Spare parts and maintenance materials

1.02 RELATED SECTIONS

A. Section 01 30 00 – Administrative Requirements: Product submittals.

B. Section 0 40 00 – Quality Requirements: Product quality monitoring.

PART 2 - PRODUCTS

2.01 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named or request an equal product by an alternate manufacturer. Determination of the alternate meeting the specifications is at the discretion of the Engineer.

C. Products Specified by Naming One or More Manufacturers with no or equals permitted: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

D. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.03 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra products of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 - EXECUTION

3.01. TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.02 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated products, place on sloped supports, above ground.

C. Provide off-site storage and protection when site does not permit on-site storage or protection.

D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

E. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

F. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

G. If requested by Engineer, provide documentation that stored materials are maintained in accordance with manufacturers' short and long-term storage procedures.

END OF SECTION

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SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED SECTIONS

A. Section 01 30 00 - Administrative Requirements: Submittals procedures.

B. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.

C. Cutting and Patching: Submit written request in advance of cutting or alteration which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate Contractor.

1.03 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Engineer. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.04 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.05 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 - PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Engineer of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Control datum for survey is that indicated on Drawings.

E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

F. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

H. Utilize recognized engineering survey practices.

I. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means.

J. Periodically verify layouts by same means.

K. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

3.05 CUTTING AND PATCHING

A. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing.

C. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

D. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

E. Restore work with new products in accordance with requirements of Contract Documents.

3.06 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.07 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.08 FINAL CLEANING

A. Use cleaning materials that are non-hazardous.

B. Clean site, sweep paved areas, rake clean landscaped surfaces.

C. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.09 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Notify Engineer when work is considered ready for Substantial Completion.

C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer's review.

D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

E. Notify Engineer when work is considered finally complete.

F. Record Drawings and Shop Drawings:
   1. Legibly mark each item to record actual construction including:
      a. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. At least two (2) ties to permanent surface improvements shall be provided for all fittings, valves, and ends of casings. Elevation data shall be provided at all fittings, valves, and ends of casings, and at 250' intervals along mains.
      b. Field changes of dimension and detail.
      c. Details not on original Contract drawings.
   2. Record drawings shall be signed and sealed by a registered professional land surveyor.

G. Complete items of work determined by Engineer's final inspection.

END OF SECTION

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 00 72 00 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Engineer with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer comments. Revise content of all document

sets as required prior to final submission.

4. Submit three sets of revised final documents in final form and two copies in indexed PDF format on CD-ROM within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings:
   1. Legibly mark each item to record actual construction including:

a. Measured depths of foundations in relation to finish first floor datum.
b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. At least two (2) ties to permanent surface improvements shall be provided for all fittings, valves, and ends of casings. Elevation data shall be provided at all fittings, valves, and ends of casings, and at 250' intervals along mains.
c. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
d. Field changes of dimension and detail.
e. Details not on original Contract drawings.

2. Record drawings shall be signed and sealed by a registered surveyor in accordance with Section 01 70 00.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
1. Product data, with catalog number, size, composition, and color and texture designations.
2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

E. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

END OF SECTION

SECTION 31 10 00
SITE CLEARING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Remove surface debris.

B. Remove paving, curbs, and sidewalks.

C. Clear the surface of the site of plant life and grass.

D. Remove root system of trees and shrubs.

E. Dispose of removed material.

1.02 REFERENCE STANDARDS

A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction (SSRBC), latest edition.

1.03 REGULATORY REQUIREMENTS

A. Burning of debris on-site is prohibited.

B. Comply with Florida Department of Environmental Protection and local regulations.

C. Contractor shall obtain any special permits needed to remove and to dispose of any debris off-site.

D. Coordinate clearing work with utility companies.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 PREPARATION

A. Verify that existing plant life designated to remain is tagged or identified.

3.02 PROTECTION

A. Protect plant life, lawns, and other features remaining as a portion of final landscaping.

B. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

C. Maintain and protect above and below grade utilities which are to remain.

D. Notify utility company(s) to remove and/or re-locate utilities, when required.

E. Maintain designated site access for vehicle and pedestrian traffic.

3.03 CLEARING

A. Clearing shall conform to the requirements of Section 110, SSRBC.

B. Clear areas required for access to site and execution of Work.

C. Remove trees and shrubs on the site that will conflict with the new facilities. Remove stumps and root systems to a minimum depth of six (6) inches.

D. Clear undergrowth and deadwood without disturbing subsoil.

E. Remove paving, curbs, and sidewalks.

3.04 DISPOSAL

A. Remove debris from site. No burning on the site will be allowed.

B. Conform to applicable Florida Department of Environmental Protection regulations for disposal of all debris.

END OF SECTION

SECTION 31 23 33
TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Excavating trenches for municipal utilities

B. Installing and compacting utility bedding material

C. Compacted fill from top of utility bedding to subgrade elevations

D. Backfilling and compaction of trenches

1.02 REFERENCE STANDARDS

A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb Rammer and 18-inch Drop.

B. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

C. Florida Department of Transportation Standard Specifications for Road and Bridge Construction (SSRBC), latest edition.

1.03 MEASUREMENT AND PAYMENT

A. Measurement and Payment shall be in accordance with the applicable sections of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (SSRBC), latest edition.

1.04 COORDINATION

A. Coordinate Work with owner(s) of utilities.

B. Verify Work associated with lower elevation utilities are complete before placing higher elevation utilities.

1.05 DEFINITIONS

A. Utility: Any buried pipe, conduit, or cable.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

A. Fill: Silica sand or local materials meeting requirements of Section 902, SSRBC.

B. Utility Bedding: Silica sand or local materials meeting requirements of Section 901, SSRBC.

C. Structural Fill: FDOT #57 Coarse Aggregate, complying with Section 901, SSRBC.

PART 3 - EXECUTION

3.01 GENERAL

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Field verify that existing pipelines, other utilities, and structures are as shown on the Drawings (size, horizontal location, and vertical location).

C. Identify required lines, levels, contours, and datum.

D. Protect plant life, lawns, and other features remaining as a portion of final landscaping.

E. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

F. Maintain and protect above and below grade utilities which are to remain.

G. Notify utility company(s) to remove and/or re-locate utilities, when required.

H. No pipe shall be laid when, in the opinion of the Engineer, trench conditions are unsuitable. Pipe shall be laid in a dry trench unless otherwise authorized by the Owner or Engineer.

I. Length of open trench on existing roads may be limited by the Engineer to minimize public inconvenience or danger to life or property.

3.02 EXCAVATION

A. Underpin adjacent structures which may be damaged by excavation work.

B. Excavate subsoil required for utilities to design pipe, conduit, or cable invert.

C. Excavation shall be in compliance with the safety regulations issued by the Department of Labor, Occupational Safety and Health Administration (OSHA) and with the Florida Trench Safety Act. Ensure that a "competent person", as defined by OSHA, is on-site during all construction activities.

D. Grade top perimeter of excavation to prevent surface water from draining into excavation.

E. Maintain vehicles 5 feet minimum from top of excavation slope.

F. Dewatering shall be performed, as necessary, to maintain a ground water level two (2) feet below the pipe invert or bottom of excavation during construction.

G. Cut trenches sufficiently wide to enable installation and to allow inspection.

H. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose material.

I. Remove lumped subsoil, boulders, and rock. Remove excessively wet, yielding, soft, or hard and lumpy unsuitable materials encountered to a minimum depth of 12 inches below finish grade or invert grade.

J. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume Work.

K. Correct areas over-excavated in accordance with Backfilling section 3.03.

L. Stockpile excavated material in designated area on-site. Remove excess excavated material not being used from site. Dispose of excess material in accordance with all local, state and federal regulations.

3.03 BACKFILLING

A. Supply, transport to the site, and install any necessary utility bedding and/or fill material.

B. Place and compact utility bedding material in continuous layers. Each layer shall not exceed 6 inches nor shall it exceed one half of the pipe diameter. Bedding shall extend to at least 12 inches above the top of the pipe or conduit. All bedding shall be compacted to 98 percent of the modified Proctor, maximum dry density.

C. Maintain optimum moisture content of bedding material to attain required compaction density.

D. Employ a placement method that does not disturb or damage pipe in trench.

E. Backfill the trench from the top of the bedding to the finished grade in lifts no greater than 12 inches. Backfill shall be compacted to 95 percent of the modified Proctor, maximum dry density. In non-paved areas and away from structures, backfill shall be compacted to 90 percent modified Proctor, maximum dry density.

F. Remove surplus fill materials from site. Dispose of surplus material in accordance with all local, state and federal regulations.

G. Leave fill material stockpile areas completely free of excess fill materials.

3.04 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 40 00.

B. Compaction testing will be performed in accordance with AASHTO T180.

C. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

D. Frequency of tests:
   1. One test per installed lift under grassed or other non-paved areas at intervals not to exceed 500 feet. Initial test shall be performed in the first 100 feet of trench backfilled.
   2. One test per installed lift under paved areas at intervals not to exceed 200 feet. Initial test shall be performed in the first 100 feet of trench backfilled.

3.05 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01 50 00.

B. Protect excavation by methods required to prevent cave-in or loose soil from falling into excavation.

C. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 32 01 17
PAVEMENT REMOVAL AND REPLACEMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Work included under this Section consists of cutting, removing, protecting and replacing existing pavements of the various types encountered, driveways, sidewalks, curb and combination curb and gutter.

B. Permits: The Contractor shall obtain the necessary permits prior to any roadway work. Additionally, the Contractor shall provide advance notice to the appropriate authority, as required, prior to construction operations.

C. Protection Of Existing Improvements: The Contractor shall be responsible for the protection of all pavements, sidewalks 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 as described herein, shall be repaired by the Contractor at his expense.

1.02 JURISDICTIONAL REQUIREMENTS

A. Work within the rights-of-way of public thoroughfares shall conform to the requirements of the Governmental agency having jurisdiction and shall be in full compliance with all requirements of the permit and permit drawings, and of the Florida Department of Transportation.

B. Portions of the Standard Specifications for Road and Bridge Construction of the Florida Department of Transportation, latest edition and Supplement thereto hereinafter referred to as the FDOT Specifications, are referred to herein and amended, in part, and the same are hereby made a part of this Contract to the extent of such references, and shall be as binding upon the Contract or as though reproduced herein there entirety.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials; including limerock, bituminous prime and tack coat, and asphaltic concrete; for the above work shall meet the applicable requirements established for those materials by the FDOT Specifications.
   1. Limerock shall be Miami or Ocala Limerock.
   2. Bituminous prime coat material shall be cutback asphalt Grade RC-70.

3. Bituminous tack coat material shall be emulsified asphalt Grade RS-2.
4. Asphaltic concrete shall be Type S-I.

B. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:
1. FDOT Class I Concrete – Normal Weight Concrete (3000 PSI at 28 days). Use for curbs, gutters, sidewalks, and driveways.

Minimum cementitous materials content, per cubic yard	508 lbs
Maximum water-cementitous materials ratio, by weight	0.50
Slump, maximum	3-inches (5-inches for curb & gutters)
Compressive strength, lbs. per sq. inch at 28 days – F'c	3,000
Coarse Aggregates	#57 per ASTM C33
Total Air (ASTM C173)	3 to 5% for maximum 2 inch aggregate 3 to 7% for maximum ¾ inch aggregate 6 to 8% for maximum ½ inch aggregate

PART 3 - EXECUTION

3.01 PREPARATION

A. Pedestrian or school crossings: Where the work crosses or interferes with school or pedestrian crossings, extreme care shall be taken by the Contractor to insure the safety of school children or other pedestrians.

3.02 PERFORMANCE

A. Removals:
1. Pavement Removal:
a. Where existing pavement is to be removed, the surfacing shall be mechanical saw cut prior to trench excavation, leaving a uniform and straight edge, with minimum disturbance to the remaining adjacent surfacing. The width of cut for this phase of existing pavement removal shall be minimal.
b. Immediately following the specified backfilling and compaction, a temporary sand seal coat surface shall be applied to the cut areas. This temporary surfacing shall provide a smooth traffic surface with the existing roadway and shall be maintained until final restoration. Said surfacing shall remain for 10 days in order to assure the stability of the backfill under normal traffic conditions.

Following this period and prior to 15 days after application, the temporary surfacing shall be removed and final roadway surface restoration accomplished.

c. In advance of final restoration, the temporary surfacing shall be removed and the existing pavement mechanically sawed straight and clean to the stipulated dimensions. Following the above operation, the Contractor shall proceed immediately with final pavement restoration in accordance with these requirements.

2. Sidewalk, Drive & Curb Removal: Concrete sidewalks, curbs, combination curb and gutter, walks, drive ribbons, or driveways shall be removed by initially sawing the structure, with a suitable power saw, as specified above for pavement. When a formed joint in the concrete exists within 3 feet of the proposed saw cut and parallels the proposed saw cut, the removal line shall be extended to the formed joint. After sawing, the material shall be removed.

B. Restorations:

1. General: Street or roadway pavement cut and removed in connection with trench excavation shall be replaced or restored to equal or better condition than the original and as shown on the Drawings. The Drawings indicate minimum requirements.

2. Pavement Restoration – Asphalt:

a. Backfill shall be installed in layers and compacted as described in Section 31 23 16.13, Part 3.03, to the prescribed bottom or base elevation and to 100% of the maximum density as determined by AASHTO T-99.

b. After backfill is installed, the limerock base course shall be installed in layers not to exceed six inches (6") in depth and each layer compacted to 98% maximum density as determined by AASHTO T-180. The total limerock base course thickness shall be 2 times the thickness of the original base, but not less than 12 inches. The depth of restoration base below the bottom of the original base shall be tapered at 45 degrees away from the top of the trench on each side of the trench. This taper will produce a horizontal offset from the top of the trench cut to the bottom of the original remaining base and will be equal to the vertical distance from the top of the trench to the bottom of the existing base. This offset will be applicable on each side of the trench cut. The original base to remain can be cut vertically or with a slight slope away from the trench. When pavement is removed to the edge of the roadway, the replacement base course shall extend a minimum of six inches (6") beyond the edge of the surface course.

c. The upper surface of the completed base course shall be installed to an elevation to allow the full depth of the asphalt

cement surface course to be constructed without deviating from the grade of the pavement surface. The completed surface shall match the line and grade of the existing surface.

d. Field density of limerock base course layers in place shall be determined by AASHTO T-238.

e. Once the base course is installed and approved, the surface shall be cleaned and primed in accordance with the FDOT Standard Specifications, Section 300.

f. Materials and installation of the Asphaltic Concrete Surface Course shall be in accordance with the requirements of the FDOT Standard Specifications. The surface course mix shall be as specified on the plans or herein and shall equal or exceed the thickness of the original pavement. Installation shall be in accordance with FDOT Standard Specifications, but shall be modified to meet the relatively narrow strip construction conditions. Upon completion of the installation, all joints with existing pavement shall be sealed and flush.

3. Driveway Restoration - Asphalt: Driveway pavement with limerock base cut and removed in connection with trench excavation shall be replaced or restored as specified above for street or roadway pavement, except the new limerock base course shall equal the existing base course in thickness, except that in no case shall new driveway base course be less the 6 inches in thickness. Muck or unsuitable material found under existing driveway construction will not be removed and replaced.

4. Concrete, Sidewalk, Walkway, Driveway Ribbon and Curb Restoration: Concrete sidewalks, walkways, driveways, driveway ribbons and curbs required to be removed for the installation of facilities under this Contract shall be restored. Replaced portions of these items shall conform to the lines, grades and cross sections of the removed portions. Concrete sidewalks and walkways shall be of 4-inch thickness; concrete driveways and driveway ribbons shall be 6-inch thickness. Replaced concrete curb and/or gutter shall joint neatly to the remaining section.

5. Pavement Restoration - Concrete: Rigid pavement shall be replaced in kind with Class I concrete, using high early strength cement. The base course for rigid pavement shall be replaced with limerock base material and compacted to a thickness to match the existing base.

6. Asphaltic Concrete Surface Course Overlay:

   a. The work under this section includes asphaltic concrete surface course overlay paving as and where directed by the Engineer. Where this paving is directed, it shall be in addition to the asphaltic concrete pavement restoration as specified herein. This surface course overlay shall extend over the roadway restoration and the existing pavement to the limits directed by the Engineer or shown on the drawings.

b. Before installing the asphaltic concrete surface course overlay, the existing surfaces to be overlaid shall be cleaned and tack coated as specified in FDOT Standard Specifications. Materials and installation of the overlay shall be in accordance with the FDOT Standard Specifications. The asphaltic concrete surface course overlay mix type and thickness shall be as specified on the plans and shown herein, with a minimum thickness of 1 inch. Installation shall be in accordance with FDOT Standard Specifications.

7. Non-surfaced streets, alleys and driveways shall be restored with 6 inches of compacted base material placed in the top of the trench.

END OF SECTION

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SECTION 32 92 19
SEEDING AND MULCHING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Seeding

B. Mulching

C. Fertilizing

D. Watering

1.02 REFERENCE STANDARDS

A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction (SSRBC), latest edition.

1.03 REGULATORY REQUIREMENTS

A. All seed shall meet the requirements of the State Department of Agriculture and Consumer Services and all applicable State laws.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis and name of manufacturer.

PART 2 - PRODUCTS

2.01 SEED

A. Where seeding is called for on the Drawings or in these Specifications it shall mean a permanent type grass seed. Unless called for otherwise on the Drawings, the seed shall be a mixture of 20 parts of bermuda seed and 80 parts of Pensacola bahia seed.

1. The bermuda seed shall be an equal mixture of hulled and unhulled seed.

2. The Pensacola bahia seed shall be scarified seed, having a minimum active germination of 40 percent and total germination of 85 percent

B. Quick growing type grass seed shall be a species which will provide an early ground cover during the winter season and will not compete with the permanent grass. The separate types of seed used shall be thoroughly dry-mixed immediately before sowing. Seed that has become wet shall not be used.

2.02 MULCH

A. Dry Mulch: The mulch material used shall normally be dry mulch. Dry mulch shall be straw or hay consisting of oat, rye, or wheat straw, or of pangola, peanut, coastal bermuda or bahia grass hay. Only undetermined mulch which can readily be cut into the soil shall be used.

B. Green Mulch:
1. Types allowed: Green mulch shall consist of live coastal bermuda, other approved type of grass, and shall be free from weeds and obnoxious or other undesirable grasses.
2. Conditions Under which Green Mulch will be Permitted: No green mulch which, in the Engineer's opinion, has been allowed to become sufficiently dry as to lose its growth-producing benefits will be allowed to be used.
3. In the event that the subsequent stand of grass is found to be contaminated with weeds or other obnoxious or undesirable growth, and it can be determined that such growth was introduced with the green mulch, then the Contractor will be required to effectively eliminate such undesirable growth, at his own expense.

C. Manufactured Mulch (Other than Wood Cellulose Fiber Mulch): When specified or permitted by the Engineer, manufactured mulches may be allowed. Such mulches may consist of jute, cotton, or other fiber materials, plastic sheeting, netting, chemical adhesive soil stabilizers, or other approved coverings. When so permitted, the particular type to be used shall be approved by the Engineer.

2.03 FERTILIZER

A. Fertilizer shall conform to the requirements of Section 982 SSRBC.

B. The chemical designation of the fertilizer shall be 12-8-8 (12% - total nitrogen, 8% - available phosphoric acid, and 8% - water-soluble potash).

C. Each bag or container shall have a quantitative analysis card.

2.04 DOLOMITIC LIMESTONE

A. Dolomitic limestone shall be an approved product, designated for agricultural use.

2.05 WATER

A. The water used in the grassing operations may be obtained from any approved spring, pond, lake, stream or municipal water system.

B. The water shall be free of excess and harmful chemicals, acids, alkalis, or any substance which might be harmful to plant growth or obnoxious to traffic.

2.06 EQUIPMENT

A. Fertilizer Spreader: The devices for spreading fertilizer and dolomitic limestone shall be capable of uniformly distributing the material at the required rate.

B. Seed Spreader: The seed spreader shall be an approved mechanical hand spreader or other approved type of spreader.

C. Equipment for Cutting Mulch into Soil: The mulching equipment shall be of a type capable of cutting the specified material uniformly into the soil and to the required depth. Harrows will not be allowed.

D. Rollers: A cultipacker, traffic roller, or other suitable equipment will be required for rolling the grassed areas.

PART 3 - EXECUTION

3.01 GENERAL

A. Seed and mulch all areas disturbed during construction except for those areas designated to be sodded.

B. Fertilizing, seeding, or mulching operations will not be permitted when wind velocities exceed 15 miles per hour.

C. Seed shall be sown only when the soil is moist and in proper condition to induce growth. No seeding shall be done when the ground is frozen, unduly wet or otherwise not in a tillable condition.

D. Whenever a suitable area has been graded, it shall be made ready, when directed by the Engineer, and grassed in accordance with these specifications. Grassing shall be incorporated into the project at the earliest practical time in the life of the contract.

3.02 SEQUENCE

A. The several operations involved in the work shall proceed in the following sequence:
   1. Preparation of the Ground.
   2. Fertilizing (and/or application of limestone).
   3. Seeding.
   4. Mulching and rolling.

3.03 PREPARATION OF THE GROUND

A. The ground to be seeded shall be prepared by disk-harrowing and thoroughly pulverizing the soil to a suitable depth. The prepared soil shall be loose and reasonably smooth. It shall be reasonably free of large clods, roots, and other material which will interfere with the work or subsequent mowing and maintenance operations. No subsequent operations shall be commenced until the Engineer has approved the condition of the prepared areas.

3.04 FERTILIZING

A. The fertilizer shall be spread uniformly in an initial application of 400 to 500 pounds per acre. A second application of 400 to 500 pounds per acre shall be applied within 90 calendar days.

B. Immediately after the fertilizer is spread, it shall be mixed to a depth of four (4) inches or two (2) inches on steep slopes.

3.05 SEEDING

A. While the soil is still loose and moist, the seed shall be scattered uniformly over the grassing area. Unless shown otherwise on the Drawings, the permanent type seed mixture shall be spread at a rate of 100 pounds per acre.

B. When so directed by the Engineer, seed of an approved quick-growing species of grass, such as rye, Italian rye, millet, or other cereal grass, shall be spread in conjunction with the permanent type seed mixture. The type of quick-growing seed used shall be appropriate to provide an early ground cover during the particular season when planting is done. The rate of spread shall be 30 pounds per acre.

3.06 MULCHING

A. Approximately two inches, loose thickness, of the mulch material shall be uniformly applied over the seeded area.

B. The mulch material shall be cut into the soil with the equipment specified, so as to produce a loose mulched thickness of three to four inches. Care shall be exercised that the materials are not cut too deeply into the soil. When green mulch is used, the green mulch shall be incorporated into the soil not later than two days after being cut, and no artificial watering of the mulch shall be done before it is applied.

C. Immediately after completion of the seeding, the entire area shall be rolled thoroughly with the equipment specified. At least two trips over the entire area will be required.

3.07 WATERING

A. The areas on which the seed is to be placed shall contain sufficient moisture for optimum results after being placed.

B. The seeded area shall be kept in a moist condition for no less than two (2) weeks. The moistened condition shall extend at least to the full depth of the rooting zone. Water shall not be applied, however, when there is danger of a freezing condition.

END OF SECTION

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SECTION 32 92 23
SODDING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Sod

B. Preparation of Ground

C. Placement of Sod and Fertilization

D. Maintenance of Sod

1.02 REFERENCE STANDARDS

A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction (SSRBC), latest edition.

PART 2 - PRODUCTS

2.01 SOD

A. Sod shall be St. Augustine "Floratam" or Argentine Bahia as shown on the plans. Obtain sod from areas having growing conditions similar to areas to be covered. Sod shall have a clean growth of acceptable grass, reasonably free of weeds, with not less than 1 1/2" of soil firmly adhering to roots. Cutting shall be rectangular strips, of equal width, and a size to permit being lifted and rolled without breaking. All broken sod pads, irregularly shaped pieces, torn or uneven ends will be rejected. Sod installation shall be done within 48 hours after the time of harvesting.

B. Sod shall be planted as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted.

2.02 FERTILIZER

A. For lawns, provide fertilizer with 16-4-8 formulation. Fertilize at a rate of 12 pounds per 1,000 S.F. Fertilizer shall be delivered to the site in the original containers and bear the manufacturer's guarantee.

B. Each bag or container shall have a quantitative analysis card.

PART 3 - EXECUTION

3.01 PREPARATION OF GROUND

A. Loosen sub grade of lawn areas to a minimum depth of 4 inches. Remove stones over 1 1/2" in any dimension. Remove sticks, roots, rubbish, and other extraneous matter. Limit preparation to areas, which will be planted promptly after preparation.

B. Spread soil to minimum depth required meeting lines, grades, and elevations shown, after light rolling and natural settlement.

C. Preparation of Grade: Where lawns are to be planted, prepare soil for lawn planting as follows: Till to a depth of not less than 4". Remove high areas and fill in depressions. Till soil to homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter. Owner's representative shall approve preparation of grades before lawns are installed.

D. Prior to grade preparation of unchanged areas, remove existing grass and other vegetation. Dispose of such material outside of Owner's property. Do not turn existing vegetation over into soil being prepared for lawns. Allow for sod thickness in areas to be sodded.

E. Apply specified fertilizer at rates indicated above and thoroughly mix into upper 2" of existing soil. Delay application of fertilizer if lawn planting will not follow within a few days. Landscape Architect must observe fertilizer application, approve application rates, and issue field report.

F. Fine grade lawn areas to a smooth, even surface with loose, uniformly fine texture. Roll, rake, and drag soil, remove ridges and fill depressions, as required to meet finish grades. Limit fine grading to areas, which can be planted immediately after grading.

3.02 PLACING SOD

A. Sodding shall be incorporated into the project at the earliest practical time in the life of the contract.

B. No sod which has been cut for more than 72 hours shall be used. Any sod which is not planted within 24 hours after cutting shall be stacked in an approved manner and maintained properly moistened.

C. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Avoid damage to sod during installation. Tamp or roll to ensure contact with sub grade, eliminate air pockets, and form a smooth surface. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass.

D. On areas where the sod may slide, the sod shall be pegged, with pegs driven through the sod blocks into firm earth, at suitable intervals.

E. Any pieces of sod which, after placing, shows an appearance of extreme dryness shall be removed form the work.

3.3 MAINTENANCE

A. Maintain sodded lawns for thirty days, after substantial completion.

B. Maintain lawns by watering, fertilizing, weeding, mowing, edging, and any other required operation. Roll, re-grade, and replant bare or eroded areas to produce a uniformly smooth lawn. Mow as frequently as required to remove no more than 30% of the grass height in one mowing. Do not mow when grass is wet.

3.04 WATERING

A. The areas on which the sod is to be placed shall contain sufficient moisture for optimum results after being placed.

B. Water sod thoroughly with a fine spray immediately after planting. During the sod establishment period, set irrigation to water daily or as frequently as necessary to maintain moist soil to a minimum depth of 1 1/2" below the sod.

END OF SECTION

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SECTION 33 05 23.13
HORIZONTAL DIRECTIONAL DRILLING (HDD)

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work specified in this Section consists of furnishing and installing underground utilities using the Horizontal Directional Drilling (HDD) installation method, also commonly referred to as a Directional Bore. This work shall include all services, equipment, materials, and labor for the complete and proper installation, testing, and restoration of underground utilities.

1.02 QUALITY ASSURANCE

A. The requirements set forth in this Specification specify a wide range of procedural precautions necessary to insure that the very basic, essential aspects of a proper Directional Bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this Specification.

B. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any Directional Bore operation covered by this Specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

1.03 SUBMITTALS

A. Prior to beginning work, the Contractor must submit to the Engineer a report of procedure and subsurface soil conditions as they exist along the path of the proposed crossing. The report will insure that the subsurface conditions are known to the Contractor and that his proposed crossing procedure is based on factual information. If the subsurface conditions are known to the Contractor by previous work done in the immediate area, the information can be recorded in the report with no physical testing required. The report shall include the following:

1. The general classification of soils along the path of the proposed crossing; along with method of obtaining this information.
2. A list of equipment expected to be used for the Directional Bore, including special equipment and materials required for various soil conditions.
3. Time schedule for completing each Directional Bore, including any delays due to particular soil conditions.

1.04 JOB CONDITIONS

A. Planned nighttime work is expressly prohibited and will not be allowed unless stipulated in the special conditions of the Contract.

B. All crossing operations shall be accomplished during daylight hours and shall not begin after the hour pre-established as the latest starting time that will allow completion during daylight hours.

1.05 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall supply all labor, supervision, tools and equipment, and materials necessary to install carrier pipe by directional bore method for wastewater systems. Installation of the carrier pipe system includes the installation of wastewater force mains and/or any other devices or materials deemed necessary for the respective systems.

B. The Contractor shall provide experienced operators to perform directional boring. The operator shall have performed at least three directional bores of similar pipe diameter and bore length.

C. The Contractor shall be fully responsible for placement of the pipe per the specifications.

D. The Contractor shall supply experienced persons who have received proper training in the use of the fusion equipment according to the recommendations of the pipe manufacturer and fusion equipment supplier to perform thermal fusion of the specific FPVC pipe to be used.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. The directional drilling equipment shall consist of a directional-drilling rig of sufficient capacity to perform the bore and pull back the pipe.

B. The steerable, directional-boring equipment shall produce a stable fluid lined tunnel with a minimum burial depth of 36-inches for the carrier pipe installation.

C. The tunneling equipment shall employ a fluid cutting technique. The soil shall be cut by small diameter, high-pressure jets of drilling fluid. The jets shall cut the soil in advance of the boring tool, impregnating and lining the tunnel wall with drilling fluid. The drilling fluid shall be inert and pose no

environmental risk, such as bentonite or a polymer-surfactant mixture producing a slurry of proper consistency.

D. The hydraulic power system shall be self-contained and free of leaks, with sufficient pressure and volume to power the drilling operation.

E. Calibration of the electronic detection system shall be verified by uncovering the tool (head) at the first ten (10) foot point.

F. The boring tool (head) shall be remotely steerable by means of an electronic detection system. The tool (head) location shall be monitored in three dimensions and logged every 10 feet from the drilling rig. The boring tool shall pull the carrier pipe through the fluid lined tunnel.

G. The rig shall have means to monitor and record the maximum pullback force during the pullback operation. The pulling strength of the boring equipment shall not exceed the pipe safety pull strength as per the manufacturer's recommendation.

H. The butt fusion machine used to join sections of HDPE or FPVC pipe shall have controls and gauges for setting pressures and temperatures used for facing, heating, and fusing.
   1. Facing should be conducted at a pressure that produces properly faced pipe ends.
   2. Heating pressure should be set so that the pipe ends maintain contact against the heater, but are not forced against the heater (zero contact pressure).
   3. Fusing pressure shall be as recommended by the pipe manufacturer and fusion equipment supplier.
   4. Heater surfaces must be clean and free of contaminants such as dirt, oil, grease, and melted or charred plastic. To clean the heater, only wooden implements and clean, dry, lint-free non-synthetic cloths should be used.
   5. The heater should be checked periodically for uniform surface temperature using a surface pyrometer.

2.02 DIRECTIONAL BORE PIPE

A. Pipe shall be Fusible PVC (FPVC) AWWA C905, 12-inch DIPS DR 18 235 psi.

B. Carrier: FPVC, as specified.

C. Color Coding: The piping shall be permanently coded to provide service identification. Stripes along the entire outside length of the pipe, 120 degrees apart, shall be made by co-extrusion or impregnation in accordance with the

following schedule. Fully colored pipe co-extruded from permanently pigmented material is also acceptable.

SERVICE	STRIPED PIPE	SOLID-COLORED PIPE
Water	Blue stripes	Blue

D. Markings on the pipe shall include the following:
   1. Nominal size and OD base.
   2. Standard material code designation.
   3. Dimension.
   4. Pressure class.
   5. AWWA designation.
   6. Material test category of pipe.

2.03 DRILLING FLUID ("MUD")

A. All drilling fluid must be homogenous in nature.

B. All drilling fluid must have a pH of 8.5 to 10.0.

C. "Mud" viscosity must meet minimum viscosity as set by the manufacturer for soil conditions expected to be encountered.

D. Contractor shall have appropriate additives for drilling fluid available for different soil conditions (clay, sand, silt, etc.) that may be encountered.

2.04 TRACER WIRE

A. All piping shall be installed with two continuous, insulated, solid #10 gauge (or larger) solid copper wire for force main location purposes by means of an electronic line tracer.

B. The wire insulation shall be solid color in accordance with the coding described in 2.02.C above. Blue coated for water, 2 (two) - #10 gauge UF (Underground Feeder per National Electric Code Article 339) solid tracer wire must be taped along all pipes. The tracer wire shall be routed to the nearest access point (valve box). Sections of wire shall be spliced together using Buchanon connectors or similar approved method for splicing. Twisting the wires together is not acceptable (wire nuts).

C. Upon completion of the directional bore, the Contractor shall demonstrate to the Engineer that the wire is continuous and unbroken through the entire run of the pipe by providing full signal conductivity (including splices) when energizing for the entire run in the presence of the Engineer. If the wire is broken, the Contractor shall repair or replace it.

2.05 FITTINGS, RESTRAINERS, AND VALVES

A. FPVC refer to Section 33 11 00.

B. Mechanical joints to FPVC pipe shall be fully restrained by approved joint restraining devices are Mega-Lug and Mechanical Joint Restrainer (MJR).

PART 3 –EXECUTION

3.01 GENERAL

A. All directional bore operations shall be contained within right-of-way and/or easements shown on the Drawings.

B. Work shall not start until the Contractor has all necessary permits from the appropriate governing regulatory agencies, and not until the Engineer has been given two (2) working days prior notification to inspect construction materials. Any material may be rejected if out of specification or damaged (i.e. out-of-round, deep cuts, etc.).

C. Contractor shall not begin drilling operation until the Engineer is present. The Engineer must be present during the entire boring operation once the ground is penetrated.

D. The Contractor is to schedule the directional bore such that the Engineer is on site and that the bore is completed before 4:00 PM. Directional bores shall not start after 1:00 PM or subject to permit conditions unless approved by the Owner and Engineer.

3.02 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall provide the following materials and services for directional bore unless otherwise specified by Owner:
   1. Traffic control.
   2. Tracer wire for carrier pipe (#4 gauge or larger, solid), per standards.
   3. Site preparation and excavation.
   4. Dewatering – Groundwater Pump or Well Point System as needed.
   5. Sheeting and shoring, as necessary.
   6. All fusion welding.
   7. Preliminary site restoration (fill open pits, grading).
   8. Site clean up including removal and proper disposal of all waste materials and drilling fluid.

9. Must have a vacuum truck on job site for proper clean up of drilling fluid. This will be required as the conditions warrant or at the direction of the Owner.
10. All fittings, couplings, and carrier pipe (unless otherwise specified).
11. Final site restoration (sod, seed, mulch, concrete/asphalt repair).
12. Required Right-Of-Way Permits.

B. The Contractor shall record data on the bore log (see attached) and shall also ensure the following items are monitored and controlled:
1. Calibrate locator/tracking system
2. Field verify calibration by field measurement of actual location of first rod
3. Ensure that the flow of bentonite is continuous
4. Ensure pulling pressure does not exceed pipe manufacturer's specifications
5. Fusing of pipe is within pipe manufacturer's specifications
6. Cool down time is calculated and complied with
7. Pipe is fused prior to start of extended bores (ie. Greater than 100 linear feet).

C. The Contractor shall record location and depth measurements every ten (10) feet over the course of the bore and provide that data to the Owner. Data collected by the Engineer does not relieve the Contractor from the responsibility of recording his own data. The Contractor shall log all necessary data from the locator/tracking system:
1. Position.
2. Roll Angle.
3. Tilt Angle.
4. Depth – Every ten (10) feet.
5. Temperature of Data Transmitter.
6. Remaining Battery Life.
7. Pull Back Force (Maximum pull back force shall be recorded).
8. Drilling Fluid Pressure

D. The Engineer shall witness and verify the Contractor's logging of pertinent data. The Engineer may log his own data for the Owner's use.

E. Contractor shall notify all involved agencies prior to start of construction. The Contractor is responsible for verifying that all permits are current and not expired. The Contractor shall notify the Engineer of Record and the Owner if expired.

F. The Contractor shall call "Sunshine State One-Call" (phone number: 800-432-4770) two (2) full days prior to performing any excavation. The Contractor

shall confirm the location of utilities before starting the directional bore. This shall be done by hand digging within the tolerance zone of marked utilities.

G. The Contractor shall perform directional bore in accordance with the approved project Drawings. In no case shall the bore extend into private property unless an easement is provided prior to start of construction. Tolerances shall be as specified in Section 3.03. These tolerances shall be met unless required separations for other utilities must be met and puts the bore in conflict. Failure to meet tolerances, if not pre-approved by Engineer, may be grounds for rejecting the bore. The Contractor may, at the discretion of the Engineer, be required to abandon the bore and re-drill a new one at Contractor's own expense.

H. The Contractor shall provide all structures, safety equipment, and professional services required for the health and safety of the general public and of personnel involved in directional boring work in accordance with the requirements of the Federal, State, and Local Authorities. This includes proof of construction personnel certificates of trench safety training at the time of construction.

I. The Contractor shall take all measures necessary to protect surrounding public and private property, adjacent buildings, roads, drives, sidewalks, drains, sewers, utilities, trees, structures, and appurtenances from damage due to directional bore work.

J. The Contractor shall exercise due care at all times and shall not apply more than the safe pull force to the carrier pipe recommended by the Engineer.

K. The Contractor will be responsible to provide a tracer wire that tests positive for continuity the entire length of the bore prior to acceptance by the Engineer.

L. The Contractor shall be fully responsible for all steerable, fluid lined directional boring operation. Any noticeable surface defects resulting from operation of this boring equipment shall be repaired by the Contractor at his expense. The Contractor is recommended to take preconstruction videos of the construction site to avoid unwarranted claims for damages resulting from the construction.

3.03 DRILLING REQUIREMENTS

A. The horizontal alignment shall be as shown on the drawings, plus or minus 1 foot. The vertical alignment shall be as shown on the drawings, plus or minus 1 foot. If the Contractor cannot meet these tolerances for whatever

reason, he shall confer with the Engineer prior to the start of the bore and the Engineer shall approve any changes.

B. The pipe shall have a minimum cover of 36 inches.

C. Compound curvatures should be minimized as the safe pulling strength of the pipe may be significantly reduced by the additional tensile stresses due to curvatures. This is limited by the maximum deflection as set forth by the pipe manufacturer or AWWA Standards, whichever is more stringent.

D. The entry angle should be 12° to 14° ideally (not to exceed 15°). Exit angle should be 6° to 12° (maximum) to facilitate the pullback operation.

E. Erosion and sedimentation control measures and on-site containers shall be installed to prevent drilling mud from spilling out of entry and/or exit pits.

F. Drilling mud shall be disposed of off-site in accordance with applicable local, State and Federal requirements and/or permit conditions. It is the Contractor's responsibility to test the drilling mud material to determine if it is hazardous. If determined to be hazardous, drilling muds are to be pumped into a container. The mud shall then be transported by a licensed hazardous waste hauler to a waste disposal firm. The Contractor, as part of this Contract, is responsible for the cost of all mud disposal including, hauling, testing, and final disposal.

G. Pilot holes shall be drilled on bore path with no deviation greater than plus or minus 1 foot horizontally or vertically from the design over a length of 100 feet. In the event that the allowable deviation is exceeded, the Contractor shall notify the Engineer, and the Owner may require the Contractor to pull back and re-drill from a location along the bore path before the deviation. Contractor shall use appropriate reamer type (winged, fluted, barrel, etc) for expected soil conditions.

H. Upon successful completion of the pilot hole, the borehole shall be reamed to a minimum of 25 percent greater than the outside diameter of the pipe being installed. For bores with more than two radii of curvature (entrance and exit), the borehole should be reamed up to 50 percent larger than the outside diameter of the carrier pipe. Prereaming may be necessary dependent on size of material to be pulled.

All pipe to be pulled (6" and larger) shall be prereamed prior to pullback.

Additional passes for prereaming may be required for larger pipe. Incremental increases of 4" to 6"shall be used as needed until appropriate bore hole size has been achieved.

Prereaming does not constitute pull back of product with final size reamer head attached. Prereaming must be accomplished with no product attached to the reamer head on all bore pipe 6" and larger. The bore product maybe pulled back on final pass of prereaming, granted the reamer head is no larger than 6" from the previous pass.

All bore pipe to be pulled back on final pass shall have a "breakaway" device installed. The breakaway limit shall be as recommended by the pipe manufacturer.

I. The Contractor shall not attempt to ream at a rate greater than the drilling equipment and mud system are designed to safely handle.

J. In the event of a drilling hole blowout, the Contractor shall be responsible for restoring to original condition any damaged property and cleaning up the environment in the vicinity of the blowout.

3.04 PIPE INSTALLATION

A. After reaming the borehole to the required diameter, the pipe shall be pulled through the hole. In front of the pipe shall be a swivel and barrel reamer to compact the borehole walls.

B. Once pullback operations have commenced, the operation shall continue without interruption until the pipe is completely pulled into the borehole. The frictional resistance is the highest just prior to movement and decreases with movement. When pullback ceases, frictional forces and drag forces increase due to the thixotropic nature of drilling mud. The mud starts to gel when it is undisturbed. Therefore, PULLBACK SHALL NEVER BE STOPPED, EXCEPT FOR DRILLING ROD REMOVAL AND PIPE FUSION, UNTIL THE PIPE IS COMPLETELY PULLED INTO ITS PERMANENT POSITION.

C. Adequate lengths of pipe shall be provided at both the launching and receiving ends to facilitate service connection assemblies.

D. After pullback, pipe may take several hours to recover from the axial strain, if using HDPE. When pulled from the reamed borehole, the pull-nose should be pulled out 3-4 percent longer than the total length of the pull to avoid having the pull-nose sucked back below the borehole exit level due to stretch recovery and thermal contraction to an equilibrium temperature.

E. The pipe entry and exit area shall be graded as needed (by Contractor) to provide support for the pipe and to allow free movement into the borehole.

The pipe shall be guided into the borehole to avoid deformation of, or damage to, the pipe.

F. The pipe shall be installed in a manner that does not cause upheaval, settlement, cracking, and movement or distortion of surface features. Any damages caused by the Contractor's operations shall be corrected by the Contractor.

G. In the event that unexpected subsurface conditions impeding drilling operations are encountered, the procedure shall be stopped and not continued until the Owner has been consulted. The pipe shall be pulled back through the borehole using the wet insertion construction technique.

H. If the final grade of the finished bore is not satisfactory to the Owner or any other jurisdictional entity, the pipe shall be abandoned, full pressure grouted in place in accordance with the jurisdictional entity, and an alternate installation shall be made. The abandoned pipe shall be properly shown on "as-built" drawings to be submitted following conclusion of the construction work.

I. The Engineer shall observe the installed pipe for roundness and/or damage. Evidence of over-pulling or significant surface scratching shall be brought to the attention of the Owner. Deformations of more than 10 percent may be grounds to abandon the bore and have the Contractor re-drill another line.

3.05 BUTT FUSION PROCEDURE

A. Fusion welds shall be performed by an experienced technician that has been properly trained to meet the pipe manufacturer's procedures. All welds shall meet the pipe manufacturer's recommendations.

B. As the pipe ends are melted against the heater during the heating period, the molten plastic will swell and form melt beads around the pipe ends. The melt beads should be the same size on both pipe ends, and uniformly sized all the way around.

C. After melting has been completed, the ends should be separated just enough to remove the heater, observed for uniformity of the beads and quickly (within three seconds) brought together with the recommended pressure.
   1. If melted plastic sticks to heater, the two ends should not be joined. The ends should be allowed to cool and the procedure started over.
   2. Excess pressures should not be used as this will squeeze too much melt out of the fusion area and result in a weakened joint.

D. The Contractor may do a preliminary pressure test on the completed string of pipe prior to installation. A pressure test shall be required on the completed directional bore prior to final acceptance.

3.06 CONDITIONS FOR REJECTION OF DIRECTIONAL BORE

A. If the Engineer is not present during the entire bore.

B. If the installed "Breakaway" devices should fail during pull back.

C. If the drilling fluid is "lost" during the pull back of the product and can not be regained within the required timeframe of the manufacturer or if more than a reasonable amount of fluid is used to fill an unknown void and flow can not be regained. No pipe shall be pulled without visible flow of drilling fluid.

D. If the pipe shall fail a hydraulic pressure test as specified by the manufacturer.

E. If at any time when the product is pulled back and any exposed areas have a greater than allowable "gouging" or visible marring of the pipe.

F. If the vertical and horizontal limits are not within tolerances.

G. Any other defect in material or workmanship which would affect the quality, performance, or installation life of the installed pipeline.

3.07 POST-CONSTRUCTION

A. General

1. The as-built variance from the specified bore path shall not exceed plus or minus 1 foot in the vertical plane and plus or minus 1 foot in the horizontal plane.
2. The Contractor shall be considered as having completed the requirements of the directional bore when he has successfully completed the work, including pressure testing, to the satisfaction of the Engineer and the Owner.
3. The completed force main shall be pressure tested at 150 psig for two hours for final acceptance and meet the test requirements of Section 33 34 00.

B. As-Builts

When the directional bore is completed, the Contractor shall provide data log sheets and marked up as built drawings to the Engineer, as required.

Directional Bore Log

Project Name: _____

Project Number: _____ **Date:** _____

Contractor/Site Representative: _____

Bore Location/Number: _____ **Size/Material:** _____

Starting Location: _____ **Bore Rod Length:** _____

	Total Length Bored	Distance from Start Point	Depth	Pull Back Pressure	Drilling fluid Pressure	Comments
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						

***Lengths to be measured in rod length increments**

Owner's Representative: _____ **Contractor:** _____

END OF SECTION

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SECTION 33 05 23.16
UTILITY PIPE JACKING

PART 1 -- GENERAL

1.01 WORK INCLUDED

A. The Contractor shall furnish and install bored or jacked steel casing, complete and in place, all in accordance with the requirements of the Contract Documents. Carrier pipe installation within the steel casing shall be in accordance with the requirements contained within this Section.

B. In the performance of the work, the Contractor shall comply with the lawful requirements of the affected railway companies, public agencies, and owners of public utilities or other facilities respecting the safeguarding of traffic and improvements which might be endangered by the boring and jacking operations. The approach trenches in public streets will not be permitted to remain open for extended periods of time.

C. If the Contractor is not ready to place the pipe in the casing at the time of completion of boring and jacking operations, the ends shall be bulkheaded, and the approach trenches in public streets shall be backfilled, temporary surfacing placed thereon, and the affected portion of the street reopened to traffic.

D. Contractor shall be responsible for complying with the Florida Utility Accommodation Manual and coordinating with FDOT permitting staff, as required.

E. Contractor shall be responsible for complying with the CSX Design and Construction Standard Specifications- Pipeline Occupancies and coordinating with CSX, as required.

D. The Contractor shall be responsible for maintaining the specified line and grade, and for preventing settlement of overlying structures, or other damage due to the boring and jacking operations.

1.02 RELATED SECTIONS

A. Section 31 23 23 – Trenching and Backfill.

B. Section 33 31 00 - Sanitary Utility Sewerage Piping

1.03 REFERENCES

A. ASTM A 283 - Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes, and Bars.

B. ANSI/AWS D1.1 - Structural Welding Code.

C. ANSI/AWWA C200 - Steel Water Pipe 6 Inches and Larger.

1.04 SUBMITTALS

A. Shop Drawings: The Contractor shall submit shop drawings of pipe casing in accordance with the requirements of Section 01 30 00:
   1. The Contractor, prior to beginning any trench or structure excavation five feet (5') deep or over, shall submit to the Engineer the Contractor's detailed plan showing design of all shoring, bracing, sloping of the sides of excavation, or other provisions for worker protection against the hazard of caving ground during the excavation of such trenches or structure excavation.
   2. Casing installation schedules which include schedules of excavation, pipeline installation, and backfill operations.
   3. Material list including diameter, thickness, and class of steel casing.
   4. Detailed locations and sizes of all boring or jacking and receiving pits and the jacking head proposed to be used
   5. The method of transporting the pipe in the casing and the method of "tugging" the pipe into the joints.
   6. Details of concrete support blocks and bracing, or casing spacers, to prevent the carrier pipe from shifting or floating.
   7. Details of the casing end seals.
   8. All permits associated with the boring or jacking operations.

B. Certifications: The Contractor shall furnish a certified affidavit of compliance for all pipe and other products or materials furnished under this Section of the Specifications and the following supplemental requirements:
   1. Physical and chemical properties of all steel.

C. All expenses incurred in making samples for certification of tests shall be borne by the Contractor.

1.05 QUALITY ASSURANCE

A. All boring or jacking operations shall be done by a qualified Contractor with at least 5 years experience involving work of a similar nature.

B. The Contractor shall give the Engineer, Owner, and permitting authority, a minimum of 3 days advance notice of the start of an excavation or boring operations.

C. All work shall be performed in the presence of the Engineer, permitting authority, and the Owner.

D. Welding Requirements: All welding procedures used to fabricate steel casings shall be prequalified under the provisions of ANSI/AWS D1.1. Welding procedures shall be required for, but not necessarily limited to, longitudinal and girth or special welds for pipe cylinders, casing joint welds, reinforcing plates and grout coupling connections.

E. All welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the type of 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 casing or 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.

PART 2 -- PRODUCTS

2.01 GENERAL

A. Steel casings shall be welded steel pipe of the diameters and plate thicknesses shown. The steel pipe casings shall conform to ANSI/AWWA C200, subject to the following supplemental requirements. The casing shall be of the diameter and thickness shown and shall be furnished complete with welded joint ends as shown. The Contractor shall be fully responsible for the sufficiency of the casing provided and may select a greater diameter or thickness for the method of work, loading characteristics, site conditions, or possible interferences at no additional cost to the Owner.

B. Annular spaces between the carrier pipe and the casing shall not be filled.

2.02 MATERIALS

A. Steel Casing: The steel casing pipe shall be in accordance with ASTM A283, Grade C, unless shown otherwise. The minimum diameter and wall thickness shall be as shown. Casing section joints shall be butt welded, lap welded, or welded using butt straps in the field. Each end of the casing for butt welding shall be prepared by providing .25-inch by 45-degree chamfer on the outside edges. Casing pipe shall meet the following general requirements:

Nominal Pipe Diameters	Pipe Type/Steel Grade Fabrication
8″ through 36″	"Mill-type Steel Grade B Pipe" (8″-24″) Grade X-42 (Over 24″)
Over 36″	"Fabricated-Electrically Welded Steel Pipe" Grade C

Only new pipe shall be used and all surfaces shall be smooth and uniform without bulges, dents or warping. Finished lengths of pipe shall be beveled-cut ends to facilitate proper welding of transverse joints. The diameter and wall thickness shown on the drawings is the minimum required. No extra compensation shall be claimed by the Contractor in the event the casing buckles or collapses during construction.

B. The pipe shall be coated with a coat of coal-tar primer followed by a hot coat of coal-tar enamel in accordance with applicable ASTM Specifications and AWWA Standard C 203, Section 1 and 2. The pipe shall have continuous butt weld joints which shall be performed in accordance with the procedures, materials and equipment specified by the American Welding Society and in conformance with the requirements of AWWA Standard C 206.

C. Annular Sand: When required, sand for the annular space between the carrier pipe and the steel casing shall be clean with 100 percent passing a Standard No. 30 sieve.

PART 3 -- EXECUTION

3.01 INSTALLATION OF STEEL CASING

A. Jacking Head: A steel jacking head shall be fitted to the lead section of the casing in such a manner that it extends around the entire outer surface of the steel casing and projects at least 18 inches beyond the driving end of the casing. The jacking head shall not protrude more than 0.5 inches outside of the outer casing surface. The head shall be securely anchored to prevent any wobble or alignment variation during the boring or jacking operations. To minimize voids outside the casing, excavation shall be carried out entirely within the jacking head and not in advance of the head. Excavated materials shall be removed from the casing as the boring or jacking operation progresses and no accumulation of excavated materials within the casing shall be permitted.

B. Jacking Pit:

1. The excavations for the boring or jacking operations shall be adequately shored to safeguard existing substructures and surface improvements and to ensure against ground movement in the vicinity of the jack supports. Heavy guide timber, structural steel, or concrete cradles of sufficient length shall be provided to assure accurate control of boring or jacking alignment. The Contractor shall provide adequate space within the excavation to permit the insertion of the lengths of casing to be bored or jacked. Timbers and structural steel sections shall be anchored to ensure action of the jacks in line with the axis of the casing. A bearing block, consisting of a timber or structural steel framework, shall be constructed between the jacks and the end of the casing to provide uniform end bearing over the perimeter of the casing and distribute the jacking pressure evenly.

2. All excavations deeper than four (4) feet shall be in compliance with safety regulations issued by the Department of Labor, Occupational Safety and Health Administration (OSHA) and with the Florida Trench Safety Act. Where sheeting is installed, it shall be left in place and cut off two (2) feet below finished grade. All excess or unsuitable excavated material shall be disposed of at a suitable spoil area unless directed otherwise by the Owner or Florida Department of Transportation (DOT). The Contractor shall provide adequate barricades, protective railings, temporary fencing, and traffic warning devices to secure the open pits at all times during construction.

C. Control of Alignment and Grade: The Contractor shall control the application of the jacking pressure and excavation of materials ahead of the casing as it advances to prevent the casing from becoming earthbound or deviating from the required line and grade. The Contractor shall restrict the excavation of the materials to the least clearance necessary to prevent binding in order to avoid loss of ground and consequent settlement or possible damage to overlying structures. Allowable grade deviations in horizontal and vertical alignments shall be no greater than 0.2 feet per 100 feet in any direction over the length of the jacking or boring to a maximum deviation of 0.5 feet. ANY DEVIATION GREATER THAN THESE AMOUNTS SHALL BE CAUSE FOR REJECTION OF THE CASING, AND NO PAYMENT WILL BE MADE FOR SUCH CASING.

D. Installation: The installation of the casing shall be in accordance with the Contract Documents and subject to the approval of the agency having jurisdiction over the area containing the boring or jacking operations.

3.02 INSTALLATION OF CARRIER PIPE

A. The carrier pipe shall be braced or filled as shown on the drawings to prevent shifting or flotation during backfilling operations. The carrier pipe shall be as shown on the drawings.

B. Joints: All joints of the carrier pipe within the casing shall be joined in accordance with the specification. Joints shall be restained.

C. Testing of the Carrier Pipe: Hydrostatic testing of the carrier pipe shall be completed prior to the filling of the annular space between the casing and carrier pipe with sand. Hydrostatic testing shall be performed in accordance with the specification.

D. Sand Backfill for Annular Space in Jacked Casing: If required, the Contractor shall furnish the necessary sand, equipment, hoses, valves, and fittings for the operation. Sand shall be conveyed by air through a hose and deposited by air pressure in its final position. The sand shall be free of lumps to flow unimpeded and to completely fill all voids. In general, sand backfill will be considered completed when no more sand can be forced into the annular space. The Contractor shall protect and preserve the interior surfaces of the steel casing from damage.

E. Closing of Pits: After jacking equipment and excavated materials from the boring or jacking operations have been removed from the jacking pit, the Contractor shall prepare the bottom of the jacking pit as a pipe foundation. The Contractor shall remove all loose and disturbed materials below pipe grade to undisturbed earth and re-compact the material in accordance with the specification Section 33 23 16 – Excavation.

END OF SECTION

SECTION 33 11 00
WATER UTILITY DISTRIBUTION PIPING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Pipe

B. Fittings

C. Thrust Restraints

D. Valves

E. Valve Boxes

F. Fire Hydrants

G. Flow Control Valves

H. Flow Meters

I. Installation

J. Testing

1.02 RELATED WORK

A. Section 31 23 33 – Trenching and Backfilling

B. Section 33 13 00 – Disinfecting of Water Utility Distribution

1.03 REFERENCE STANDARDS

A. Materials manufactured in United States of America.

B. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb. (4.54 kg) Rammer and an 18-in. (457 mm) Drop.

C. ANSI/ASTM D2466 - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.

D. ANSI/AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.

E. ANSI/AWWA C105 - Polyethylene Encasement for Ductile-Iron Piping for Water and Other Liquids.

F. ANSI/AWWA C111 - Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.

G. ANSI/AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids.

H. ANSI/AWWA C502 - Dry Barrel Fire Hydrants.

I. ANSI/AWWA C504 - Rubber Seated Butterfly Valves.

J. ANSI/AWWA C509 - Resilient Seated Gate Valves three (3) inches through twelve (12) inches NPS, for Water and Sewage Systems.

K. ANSI/AWWA C550 - Protective Epoxy Interior Coating for Valves and Hydrants.

L. ANSI/AWWA C600 - Installation of Ductile-Iron Water mains and Appurtenances.

M. ANSI/AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.

N. ANSI/AWWA C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe, four (4) inches through twelve (12) inches, for Water.

O. ANSI/AWWA C909 – Standard for Molecularly Oriented Polyvinyl Chloride.

P. ANSI/AWWA C906 – Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4 in. Through 63 in. For Water Distribution and Transmission.

Q. AWWA M23 - PVC Pipe - Design and Installation.

R. ASTM D1784-02 – Standard Specifications for Rigid PVC and CPVC Compounds.

S. ASTM D1785 - Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

T. ASTM D2241 - Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR).

U. ASTM D2855 - Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.

V. AWWA C651 - Standard for Disinfecting Water Mains.

W. AWWA C901 - Polyethylene (PE) Pressure Pipe, Tubing, and fittings, one-half (1/2) inch through three (3) inches, for Water.

X. Uni-B-3 - Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe.

Y. Conform to reference standard by date of issue current on date of Contract Documents.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, hydrants, and accessories.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Section 01 70 00.

B. Accurately record actual locations of piping mains, valves, connections, and invert elevations. Tie all bends, fittings, valves, connections, and appurtenances to a minimum of two (2) permanent structures (e.g. curbs, inlets, buildings, etc.).

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.06 QUALITY ASSURANCE

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. All materials in contact with water shall comply with NSF Standard 61 and certified accordingly.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01 60 00.

B. Deliver and store valves in shipping containers with labeling in place.

PART 2 - PRODUCTS

2.01 PIPE

A. Ductile-Iron
   1. ANSI A21.50 (AWWA C150).
   2. All underground pipe to be pressure class 150 with push-on or mechanical joints, unless otherwise indicated. All aboveground pipe to be flanged joints.
   3. Restrained joint pipe within casings shall be boltless restrained joint type, equal to American Ductile Iron Pipe Company Flex-Ring or American Flex-Grip. Restrained joint pipe outside casings shall be mechanical joint with retainer glands.
   4. Bolts for all flanged and mechanical joints shall be high strength, low alloy steel bolts only, meeting the current provisions of AWWA C111. Provide certification of compliance prior to shipment.
   5. Pipe manufacturing in accordance with ANSI A21.51 (AWWA C151).
   6. Cement lined/bituminous coated in accordance with ANSI A21.4 (AWWA C104).

B. Polyvinyl Chloride (PVC) and Fusible Polyvinyl Chloride (FPVC)
   1. Four (4) through 12 inches in diameter - AWWA C900, DR 18, pressure class 235.
   2. 14 through 24 inches in diameter –AWWA C905, DR 18, pressure class 235.
   3. Each length should be clearly labeled so as to allow identification and specification conformance. Pipe shall bear the National Sanitation Foundation Seal for potable water pipe.
   4. All PVC pipe shall be blue in color or bear an acceptable indelible blue marking in three (3) locations for the length of the pipe.
   5. Connection for PVC water pipe two (2) inches and larger shall be rubber compression ring type. Bell shall consist of an integral wall section with a solid cross-section elastomeric ring which meets the requirements of ASTM D-1869.
   6. Three (3) inches diameter and smaller - ASTM-2241 with an SDR of 21, pressure class 200.
   7. Trace wire shall be 14-gauge UF wire with joint seal.

2.02 FITTINGS

A. All fittings shall be rated for not less than 150 psi working pressure.

B. Grade for ductile-iron fittings shall conform with ANSI/AWWA Standard C110 or ANSI/AWWA C111/A21.11, and shall be cement lined inside and bituminous coated outside. Mechanical joint ductile-iron fittings complying with AWWA C153 are acceptable.

C. Bolts for all flanged and mechanical joints shall be high strength, low alloy steel bolts only, meeting the current provisions of AWWA C111. Bolt manufacturer's certification of compliance must accompany each shipment, with copy to Engineer.

D. Malleable iron fittings shall be galvanized conforming to the applicable provision of Federal Specification WW-P-521D, Type II, and may be used in sizes two (2) inches and under only.

E. Polyvinyl chloride (PVC) fittings shall be minimum Schedule 40 and may be used in size two (2) inches and under only.

2.03 THRUST RESTRAINTS

A. All mechanical joint fittings shall be restrained with retainer glands. Where indicated, pipe joints shall be restrained.

B. Retainer Glands for Fittings on PVC Pipe: Where PVC pipe is being connected to mechanical joint fittings, retainer glands shall be Ebaa Megalug Series 2000PV. Retainer glands shall be designed to meet Uni-Bell Standard "Uni-B-13". The restraint mechanism shall consist of a plurality of individually activated gripping surfaces to maximize restraint capability. Glands shall be manufactured of ductile iron conforming to ASTM A536. The gland shall be such that it can replace the standardized mechanical joint gland and can be used with the standardized mechanical joint bell conforming to AWWA C-111 and C-153. Twist-off nuts, sized same as tee-head bolts, shall be used to insure proper actuation of restraining devices. The retaining gland shall have a pressure rating equal to that of the PVC pipe on which it is used.

C. Retainer Glands for Fittings on Ductile Iron Pipe: Where ductile iron pipe is being connected to mechanical joint fittings, retainer glands shall be Ebaa Megalug Series 1100. Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts a multiple wedging action against the pipe, increasing its resistance as pressure increases. Glands shall be manufactured of ductile iron conforming to ASTM A536. Restraining devices shall be of ductile iron heat

treated to a minimum Brinnell hardness of 370. The gland shall be such that it can replace the standardized mechanical joint gland and can be used with the standardized mechanical joint bell conforming to AWWA C-111 and C-153. Twist-off nuts, sized same as tee-head bolts, shall be used to insure proper actuation of restraining devices. The retaining gland shall have a pressure rating of at least 250 psi with a minimum safety factor of 2.

D. Retainers for PVC Pipe: Where PVC pipe is indicated as being restrained, retainers for new pipe shall be Ebaa Series 1500 for C900 and Series 2800 for C905. Retainers for existing C905 pipe shall be Ebaa Series 1100HV. Retainers shall be manufactured of 60-42-10 ductile iron. The retainer shall have sufficient number of ductile tie bolts to restrain working and test pressures as stated by the manufacturer. Each ductile clamp shall have serrations on the I.D. sufficient to hold working and test pressures.

E. Retainers for Mechanical Joint Ductile Iron Pipe: Where mechanical joint ductile iron pipe is indicated as being restrained, retainer glands shall be as specified for mechanical joint fittings above.

2.04 VALVES

A. Gate Valves four (4) inches and over shall be of the resilient wedge type and shall be in accordance with ANSI/AWWA C509 (latest edition) with O-ring type stem seal and two (2) inch square operating nut for buried services. Valves shall be mechanical joint unless otherwise noted and open left (counter clockwise). Bolts, studs and nuts shall be made from corrosion - resistant materials.

B. Gate Valves two (2) inches and under shall conform with Federal Specifications WW-V-54, Type II, solid wedge disc, rising stem, secured joints and of bronze construction. Valves shall have malleable iron hand wheels.

C. All valves shall be American made, minimum 150 psi cold water rates and shall be cast with manufacturer's name and pressure rating. All valves shall receive interior coating conforming to AWWA C550.

2.05 VALVE BOXES

A. Boxes shall be cast iron of standard design with adjustable drop section to fit disc or cover over valve. Interior diameter shall be not less than five (5) inches, with cast iron cover marked "WATER".

2.06 FIRE HYDRANTS

A. ANSI/AWWA C502 and the following requirements:
   1. Dry barrel compression type.

2. 0-ring seal at operating nut stem and means for lubrication.
3. Traffic model with frangible sections at ground line.
4. Open left (counter clockwise).
5. Two 2-1/2 inch hose nozzles and one 4-1/2 inch pump nozzle with National Standard threads.
6. Main valve openings shall be not less than 5-1/4 inches.
7. Paint shall match applicable City standard.
8. Pipe inlet shall be six (6) inch mechanical joint.
9. Operating nut shall be pentagonal measuring 1-1/2 inch point to flat.
10. All bolts, studs and nuts shall be made from a corrosion-resistant material.
11. Drain outlet shall not be omitted.
12. All hydrant leads shall be valved.
13. All hydrants shall be installed plumb and in true alignment with the connection pipe to the water main.

B. Acceptable are Mueller Centurion or Waterous "Pacer".

2.07 BEDDING MATERIALS

A. Bedding: Silica Sand or local materials meeting requirements of Section 902, Standard Specifications for Road and Bridge Construction, latest edition. All bedding material imported to site shall be tested for corrosivity prior to usage and shall be rated as "mildly aggressive".

2.08 ACCESSORIES

A. Concrete for Thrust Blocks: 2500 psi minimum compressive strength.

B. Backflow Preventer: Provided by City as required.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing conditions.

B. Verify that municipal utility water main size, location and invert are as indicated.

3.02 PREPARATION

A. Ream pipe and tube ends and remove burrs, as required.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare pipe connections to equipment with flanges or unions.

3.03 BEDDING

A. Excavate and backfill pipe trench in accordance with Section 31 23 33 for Work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.

B. Maintain optimum moisture content of bedding material to attain required compaction density.

3.04 INSTALLATION - PIPE

A. Maintain 10 ft. minimum horizontal or 18-in. minimum vertical separation of water main from sewer piping in accordance with State requirements.

B. Install pipe to indicated elevation to within tolerance of 5/8 inches.

C. Install ductile iron piping and fittings to ANSI/AWWA C600. Install PVC piping to AWWA C605. Install PE piping to AWWA C906.

D. Route pipe in straight line, except as noted.

E. Install pipe to allow for expansion and contraction without stressing pipe or joints.

F. Install access fittings to permit disinfection of water system.

G. Establish elevations of buried piping to ensure not less than 36 inches of cover, unless otherwise shown on the drawings.

H. Backfill trench in accordance with Section 31 23 33 – Trenching and Backfilling.

I. Installation and restoration operation under roads, shoulders or other level areas shall be performed in compliance with any City, County or State requirement which may apply.

J. Every effort shall be made to cover pipe ends during installation and a watertight plug or other approved seal must be used when installation is not in progress.

K. All stubbed valves shall be installed with retaining glands, tied off or with a minimum of sixty (60) feet of pipe.

L. Allowable deflection shall be no greater than stated in the applicable AWWA standard.

M. No pipe shall be laid when, in the opinion of the inspector, trench conditions are unsuitable. Pipe shall be laid in a dry trench unless otherwise authorized by the inspectors of the City which will own the water line.

N. Length of open trench on existing roads may be limited by the inspector of either City or of the DOT to minimize public inconvenience or danger to life or property.

3.05 PIPE IDENTIFICATION

A. A plastic dig-warning tape shall be buried 24 inches above the top, but no shallower than 12 inches from the top of the final grade, for the pipe's full length. The tape shall be at least 3 inches wide. The tape shall have colored lettering or background color and worded to indicate the presence and the contents of the pipeline. Color shall be blue for water.

B. Install solid strand tracer wire and joint seal (Kearney Aquaseal, Bishop, or approved equal) along all non-metallic pipe and services. Tracer wire shall be blue (water) coated (#) 14 gauge UF (Underground Feeder per National Electric Code Article 339) and must be taped below the spring line of the pipe and stubbed up at valves and hydrants. At each valve, the wire shall be installed along the outside of the valve box to the adjustable top piece. Sections of wire shall be spliced together using Buchanon connectors. Twisting the wire together is not acceptable. The tracer wire must provide full signal conductivity (including splices) for line locating equipment. Tape wire at 5-ft intervals during installation to prevent shifting during backfilling.

C. Each segment of tracer wire shall be demonstrated to be electrically continuous between turn-ups after backfilling and before the pipe is accepted as complete.

3.06 INSTALLATION - VALVES AND HYDRANTS

A. Set valves on solid bearing.

B. Center and plumb valve box over valve. Set box cover flush with finished grade. Pour concrete pad around valve box in accordance with standard details.

C. Set hydrants plumb and locate pumper nozzle perpendicular to roadway.

D. Set hydrants to grade, with nozzles at least 20 inches above ground.

E. Locate control valve adjacent to hydrant. Control valve shall be attached directly to the water main by a gland or swivel tee as approved by the Engineer. Restraining rods shall be at least 3/4" stock and shall be galvanized or stainless steel.

F. Paint hydrants in accordance with applicable City requirements.

G. After installation, each hydrant shall be flow tested and results reported to Owner.

3.07 SERVICE LINES

A. Water installation shall include service stubs at alternate lot lines or other locations as shown on the plan and at sizes indicated.

B. In all cases, a gate valve shall immediately adjoin the main connection and a second gate valve, equivalent in size to the service crossing, shall be provided at termination adjacent to the property line or other specified point. This valve should be approximately 12-in. deep, buried and staked. No valve box required in either case unless the valve is located in a paved area.

3.08 CONNECTIONS TO EXISTING LINES

A. Connections to existing lines owned by the City shall be made by the Contractor under supervision of the Water Department.

B. Whenever it is proposed to interrupt existing water supplies to residences or businesses, the Contractor shall notify all concerned parties or agencies at least 24 hours prior to such cut-off.

3.09 TESTING

A. A 48-hour notice shall be provided to Engineer and the City prior to testing. After installation is completed, the system shall be filled with water and flushed at the highest obtainable velocity and at the furthest points. Velocity must be at least 2.5 feet per second. All air must be expelled. A pressure at least equal to 90 psi should be maintained for a period of one (1) hours. Should the system appear tight, the leakage test may begin.

B. The Contractor will pump his lines to a pressure equal to or greater than 150 psi. Should pressure fall below 150 psi during the test period, it shall be voided and restarted. Test period shall be two hours. Allowable leakage for ductile iron pipe shall be computed on the basis of Table 6, Section 4, AWWA C600, latest

revision, or the applicable formula for installed pipe lengths other than eighteen (18) feet. Allowable leakage for PVC pipe shall be computed on the basis of Table 22, AWWA M23.

C. The following table approximates the above for a 1,000 foot segment of PVC at 150 psi and may be used in lieu thereof:

ALLOWABLE LEAKAGE PER 1,000 FEET OF PIPELINE

Pipe Size (inches)	Allowable Leakage (Gallon/hr.)
2"	0.16
4"	0.33
6"	0.50
8"	0.66
10"	0.83
12"	0.99
14"	1.16
16"	1.32
18"	1.49

D. All reports to be reported on Hillsborough County Health Department standard form. Copies may be obtained from Engineer.

3.10 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 40 00.

B. Compaction testing will be performed in accordance with AASHTO T180.

C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

D. Frequency of Tests: per Section 31 23 33 – Trenching and Backfilling.

END OF SECTION

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SECTION 33 13 00
DISINFECTING OF WATER UTILITY DISTRIBUTION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Disinfection of potable water transmission and distribution lines.

B. Disinfection of tanks, wells, pumps, and other facilities that will come in contact with potable water.

C. Testing and reporting results.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals

B. Section 01 40 00 - Quality Requirements

1.03 REFERENCES

A. AWWA B300 - Standard for Hypochlorites; American Water Works Association.

B. AWWA B301 - Standard for Liquid Chlorine; American Water Works Association.

C. AWWA C651 - Disinfecting Water Mains; American Water Works Association.

D. AWWA C652 - Disinfection of Water Storage Facilities

E. AWWA C654 - Disinfection of Wells

F. Florida Administrative Code, Chapter 62-555.345.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Test Reports: Indicate results comparative to specified requirements.

C. Disinfection report:

1. Type and form of disinfectant used.
2. Date and time of disinfectant injection start and time of completion.
3. Test locations.
4. Initial and 24 hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.
5. Date and time of flushing start and completion.
6. Disinfectant residual after flushing in ppm for each outlet tested.

D. Bacteriological report:
1. Date issued, project name, and testing laboratory name, address, and telephone number.
2. Time and date of water sample collection.
3. Name of person collecting samples.
4. Test locations.
5. Initial and 24 hour disinfectant residuals in ppm for each outlet tested.
6. Coliform bacteria test results for each outlet tested.
7. Certification that water conforms, or fails to conform, to bacterial standards of Polk County Health Department.
8. Authorized signature by the laboratory performing the test.

1.05 REGULATORY REQUIREMENTS

A. All disinfection of water facilities shall be done in accordance with the rules and regulations of the Florida Department of Environmental Protection and the Polk County Health Department.

B. Provide certificate of compliance from Polk County Health Department indicating approval of water facilities. No water facilities will be permitted to be placed into service until they have been cleared by the Health Department.

C. Perform Work in accordance with AWWA C651 for piping, AWWA C652 for storage facilities or AWWA C654 for wells.

1.06 QUALIFICATIONS

A. Testing Firm: FDEP certified laboratory specializing in testing potable water systems.

PART 2 - PRODUCTS

2.01 DISINFECTION CHEMICALS

A. Chemicals: AWWA B300, Hypochlorite and AWWA B301, Liquid Chlorine.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that facilities to be disinfected have been cleaned, inspected, and pressure tested.

B. Schedule disinfecting activity to coordinate with start-up, testing, adjusting and balancing, demonstration procedures, including related systems.

3.02 EXECUTION

A. Provide and attach required equipment to perform the work of this Section.

B. Inject or otherwise apply disinfectant into facilities, following procedures that assure full contact with all surfaces.

C. Maintain disinfectant in system for 24 hours. Obtain prior approval for alternate disinfection procedures that may allow different disinfection time.

D. Flush, circulate, and clean until required cleanliness is achieved; use municipal domestic water.

E. Replace permanent system devices removed for disinfection.

3.03 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with Section 01 40 00.

B. Test samples in accordance with AWWA C651 for piping, AWWA C652 for storage facilities, or AWWA C654 for wells.

END OF SECTION

SECTION 33 30 00
SANITARY SEWERAGE UTILITIES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Sanitary Sewer Mains

B. Manholes

1.02 RELATED SECTIONS

A. Section 01 40 00 - Quality Requirements

B. Section 01 70 00 – Execution and Closeout Requirements

C. Section 31 23 33 – Trenching and Backfilling

1.03 REFERENCES

A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb. (4.54 kg) Rammer and an 18-in. (457 mm) Drop.

B. ANSI/ASTM C478 - Pre-cast Reinforced Concrete Manhole

C. ANSI/ASTM D2321 - Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.

D. ANSI/ASTM D3034 - Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

1.04 DEFINITIONS

A. Bedding: Fill placed under and beside the pipe.

B. Initial Backfill: Fill placed around and directly over pipe, prior to subsequent backfill operations.

1.05 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data: Provide data indicating pipe, pipe accessories, and manhole castings.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.06 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Section 01 70 00.

B. Record location of pipe runs, connections, manholes, cleanouts and invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

D. Accurately record vertical and horizontal clearance between sewer and all water lines within 10 feet and all other utilities encountered.

1.07 REGULATORY REQUIREMENTS

A. Conform to applicable standards of the City for materials and installation of the Work of this section.

B. Work shall conform to the Florida Trench Safety Act.

1.08 FIELD MEASUREMENTS

A. Verify that field measurements and elevations are as indicated. The Work shall be installed at indicated grades relative to the actual location of existing manhole inverts at both ends of the project.

1.09 COORDINATION

A. Coordinate the Work associated with connections to existing manholes and the final diversion of flow.

B. A plug shall be provided to seal all new construction from existing sewers. This plug shall remain in place until satisfactory completion of all inspections and tests.

PART 2 - PRODUCTS

2.01 PVC PIPING

A. Provide ring-tight gravity sewer pipe and fittings to meet or exceed the requirements of ASTM D 3034 SDR35. For pipe depths greater than 15 feet, SDR 26 pipe shall be used. Specified length per section of pipe is 14 or 20 feet. Pipe shall be green or have green identification markings at 90-degree intervals around the pipe circumference. Blue pipe shall not be used.

2.02 DUCTILE IRON PIPING

A. Provide push-on joint DIP to meet or exceed the requirements of ANSI A21.51-81 (AWWA C151), Pressure Class 150. All DIP shall be lined with epoxy or polyethylene. Epoxy lining shall be Protecto 401 ceramic epoxy, 40 mil dry film minimum thickness. Poly lining shall be manufacturer's standard, factory applied, fusion bonded polyethylene product, 60 mil nominal thickness. Linings applied by individuals other than the manufacturer shall not be acceptable. Cement mortar lined pipe shall not be acceptable.

2.03 SEWER MANHOLES

A. Sewer manholes shall be constructed at the location shown and depth indicated on the drawings, and in accordance with the standard details.

B. Concrete manholes shall be of 4,000 psi concrete with Type II Acid-Resistant Cement.

C. Manhole structure may be precast, conforming to requirements of ASTM C478 or may be cast-in-place conforming to FDOT Specifications for Roads and Bridges, Section 425.

D. Precast section jointing shall use preformed plastic sealing compound such as "Ram-Nek" manufactured by the K.T. Snyder Company, Houston, Texas 77041, or Kent Seal, manufactured by Hamilton-Kent, Kent, Ohio or City approved equal.

E. Base section of manholes shall be a minimum of 8-inches thick.

F. The manhole base shall be installed on undisturbed earth. A bedding shall be provided consisting of 6-inches of hand tamped limestone screenings or other well-graded granular material conforming to USCS Class II or III.

G. Manholes shall have invert channels accurately and smoothly formed and may be constructed of half pipe. The depth of the channel shall be 0.8 times the pipe

diameter. The shelf shall slope toward the channel at least 1-in./ft. and a 3-in. difference in elevation shall be maintained between the top of the channel sides and the point where the shelf meets the manhole wall.

H. Interior and exterior of all manholes shall receive two (2) coats of coal tar epoxy or equal to a total dry film thickness of 16 mils.

I. Where PVC-lined manholes are indicated on plans, the lining shall be formed into the concrete surface during manufacture and held in place by imbedded ribs. The lining shall cover all wall and top surfaces. The lining shall be "Dura Plate 100" as manufactured by A-Loc, Inc., or equal. The liner shall be installed per manufacturer's instructions.

J. All connections of pipes to new or existing manholes shall be made utilizing resilient pipe connector "boots". Connections shall be equal to PSX as manufactured by Preso Seal Gasket Corporation. Installation shall conform to the Manufacturer's recommendations. Interior exposed annular space around end of pipe shall be packed with non-shrink grout.

K. Manhole frames and covers shall have words and patterns cast thereon in conformance with the City's standard detail. Circular covers must fit the frames in any position. Contact surfaces of both frames and covers shall be machined and any tendency to rattle, as determined by test before or after installation, will be sufficient cause for rejection of the frames and cover. Frame and cover shall have a minimum weight of 360 lbs. Cover shall have a minimum weight of 150 lbs.

L. Frame shall be secured to the manhole structure with a thick overlapping bed of mortar. Adjustment to final grade may be made with rings of brick up to 12-in. high, coated inside and out with ½-in. of portland cement plaster.

PART 3 - EXECUTION

3.01 PREPARATION OF TRENCH

A. The trench shall be dug so that the pipe can be laid to the alignment and depth required. It shall be excavated only so far in advance of pipe laying as permitted by the Engineer. The trench shall be so braced and drained that the workmen may work therein safely and efficiently.

B. All excavations shall be dewatered as required to maintain the water level at a minimum of two (2) feet below the excavation throughout excavation, bedding, and backfilling. Discharges of dewatering pumps shall be conveyed to natural

drainage channels, drains, or sewers. Contractor shall treat discharge as required to prevent violations of state water quality standards.

C. The width of the trench shall be ample to permit the pipe to be laid and jointed properly, and the backfill to be placed and compacted as specified. Trenches shall be of such extra width, when required, as will permit the convenient placing of timber supports, sheeting and bracing, and handling of specials.

D. The trench shall be excavated to the depth required to provide a uniform and continuous bearing support on undisturbed ground. A loose clean granular material 1-in. deep shall be provided on the undisturbed trench bottom to provide a conforming and supporting bedding for the pipe. Bell holes shall be provided at each joint to permit the jointing to be made properly.

3.02 SHEETING AND BRACING

A. During construction, the side slopes of all the excavations shall be maintained at an inclination no steeper than two horizontal to one vertical. Vehicles shall be at least five feet away from the top of slope. If site conditions do not permit such side slopes, excavation shall be performed using sheeting, shoring, and bracing.

B. Open-cut trenches shall be sheeted and braced as required by all governing Federal and State Laws and municipal ordinances, and as may be necessary to protect life, property, or the work. Comply with requirements of the Florida Trench Safety Act and the referenced OSHA Regulations, 29CFR.S.1926.650 Part P. When close sheeting is required, it shall be so driven as to prevent adjacent soil from entering the trench either below or through such sheeting. Where sheeting and bracing are used, the trench width shall be increased accordingly.

C. Sheeting and bracing which have been ordered left in place must be removed for a distance of 3 feet below the established street grade or the existing surface of the street, whichever is lower. Trench bracing, except that which must be left in place, may be removed when the backfilling has reached the respective levels of such bracing. Sheeting, except that which has been left in place, may be removed after the backfilling has been completed or has been brought up to such an elevation to permit its safe removal.

3.03 HANDLING MATERIAL

A. PVC pipe and accessories shall be loaded and unloaded by lifting with hoists or skidding in a manner that will avoid shock or damage. Under no circumstances will such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

In distributing the material at the site of the Work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench.

3.04 LAYING GRAVITY SEWERS

A. Gravity sewers shall be laid to exact line and grade by the use of a laser beam. Initial backfill around the sides of the pipe shall be carefully placed and "spaded-in" by hand to assure that the pipe is uniformly embedded with no voids. Sewers will be inspected with a light at each manhole when the line is completed and initial backfill has been placed and mechanically compacted to a depth of one-foot over the pipe. Final backfill may be completed only after approval of each section is given for alignment and grade. Laser beam control is required. Faulty sections of sewer lines rejected by the Engineer shall be removed and re-laid by the Contractor at his own expense.

3.05 BACKFILLING

A. Backfill trench in accordance with Section 31 23 33 – Trenching and Backfilling.

B. Backfill shall be completed to 1-in. above final grade to provide for minor settlement and final site grading and restoration.

3.06 PIPE IDENTIFICATION

A. A plastic dig-warning tape shall be buried 24-in. above the top, but no shallower than 12-in. from the top of the final grade, for the pipe's full length. The tape shall be at least 6-in. wide. The tape shall have colored lettering or background color and worded to indicate the presence and the contents of the pipeline. Colors shall be as follows:

1.	wastewater:	green
2.	water:	blue
3.	reclaimed water:	purple

3.07 TESTS - GENERAL

A. All gravity sewers, manholes and service connections shall be tested for leakage as soon after construction as practical and shall meet the specified requirements prior to final acceptance of the work or connection to existing sewers.

B. Allowable Leakage: The total infiltration or exfiltration of any section of sewer shall not exceed 100 gallons per mile of pipe per 24 hours per inch of normal pipe diameter. Manholes shall be considered as equivalent diameter pipe for leakage determination purposes.

C. All leakage and exfiltration tests shall be performed after installation of service connections. Service connections shall be provided with water tight plugs or end caps, properly braced and capable of withstanding test pressures. Each section of line and manhole shall be tested. All leakage tests shall be performed by the Contractor in the presence of the City's Inspector. Leakage test results shall be recorded by the Contractor, signed by the City's Inspector and submitted to the Engineer.

D. All new sanitary sewer lines in the City's service area shall be subjected to a closed circuit TV inspection prior to being accepted by the City, whether private or City maintained.

3.08 REQUIREMENTS PRIOR TO INSPECTION RELEASE

A. All elements of the sewer system must be installed and be completely finished. This includes main sewer lines, laterals, and manholes.

B. All sewer lines shall be cleaned prior to the TV inspection. A hydraulic cleaner shall not be used during the TV inspection procedure. If lines are found to be unclean during the TV inspection, the inspection will be terminated.

C. If a sewer line is to be cleaned without cleaning all lines below the line in question, the Contractor shall plug all lines entering the manhole from which the line is being cleaned and shall remove all debris and water from that manhole before removing plugs.

D. When a sewer line, less than five (5) feet in depth is under a paved area, the area shall be compacted and primed before the system shall be released for TV inspection.

3.09 PROCEDURE FOR TELEVISING

A. The City's Engineering Inspection Division shall be given at least two (2) days notice prior to the time planned for the TV inspection to commence. A definite time and date will be agreed upon by the Contractor and the Inspector at that time. No inspection shall commence without the presence of the Inspector, except when prior arrangements have been made between the Contractor and the Inspector. In the event the inspection is permitted to start without the Inspector's presence, the televising must meet all requirements herein.

B. All TV inspections shall commence up stream of the system, to prevent foreign substances from entering a section previously televised. The camera shall be started from the down stream manhole and televising will be done against the normal flow of the line. This procedure will allow for the viewing of the service laterals.

C. Before the camera is placed in a sewer line, water shall be put into the upstream manhole of the section to be televised. This will enable the camera to detect any changes in grade that may be present in the system.

D. The TV camera and video tape shall be turned on before the camera is placed in the manhole for inspection and shall not be turned off until the camera is removed from the manhole. The camera shall be moved through the line under the control of the TV cameral operator. The cameral shall be drawn through the line at a rate not to exceed thirty (30) feet per minute and shall stop at all service connections in the line.

E. A video tape shall be made of the entire system being televised. This tape shall become the property of the City upon completion of the TV inspection (not a copy). The tape(s) shall be labeled in such a manner that states the project name, date of inspection, and line sections contained on each tape.

3.10 TELEVISION EQUIPMENT MINIMUM REQUIREMENTS

A. The closed circuit TV camera shall produce a clear color picture on the video monitor and on the video tapes. The camera shall be able to show detail to the point that all joints and any defects may be readily seen at the time of inspection. The camera shall be capable of viewing in a 360 degree pattern.

B. An electronic dataview shall be used during the TV inspection which projects the following information on the video screen and video tape:
    1. Date of inspection.
    2. Manhole number of sewer line being inspected.
    3. Footage of sewer line during inspection.

C. The video recorder shall produce a no noise still picture, and provide both audio and video during inspection.

D. A grade gauge, provided by the City to check the grade of the pipe during the inspection, shall be connected between the camera and the pulling apparatus.

E. Audio of the inspection shall be simultaneously recorded on the video tape. The audio shall consist of ordinary description and commentary.

3.11 REQUIREMENTS PRIOR TO SEWER SYSTEM BEING ACCEPTED

A. There shall be no deviation in sewer grade exceeding ½-in. for grades of 0.40% or less, or 1-in. for grades greater than 0.40%. If deviations greater than the above are found, the Contractor shall replace those portions of the line.

B. Any sections requiring repairs due to pipe fractures or poor grade must be re-televised within the same guidelines after repair Work is completed.

C. Any section found to have been unclean or any clogged clean-outs shall also require re-television when cleaning of said line is completed.

D. Any sections of PVC pipe with more than 5% deflection (reduction in vertical inside diameter) shall not be accepted.

END OF SECTION

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APPENDIX A

1. Force Main Construction
   General Permit for Constructing a Domestic Wastewater Collection/Transmission System from the Hillsborough Environmental Protection Commission.

2. Water Main Construction
   General Permit to Construct Public Water System (PWS) Components from the Florida Department of Health, Hillsborough County.

3. Stream Crossing and Utility Construction
   Environmental Resource Permit from the Florida Department of Environmental Protection and the Hillsborough Environmental Protection Commission.

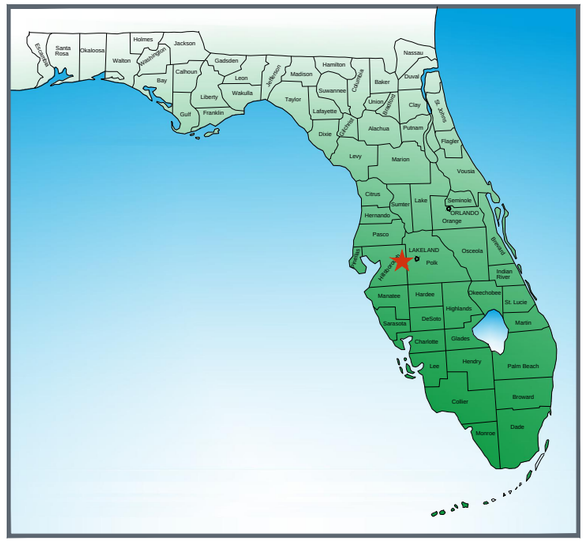
4. Right-of-Way Use
   Right-of-Way Use Permit for Utility Construction from the Florida Department of Transportation.

END OF SECTION

CONSTRUCTION PLANS FOR:

CITY OF PLANT CITY

SR 574 UTILITY RELOCATIONS



UTILITY PROVIDERS:

ELECTRIC:
TECO ELECTRIC COMPANY
HEATHER VITRANO
(813) 477-0546

PHONE:
VERIZON FLORIDA, INC.
MICHAEL LITTLE
(813) 978-2161

CABLE/FIBER:
BRIGHT HOUSE NETWORKS
SCOTT CREASY
(813) 684-6100

CABLE/FIBER:
LEVEL 3 COMMUNICATIONS
MARK MATHIS
(813) 464-2947

CABLE/FIBER:
FPL FIBERNET, LLC
SHAWN WILLIAMS
(813) 464-4570

CABLE/FIBER:
MCI
DEAN BOYERS
(972) 729-6322

WATER:
CITY OF PLANT CITY
DAVID BUYENS
(813) 757-9288

SEWER:
CITY OF PLANT CITY
DAVID BUYENS
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GAS:
KINDER MORGAN
CENTRAL FLORIDA PIPELINE
MARK CLARK
(813) 781-1718

GAS:
FLORIDA PUBLIC UTILITIES
DOUG ELLIOT
(863) 292-2920

HILLSBOUROUGH COUNTY
TRAFFIC SERVICES
ROB BOYD
(813) 627-1326

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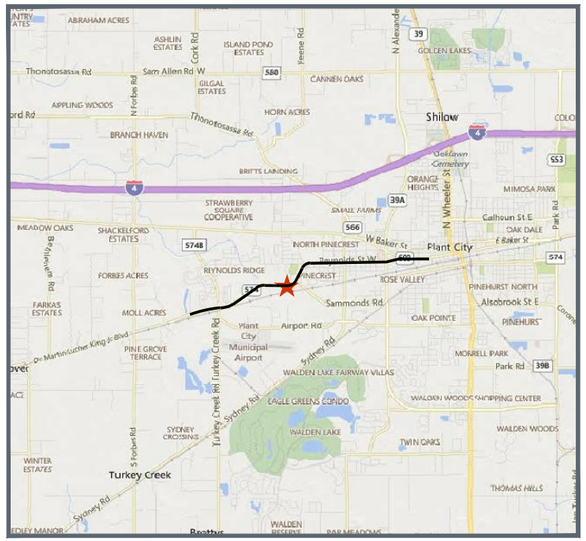
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!

INDEX

CHASTAIN SKILLMAN

CHASTAIN-SKILLMAN C.A. NO 262
4705 OLD HWY 37, P.O. BOX 5710, LAKELAND, FL 3803-5710
(863) 646-1402



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PLANT CITY, FLORIDA 33566
(813) 757-9288

ENGINEER OF RECORD:
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LAKELAND, FLORIDA 33807-5710
(863) 646-1402
CERTIFICATE OF AUTHORIZATION NO. 262

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE LISTED SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

C.S.I. JOB NO. 9680.38

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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ACRONYMS

UWHC = Utility Work by Highway Contractor

GENERAL NOTES

A.) Locations, elevations, and dimensions of existing utilities, structures, and other features shown are based on the best available information at the time of the preparation of these drawings, and may not represent actual conditions encountered in the field. The Contractor shall verify locations, elevations, and dimensions of all existing utilities, structures, and/or other features which may affect work prior to submitting a bid and prior to construction.

B.) The Contractor shall repair and replace all damaged and disturbed areas to pre-construction conditions, including all paving, stabilized earth, sod, driveways, trees, sidewalks, curbs, storm sewers, etc. Where applicable, the same type of material that was removed or damaged during construction shall be used.

C.) The Contractor shall immediately notify the Engineer if a conflict between the drawings and actual field conditions is discovered during the course of bidding or construction.

It shall be the Contractor's responsibility to visit the site prior to bidding the Work and to satisfy himself as to the actual surface and subsurface conditions existing at the site. The Cost of the following will be included in the Contract Price and the Contractor shall have full responsibility for (i) reviewing and checking all such information and data; (ii) locating all Underground Facilities shown or indicated in the Contract Documents; (iii) coordination of the Work with owners of such underground Facilities during construction; and (iv) the safety and protection of all such Underground Facilities as provided in Chapter 556 F.S. Underground Facility Damage Prevention and Safety Act and repairing any damages thereto from the Work.

No construction shall commence until all applicable permits have been obtained. All work shall be performed in accordance with the City of Plant City Technical Services Manual. Additionally, the Contractor shall be responsible for compliance with Hillsborough County Road Construction Specifications, Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction (2004 Edition), FDOT Utility Accommodation Manual, and applicable Florida Department of Environmental Protection regulations. It is the Contractor's responsibility to become familiar with the permit and inspection requirements specified by the various governmental agencies and the Engineer. The Contractor shall obtain all permits not obtained by Owner prior to construction, and schedule inspections according to agency instructions. All work performed shall comply with the regulations and ordinances of the various governmental agencies having jurisdiction over the work.

F.) All Work shall be constructed in accordance with the lines and grades shown on the plans. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

G.) The Contractor shall coordinate the tie-ins to the existing water and wastewater systems with the City of Plant City Utility Division. at least five (5) working days prior to the intended time of tie-in. The method and conditions of tie-ins shall be in accordance with current City of Plant City standards and procedures. Flow must be maintained during construction. All interruptions in service shall be limited to 4 hours. Contractor shall notify customers of any shutdowns 5 days prior.

H.) Utility Coordination

1.) Prior to proceeding with trench excavation, the Contractor shall contact all utility companies in the area to aid in locating their underground services. Contractor shall contact "Sunshine State One-Call" of Florida 1-800-432-4770 48 hours prior to the start of Work so that existing underground utilities may be located.

2.) Temporary support, adequate protection and maintenance of all existing underground and surface utility structures, including drains, sewers, manholes, hydrants, valves, valve covers, power poles and other miscellaneous utility structures encountered in the progress of the Work shall be furnished by the Contractor at his expense. Any such structures which may have been disturbed shall be restored immediately as required by the utility owner.

3.) The Contractor shall take all reasonable precautions against damage to existing utilities. However, in the event of a break in an existing water main, gas main, sewer, underground cable, or other similar facility the Contractor shall immediately notify the interrupted utility.

4.) Wherever obstructions are encountered during the progress of the Work and interfere to such an extent that an alteration in the plans is required, the City of Plant City shall have the authority to order a deviation from the line and grade or arrange with the owners of the structures for the removal, relocation or reconstruction of the obstructions.

5.) Contractor shall be responsible for coordination and all costs associated with holding power and telephone poles/wires, guy wires, buried conduits, etc. to complete the Work as shown on the plans.

I.) The Contractor shall carry on the Work in a manner which will cause a minimum of interruption to traffic. Where traffic must cross open trenches, the Contractor shall provide suitable bridges at street intersections and driveways. The Contractor shall post suitable signs indicating that a street is closed and necessary detour signs for the proper Maintenance of Traffic. Prior to closing of any streets, the Contractor shall notify and obtain the approval of appropriate roadway jurisdictional agency.

J.) During construction, the Contractor shall, at all times, keep the construction site and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the City, such material, debris, or rubbish constitutes a nuisance or is objectionable. At the conclusion of the Work, all tools, temporary structures and materials belonging to the Contractor shall be promptly taken away. The Contractor shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances and restore all disturbed areas to pre-construction conditions.

K.) Right-of-Way and Easement Restoration

1.) All restoration activities performed within the FDOT, City of Plant City and Hillsborough County rights-of-way and utility easement shall conform with FDOT Standard Specifications for Road and Bridge Construction and FDOT Roadway and Traffic Design Standards.

2.) A minimum 2-foot wide strip of sod shall be placed along the edge of existing pavement in disturbed areas. Sod shall be bahia in undeveloped areas and in-kind replacement in developed areas.

3.) All disturbed ditches and drainage swales having a front slope and/or back slope greater than or equal to 3 to 1shall be restored in ccordance with FDOT requirements.

4.) All existing driveways and unimproved roadways shall be restored in accordance with FDOT requirements. Restoration shall be to original or better conditions.

L.) Joint restraints shall be installed at all fittings per the pipe restraint table on the detail sheet.

M.) Deflect pipe horizontally and vertically as necessary to maintain alignment. allowable deflection at each joint shall not exceed 75% of maximum manufacturers allowable deflection.

N.) All water systems shall be hydrostatically tested and disinfected and approved for use as specified in the City of Plant City Technical Service Manual. Water utilized for pressure and leakage testing shall be potable water and metered by the City paid for by the the Contractor. Contractor shall install all sampling spigots, as required by regulatory agencies. After successful completion of the test, the sampling spigots shall be removed. No system shall be placed into service until after released for service by Hillsborough County Health Dept. and acceptance by City.

O.) Location of existing utilities shown are based on subsurface utility engineering test hole data provided by George F. Young, Inc.

P.) Contractor shall maintain a set of plans with current field changes marked there-on and shall deliver these plans to the engineer upon completion of construction. These Record Drawings shall be certified by the Contractor as being complete and accurate.

Q.) Contractor shall maintain a clear path for all surface water drainage structures and ditches during all phases of construction.

R.) Contractor shall not disturb areas outside construction limits or temporary construction easements.

S.) Any damage to State, County or local roads caused by the Contractor's hauling or excavation equipment shall be repaired by the Contractor to the satisfaction of the Engineer. Payment shall not be made for this work.

T.) Soils exploration report has been prepared by Madrid. Soils exploration work is solely to assist bidders in assessing the nature and extent of testing procedures required to make their own determination of actual conditions which will be encountered during the course of the work. No representation is made or will be given concerning actual conditions which will be encountered during the course of this work, and bidders are directed prior to bidding to conduct whatever investigations they deem necessary to arrive at their own conclusion regarding such conditions.

U.) if unsatisfactory material for adequate bearing is encountered at the normal subgrade, the unsatisfactory material shall be removed and replaced with suitable foundation stabilization materials as specified.

V.) Shop drawings shall be furnished to the Engineer for approval for all pipe, structures equipment and appurtenances prior to fabrication or delivery to the job site.

W.) All buried piping shall have minimum cover of 36" below existing grade/proposed grade unless otherwise noted.

POTABLE WATER MAIN SEPARATION REQUIREMENTS

A.) Horizontal Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, Reclaim Water Pipelines, and on-site Sewage Treatment and Disposal Systems.

1) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three feet between the outside of the water main and the outside of any existing or proposed storm sewer. stormwater FORCE MAIN, or pipeline conveying reclaim water regulated under Part III of Chapter 62-610, F.A.C.

2) New or relocated, underground water mains shall be laid to provide horizontal distance of at least three feet and preferably ten feet, between the outside of the water main and the outside of any existing or proposed vacuum-type sanitary sewer.

3) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least six feet, and preferably ten feet, between the outside of the water main and the outside of any existing or proposed gravity or pressure type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C. The minimum horizontal separation distance between water mains and gravity-type sanitary sewers shall be reduced to three feet where the bottom of the water main is laid at least six inches above the top of the sewer.

4) New or relocated, underground water mains shall shall be laid to provide a horizontal distance of at least ten feet between the outside of the water main and all parts of any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), FS., and rule 64E-6.002, F.A.C.

B.) Vertical Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, Reclaim Water Pipelines, and on-site Sewage Treatment and Disposal Systems.

1) New or relocated, underground water mains crossing any existing or proposed gravity or vacuum-type sanitary sewer or storm sewer shall be laid so the outside of the water main is at least six inches, and preferably 12 inches, above or at least 12 inches below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipelines.

2) New or relocated, underground water mains crossing any existing or proposed pressure-type sanitary sewer, wastewater or stormwater force main or pipeline conveying reclaim water shall be laid so the outside of the water main is at least 12 inches above or below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipelines.

3) At the utility crossings described in paragraphs (a) and (b) above, one full length of water main pipe shall be centered above or below the other pipeline so the water main joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipe shall be arranged so that all water main joints are at least three feet from all joints in vacuum -type sanitary sewers, storm sewers, stormwater force mains, or pipelines conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C. and at least six feet from all joints in gravity or pressure-type sanitary sewers, wastewater force mains or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

SEWER NOTES

A.) Video inspection of the existing sewers has been performed by the City of Plant City. Logs and tapes of this inspection are solely to assist bidders in assessing the nature and extent of required rehabilitation work. No representation is made or will be given concerning actual conditions which will be encountered during the course of this work, and bidders are directed prior to bidding to conduct whatever investigations they deem necessary to arrive at their own conclusion regarding such conditions.

B.) Service connection and lateral locations shown on drawings are approximate only. Contractor shall verify the location and elevation of existing building/septic tank connection and locate new service connections to minimize distance between building and sewer.

C.) Sewer laterals shall have a minimum 1% slope. Preferred slope for 8" pipe is .4%.

COMPLIANCE WITH SAFETY STANDARDS

A.) The "Trench Safety Act", which became Florida law on October 1, 1990, adopts the provisions of the Occupational Safety and Health Administration's excavation safety standards (29 C.F.R. Part 1926.650 Subpart P). Contractor compliance with this standard is mandatory. It is the Contractor's responsibility to be thoroughly familiar with the provisions of this standard and govern himself accordingly. It is solely the Contractor's responsibility to select the compliance method(s) and to ensure the proper employment of that method(s) during performance of the Work.

B.) For projects requiring excavations to a depth in excess of five (5) feet, the Contractor shall identify the method or methods of compliance (i.e., sloping of trench to be excavated, or, in the case of shoring, the square feet of shoring to be used).

C.) If geotechnical information is made available from the or Engineer, the Contractor shall consider this information in the Contractor's design of the trench safety system proposed for the project.

D.) The Contractor shall furnish all labor, equipment, and materials for compliance with "Trench Safety Act" and shall bear all the cost thereof.

EMERGENCY REPAIRS TO DAMAGED CITY OF PLANT CITY UTILITIES

A.) Known or Field Located Utilities

In the event that the Contractor or his Subcontractor during the execution of the Work breaks any known or field located pressure or gravity main causing the disruption of service and/or an eminent hazard, it shall be the responsibility of the Contractor/Subcontractor to immediately notify the City of Plant City at the designated emergency telephone number and immediately undertake measures to repair the damaged utility. To that effect the Contractor/Subcontractor shall ascertain prior to initiating the Work that he has on hand the necessary repairing parts, tools, equipment and labor to, without any delays, carry out the repair work. The required work shall include all secondary damage caused by the utility break. Repair work shall be witnessed by City personnel. If the Contractor/Subcontractor estimates or determines that he is not going to be able to restore service within a less than a two (2) hour period, the Contractor shall immediately contact the City to initiate the repair. The City will submit an itemized bill to the Contractor for the repair work within thirty (30) calendar days from the occurrence of the event.

B.) Unknown or Inaccurately Located Utilities

If the utility was not field located in accordance with the prescribed procedures under the Sunshine State One-Call guidelines and the Contractor/Subcontractor caused a line break during the execution of the Work, the same notification procedure as above must be followed. The City will undertake the repair work at no cost to the Contractor. The Contractor shall provide whatever assistance may be requested by the City during the repair work.

CLEARING AND EROSION CONTROL NOTES

1. Only that portion of the easement necessary for Water Main Facilities shall be cleared and grubbed according to the requirements of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition. Florida native trees of 4 inch caliper or greater trunk diameter shall be saved wherever they will not constitute a safety hazard, nor be defaced by utility construction, or damaged by related construction. The Director of Public Works shall require that the trees to be saved, due to these requirements, be prominently marked and barricaded before the beginning of construction.
2. Prior to any site clearing, all trees shown to remain on the Construction Plans shall be protected in accordance with the Local Regulatory Agency's Tree Ordinance and details contained in these plans. It shall be the Contractor's responsibility to maintain these trees in good condition. No trees shown to remain shall be removed without written approval from the Owner. Only "Grading By Hand" is permitted within the canopy line of trees that are to remain.
3. Contractor to obtain site clearing & tree removal permit prior to installation of any underground utilities and clearing the site.
4. Contractor is to provide erosion control/sedimentation barrier (straw bale, turbidity barrier or staked silt fence) to prevent siltation of adjacent property, streets, storm sewers, waterways, and existing wetlands. In addition, Contractor shall place straw, mulch, or other suitable material on ground in areas where construction related traffic is to enter and exit the site. If, in the opinion of the Engineer and/or Local Authorities, excessive quantities of earth are transported off-site either by natural drainage or by vehicular traffic, the Contractor is to recover said earth to the satisfaction of the Engineer and/or Authorities and prevent the futher transport of earth off of the project site.
5. Contractor shall clear and grub only those portions of the site necessary for construction. Disturbed areas will be seeded, mulched, or planted with other approved landscape material as soon as grading is completed and/or is practicable. Areas anticipated being left disturbed for longer than 14 days will be stabilized with temporary stabilization within 7 days of disturbance.
6. All construction debris and other waste material shall be disposed of off-site in accordance with applicable regulations.
7. All disturbed areas which are not to be sodded are to be seeded, mulched and watered to FDOT Standards and maintained until a satisfactory stand of grass cceptable to the Regulatory Agency and Engineer have been obtained. Any washouts, regrading, reseeding, and grassing work, and other erosion work required, will be performed by the Contractor until the system is accepted for maintenance by the Regulatory Agency and the Engineer.
8. Protection For Existing Storm Sewer Systems: During construction, all storm sewer inlets in the vicinity of the project shall be protected by sediment traps such as secured hay bales, sod, stone, etc., which shall be maintained and modified as required by construction progress. Upon completion of construction activities, the storm water systems including pipes shall be cleaned of all silts, debris, limerock, etc.
9. There shall be no discharge (i.e. pumping, sheet flow, swale, ditch, etc.) into an existing lake system, wetland, or river, without the use of settling ponds. If the Contractor desires to discharge into the existing lake system or river, a settling pond plan must be submitted and approved by the Engineer and Local Regulatory Agency prior to construction. Refer to the Stormwater Pollution Plan for possible turbidity control options for dewatering of the site.
10. In wetland areas, disturbed corridor width shall not exceed 30 feet. The maximum width of the excavated trench shall not exceed 8 feet; with temporary storage banks not to exceed 10 feet in width (62-341.453 F.A.C.). The total area of wetland disturbance shall not exceed 0.5 acres of forested wetland.

REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV. P3 | DATE 11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

General Notes

PROJECT NO. 9680.38

DRAWING NO. 02

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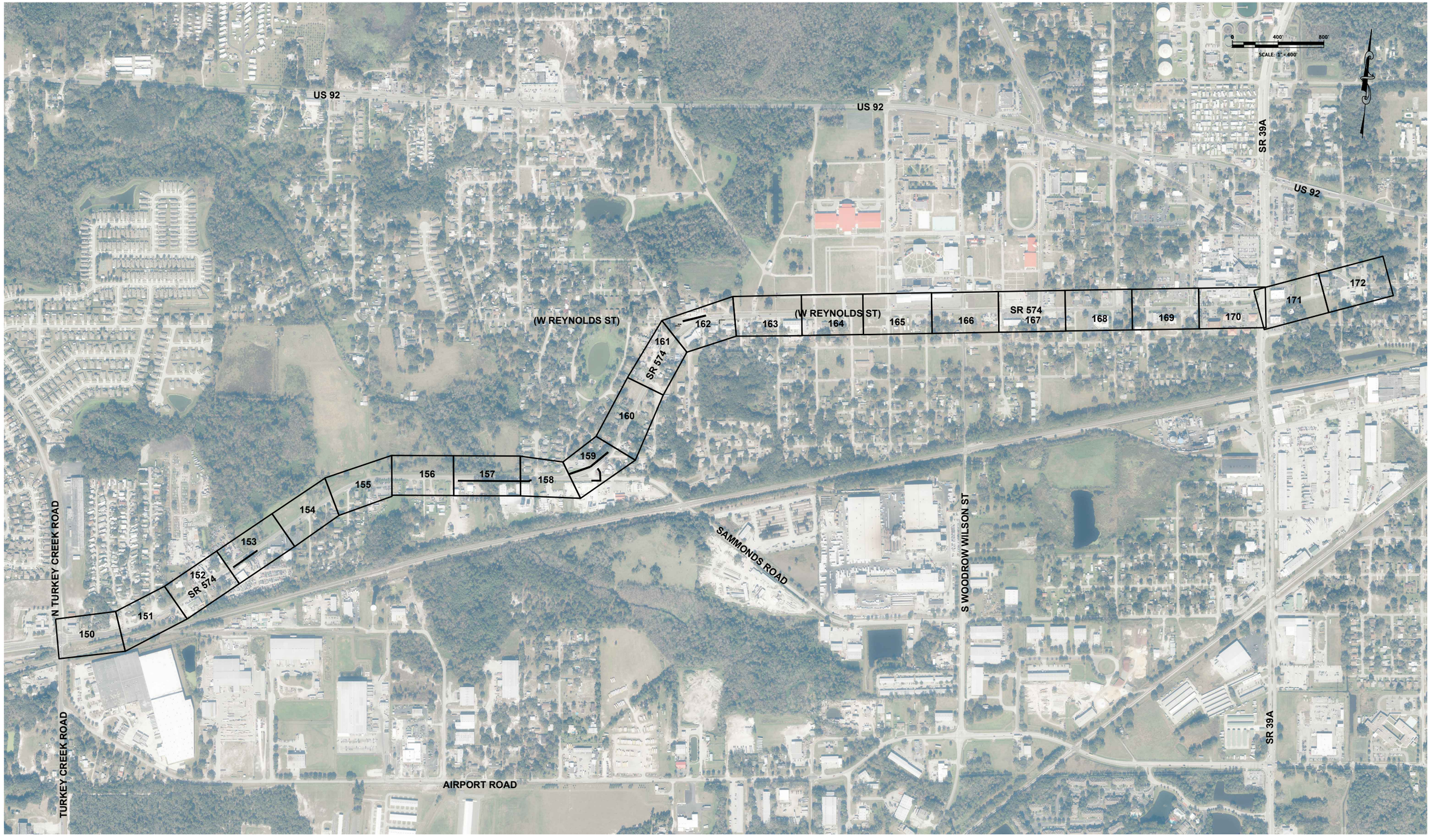

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P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV. P3 | DATE 11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

Overall Plan

PROJECT NO. 9680.38

DRAWING NO. 01

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REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

Plan
Sta 732+00 to Sta 737+00

PROJECT NO. 9680.38

DRAWING NO. 150

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P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 737+00 to Sta 742+40

PROJECT NO. **9680.38**

DRAWING NO. **151**

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P1	10/18/16	ISSUE FOR REVIEW

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REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 742+40 to Sta 748+00

PROJECT NO.
9680.38

DRAWING NO.
152

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P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

PROJECT NO. 9680.38

Plan
STA 748+00 TO STA 753+60

DRAWING NO. 153

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REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 753+60 to Sta 759+20

PROJECT NO. 9680.38

DRAWING NO. 154

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REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 759+20 to Sta 764+80

PROJECT NO. 9680.38

DRAWING NO. 155

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REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 764+80 to Sta 770+40

PROJECT NO. **9680.38**

DRAWING NO. **156**

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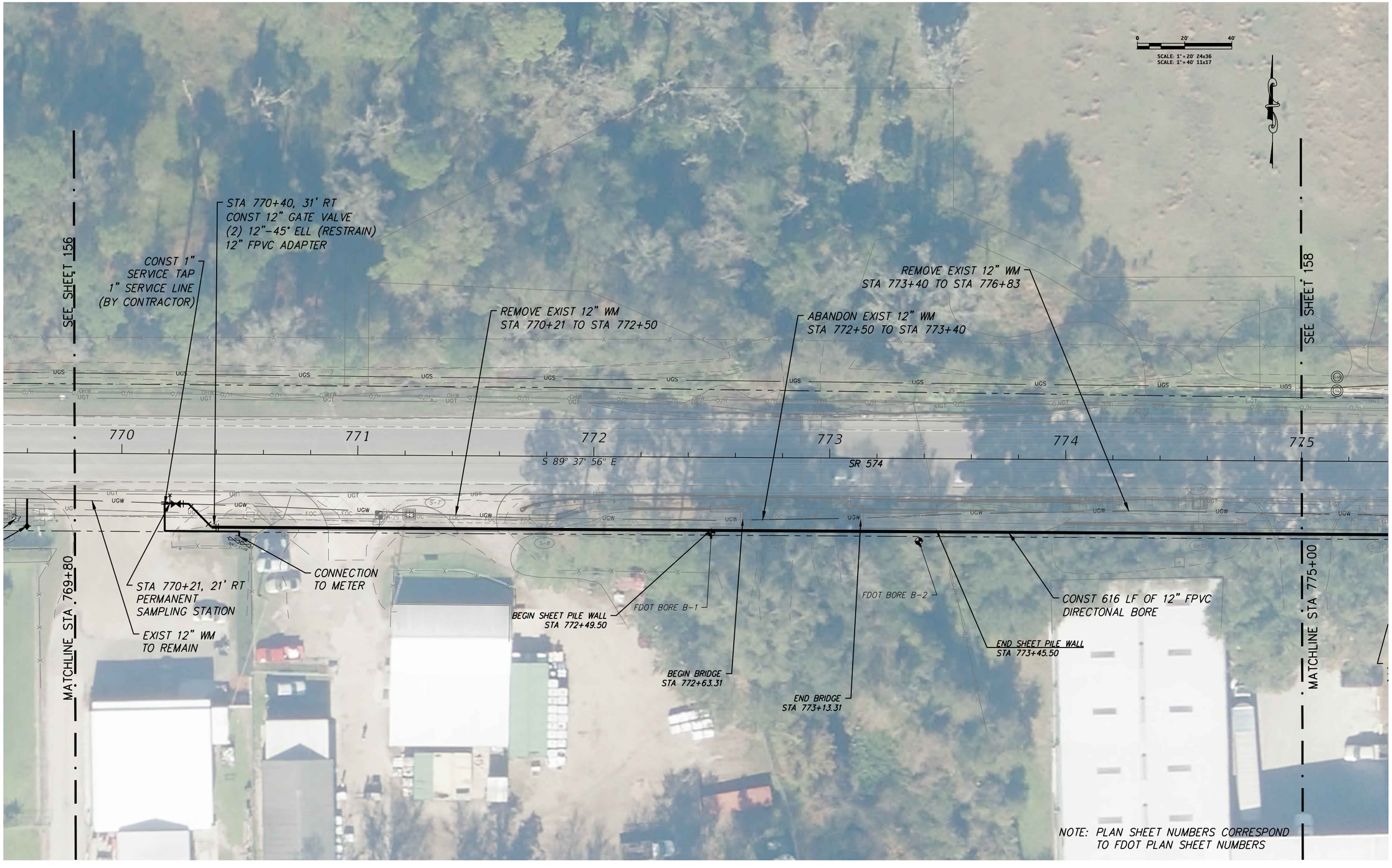

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P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 770+40 to Sta 775+20

PROJECT NO. **9680.38**

DRAWING NO. **157**

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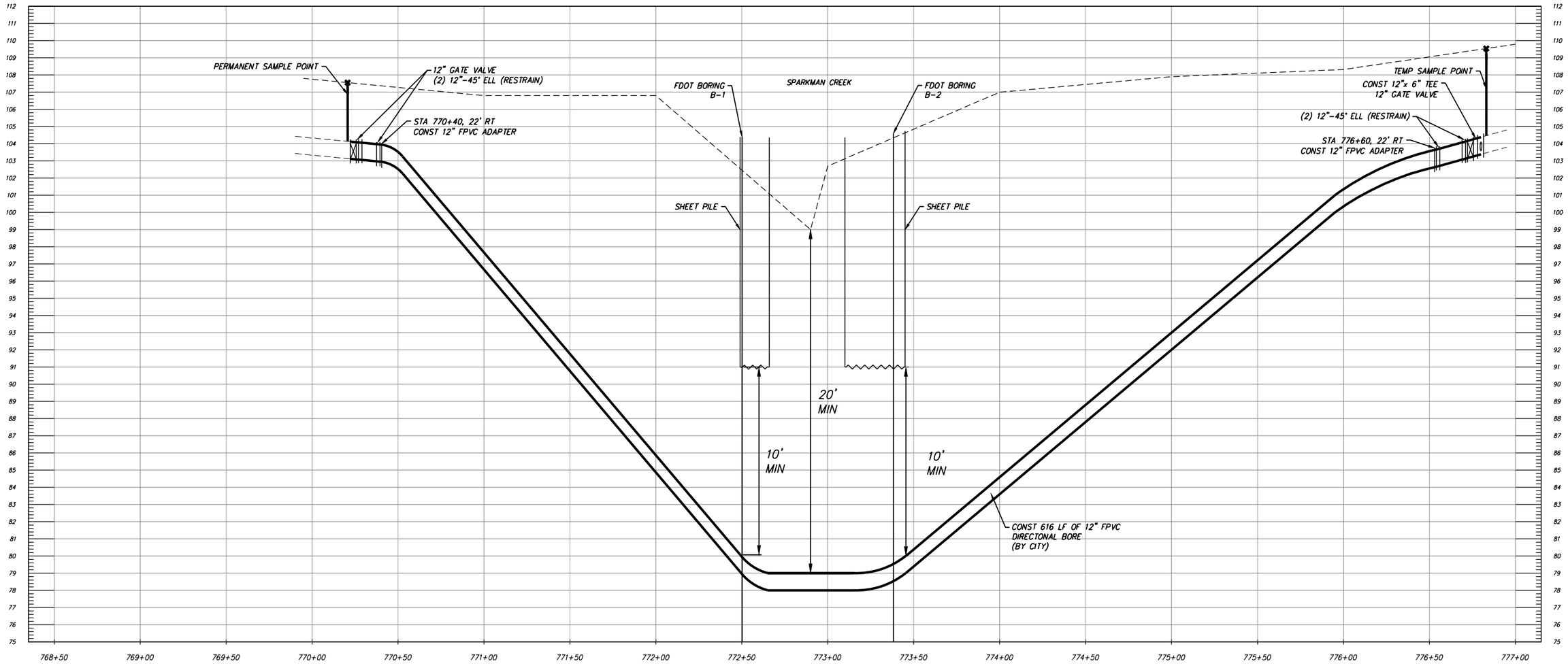
0 30' 60'

SCALE: 1" = 30'

Bridge



NOTE: PLAN SHEET NUMBERS CORRESPOND TO FDOT PLAN SHEET NUMBERS

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Profile
Sta 770+40 to Sta 775+20

PROJECT NO. 9680.38

DRAWING NO. 157A

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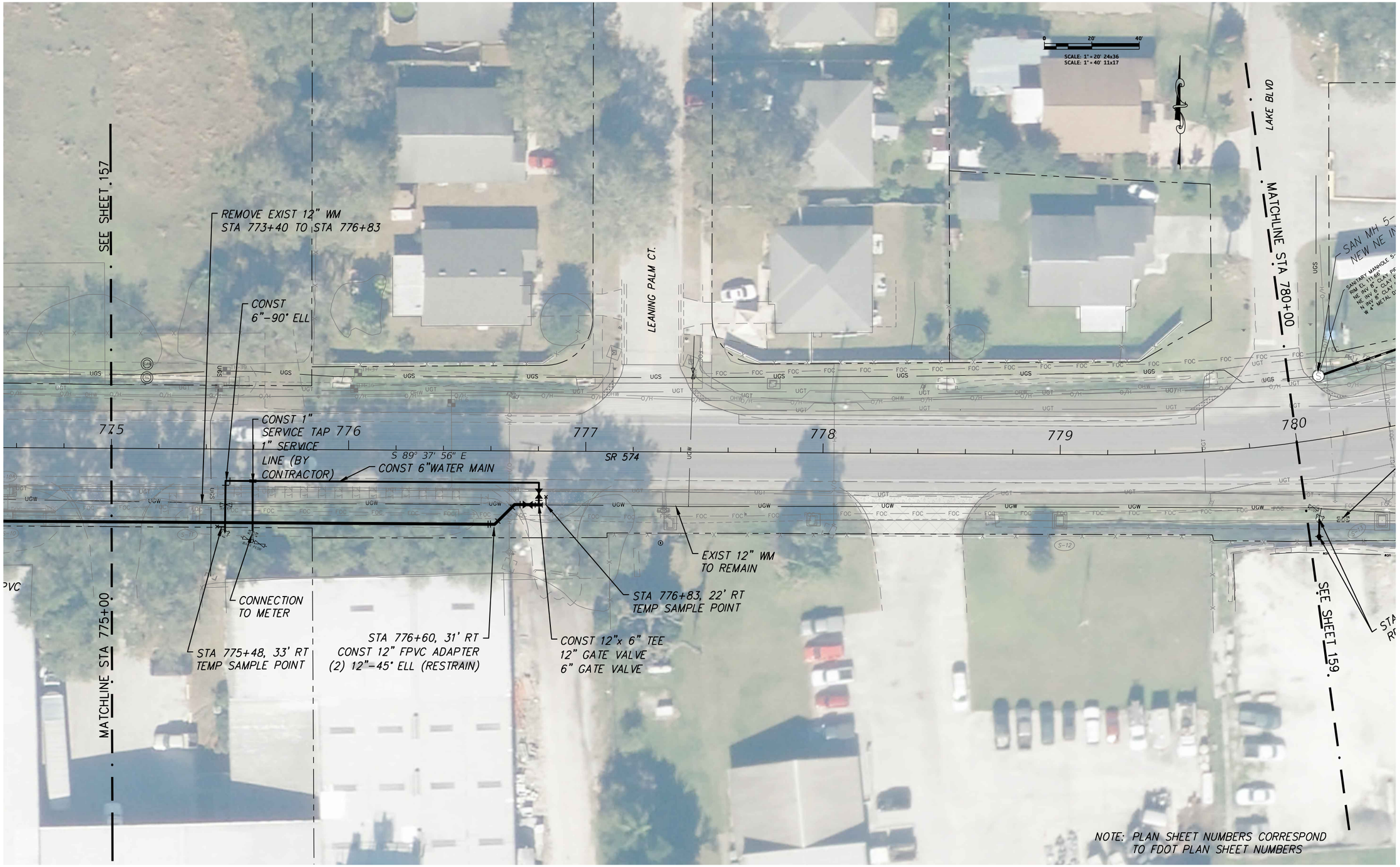

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 775+20 to Sta 780+00

PROJECT NO. **9680.38**

DRAWING NO. **158**

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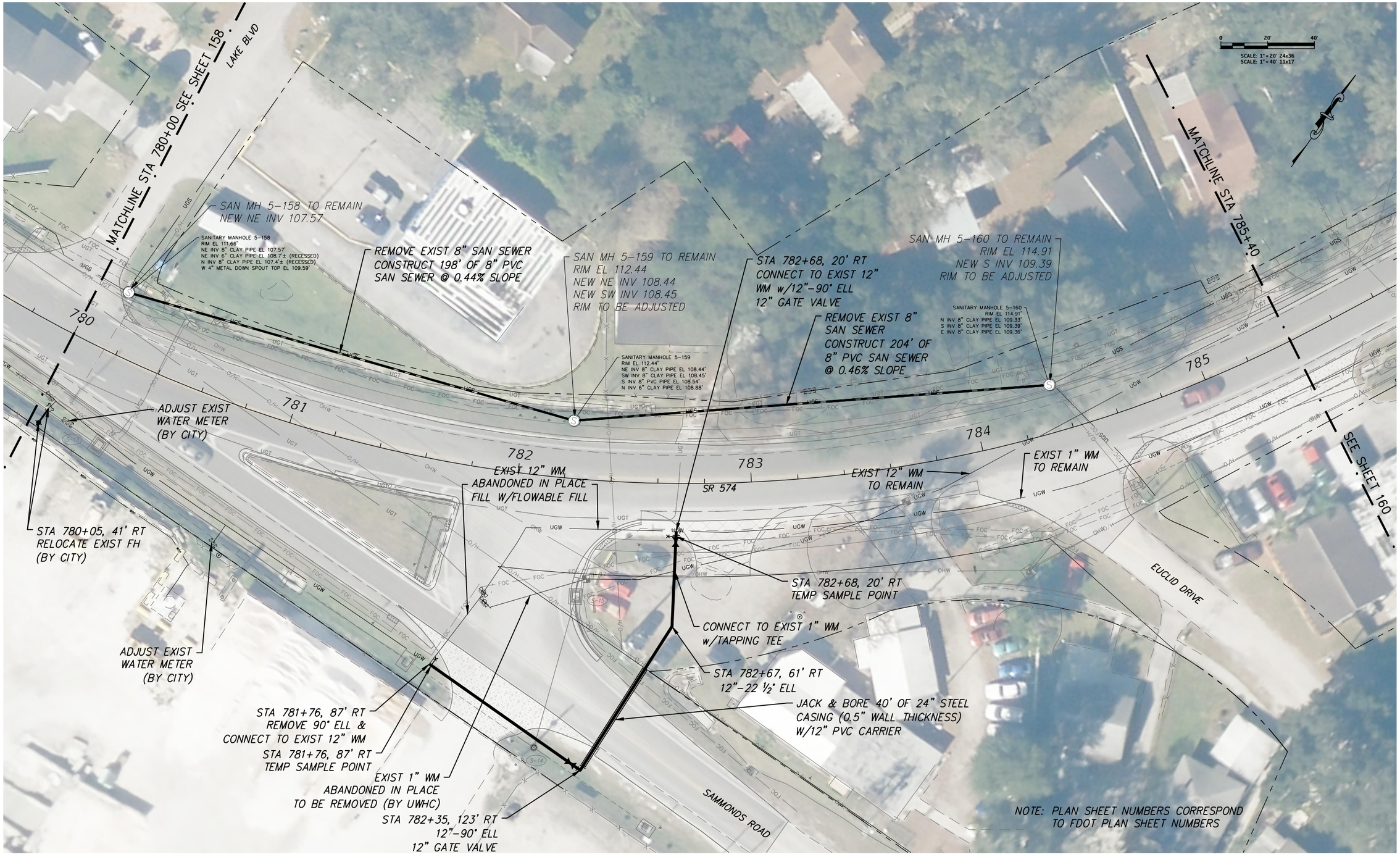


REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

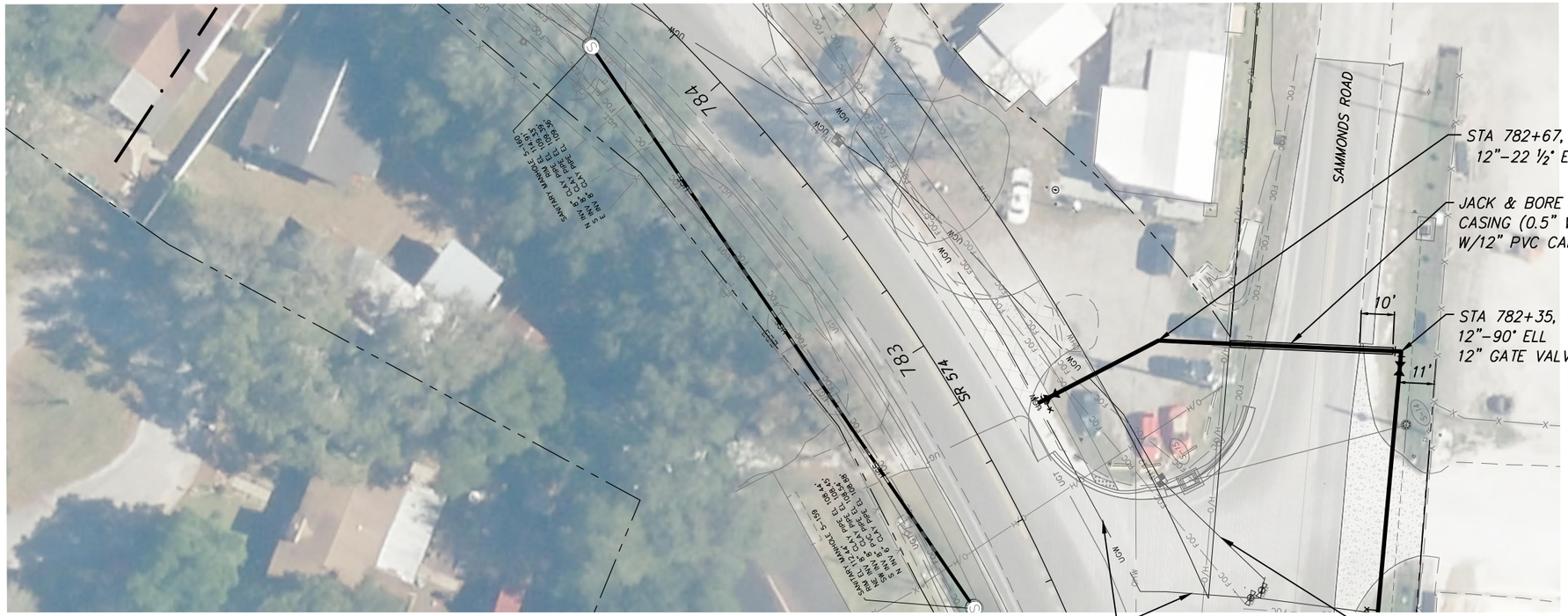
City of Plant City
SR 574 Utility Relocation

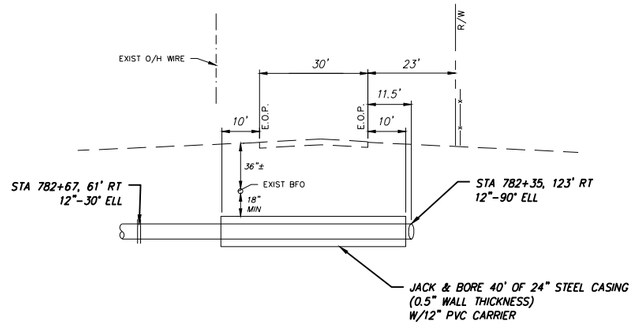
Plan
Sta 780+00 to Sta 785+60

PROJECT NO. 9680.38

DRAWING NO. 159

P:\9680381\CAD\Env\9680381\Production Drawings\9680381-SAD-16.dwg 159 Dec 07, 2016 9:49am by: bfisher





JACK & BORE CROSS SECTION

NOTE: PLAN SHEET NUMBERS CORRESPOND TO FDOT PLAN SHEET NUMBERS

REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
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REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan & Cross Section
Jack & Bore

PROJECT NO. **9680.38**

DRAWING NO. **159A**

P:\9680.38\CAD\Civil\9680.38\Production Drawings\9680.38-SAD-16.dwg 159A-J&B Dec 07, 2016 10:18am by: bfisher

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REVISION NO.	REVISION DATE	REVISION DESCRIPTION
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P1	10/18/16	ISSUE FOR REVIEW

REVISION NO.	REVISION DATE	REVISION DESCRIPTION

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

PROJECT NO. 9680.38

Plan
Sta 785+60 to Sta 791+20

DRAWING NO. 160

P:\9680381\CAD\Engr\9680381\Production Drawings\9680381-SAD-16.dwg 160 Dec 06, 2016 2:54pm by: bfisher

REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 791+20 to Sta 796+40

PROJECT NO. 9680.38

DRAWING NO. 161

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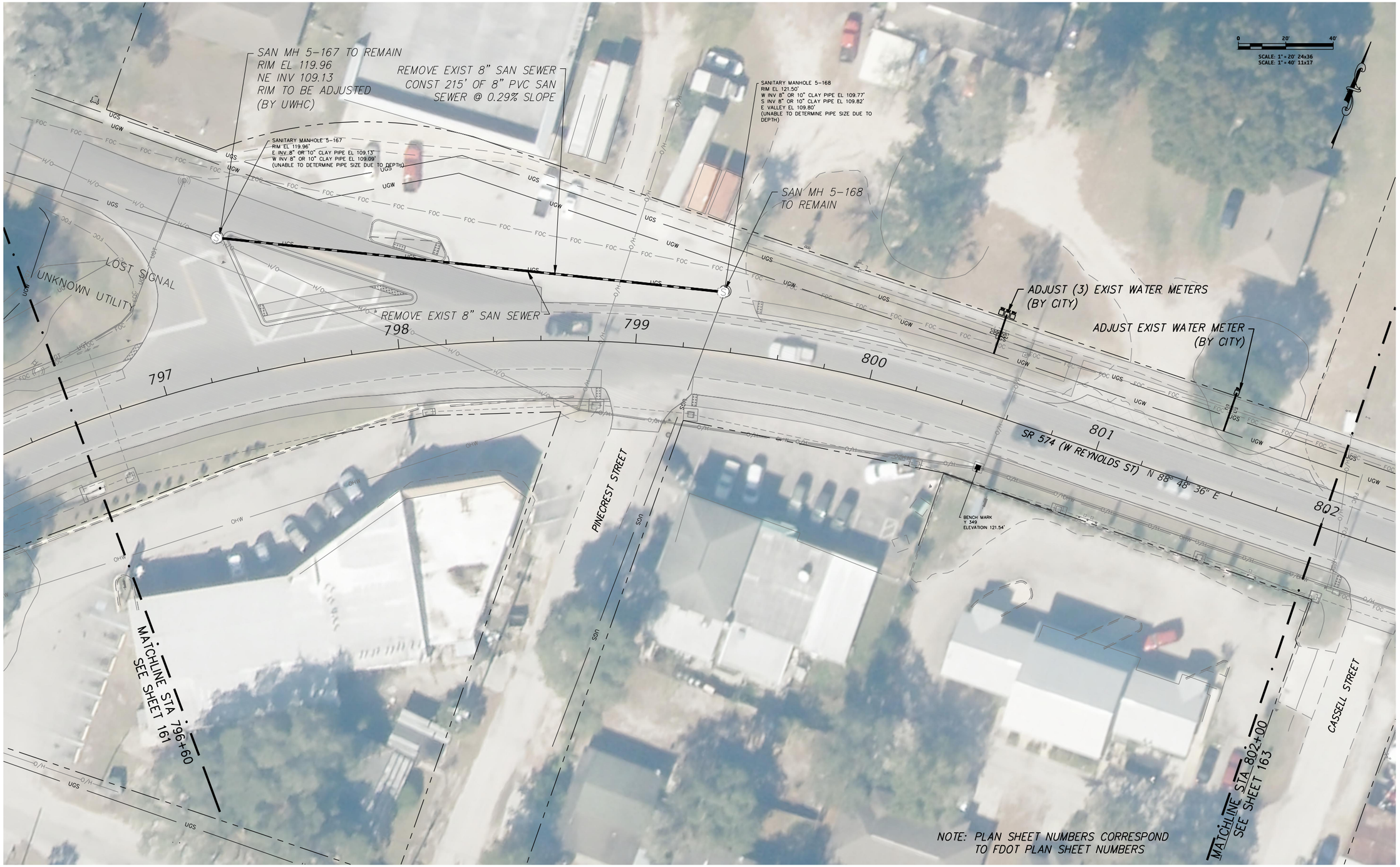

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P3	11/18/16	ISSUE FOR BIDS
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P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/16

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 796+40 to Sta 802+00

PROJECT NO. 9680.38

DRAWING NO. 162

P:\9680381\CAD\Civil\9680381\Production Drawings\9680381-SAD-16.dwg 162 Dec 06, 2016 2:59pm by: bfisher

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REVISION NO.	REVISION DATE	REVISION DESCRIPTION
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P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 802+00 to Sta 807+60

PROJECT NO. 9680.38

DRAWING NO. 163

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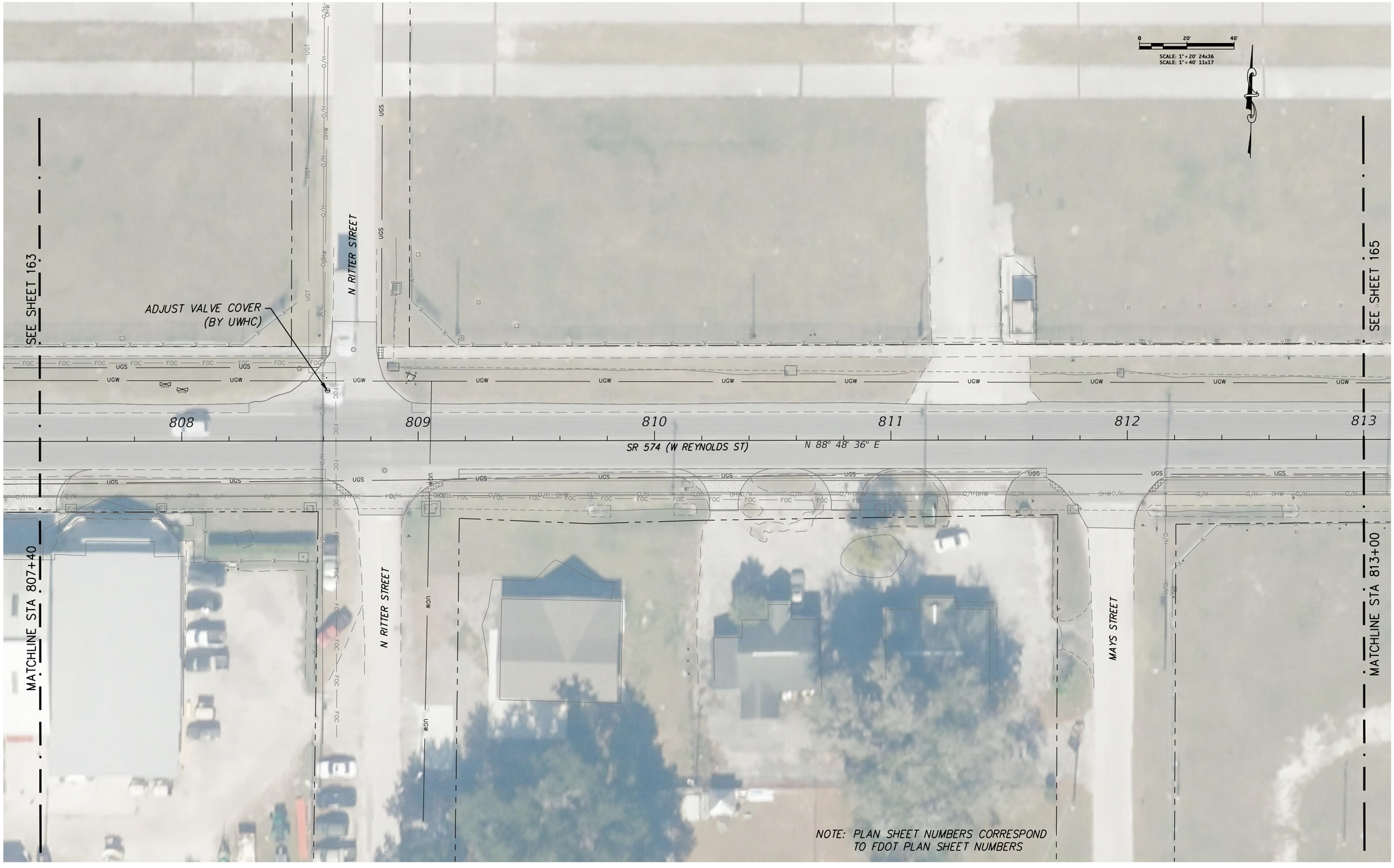

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 807+60 to Sta 813+20

PROJECT NO. 9680.38

DRAWING NO. 164

C:\Users\bfisher.CS\appdata\local\temp\AcPublish_9752\968038-SAD-16.dwg 164 Nov 18, 2016 11:56am by: bfisher

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P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 813+20 to Sta 818+80

PROJECT NO. 9680.38

DRAWING NO. 165

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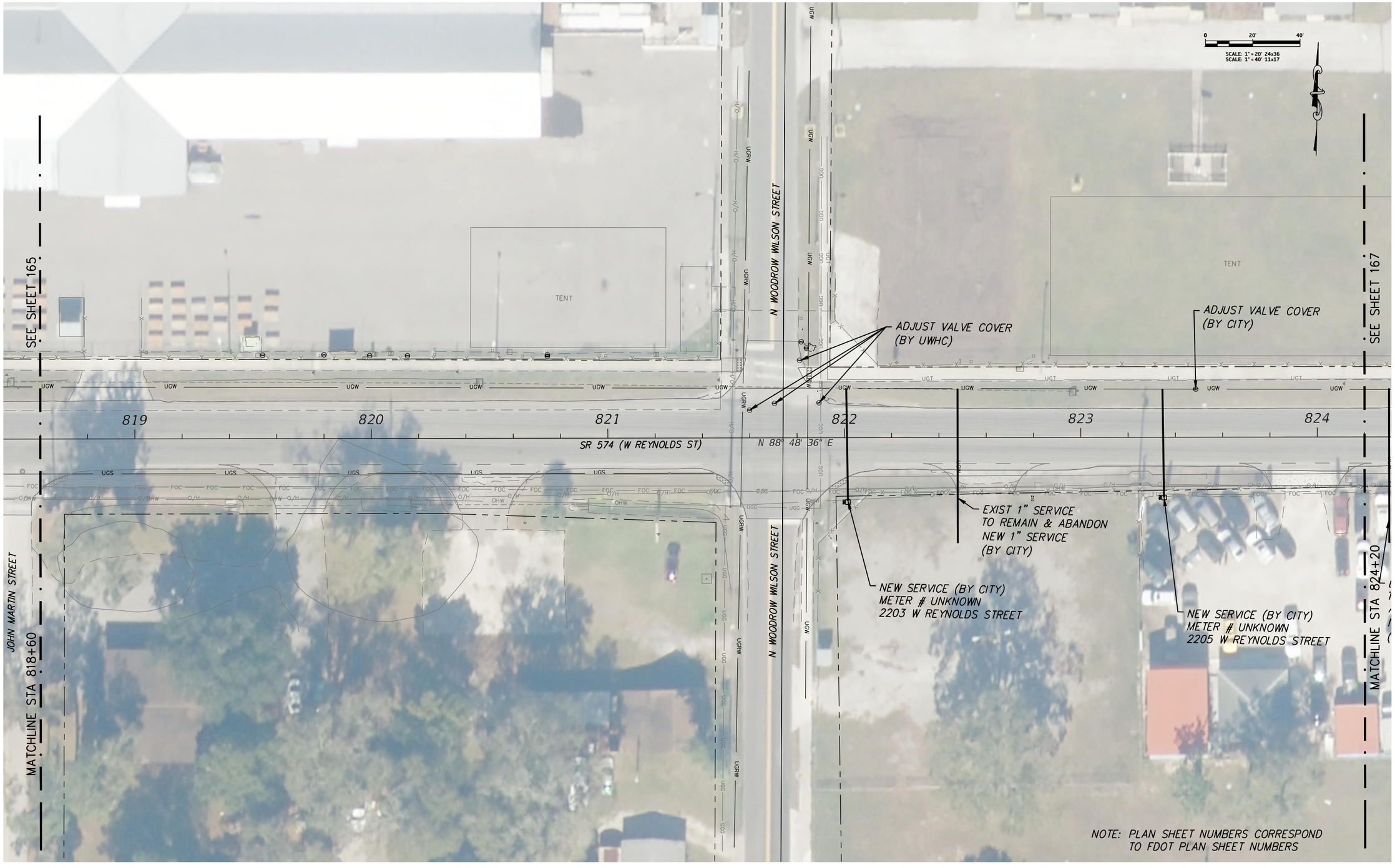

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 818+80 to Sta 824+40

PROJECT NO. 9680.38

DRAWING NO. 166

C:\Users\bfisher.CS\appdata\local\temp\AcPublish_9752\968038-SAD-16.dwg 166 Nov 18, 2016 11:56am by: bfisher

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P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 824+40 to Sta 830+00

PROJECT NO. **9680.38**

DRAWING NO. **167**

C:\Users\bfisher.CS\appdata\local\temp\AcPublish_9752\968038-SAD-16.dwg 167 Nov 18, 2016 11:56am by: bfisher

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 830+00 to Sta 835+60

PROJECT NO. 9680.38

DRAWING NO. 168

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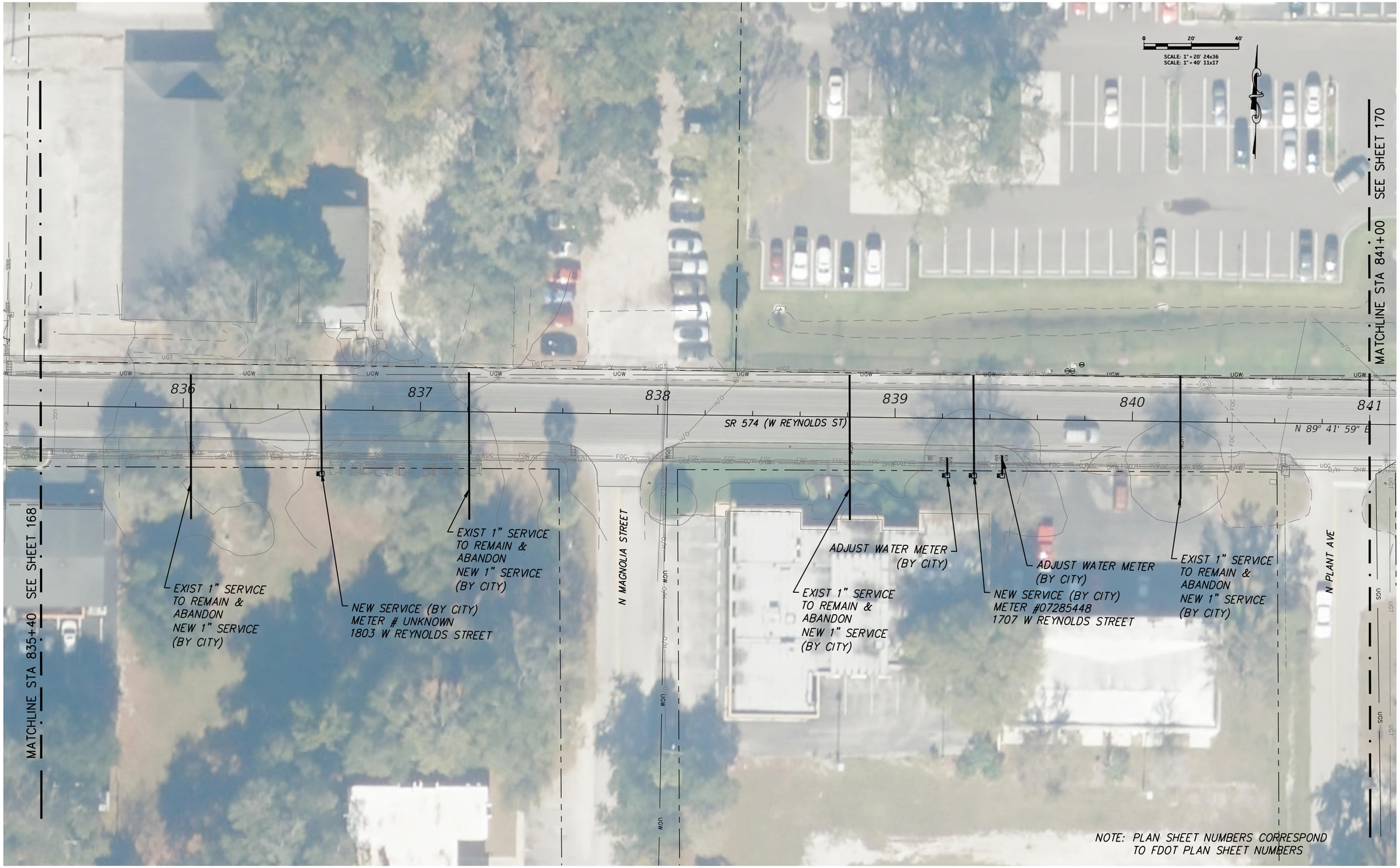

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

PROJECT NO. 9680.38

Plan
Sta 835+60 to Sta 841+20

DRAWING NO. 169

C:\Users\bfisher.CS\appdata\local\temp\AcPublish_9752\968038-SAD-16.dwg 169 Nov 18, 2016 11:56am by: bfisher

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 841+20 to Sta 846+40

PROJECT NO. 9680.38

DRAWING NO. 170

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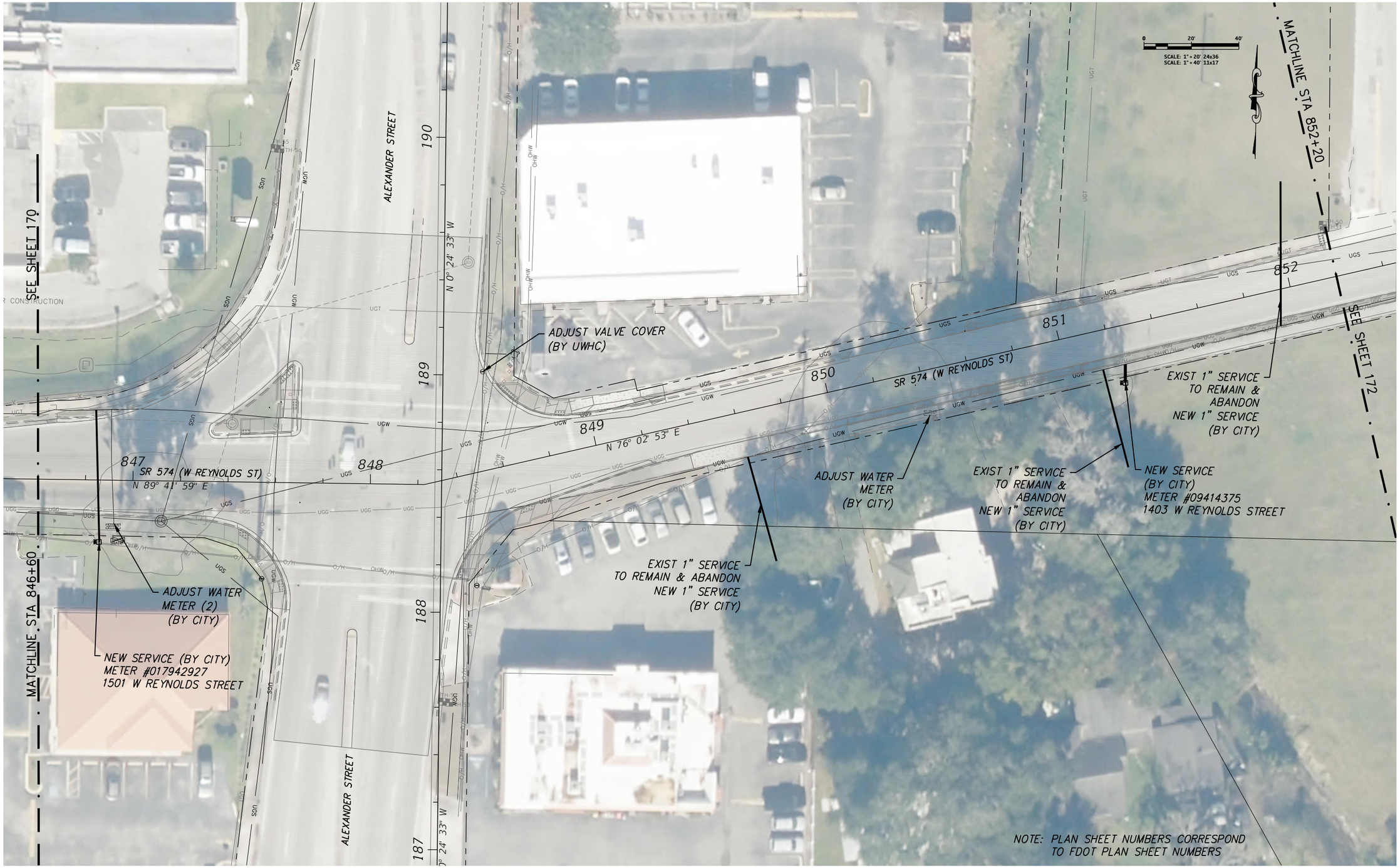

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

Plan
Sta 846+40 to Sta 852+00

PROJECT NO. **9680.38**

DRAWING NO. **171**

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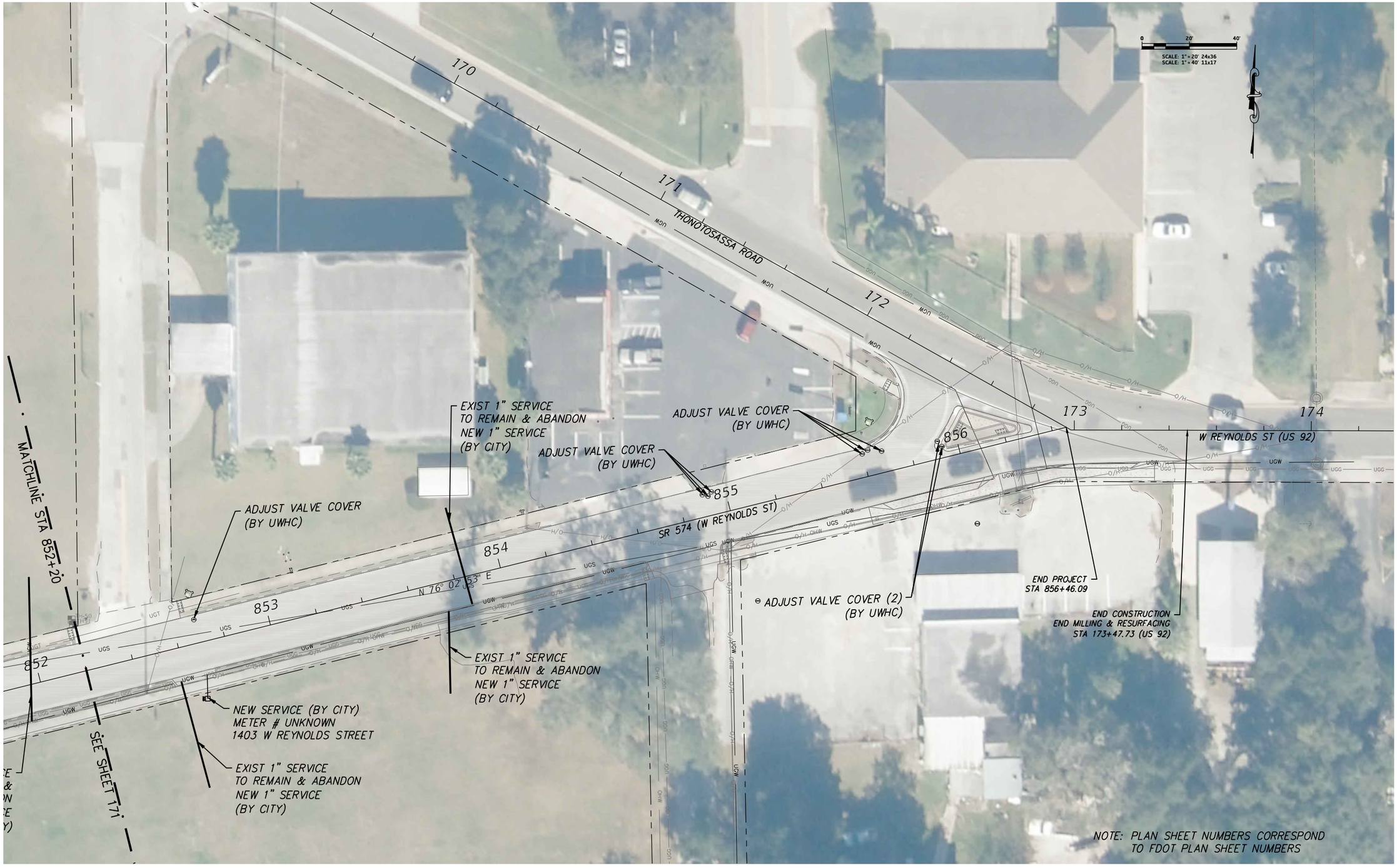

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 Utility Relocation

PROJECT NO. 9680.38

Plan
Sta 852+00 to Sta 856+46.09

DRAWING NO. 172

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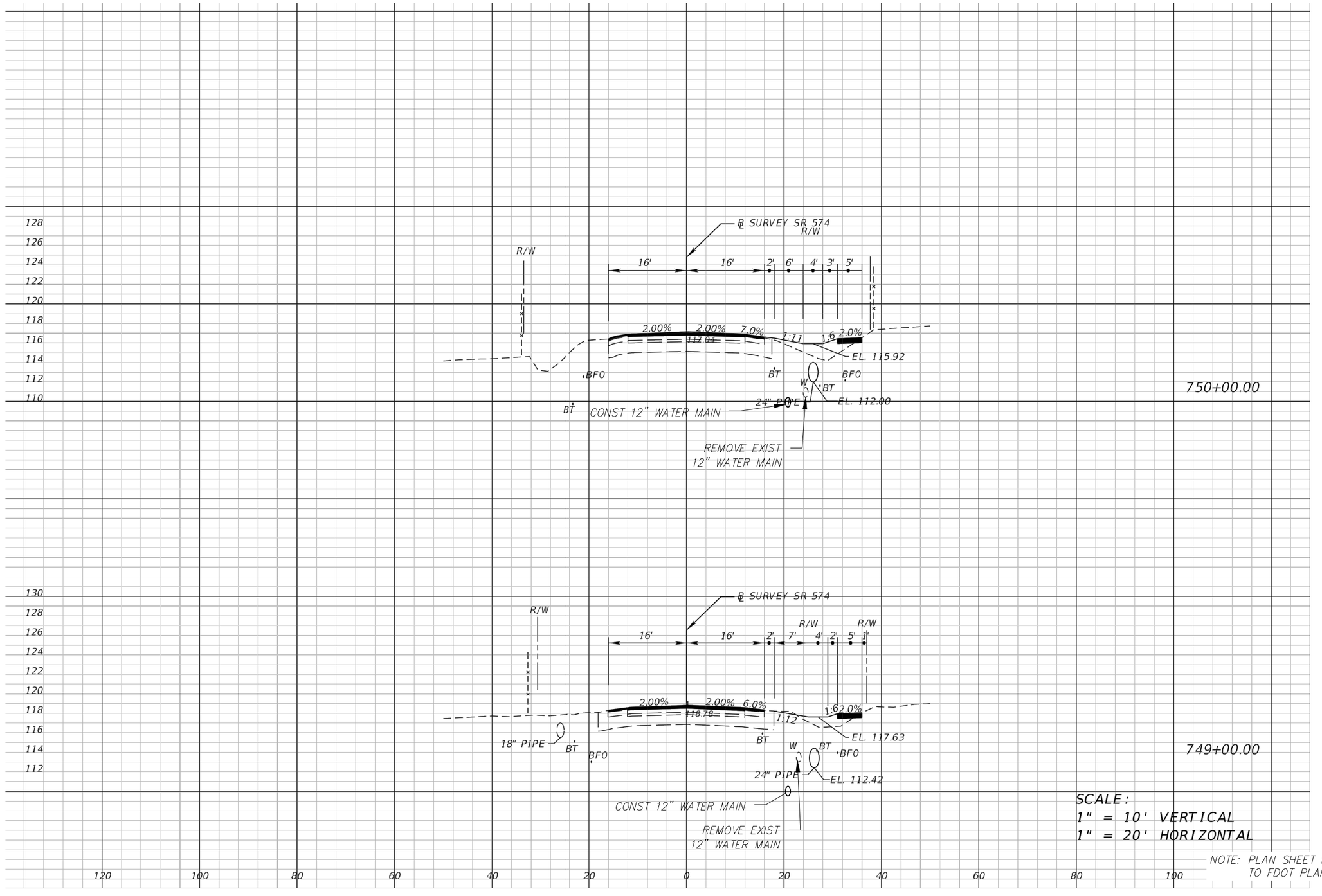

SCALE:
1" = 10' VERTICAL
1" = 20' HORIZONTAL

NOTE: PLAN SHEET NUMBERS CORRESPOND TO FDOT PLAN SHEET NUMBERS

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

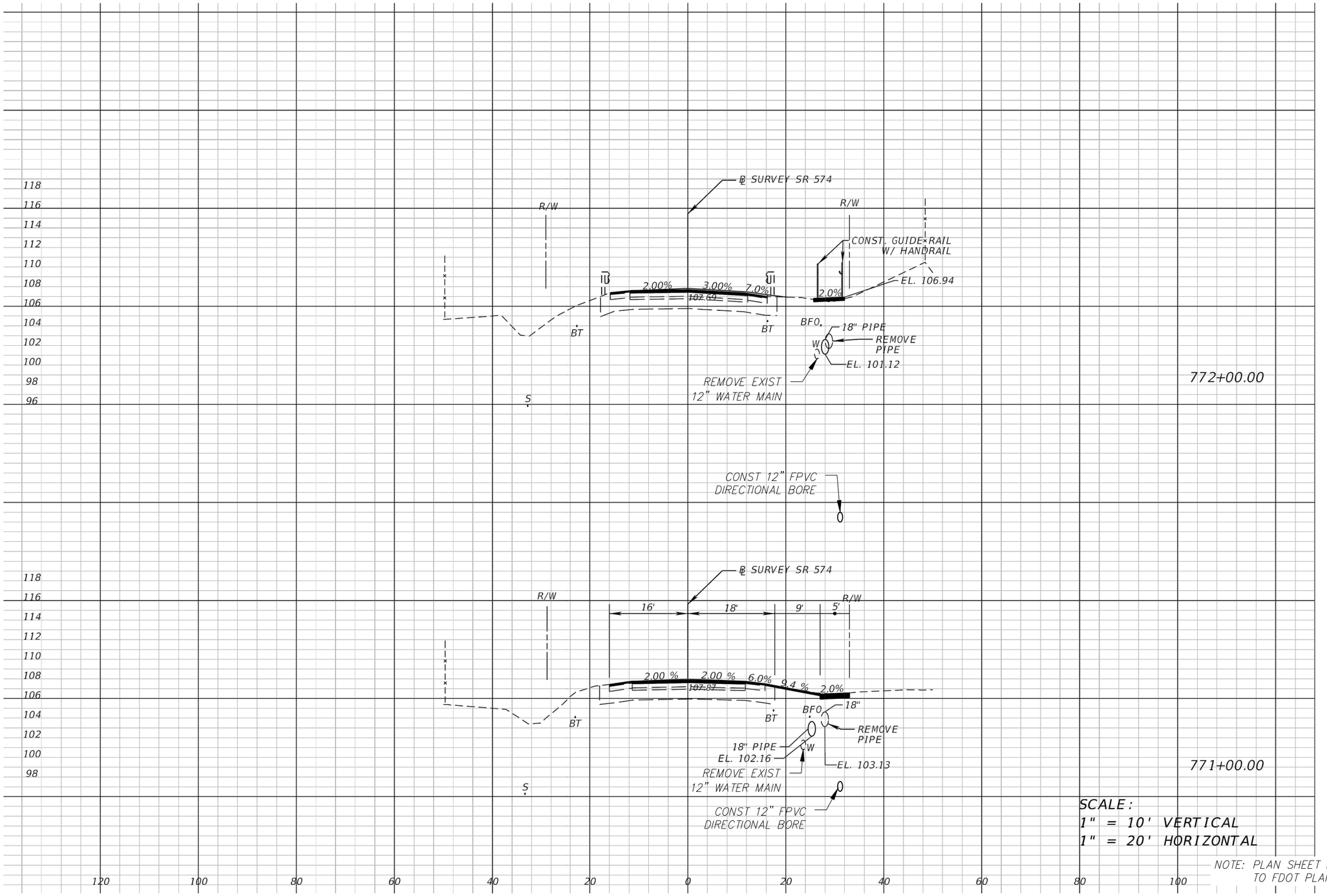
City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 65

P:\9680381\CAD\Civil\9680381\Production Drawings\9680381-SAD-16-Section.dwg 65 Nov 18, 2016 12:03pm by: bfisher



SCALE:
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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 76

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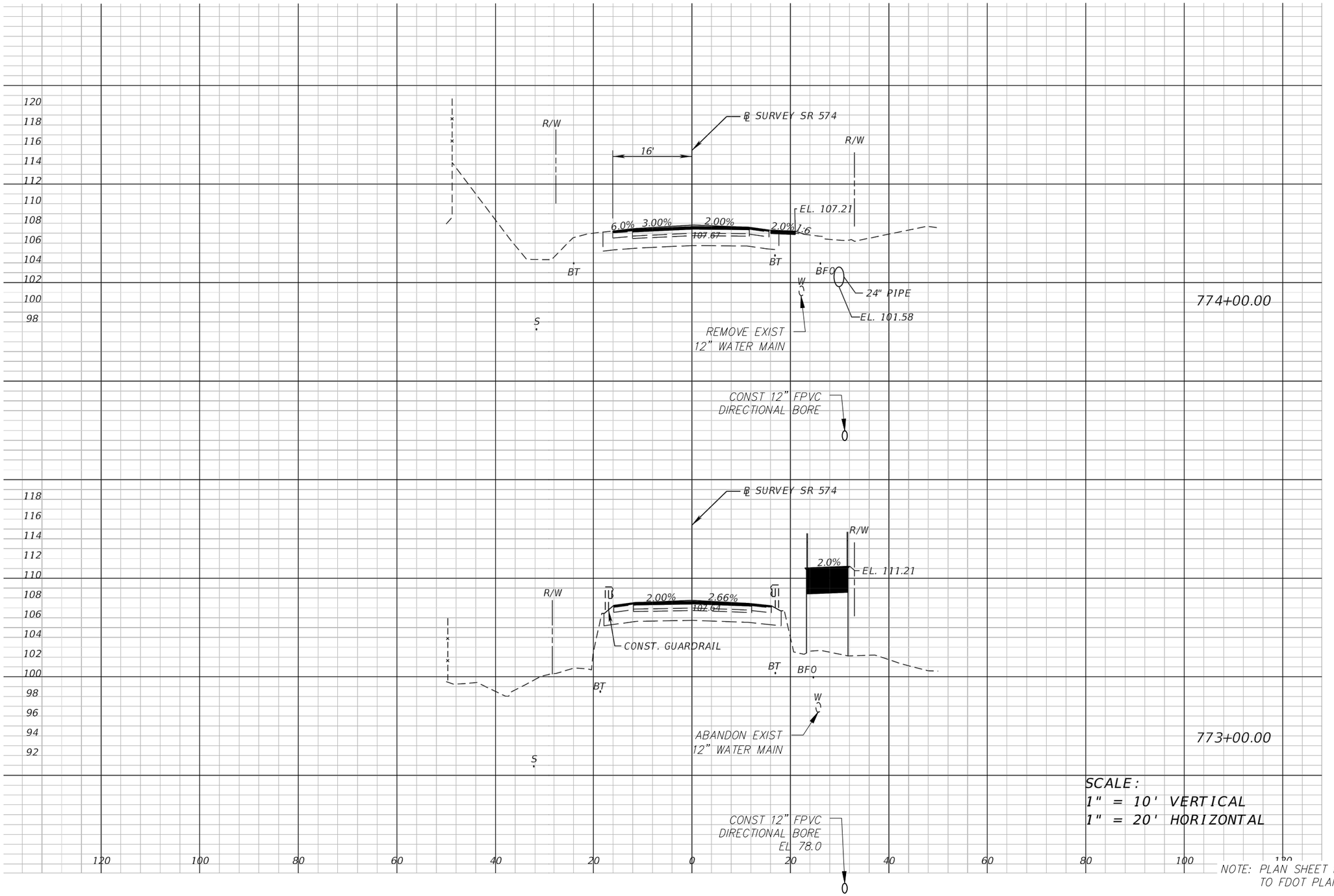

SCALE:
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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 77

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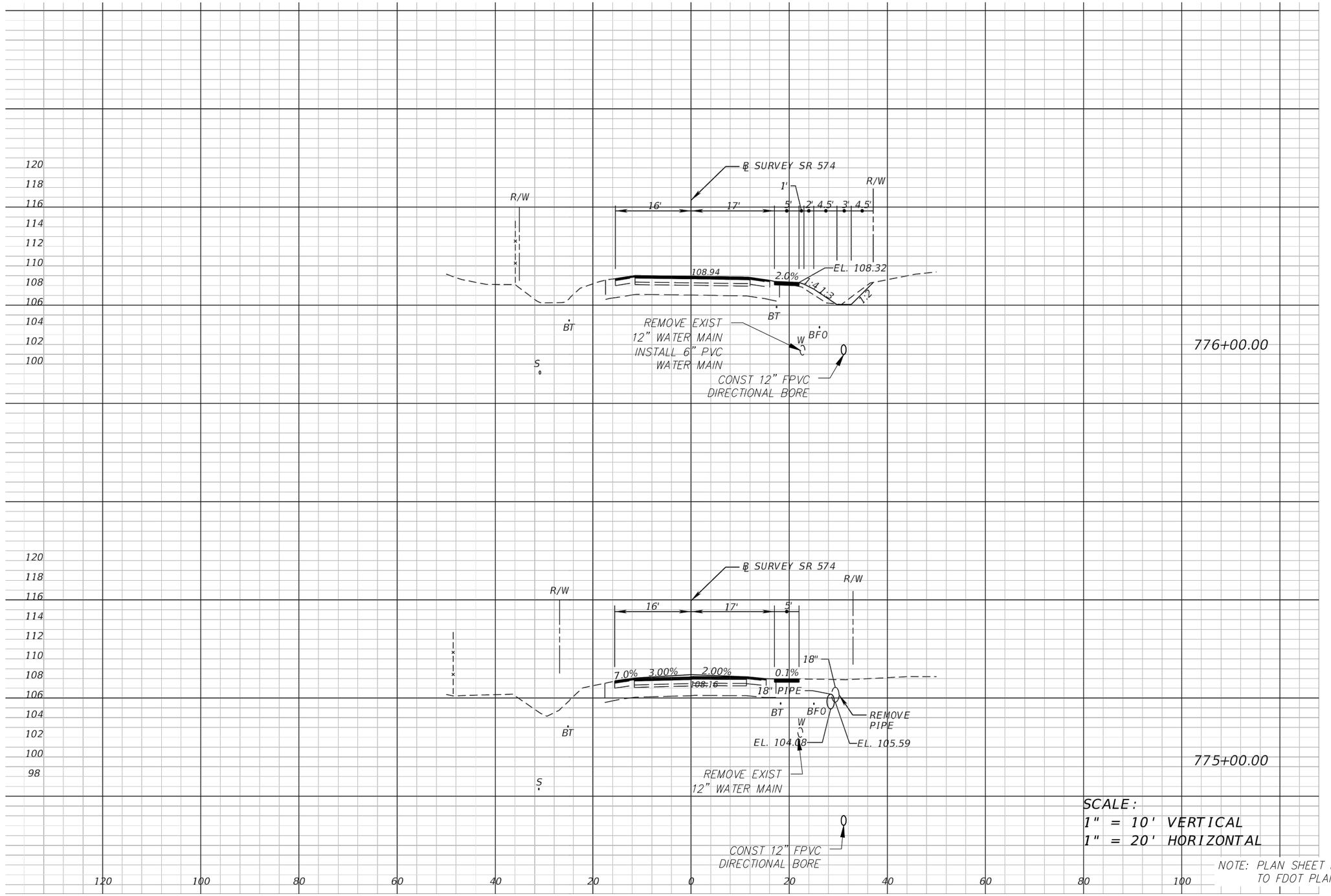

SCALE:
1" = 10' VERTICAL
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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 78

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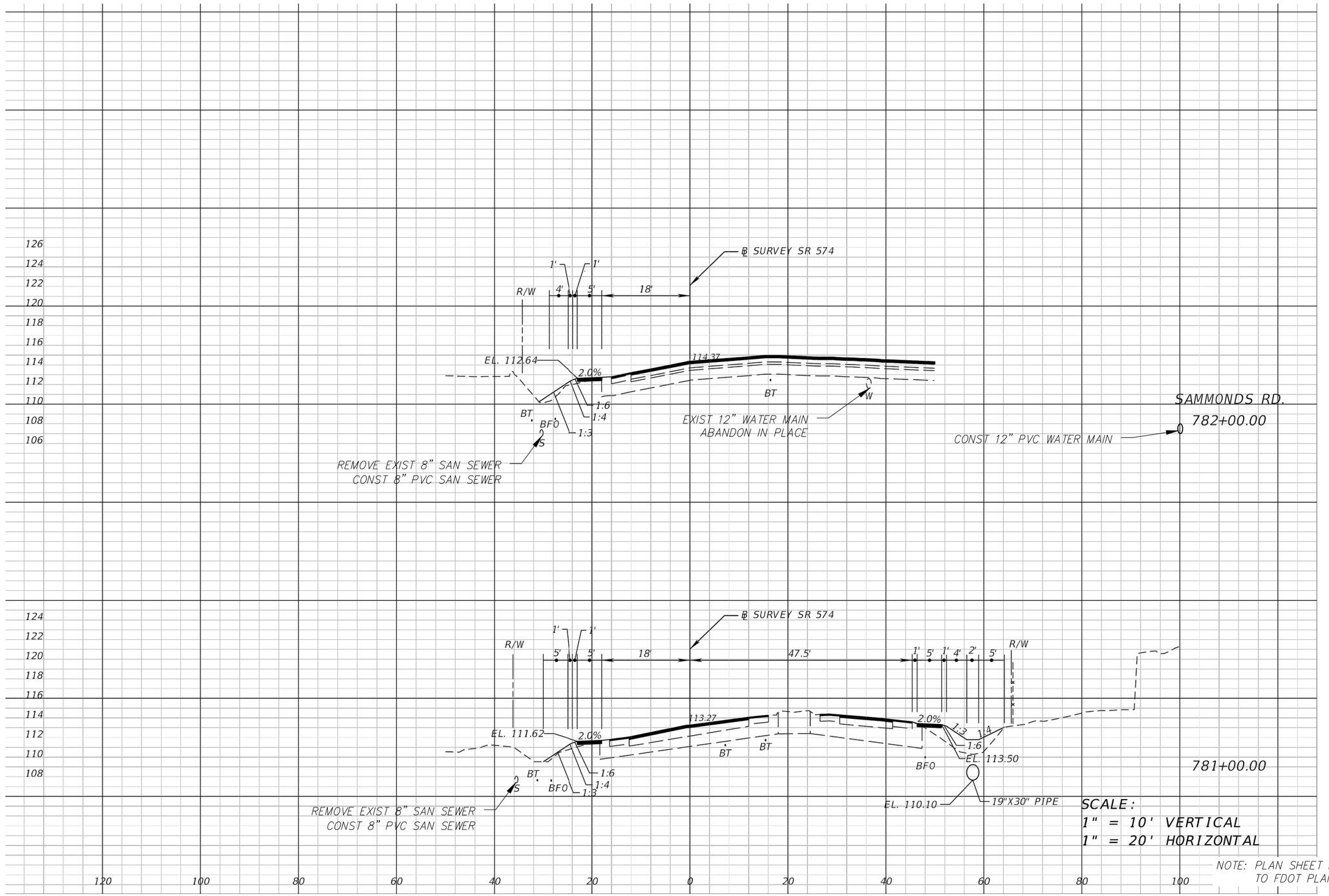

SCALE:
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REV. P3 | DATE 11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 81

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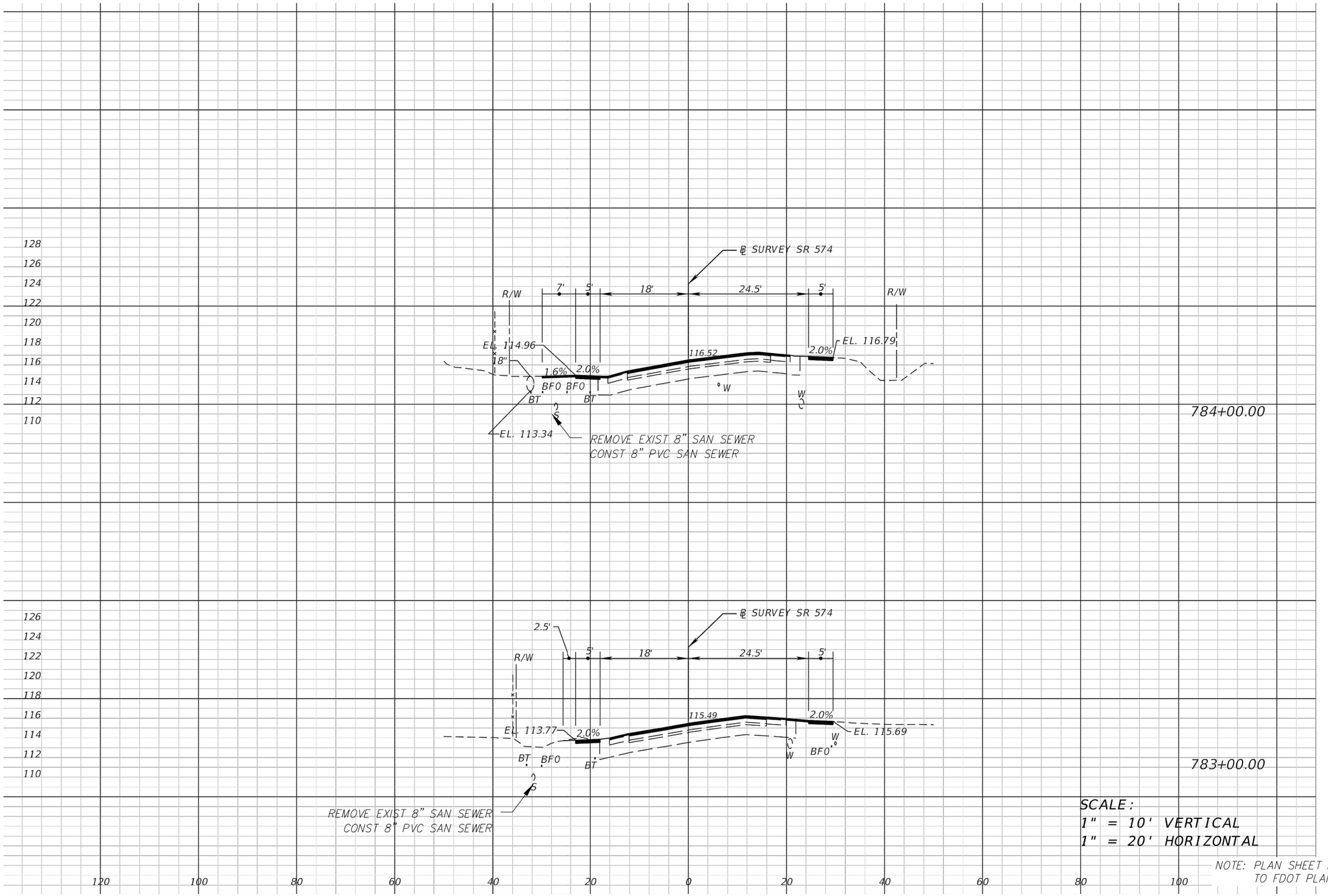

SCALE:
1" = 10' VERTICAL
1" = 20' HORIZONTAL

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 82

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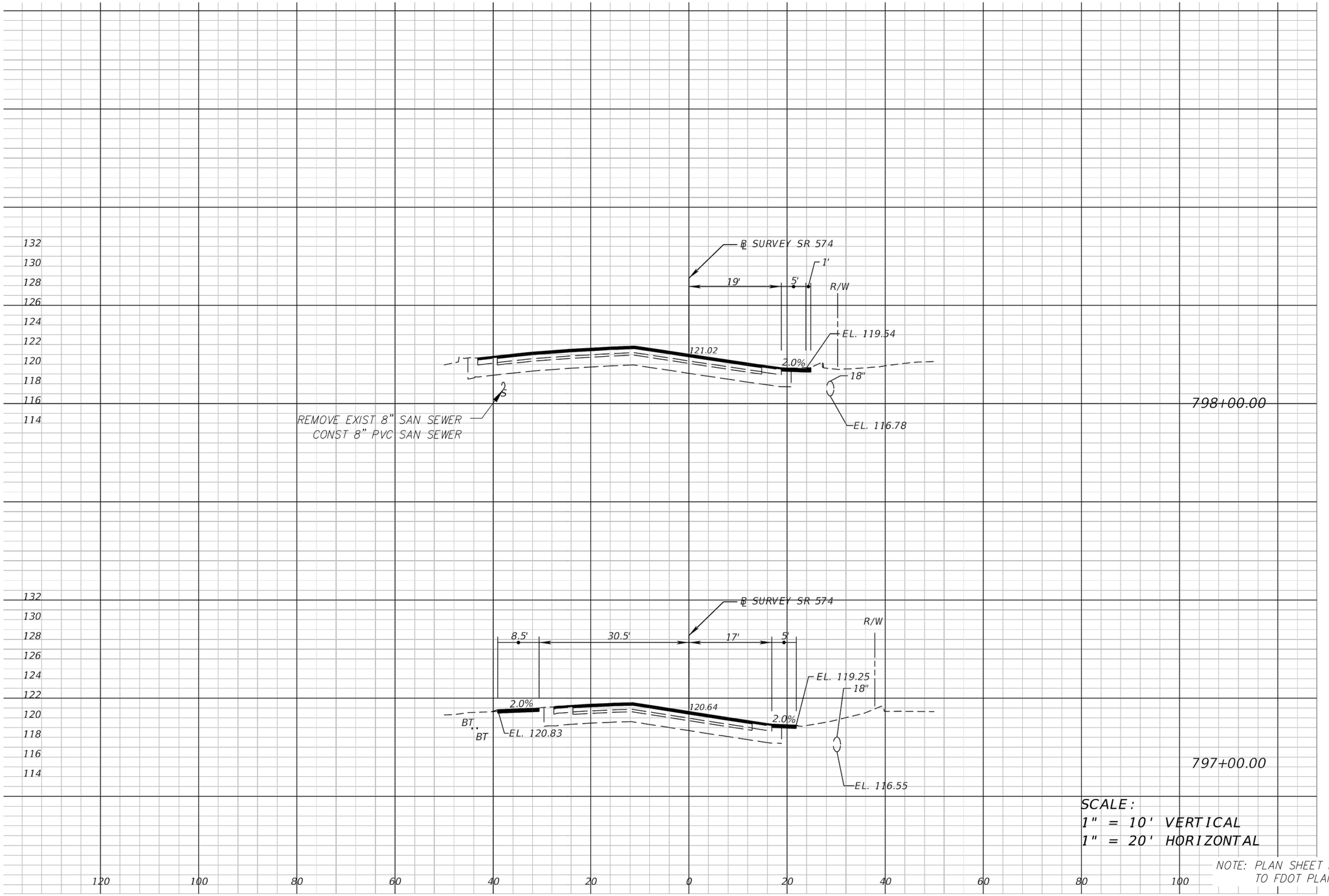

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CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 89

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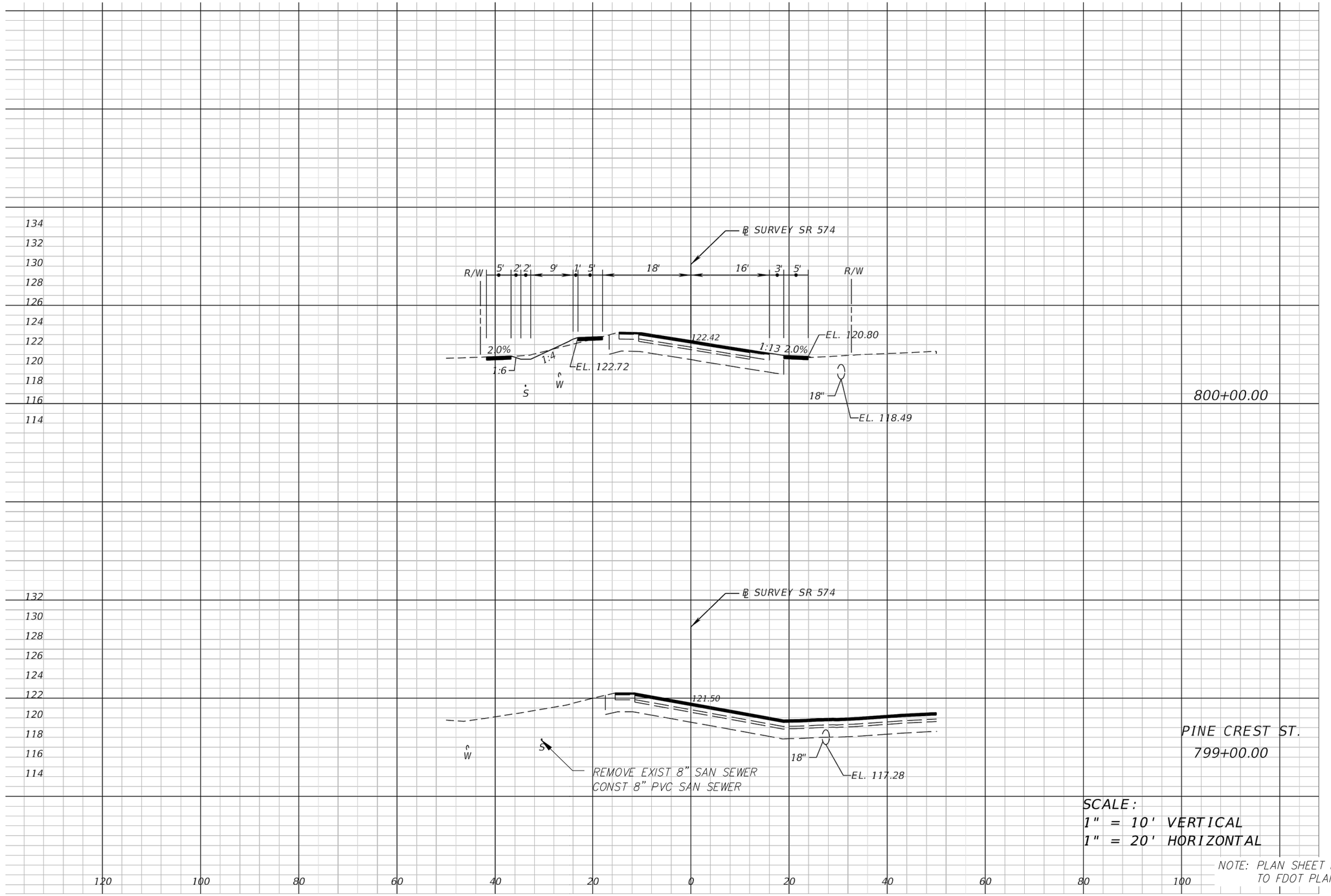

SCALE:
1" = 10' VERTICAL
1" = 20' HORIZONTAL

NOTE: PLAN SHEET NUMBERS CORRESPOND TO FDOT PLAN SHEET NUMBERS

REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV. P3 | DATE 11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

CROSS SECTION

PROJECT NO. 9680.38

DRAWING NO. 90

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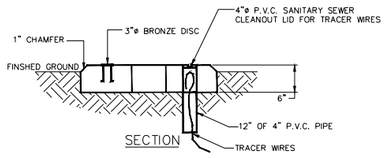
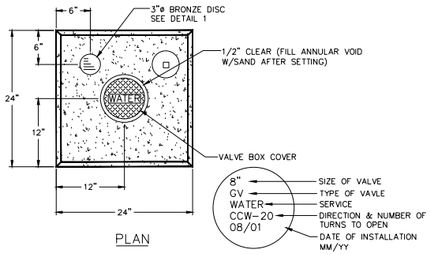




NOTES

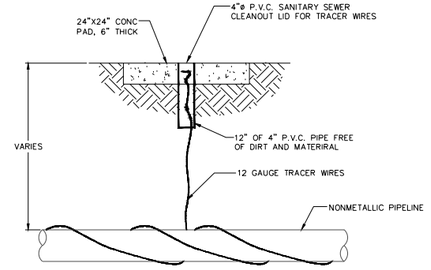
1. CONCRETE TO BE TYPE 1 GENERAL PORTLAND CEMENT WITH ¾" TOP SIZE AGGREGATE AND SHALL DEVELOP A 28-DAY STRENGTH OF 3000 P.S.I.
2. REINFORCING STEEL SHALL BE WWF 4x4-W2.1xW2.1
3. CONCRETE VALVE PAD SHALL BE POURED IN PLACE AND SHALL BE SET 2" ABOVE FINISHED GRADE.
4. CONCRETE VALVE JACKET COLLAR TO BE PLACED OVER ALL VALVES WHICH ARE NOT IN PAVEMENT.
5. TRACER WIRE AND ACCESS TUBE FOR ALL NON-METALLIC PIPELINES

REV.
01/14/04

VALVE JACKET COLLAR DETAIL
N.T.S.

CITY OF PLANT CITY STANDARDS

DRAWN	BS	SCALE	NTS	CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA	FILE NO.	DWG. NO.
CHECKED		DATE	08/30/01			WS-01



NOTES:

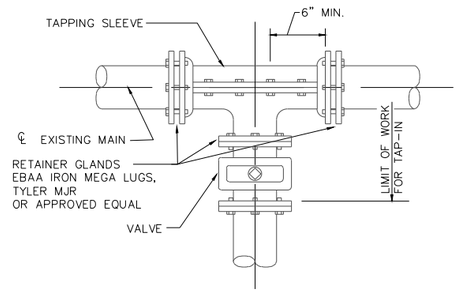
1. TRACER WIRE REQUIRED ON ALL NONMETALLIC PIPELINE
2. TRACER WIRES SHALL BE WRAPPED AROUND PIPE, A MINIMAL 1 WRAP PER 20 FT
3. ALL SPICES AND CONNECTIONS SHALL BE MADE WITH WATER TIGHT CONNECECTORS

REV.

TRACER WIRE DETAIL
N.T.S.

CITY OF PLANT CITY STANDARDS

DRAWN	BS	SCALE	NTS	CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA	FILE NO.	DWG. NO.
CHECKED		DATE	01/14/04			WS-02



RESTRAINED JOINT SCHEDULE

PIPE SIZE	90° D. I.	45° D. I.	22 1/2° D. I.	11 1/4° D. I.
12"	92'	38'	18'	9'
10"	78'	32'	16'	8'
8"	66'	27'	13'	7'
6"	51'	21'	10'	5'
4"	38'	16'	8'	4'

NOTES:

1. RESTRAINED LENGTH FOR TEES, CROSSES, VALVES AND PLUGS SHALL EQUAL RESTRAINED LENGTH FOR 90° BENDS.
2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING RESTRAINED JOINTS.
3. THE SCHEDULE SHOWN IS FOR THE FOLLOWING SERVICE CONDITIONS 150 psig INTERNAL PRESSURE; SOIL TYPE: SAND-SILT; 36 INCHES OF COVER AND TYPE 2 LAYING CONDITIONS.
4. RESTRAINED LENGTHS SHOWN IN TABLE ARE MINIMUM LENGTHS (IN FEET) AND ARE REQUIRED IN EACH DIRECTION FROM FITTINGS OR VALVES.

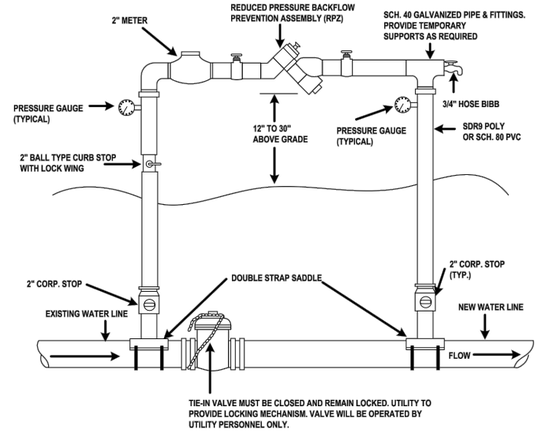
REV.

TYPICAL TAPPING SLEEVE AND VALVE DETAIL
N.T.S.

CITY OF PLANT CITY STANDARDS

DRAWN	ED	SCALE	NTS	CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA	FILE NO.	DWG. NO.
CHECKED		DATE	01/09/96			WS-03

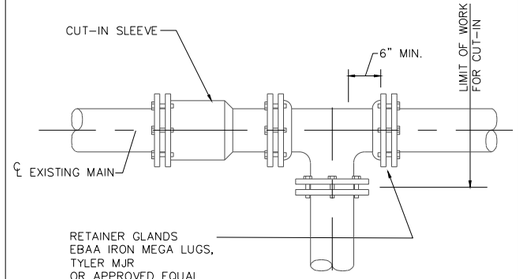
TEMPORARY JUMPER CONNECTION DETAILS



NOTE: LOCATION TO BE DETERMINED AT TIME OF PRECONSTRUCTION CONFERENCE WITH UTLITY.

1. A TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS.

2. THE DETAIL ABOVE IS TO BE USED FOR FILLING ANY NEW WATER MAIN OF ANY SIZE FROM EXISTING ACTIVE WATER MAINS AND FOR FLUSHING OF NEW MAINS UP TO 8" IN DIAMETER (2.5 FPS MINIMAL VELOCITY) AND FOR FILLING BACTERIOLOGICAL SAMPLES FROM ANY NEW WATER MAIN OF ANY SIZE. THE JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER FILLING, FLUSHING, TESTING, AND DIS-INFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) & OTHER PERTINENT AGENCIES HAS BEEN RECEIVED BY THE CITY OF AUBURNDALE UTILITY DEPARTMENT. THIS JUMPER CONNECTION SHALL ALSO BE USED TO MAINTAIN A MINIMUM RESSURE OF 20 PSI IN THE NEW MAINS ALL THE TIME AFTER DIS-INFECTION AND UNTIL THE FDEP CLEARANCE LETTER IS OBTAINED. ADEQUATE THRUST BLOCKING AND/OR RESTRAINTS SHALL BE PROVIDED TEMORARILY, AS REQUIRED. PIPE AND FITTINGS USED FOR CONNECTING THE NEW PIPE TO THE EXISTING PIPE SHALL BE DIS-INFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, 1992 EDITION. THIS TAPPING SLEEVE AND THE EXTERIOR OF THE MAIN TO BE TAPPED SHALL BE DIS-INFECTED BY SPRAYING OR SWABBING PER SECTION 11 OF AWWA C651-92.



RESTRAINED JOINT SCHEDULE

PIPE SIZE	90° D. I.	45° D. I.	22 1/2° D. I.	11 1/4° D. I.
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NOTES:

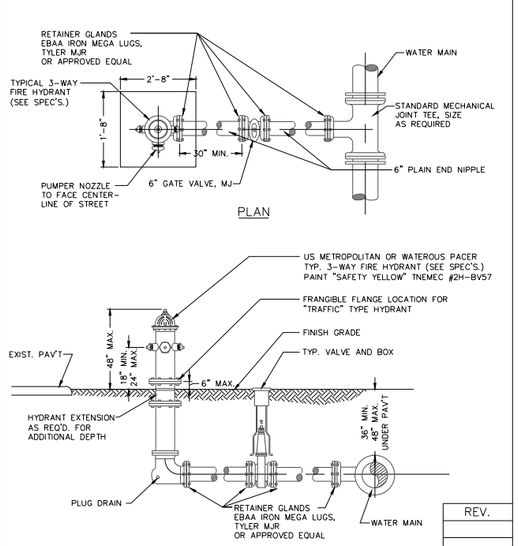
1. RESTRAINED LENGTH FOR TEES, CROSSES, VALVES AND PLUGS SHALL EQUAL RESTRAINED LENGTH FOR 90° BENDS.
2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING RESTRAINED JOINTS.
3. THE SCHEDULE SHOWN IS FOR THE FOLLOWING SERVICE CONDITIONS 150 psig INTERNAL PRESSURE; SOIL TYPE: SAND-SILT; 36 INCHES OF COVER AND TYPE 2 LAYING CONDITIONS.
4. RESTRAINED LENGTHS SHOWN IN TABLE ARE MINIMUM LENGTHS (IN FEET) AND ARE REQUIRED IN EACH DIRECTION FROM FITTINGS OR VALVES.

REV.

TYPICAL CUT - IN SLEEVE AND FITTING DETAIL
N.T.S.

CITY OF PLANT CITY STANDARDS

DRAWN	ED	SCALE	NTS	CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA	FILE NO.	DWG. NO.
CHECKED		DATE	01/09/96			WS-04

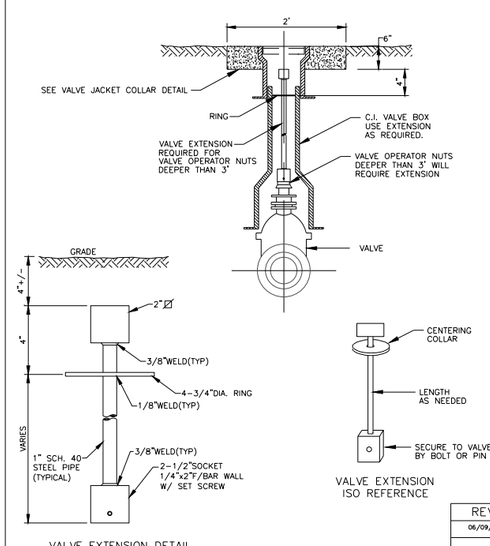


REV.

FIRE HYDRANT INSTALLATION DETAIL
N.T.S.

CITY OF PLANT CITY STANDARDS

DRAWN	ED	SCALE	NTS	CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA	FILE NO.	DWG. NO.
CHECKED		DATE	01/09/96			WS-05



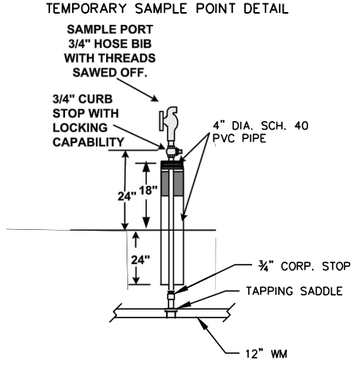
REV.
06/09/00

TYP. C.I. VALVE BOX AND VALVE EXTENSION
N.T.S.

CITY OF PLANT CITY STANDARDS

DRAWN	ED	SCALE	NTS	CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA	FILE NO.	DWG. NO.
CHECKED		DATE	06/07/00			WS-07

TEMPORARY SAMPLE POINT DETAIL



NOTE:
AFTER APPROVAL OF PERMIT CLEARANCE CLOSE CORPORATION STOP, REMOVE PIPING ABOVE THE STOP AND PLUG PIPE.

REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

Standard Details

PROJECT NO. **9680.38**

DRAWING NO. **D1**

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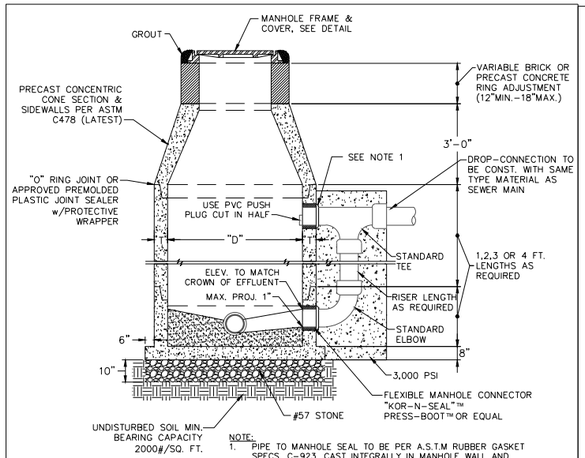


NOTE:

1. PIPE TO MANHOLE SEAL TO BE PER A.S.T.M RUBBER GASKET SPECS. C-923, CAST INTEGRALLY IN MANHOLE WALL AND LOCATED AS REQUIRED. AS MANUFACTURED BY A-LOK PRODUCTS OR APPROVED EQUAL. (SEE DETAIL)
2. THE INTERIOR & EXTERIOR OF MANHOLE SHALL BE GIVEN TWO COATS OF FARBERTITE BITUMINOUS WATERPROOF MATERIAL

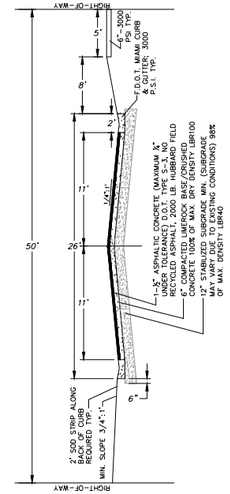
SCHEDULE OF MANHOLE DIMENSIONS		
LARGEST PIPE IN MANHOLE	"D" INSIDE DIAMETER	"T" WALL THICKNESS PRECAST
8"-15"	4'-0"	8"
18"-24"	5'-0"	8"
30"-38"	6'-0"	8"
42" AND OVER	NOMINAL PIPE DIA. + 3'-0"	SUBMIT RECOMMENDED THICKNESS TO ENGR. FOR APPROVAL

DROP MANHOLE DETAIL

REV.
2/05

SECTION - PRECAST CONCRETE MANHOLE | CITY OF PLANT CITY STANDARDS

DRAWN ED | CHECKED | SCALE NTS | DATE 12/21/95 | CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA | FILE NO. SEW-05-C | DWG. NO.



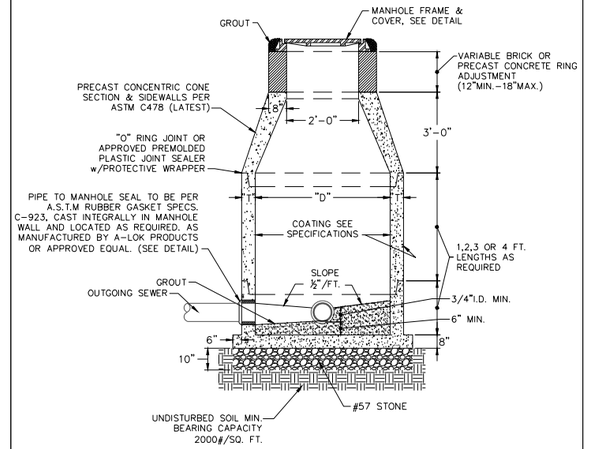
NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL MEET CITY STANDARDS.
2. ALL UNDERGROUND UTILITIES MUST BE INSTALLED PRIOR TO PREPARATION OF SUBGRADE FOR PAVEMENT.
3. SIDEWALKS SHALL CONFORM TO LOCAL STREET LOCATED FOR CONNECTIVITY. ALL SIDEWALKS SHALL COMPLY WITH ADA REQUIREMENTS.
4. CITY ENGINEER HAS THE FINAL DETERMINATION ON THE TYPE OF BASE USED, DEPENDING ON SEASONAL HIGH WATER AND OTHER FACTORS.

REVISION

RESIDENTIAL ROADWAY STANDARD | CITY OF PLANT CITY ROADWAY STANDARDS

DRAWN: RLS | CHECKED: N/C | SCALE: N.T.S. | DATE: 06/21/03 | CITY OF PLANT CITY ENGINEERING DIVISION 302 W REYNOLDS ST, PLANT CITY, FL 33563 | FILE NO. | DWG. NO. SS-10

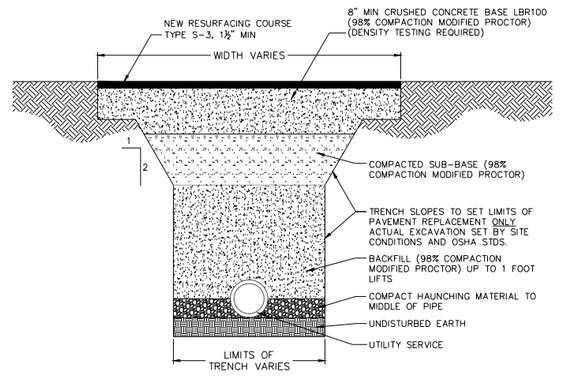


SCHEDULE OF MANHOLE DIMENSIONS		
LARGEST PIPE IN MANHOLE	"D" INSIDE DIAMETER	"T" WALL THICKNESS PRECAST
8"-15"	4'-0"	8"
18"-24"	5'-0"	8"
30"-38"	6'-0"	8"
42" AND OVER	NOMINAL PIPE DIA. + 3'-0"	SUBMIT RECOMMENDED THICKNESS TO ENGR. FOR APPROVAL

REV.
2/05

SECTION - PRECAST CONCRETE MANHOLE | CITY OF PLANT CITY STANDARDS

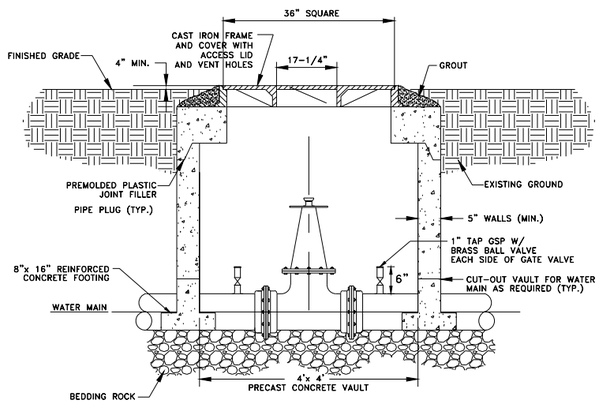
DRAWN ED | CHECKED | SCALE NTS | DATE 12/21/95 | CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA | FILE NO. SEW-04-C | DWG. NO.



REV.

TRENCHING AND PAVEMENT REPLACEMENT DETAIL | CITY OF PLANT CITY STANDARDS

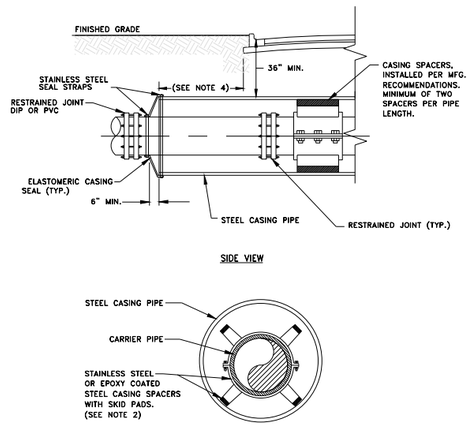
DRAWN BS | CHECKED | SCALE NTS | DATE 02/10/98 | CITY OF PLANT CITY ENGINEERING DIVISION PLANT CITY, FLORIDA | FILE NO. | DWG. NO. MS-02



NOTES:

1. ABOVE DETAIL IS BASED ON 12" GATE VALVE. CHANGE PIPE AND FITTINGS ACCORDINGLY FOR OTHER VALVE SIZES AND TYPES. VALVE SIZES TO BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY PRIOR TO INSTALLATION.
2. THE MINIMUM DIMENSION FROM TOP OF PIPE TO FINISHED GRADE SHALL BE 4.0 FEET.
3. COVER SHALL BE MARKED WATER.

GATE VALVE IN CONCRETE VAULT WITH SAMPLE POINT



NOTES:

1. WHEN CONSTRUCTION IS WITHIN FDOT JURISDICTION, ADDITIONAL REQUIREMENTS OF THE FDOT UTILITY ACCOMODATION GUIDE SHALL BE MET.
2. CASING SPACERS ARE REQUIRED, WOOD SKIDS ARE PROHIBITED.
3. LARGER SKIDS SHALL BE REQUIRED FOR PIPE GREATER THAN 24" DIAMETER.
4. WHERE PRACTICAL, CASING SHALL EXTEND 10' BEYOND EDGE OF PAVEMENT AND SHALL NOT BE LESS THAN 6' BEYOND EDGE OF PAVEMENT IN ANY CASE. PCU MAY REQUIRE LONGER CASING FOR DEEPER BORES.
5. ALL SKID PADS SHALL FIRMLY TOUCH CASING FOR GRAVITY PIPE APPLICATIONS.

JACK AND BORE DETAIL

REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

Standard Details

PROJECT NO. 9680.38

DRAWING NO. D2

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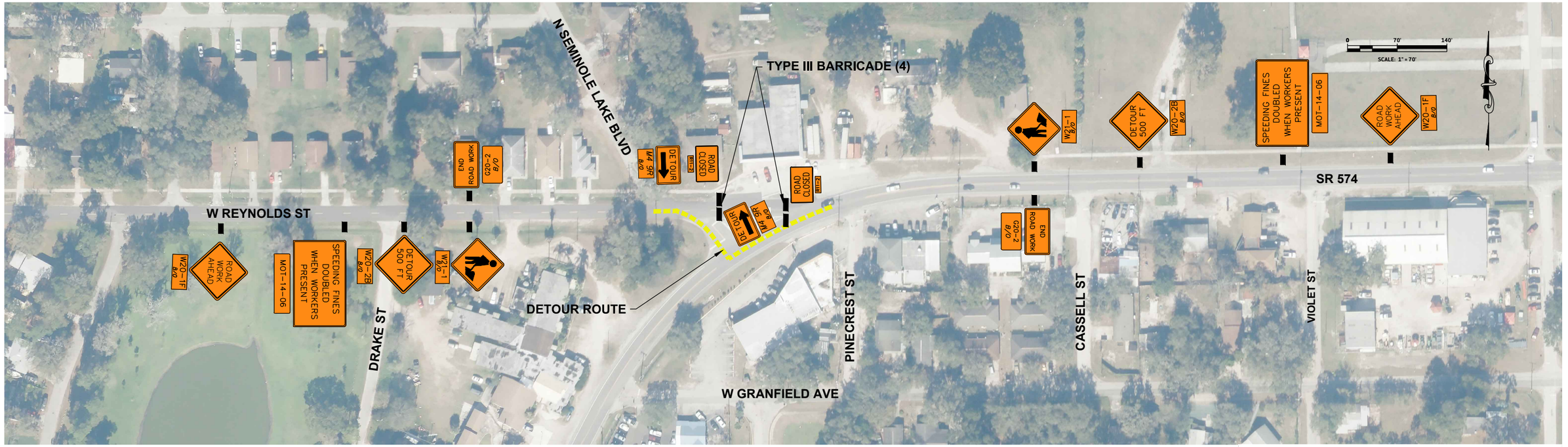
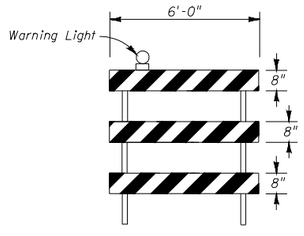


CHANNELIZING AND LIGHTING DEVICE NOTES

1. Only approved traffic control devices included on the Qualified Products List (QPL) may be used.
2. The FDOT approval number shall be engraved on the device at a convenient and readily visible location. Where engraving is not practical a water-resistant type label may be used.
3. The details shown on this sheet are for the following purposes: (a) For ease of identification and (b) To provide information that supplements or supersedes that provided by the MUTCD.
4. The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit. Signs used in conjunction with Type III Barricades may be mounted on or above the barricade. These signs should not cover more than 50 percent of the top two rails or 33 percent of the total area of the three rails.
5. During hours of darkness, warning lights shall be used on drums, vertical panels, Type I, Type II, Type III and direction indicator barricades in accordance with 'Warning Lights' in Index No. 600.
6. Ballast shall not be placed on top rails or any striped rails or higher than 13" above the driving surface.
7. The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.
8. The splicing of sheeting is not permitted on either channelizing devices or MOT signs.
9. For rails less than 3'-0" long, 4" stripes shall be used.



TYPE III BARRICADE

REVISION NO.	REVISION DATE	REVISION DESCRIPTION
P3	11/18/16	ISSUE FOR BIDS
P2	11/04/16	ISSUE FOR FINAL REVIEW
P1	10/18/16	ISSUE FOR REVIEW

REV.	DATE
P3	11/18/2016

CHASTAIN SKILLMAN

ENGINEER:
STEVEN A. DUTCH, P.E.
REG. NO. 39118

City of Plant City
SR 574 UTILITY RELOCATION

Detour Plan

PROJECT NO. 9680.38

DRAWING NO. D3

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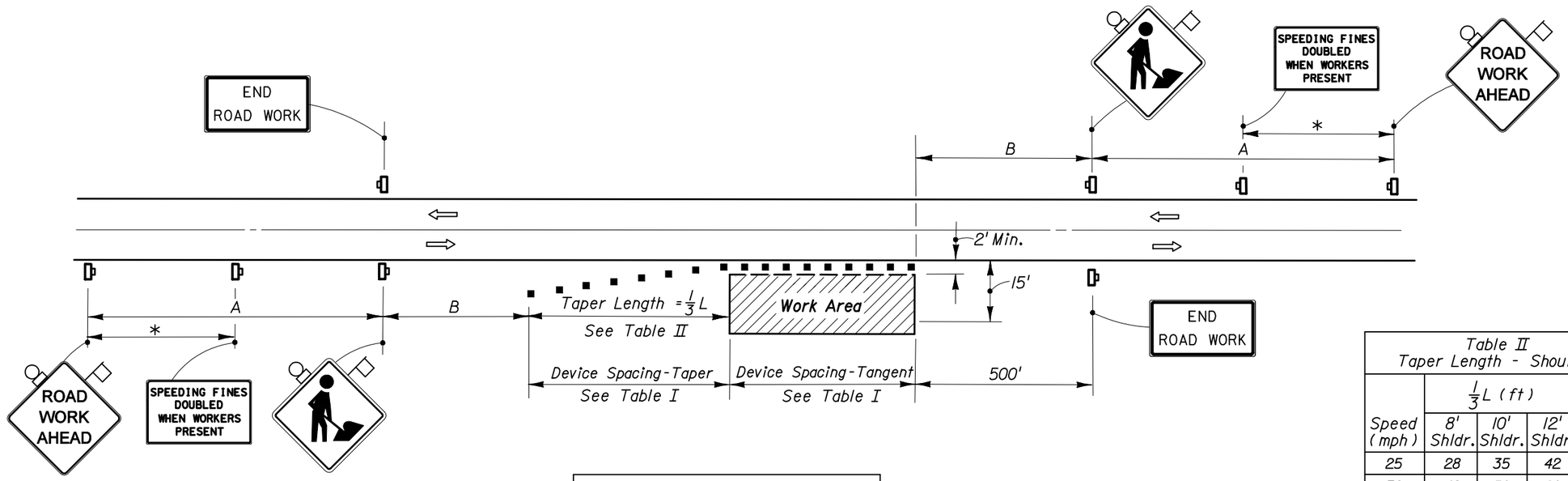

DISTANCE BETWEEN SIGNS		
Speed	Spacing (ft)	
	A	B
40 mph or less	200	200
45 mph	350	350
50 mph or greater	500	500

* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

Table I
Device Spacing

Speed (mph)	Max. Distance Between Devices (ft)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Table II
Taper Length - Shoulder

Speed (mph)	1/3 L (ft)			Notes
	8' Shldr.	10' Shldr.	12' Shldr.	
25	28	35	42	$L=\frac{WS^2}{60}$
30	40	50	60	
35	55	68	82	
40	72	90	107	
45	120	150	180	L = WS
50	133	167	200	
55	147	183	220	
60	160	200	240	
65	173	217	260	
70	187	233	280	

8' minimum shoulder width.

1/3 L = Length of shoulder taper in feet

W = Width of total shoulder in feet (combined paved and unpaved width)

S = Posted speed limit (mph)

SYMBOLS

- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Lane Identification + Direction of Traffic

GENERAL NOTES

1. All vehicles, equipment, workers (except flaggers), and their activities are restricted to one side of the roadway.
2. When four or more work vehicles enter the through traffic lanes in a one hour period or less (excluding establishing and terminating the work area), the advanced FLAGGER sign shall be substituted for the WORKERS sign. For location of flaggers and FLAGGER signs, see Index No. 603.
3. WORKERS sign to be removed or fully covered when no work is being performed.
4. SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign only on the side where the shoulder work is being performed.
5. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
6. For general TCZ requirements and additional information refer to Index No. 600.

DURATION NOTES

1. Signs and channelizing devices may be omitted if all of the following conditions are met:
   a) Work operations are 60 minutes or less.
   b) Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

CITY OF PLANT CITY AS-BUILT/RECORD DRAWING REQUIREMENTS

Note: All minimum required data must be present on submitted As-Built drawings prior to any project receiving a final acceptance, issuance of Certificate of Occupancy or return of performance bond.

MINIMUM REQUIRED DATA

A. GENERAL

1. As-built drawings must be prepared and certified by either a Florida registered land surveyor or a Florida registered professional engineer.
2. As-built drawings shall be drawn to scale on 36" x 24" sheets. Rights of way, easements, and lot lines shall be accurately shown. Lot and block numbers and street names shall be included.
3. Each sheet must be labeled as "AS-BUILT" in one inch bold letters.
4. The name and address of the Florida registered professional engineer or Florida registered land surveyor responsible for preparing the as-built shall be included on each sheet along with an their original signature and embossed seal.
5. A north arrow with scale must be included.
6. Approved paving and drainage plans may be used for the as-built drawings when all construction is in substantial compliance with the approved plans. Cross through all changes in design elevations and indicate as-built conditions. If substantial deviations have been made new as-built drawings will be required.
7. A certification by the surveyor/engineer accepting responsibility of accuracy of information supplied on the as-built drawings and a statement that all sewer and water mains are within easements and/or public right of ways.
8. Once approved, two sets of Approved As-Built plans in PDF and AutoCAD 2009 or newer version CD/DVD(s), three (3) signed, sealed and dated blue line prints, and one Mylar plan set are required.
9. As-Built drawings must include typical detail or approved custom detail of installed structures and/or improvements.
10. All As-Built drawings must include cover sheet with project name, table of contents, general as well as close-in site location, and date of revision.

B. CONTROLS

1. Within easements: bearing and distance of utility as referenced to property corners. Bearing to be based on plat data when within a platted subdivision.
2. Within road right of way: stationing with offsets right and left. Stationing to begin at a prominent, easily described and identified point. Stationing to be based on plat data when within a platted subdivision.
3. Vertical control shall be established by a benchmark set to NGV datum of 1929 and NAVD88.
4. Horizontal control shall be established to the State Plane Coordinate System Florida West FIPS 0902(Feet) NAD1983(CORS).
5. Projection: Transverse Mercator; Spheroid: GRS 1980; Units: US Feet; Datum: NAD1983(CORS); Prime Meridian: Greenwich; Angular Unit: Degree.

C. WATER DISTRIBUTION SYSTEMS

1. Location including depth of mains from property or easement lines and alignment distance form centerline of road at 300 +/- intervals.
2. The distance from hydrant to hydrant valve must be shown.
3. A minimum of 2 ties to all valves, service laterals, fittings, backflow preventers and fire hydrants from permanent points (manholes or property corners) shall be shown. An acceptable station and offset system may also be used.
4. Separation between reuse lines, force mains, gravity or storm sewers and water mains if they exist within 10 feet of water mains.
5. Water main material, lengths, and distance of mains from buildings or structures with 20 feet of the water main.
6. Pertinent easement information, including width of easement, legal description, show Official Record Book and page number, and distance from watermain to sides of easement.

D. SEWAGE COLLECTION SYSTEMS

1. Manhole tops and invert elevations are to be designated to the nearest 0.01 feet and referenced to a known benchmark.
2. Manholes are to be designated by stationing from a known, and easily located starting point. Sewer lengths, materials and slopes must be included.
3. Horizontal and vertical location of lift stations/wetwells with inverts of all connections, piping and pump descriptions indicating size and type of pumps installed.
4. Summary of type of lift station, depth, and size of pumps.
5. Separation between reuse lines, force mains, gravity or storm sewers and water mains if they exist within 10 feet of water mains.
6. Sewer laterals are to be located with respect to lot corners.
7. Location of force mains and gravity mains from property or easement lines and alignment distance from centerline of road at 300+/- ft intervals.
8. Type of sewer main material and distance of mains from buildings or structures within 20 feet of the sewer main.
9. Distance from manhole to manhole and distance from downstream manhole to each sewer lateral/main wye. Finished invert and manhole rim elevations in addition to sewer lateral terminating end elevations.
10. Pertinent easement information, showing Official Record Book and page number.

E. STORM DRAINAGE SYSTEMS

1. Storm inlets are to be designated by stationing from a known, and easily located, starting point. Right and left offsets will be used.
2. Pipe size, length, and materials shall be shown.
3. Pertinent easement information, including width of easement, legal description, showing Official Record Book and page number, and distance from storm drain pipe to side of easement.
4. Storm inlet tops and inverts are to be designated to the nearest 0.01 feet and referenced to a known benchmark.
5. Location and elevations (including invert elevations) of drainage structures, pipes, ditches, swales and canals along with any other conveyance of stormwater must be indicated.
6. Top of bank and bottom elevations for swales, canals and ponds shall be shown at changes of direction and 50 feet intervals.
7. Weirs and orifice elevations along with as-built dimensions for length, width, and diameter must be included.
8. Type of inlet and grate used.

F. ROADWAYS

1. Roadway centerline elevations and gutter flow line elevations shall be shown at intervals of 100 feet and at changes in vertical and horizontal alignment, PVC and PVT, low points and high points, curb returns and centerline intersections.
2. Roadway elevations are to be designated to the nearest 0.01 feet and referenced to a known benchmark.
3. Street names must be shown.

G. REUSE

1. Reuse networks shall comply with similar requirements as specified for water distribution and sanitary sewer systems.

H. IMPROVEMENTS

1. The location of all on and offsite improvements including paving, driveways, buildings, walkways, shall be included.
2. Sufficient elevations and dimensional data must be shown to confirm that the proposed improvements were constructed according to approved plans, including finished floor elevation

Project Closeout Documents

Prior to release of final payment the contractor is required to submit the following documents to the project manager:

1. Consent of Surety to Final Payment
2. Warranty Letter for 1 year
3. Lien Waiver Affidavit
4. As-built drawings that comply with City Standards
5. O & M Manuals applicable to the project