South Martin Regional Utility

Uniform Extension Policy

Policies, Procedures, Standard Details and Specifications
for
Water Distribution, Sewage Collection and Reclaimed Water Systems

TABLE OF CONTENTS

To Whom It May Concern:

The Town of Jupiter Island, Florida has approved the following Uniform Extension Policy entitled, "Uniform Extension Policy - Policies, Procedures, Standard Details, and Specifications for Water Distribution, Sewage Collection and Reclaimed Water Systems."

The standards set forth in this document are intended to provide the basis of design and construction for water and sewer utility infrastructure for projects located within the service territory of the South Martin Regional Utility which are and will be owned and operated by the Town of Jupiter Island. All applicable Federal, State, and County laws and regulations should be considered concurrently with this document. Any variation from these standards shall be approved in advance by the Town Manager or his designee prior to construction.

It is the responsibility of the user to verify that this document contains all of the latest revisions.

Any questions or correspondence shall be directed to:

Sincerely,

Mayor of the Town of Jupiter Island

Section I

POLICY & PROCEDURES

UNIFORM EXTENSION POLICY
FOR THE TOWN OF JUPITER ISLAND/SOUTH MARTIN REGIONAL UTILITY
ACCEPTANCE OF WATER, SEWER AND RECLAIMED WATER SYSTEMS

Declaration of Policy

The Town of Jupiter Island (the "Town") owns, operates and maintains water production, treatment and distribution, sewage collection, treatment, and disposal, and reclaimed water production, treatment and distribution systems which serve customers within and without the Town. New or existing development may require the extension of mains to provide service. The Town specifically reserves the right to fix and determine rates, charges and contributions required for the provisions, consumption, operation, maintenance, extension and expansion of its utility services as provided herein and as authorized by law, and to amend the same from time to time. Each customer is hereby notified that the Town, in the exercise of its governmental responsibility to provide for the health, safety and welfare of all consumers of its utility services, has the authority and responsibility to amend its schedules of rates, charges and contributions from time to time to ensure the perpetuation of service.

Utility Permits

Prior to water, sewer and reclaimed water plan approval by the Town and execution of water, sewer and reclaimed water main extension applications to state agencies by the Town, the developer shall be required to obtain a Utility Permit from the Town. This Utility Permit shall be binding on the developer, its successors, assigns and any other subsequent owner or user of the property, and incorporate the provisions of this chapter governing developer and Town responsibility pertaining to the reservation of capacity; the installation of service facilities; the connection of customer's installation with the facilities of the Town ; the manner and method of payment of contributions, fees, and charges; guaranteed revenue provisions; standards of construction or specifications; regulations, policies, practices and procedures of the Town ; prohibitions against improper use of Town's facilities; and other matters normally associated with the provision of utility service. Permits shall only apply to specific parcels of property and are not assignable or transferable in any manner to any other parcel of property. The acceptance of the Utility Permit and execution by developer shall act to supersede all previous agreements or representations, either written or oral, between developer and Town with respect to the subject matter of the Utility Permit, which shall merge with the provisions of the Utility Permit. The Utility Permit shall constitute the full agreement between the developer and Town . The Town Manager or his designee shall be authorized to issue Utility Permits in compliance with this chapter, but may not deviate from the provision of the chapter without the approval by Resolution of the Town commission. No developer may rely upon a deviation from the provisions of this Policy without a Resolution of the Town approving the same. Developers may not rely upon oral or written statements from the Town, Town staff, consultants or utility operations staff that deviate from the provisions of this Policy.

Water, Sewer and Reclaimed Water Facility Installation

The Town requires the installation of water distribution, sewer collection and reclaimed water distribution facilities by a developer, with title to such facilities being transferred to the Town when the installation has been completed and accepted. The facilities are on-site and off-site.

Off-site Facilities

A developer may be required to construct or improve, at its sole expense, certain off-site water, sewer or reclaimed water facilities, or all, if necessary, in order to connect developer's on-site facilities to Town's existing water, sewer or reclaimed water systems. All provisions in Section 15-65 below, pertaining to specifications, plans, permits, transfers, approvals and warranties shall also be applicable to all off-site water, sewer and reclaimed water facilities construction.

On-site Facilities

Each developer shall be responsible for the design, installation, inspection, and testing of the complete water distribution, sewage collection and reclaimed water distribution systems located in the streets adjoining or within the boundaries of the developer's property. The term "complete water distribution, sewage collection and reclaimed water distribution systems" shall include all component parts of a water distribution system, including water mains, valves, fittings, services, hydrants, and all appurtenances as shown upon the approved design of such water distribution system and all the component parts of the sewage collection system including all collection mains, laterals to the point of cleanout within right-of-way or easement, force mains, lift or pumping stations including the site for same and all other appurtenances as shown on the approved design for the installation of such sewage collection systems and all reclaimed water distribution systems component parts. To insure the ability of the utility to provide efficient and effective utility service to the development, a developer shall be required to extend On-site Facilities along the full length of the road frontage and boundaries of the developer's property.

System Design

The Town shall recognize the design of water, sewer and reclaimed water facilities prepared by a professional engineer registered in the State of Florida regularly engaged in the field of civil or environmental engineering, covering the design of the developer's on-site and off-site water distribution, sewage collection and reclaimed water system. Each such design shall be fully subject to the review and approval of the Utility and shall conform in all respects to Town criteria set forth in this Policy or otherwise as approved by Resolution of the Town Commission.

DEVELOPER PERMIT PROCESS

Pre-Reservation of Capacity Procedures

Prior to a Developer reserving utility system capacity for a project, a Developer may request a utility system status letter ("status letter") from the Town. Such status letter shall not constitute a reservation of capacity or otherwise bind the Town to provide service to a Developer's project. The Town Manager, or his designee, shall prepare the status letters, which shall set forth the existing available capacity of the Town's utility system and the availability of utility lines within the area of proposed development. There shall be no charge to a Developer for issuance of a status letter.

In order to begin the process to reserve capacity in the Town's utility system, the Developer must pay one (1) year full Accrued Guaranteed Revenue Fees ("AGRF") (the "Pre-Reservation Fee") for the level of capacity that the Developer will be submitting to the applicable governmental agency for land use/zoning/building permit approval (the "Project Reviewer"). The Pre-Reservation Fee is non-refundable, but may be credited to Developer's account, without interest, in accordance with the procedures below. Upon receipt of the Pre-Reservation Fee, the Town Manager, or his designee, will review, execute and process for Developer such utility infrastructure plans and permits related to the Developer's project as required by the Project Reviewer to process Developer's project approvals.

At the time of payment of the Pre-Reservation Fee, no capacity will be reserved, but the Town will issue a commitment letter to Developer (the "Commitment Letter") which shall state that upon receipt of the required approvals from the Project Reviewer and Developer's election to go forward with the development pursuant to the requirements set forth in **General/Procedures to Reserve Capacity**, below, capacity will be reserved by the Town. The Commitment letter is effective for twelve months. Before the expiration of the twelve months, the Developer shall either: (a) elect to go forward with the project and enter into a Developer Permit; or (b) secure a twelve (12) month extension if the Developer has not yet obtained required Project Reviewer approvals, based upon the determination of the Town Manager, or his designee, in his sole discretion, that a good faith effort has been made by the Developer to secure Project Reviewer approval of the development, and as long as the Developer continues a diligent effort to obtain the required approvals. In order to secure such extension, the Developer will be required to

pay a second, one (1) year full AGRF, which is also non-refundable, but may be credited to Developer's account, without interest, in accordance with terms applicable to the original twelve months Commitment Letter.

In addition to the Pre-Reservation Fee, the Developer must pay the prevailing administrative review and plan review fees to the Town before the plan review process will be initiated.

General/Procedures to Reserve Capacity

Upon receipt of Project Reviewer approvals and the election of the Developer to go forward with the project, , the following procedures will be utilized by the Town to establish a capacity reservation in the Town's utility system through the use of a Utility Permit.

1. The party making application shall submit to Town :

   A. The completed property questionnaire.

   B. A legal survey of the subject property (8 ½ x 11 in size). Individual single family residences may provide a copy of their deed that has a legible legal description of the property.

   C. A copy of the proposed site plan (24" x 36" maximum in size) indicating building locations, proposed construction, etc.

   D. A letter from the fee-simple title holder of the property authorizing the Town to provide a Utility Permit to the inquiring party if the inquiring party is not the fee-simple title holder.

   e. Payment of all fees and charges required to be paid at the time of application.

   No action will be taken unless each of these items have been received and approved by the Town Manager or his designee.

2. A Utility Permit will be required if any one of the following conditions exists:

   A. Construction of water and/or wastewater improvements requires the issuance of County/State regulatory permits.

   B. Town requires ingress/egress to the site. Typically, this will be the case if on-site water/wastewater facilities are to be dedicated to the Town, or if the Developer's property provides the only reasonable access to the Town's facilities.

   C. A Commitment Letter has been previously issued to the Developer.

3. The Town Manager or his designee, will respond to the Developer indicating whether a Utility Permit is needed and the estimated administrative plan review, inspection, and connection fees based on the Developer's submittal. If an administrative plan review fee has previously been paid by the Developer in conjunction with the issuance of a Commitment Letter, no additional plan review fee will be required.

4. If a Utility Permit is necessary and Developer has not previously obtained a Commitment Letter from the Town for the project, Developer must pay the prevailing administrative review fees to Town before the engineering plan review process will be initiated. Town will begin the plan review process once administrative review fees have been paid, however, Town will not release plans for permitting by other agencies until a Utility Permit has been executed and all appropriate fees and charges have been received.

5. Developer's Engineer-of-Record (EOR) shall submit to Town preliminary drawings, FDEP, County and HRS permit applications, etc. for review in accordance with the Town's Construction Standards and Specifications.

6. Town will draw up its standard Utility Permit, and other appropriate documents and forward to Developer for signature.

7. To proceed further, the Developer must properly execute and return the Utility Permit, and payment of applicable fees and charges.

8. After completion of the plan review process, the Engineer of Record (EOR) shall make a final submittal, which will include signed and sealed engineering drawings, etc. as directed by Town for approval.

9. Prior to scheduling a preconstruction meeting for the project, the contractor shall submit to Town, through the EOR for his approval, those documents specified in the Town's prevailing Construction Standards and Specifications. (See Preconstruction Meeting Checklist, page 16).

10. Developer/EOR shall then set up a preconstruction meeting with EOR, utility contractor, appropriate Town inspectors, Town Consulting Engineer, and all other utilities involved in the project at Town's offices. No construction of water and/or sewer facilities is allowed prior to the pre-construction meeting. After the preconstruction meeting, Contractor must obtain a Notice to Proceed from the Town, prior to the commencement of any utility construction.

11. After Contractor receives the Notice to Proceed, Contractor shall notify Town's Consulting Engineer and Town inspectors a minimum of forty-eight (48) hours prior to commencement of construction of any water and/or sewer facilities. All construction activities must comply with Town's prevailing Construction Standards and Specifications.

12. Upon completion of construction and prior to the installation of the first water meter, EOR and/or Developer shall submit the following documents, as appropriate, to Town . All easements granted to Town shall be on Town's standard easement form and must be accompanied with title insurance acceptable to Town (see title insurance requirements, page 20), an indemnity agreement (if required by the Town), the Bill of Sale, a Release by Health Agency, Record Drawings which must be in Town standard format (see samples), and any other documents required by the Town.

13. Once all required documents are received and are in order, and Town has received copies of releases for water and sewer facilities from appropriate regulatory agencies, the Contractor may apply to Town for water meters and inspections of sewer lateral tie-ins. The balance of connection fees (if any), AGRF, meter charge, and backflow preventer charge must be paid at this time in accordance with the Town' utility resolutions and ordinances. If Developer has previously paid the Town a portion of its required AGRF in conjunction with the issuance or renewal of a Commitment Letter, the Town will credit the Developer with all AGRF amounts previously paid for the project, without interest. Water meters will be installed after sewer service lateral inspections are made by the appropriate engineering inspector. No permanent meters will be set until all outstanding Town requirements have been completed.

14. Upon occupancy of completed project, Town may field verify size and type of unit/business based on connection charges paid. If changes have been made which indicate that additional charges should be assessed, Town will invoice the Developer for payment of said fees.

TOWN OF JUPITER ISLAND DEVELOPER PERMIT QUESTIONNAIRE

ANY OMISSION OF APPLICABLE INFORMATION WILL CAUSE THIS APPLICATION TO BE RETURNED.

All items listed below are required or specific information cannot be provided.

A. Completed property questionnaire
B. An 8 1/2" X 11" Survey
C. An authorization letter from the fee-simple title holder, if the permitting party is not the fee simple title holder

(Attach an additional sheet if necessary)

Date: _____

Applicant: _____

Address: _____

Telephone: _____

1. Project Name (if known at this time) _____

2. To your knowledge has any project ever been planned for this property before? If so, what was its name? ___

3 Project Location (Use street names or distances from nearest major roadways)

Section:_____ Township:_____ Range:_____

4. Current owner of property and business identity: _____

Address: _____

Telephone: _____

5. Relationship of applicant to property owner -- please check where appropriate.

Title Holder_____ Representative of Owner_____.
Realtor, preparing property for sale_____.
Developer,_____.
Mortgagee, if applicable___ (Other, Specify)_____

6. Project Engineer, and phone number if known: __

7. Complete the following section carefully, it will serve as the basis for fee calculations. If information provided is incorrect, fees quoted will be incorrect. Fees paid will be those in effect at the time of remittance and execution of the Town Utility Permit.

8. Type of Development planned (if mixed use, indicate all uses).

A. Single Family Residence (# of Units)_____. Size of Lots_____acres.

B. Multi-Family Residence (# of Units)-Master Meter_____.
(# of Units)-Individual Meter_____.

C. Restaurant -
Ordinary (# of Seats)_____.
Bar & Cocktail Lounge (# of Seats)_____.
Drive In/Carry Out (Gross Square Feet)_____.

D. Doctor's Office Number of Doctors: _____

E. Dentist Office_____. Number of Dentists: _____

F. Shopping Centers/Stores without food or laundry (Gross Square Feet): _____

G. Schools: (# Students)_____(# of Faculty)
Showers (Yes) (No) Cafeteria (Yes) (No)

H. Office Building (Gross Square Feet)_____.

I. Service Station (# Water Closets)_____.

J. Car Washes: (# of Bays)_____(% of Reclaim)

K. Barber/Beauty Shops (# of Chairs)_____.

L. Hospital/Nursing Home (# of Beds)_____.
Dining Facilities (# of Seats)_____.

M. Churches (# of Seats)_____.

N. Laundromat (# of Machines)_____.

O. Hotel/Motel
Regular (# of Rooms)_____.
Restaurant Facilities (# of Seats)_____.
Laundry Facilities (Circle One) (Yes) # of machines_____(No)

P. Air Conditioning Water Cooling Towers (rating in tons anticipated water usage and sewage discharge _____

Q. Warehouse: # of employees/8 hour shift_____
# of bays_____
# of self storage units_____

R. Other (Please specify)_____.

II. Number of Acres_____.

III. Total water and sewer demand in gallons per day (must comply with HRS Rule 64E-6.008(1), F.A.C., as amended from time to time_____.

IV. Estimated cost to construct water, wastewater, and reuse improvements: _____

IV. General Information:

A. Describe current plans for phasing, if any

B. Provide beginning and ending dates for each phase

C. Give the name, address and phone number of the Developer and name and title of one representative/officer of Developer (if applicable) who will be signing the Utility Permit _____

_____

_____

_____

D. Entity for which Utility Permit will be issued. _____

E. Give name, address and phone number of individual to whom all correspondence, etc., concerning this project can be sent _____

_____

After the above information is reviewed, you will be contacted if further discussion is needed.

I have read the attached information sheet and understand it fully. I further hereby affirm that I am the authorized agent of the property owner and that the information provided herein is true and correct to the best of my knowledge and belief.

Applicant's Signature .

Print Name_____Number _____

UTILITY PERMIT

From

TOWN OF JUPITER ISLAND, FLORIDA
SOUTH MARTIN REGIONAL UTILITY

for

(PROJECT NAME)

THIS IS NOT A NOTICE TO PROCEED OR A BUILDING PERMIT. YOU MUST OBTAIN A NOTICE TO PROCEED AND BUILDING PERMIT FROM THE APPLICABLE BUILDING DEPARTMENT BEFORE YOU START CONSTRUCTION.

This is a Utility Permit issued by the Town of Jupiter Island, a municipal corporation organized and existing under the laws of the State of Florida, its successors and assigns, by and through its Town Commission, hereinafter referred to as "Town ",

TO

(Developer Name), hereinafter referred to as "Developer".

WHEREAS, Developer owns lands located in Martin County, Florida, and described in Exhibit "A", which is attached to and made part of the Agreement (hereinafter referred to as the "Property") and Developer intends to develop the Property for the uses set forth in the Questionnaire, which is attached and made a part of this Agreement;

NOW, THEREFORE, in consideration of the mutual terms and conditions set forth below, Developer and Town hereby agree as follows:

Town Code Binding: The provisions of the Town Code, and all Utility resolutions and ordinances, including, but not limited to, the Town's Uniform Extension Policy and Uniform Service Policy, as amended from time to time by the Town (collectively the "Town Code"), are incorporated in this Utility Permit and control Developer's obligations. Developer agrees to comply with and be bound by the provisions of the Town Code and has reviewed and understood its provisions.

IN WITNESS WHEREOF, the Town has issued this Utility Permit on the date under each signature.

TOWN OF JUPITER ISLAND

By:_____
Town Manager or his Designee
_____day of_____, 20__

The undersigned Developer accepts the Utility Permit, agrees to the conditions of the Utility Permit and acknowledges that water and sewer service to the Property will be subject to the provisions of the Town Code, as amended from time to time by the Town . Developer agrees that the Town may enforce Developer's obligations under the Town Code by an action for specific performance, and Developer waives all defenses to a specific performance action by Town .

Signed_____ Date: _____

By: _____
Print Name and Title

Developer Name and Title:

Mailing Address:

Phone Number:

Sworn to and subscribed before me this _____day of _____, 20___, by _____the _____ of _____a_____corporation.

_____
Signature of Notary Public

_____
Print, Type or Stamp Name of Notary
_____Personally known to me, or
_____Produced identification:_____
Type of Identification
My Commission Expires:

Plan Submittals and Approvals

The Town will retain two (2) sets of all submittals. It is the Applicant's responsibility to provide sufficient copies to allow for further processing of documents after they have been returned by the Town.

All engineering drawings shall be submitted on 24" x 36" size sheets and shall include the following at a minimum:

1. Location map, include section, township, and range.
2. Title block with Engineering Firm name, signature and seal of Engineer of Record, scale, date of drawing, revision block.
3. North arrow.
4. General statement on all plan sheets - "CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE TOWN OF JUPITER ISLAND MINIMUM DESIGN AND CONSTRUCTION STANDARDS."
5. Scale of 1" = 30' minimum.
6. Project Phasing, if applicable.
7. Project survey perimeter boundary with street address of lots and buildings to be served showing the distances from the building to the property lines. Lots and blocks shall be provided as well as the name, official record book number, and page of the plat.
8. Rights-of-way adjacent to project shall be dimensioned and defined. Street names shall be indicated. The exact location of the proposed utility mains shall be shown within the right-of-way or easement. Distances from right-of-way lines and property lines to the proposed utility mains are required on all drawings.
9. Benchmark references shall be provided.
10. Size and type of material shall be shown for each water and sewer main line. All dimensions shall be in linear feet.
11. All line deflection points shall be indicated, including both horizontal and vertical and method of deflection.
12. Profiles are required for gravity sewer mains and all utility pipe crossings only and must have the following minimum information: Invert and rim elevations, pipe slope, profile grade, elevation over pipe, continuous station measurements, continuous numbering of manholes, other crossing utilities including drainage indicating top and bottom of pipe elevations, and pipe types.
13. Location and size of water meters.
14. Pump station design* shall be in accordance with the Town's standards unless the station will remain private. Private pump stations must be approved by the Town .
15. Standard Water and Sewer Details shall be included with each submittal.

* Pump station designs will require supporting calculations. Submit three signed and sealed copies along with the plan submittal outlined above. These calculations must include flow and head determinations, establishment of the pump curve indicating pumping efficiencies, and model numbers and ratings of all pumps.

ERC Calculations

In order to determine the plant connection fee associated with the Developer Permit, the number of ERC's (Equivalent Residential Connections) associated with the project must first be determined. An ERC is defined as a standard of measurement used to establish equivalent charges for all categories of utility system customers. Once determined, the plant connection fee is based on the number of ERC's for the project.

An ERC applies to a single family customer which is a customer classification that includes all residential dwelling units that do not share a common wall with another unit and all dwelling units that are common walled and are individually metered. A single-family customer with a 5/8" meter equals 1 ERC. A single-family customer with a 1" meter equals 2.5 ERC's. For single-family customers with 1 ½" and 2" meters, such customers must submit site

and landscape plans to the Town's Consulting Engineer to determine the number of ERC's for such customer in accordance with the following formula: Annual irrigation consumption will be based on applying 1" of water per week over the pervious area of the lot less an annual allowance of 20" per year of rainfall over the pervious area of the lot. Potable or domestic consumption will be calculated on the basis of 100 gallons per day for each bathroom that contains a water closet, lavatory, and shower/tub. The sum of the irrigation and domestic demands will be the total average day demand used to compute connection charges, with a 2.5 ERC minimum charge. The impervious area shall include the "footprint" of any buildings, and driveways, pools, porches, patios, walkways, etc. For the purpose of this calculation, an ERC shall be 350 gallons per day, and a cubic foot of water is equal to 7.48 gallons.

Multi-family connections are classified as residential dwelling units that are one of several units that share one or more common walls and are master metered and mobile home park master meter customers. For multi-family and mobile home park master meter customers, connection charges will be calculated based upon the number of units behind the master meter multiplied by the multi-family and mobile home park master meter connection charge.

General service, commercial, industrial, mixed-use master meter, irrigation and governmental classifications must determine the number of ERC's associated with the projects based upon unit flows calculated under Florida Administrative Code, Rule 64E-6.008 System Size Determinations, as amended from time to time. The following table contains the current average daily flows under Rule 64E-6.008 adopted by the Town of Jupiter Island for various project classifications. These unit flows are to be multiplied by the average number of days in a month (30.4 days/month) to determine an average monthly demand. This average monthly demand is converted to an equivalent number of ERC's, as defined above, to determine the associated plant connection fee.

TOWN OF JUPITER ISLAND
SOUTH MARTIN REGIONAL UTILITY
ESTIMATED WATER AND SEWER FLOWS
Reference Rule 64E-6.008, Florida Administrative Code as amended from time to time

TYPE OF ESTABLISHMENT	*GALLONS PER DAY*
COMMERCIAL:	
Airports, Bus Terminals, Train Stations, Port & Dock facilities, Bathroom waste only	
(a) Per passenger	4
(b) Add per employee per 8 hour shift	15
Barber & Beauty Shops per service chair	75
Bowling Alley bathroom waste only per lane	50
Country Club	
(a) Per resident	100
(b) Add per member or patron	25
(c) Add per employee per 8 hour shift	15
Doctor & Dentist offices	
(a) Per practitioner	250
(b) Add per employee per 8 hour shift	15
Factories, exclusive of industrial wastes gallons per employee per 8 hour shift	
(a) No showers provided	15
(b) Showers provided	25
Flea market – open 3 or less days per week	
(a) Per non-food service vendor space	15
(b) Add per food service establishment using single service articles only per 100 sq. ft. of floor space	50
(c) Per limited food service establishment	25
(d) For flea market open more than 3 days per week, estimated flows shall be doubled	
Food operations	
(a) Restaurant operating 16 hours or less per day per seat	40
(b) Restaurant operating more than 16 hours per day per seat	60
(c) Restaurant using single service articles only and operating 16 hours or less per day per seat	20
(d) Restaurant using single service articles only and operating more than 16 hours per day per seat	35
(e) Bar and cocktail lounge per seat	20
Add per pool table or video game	15
(f) Drive-in restaurant per car space	50
(g) Carry-out only including caterers	50
- per 100 sq. ft. of floor space	50
- add per employee per 8 hour shift	15
(h) Institutions per meal	5
(i) Food outlets excluding deli's, bakery, or meat department per 100 sq. ft. of floor space	10
- add for deli per 100 sq. ft. of deli floor space	40
- add for bakery per 100 sq. ft. of bakery floor space	40
- add for meat dept. per 100 sq. ft. of meat dept. floor space	75
- add per water closet	200

TOWN OF JUPITER ISLAND ESTIMATED
WATER AND SEWER FLOWS
Reference Rule 64E-6.008, Florida Administrative Code as amended from time to time TYPE

OF ESTABLISHMENT	*GALLONS PER DAY*
Hotels & Motels	
(a) Regular per room	100
(b) Resort hotels, camps, cottages per room	200
(c) Add with establishments with self service laundry facilities per machine	750
Mobile Home Park	
(a) Per single-wide mobile home space, less than 4 single-wide spaces connected to a shared	
onsite system	250
(b) Per single-wide mobile home space, 4 or more single-wide spaces connected to a shared	
onsite system	225
(c) Per double-wide mobile home space, less than 4 double-wide spaces connected to a shared	
onsite system	300
(d) Per double-wide mobile home space, 4 or more double-wide spaces connected to a shared	
onsite system	275
Office Building	
(a) Per employee per 8 hour shift or	15
(b) Per 100 sq. ft. of floor space, whichever is greater	15
Transient Recreational Vehicle Park	
(a) Recreational vehicle space for overnight stay, without water & sewer hookup per vehicle space	50
(b) Recreational vehicle space for overnight stay with water & sewer hookup per vehicle space	75
Service Stations – per water closet	
(a) Open 16 hours per day or less	250
(b) Open more than 16 hours per day	325
Shopping Centers – without food or laundry per sq. ft. of floor space	0.1
Stadiums, Race Tracks, Ball Parks, per seat	4
Stores – per bathroom	200
Swimming & Bathing facilities – public per person	10
Theaters & Auditoriums – per seat	4
Veterinary Clinic per practitioner	250
(a) Add per employee per 8 hour shift	15
(b) Add per kennel, stall or cage	20
Warehouse	
(a) Add per employee per 8 hour shift	15
(b) Add per loading bay	100
(c) Self-storage, per unit (up to 200 units)	1
add 1 gallon for each 2 units or fraction thereof for over 200 units	

INSTITUTIONAL:

Churches - per seat which includes kitchen wastewater flows unless meals prepared on a routine basis	3
- If meals served in a regular basis, add per meal prepared	5
Hospitals - per bed which does not include kitchen wastewater flows	200
- Add per meal prepared	5
Nursing, Rest Homes, Adult Congregate Living Facilities - per bed which	
does not include wastewater flows	100
- Add per meal prepared	5

TOWN OF JUPITER ISLAND ESTIMATED
WATER AND SEWER FLOWS
Reference Rule 64E-6.008, Florida Administrative Code as amended from time to time

TYPE OF ESTABLISHMENT	*GALLONS PER DAY*
Parks, Public, Picnic	
(a) With toilets only per person	4
(b) With bathhouse, showers & toilets per person	10
Public Institutions other than schools & hospitals - per person which does not include kitchen wastewater flows	100
- Add per meal prepared	5
Schools – per student	
(a) Day type	10
(b) Add for showers	4
(c) Add for cafeteria	4
(d) Add for day school workers	15
(e) Boarding type	75
Work/Construction Camps, semi-permanent – per worker	50

CONSTRUCTION, PERMITS, & INSPECTIONS

Preconstruction Meeting

Prior to the commencement of construction or the issuance by the Town of a Notice to Proceed, a preconstruction meeting must be held between the Engineer of Record, the utility contractor, appropriate Town inspectors, Town Consulting Engineer, and all other appropriate personnel. The items listed on the Preconstruction Meeting Checklist, as applicable, must be on file with the Town prior to scheduling the preconstruction meeting.

Preconstruction Meeting Checklist

1. Utility Permit Executed By Both Parties

2. As Applicable, Letters Permitting Construction From:
   Martin County Public Health Unit
   Florida Department of Environmental Protection
   Martin County

3. Town of Jupiter Island Statement that project has completed Impact Review. (Town of Jupiter Island projects only)

4. Final Irrigation Plans Approved and on file with the Town. (Town of Jupiter Island projects only)

5. Submit sufficient sets of Shop Drawings signed and stamped by both the Engineer of Record and the Licensed Underground Contractor understanding that the Town will retain two (2) sets.

6. Submit sufficient sets of Lift Station Drawings, signed and stamped by the Engineer of Record and the Licensed Underground Contractor understanding that the Town will retain two (2) sets.

7. Submit sufficient water & sewer Products List Sets signed and stamped both the Engineer of Record and the Licensed Underground Contractor understanding that the Town will retain two (2) sets. List must conform to the Town of Jupiter Island Approved Product Listing, and must be submitted using supplied format. Submit catalog cuts for substitutions only.

8. The Underground Contractor MUST furnish copies of his/her license, Martin County Occupational License, Certificate of Competency, Certificate of Insurance, Liability Insurance proof of Workers Compensation and State Registration or Certification as an Engineering Contractor.

9. A copy of the executed agreement between the Developer or General Contractor and the Underground Utility Contractor indicating the cost of construction.

Notice to Proceed/Permits

Prior to the issuance of a Notice to Proceed, the contractor and Engineer of Record must have attended a preconstruction meeting in accordance with the Town's requirements. After the preconstruction meeting, a Notice to Proceed may by issued by the Town for the utility construction as documented on the approved engineering drawings on file with the Town .

As a condition of issuance of the Notice to Proceed, the contractor must furnish the Town a Sunshine State One Call Ticket Number. The following permits and fees may be required: Development Project Administrative Review Fee, Plan Review Fee and Inspection Fee.

All water and sewer utilities that will become a part of the Town's utility system shall be inspected and tested by the Town of Jupiter Island. This requirement does not release the Developer from providing adequate full time inspection and supervision. The Town Inspectors will not supervise contractor's operations or provide any certifications.

The contractor shall contact the appropriate engineering inspector, between the hours of 8 - 8:30 a.m. and 3:30 - 4 p.m., and 48 hours in advance of the event to notify the Town of construction start up, or to schedule all required tests and inspections including final walk-throughs.

Prior to the final inspection/walk through record drawings as described herein showing the location of all water and sewer utilities must be submitted and approved. The final inspection/walk through must be conducted and all punch list items must be completed and approved prior to the Town's acceptance of the system.

A reinspection fee of $2,000 will be assessed for failure of a water pressure test or sewer lamping. A fee of $150 will be assessed in order to reschedule a water or sewer tap.

Temporary Water Meters

1. A temporary water meter for construction purposes may be issued if necessary, providing a standard water service line is connected to an existing (bacteriologically cleared and operational) water main. Hydrant meters are also permitted.

2. The contractor or Developer should request a temporary meter from the Town. The application will require information regarding project name, location, and meter size.

3. The contractor is required to provide proper fittings and a **backflow preventer**, and must call the engineering inspector to approve the installation after it is completed.

4. Illegal water use fines (per job site)

a.	First occurrence	$500.00
b.	Each Additional Occurrence	$2000.00

If the requested temporary meter is to be installed on existing lines in service, the temporary meter will generally be approved for installation. If the meter is to be set on a newly installed water main, the Utility must be in possession of bacteriological clearance from the Health Agency for the water mains before approval for the temporary meter can be issued. If bacteriological samples are not on file, temporary meters will not be set until bacteriological clearance is received.

These meters must be made available to the Town, upon demand from the Town, for purposes of reading or maintenance. Failure by the customer to produce a temporary meter upon request by the Town may result in immediate forfeiture of any security deposit held by the Town for the meter. It is the customer's responsibility to ensure that the meter assembly is not damaged; any damage may result in the forfeiture of a portion or all of any security deposit held by the Town for the meter. It is the customer's responsibility to ensure that these meters are used only for the purpose approved by the Town, and in a manner which is consistent with Town policies regarding temporary meters; failure to do so may result in fines and/or forfeiture of the security deposit held by the Town for the meter, as well as immediate removal of the meter by the Town.

Finally, the contractor or developer must notify the Town to remove temporary meter(s) prior to issuance of the final permanent water meter for the project. The final permanent water meter will not be released until all the temporary meter(s) are removed from the site. Contractors shall not remove and return meters. Removal must be done by the Town.

Individual Water Taps

The following procedure shall be utilized in order to establish an individual connection to the Town of Jupiter Island water distribution system and/or sewer collection system. This procedure will be used for individuals desiring a connection to the Town's utility system where no mains are required to be extended.

1. Contact the Utility at (772) 546-2511 to obtain record locations of the existing utility mains fronting the property.

2. Submit 3 signed and sealed drawings by a registered professional engineer in the State of Florida showing the proposed location of the tap and water meter. The plans must also include a copy of the standard Town of Jupiter Island detail for a typical water and/or sewer service.

3. Hire a licensed underground utility contractor to perform the work. The contractor must apply for a permit(s) with the appropriate governmental jurisdiction.

4. At least 48 hours prior to the contractor conducting the tap, contact the appropriate Town Engineering Inspector to schedule the inspection of the tap. No taps can occur without the presence of the Town's Engineering Inspector.

5. Once the tap has been performed, the contractor must install the service line and prepare the location for the meter installation. The Town of Jupiter Island will supply the meter (up to 2" in size) and the meter box, once the location for the meter has been prepared.

6. Before a meter will be set, the Owner or the Developer must contact the Town to establish a new account and pay the appropriate water/sewer fees and charges.

7. If the tap does not occur on a main located in the public right-of-way, adequate legal authority for use of the property where the main is located must be secured and submitted to the Town.

8. If the tap will occur in the public right-of-way outside of the Town of Jupiter Island limits or in FDOT or Martin County right-of-way, additional permits may be required.

ACCEPTANCE OF UTILITY SYSTEMS

General/Procedures

The Town will set the permanent water meter for meters 2" and smaller for a building once the Permanent Water Meter checklist items have been submitted and approved by the Utility. Meters greater than 2" will be supplied by the Owner at no cost to the Town, but will only be installed in the presence of the Town's Engineering Inspector who will conduct an initial read at that time. In no instance will any meter be installed without first obtaining approval by the Town.

Permanent Water Meter Installation

Upon completion of the utility construction, the Permanent Water Meter Checklist will be completed by the Engineer of Record and all items will be submitted as a package to the Town for approval.

PERMANENT WATER METER CHECK LIST

PROJECT NAME:_____NO._____DATE _____

THE FOLLOWING ITEMS MUST BE ON FILE IN THE UTILITY PRIOR TO THE INSTALLATION OF THE FIRST PERMANENT WATER METER:

All fees paid as per the Utility Permit including AGRF must be paid to date.

Letters of acceptance from:
M.C.P.H.U. (If applicable)
Copies of bacteriological reports stamped by M.C.P.H.U.

Signed and sealed certification of utility mains by the engineer of record.

Letter from the developer certifying the actual cost of utility construction.

Letter from the developer stating that no liens have been filed relating to the installation of utilities.

Bill of Sale Absolute, executed on Town's standard form, including:
a legal description
an 8 ½" x 11", signed and sealed, reduced copy of the as-built print showing the water and sewer lines being turned over to the Town .

Grant of Utility Easement, executed on Town's standard form, including:
title insurance according to the Town's standards (see attached)
an 8 ½" x 11" legal description of the property
a signed and sealed survey or sketch of easements

For residential projects the developer shall furnish to the Town of Jupiter Island, three (3)copies of a listing of lots, blocks, and addresses of the entire development (residential), or a listing of all bays and addresses (commercial), for the purpose of setting meters. If the development is to be phased, the phases must be clearly delineated on these plans. All water meter requests must include the phase in which the unit is located.

Water and sewer record drawings to be approved PRIOR to issuance of first permanent water meter.
Two (2) sets of record drawing prints, using the approved design drawings, signed and sealed by the engineer of record or a land surveyor registered in the state of Florida.

Final inspection and approval of the water and sewer system by the utility inspector

Letter from the developer/contractor requesting that any temporary water meters be pulled at the time a permanent meter is set, or when an agreed upon percentage of permanent meters are issued for a residential project.

NOTE: We suggest that all of the items listed above be submitted in one package by the **Engineer of Record** approximately one week before your water meter is needed in order for us to efficiently process your request for permanent water meter installation in a timely manner.

Easements & Title Insurance

Under the terms of an executed Utility Permit, easements are required to be dedicated to the Town of Jupiter Island for land where water and sewer utility mains are installed that will be turned over to the Town for operation and maintenance. The Standard Easement Form found in this package is the only form the Town will accept. Additionally, a surveyed sketch and description must be provided on 8-1/2" x 11" paper. The sketch is to reflect the description and shall carry such additional information necessary to clarify its location. The Town reserves the right to approve the description and sketch.

Title Insurance is required for all easements dedicated to the Town of Jupiter Island. The following is provided as a guidance for the requirements of title insurance:

1. The following shall apply to all title insurance commitments and policies:

   Title commitments and policies must be issued on American Land Title Association ("ALTA") forms.

   The insured amount should be as designated by the Town and not less than $100,000.00 per easement.

   The effective date of the commitment should be modified to be the date of recording of the easement.

   The proposed insured should be the "Town of Jupiter Island, its successors and/or assigns".

   All of the Schedule B - 1 requirements should be marked as satisfied.

   Easements must be identified as to purpose, location and the manner in which the subject property is affected.

   Any exception for Chapter 159 liens must be deleted.

   All standard exceptions must be deleted.

   The "gap" standard exception must be deleted from the commitment upon recording of the easement. The title insurer must insure the gap.

   The commitment must not contain any exceptions for a notice of commencement.

   No mortgages or liens should be listed as title exceptions.

   No mineral reservations or other exploratory or excavation type exceptions should be listed as title exceptions.

   No easements with exclusive use language, should be listed as exceptions if such easements affect the Town's easement property.

   Such other requirements as may be specified by the Town or its attorney.

   Title insurer's responsibility:

2. Forward the original signed title commitment and legible copies of all listed exceptions to the Town.

   Any exceptions listed on Schedule B which cannot be removed must be joined and consented to on a form acceptable to the Town, and recorded together with the easement. Do not record the easement until all properly executed joinder and consents are in hand.

Coordinate execution and recording of the easement.

The original final policy must be delivered to the Town not later than thirty (30) days after recording of the easement.

The final policy must show the official record book and page number of the easement.

UTILITY EASEMENT

THIS UTILITY EASEMENT is made and executed this _____ day of _____, 20___, by _____ (type of partnership or corporation existing and organized under the laws of _____ State), whose mailing address is _____ (hereinafter referred to as the "Grantor") to the Town of Jupiter Island, a Florida municipal corporation, (hereinafter referred to as the "Grantee"):

(Wherever used herein the terms "Grantor" and "Grantee" include all the parties to this instrument and the heirs, legal representatives and assigns of individuals, and the successors and assigns of corporations, partnerships (including joint ventures), public bodies and quasi-public bodies.)

W I T N E S S E T H:

WHEREAS, Grantor is lawfully seized in fee simple and is in possession of that certain property situated in Martin County, Florida, as more particularly described on Exhibit "A" by metes and bounds and by sketch of the easement which is attached to and by this reference made a part of this document (hereinafter referred to as the "Easement Land").

NOW, THEREFORE, in consideration of the sum of Ten and no/100 Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Grantor hereby states as follows:

1. Grantor does hereby grant unto the Grantee, a perpetual utility easement in, on, over, under, through, and across the Easement Land, with the full and free right of ingress and egress for the purposes of the construction, installation, reconstruction, rebuilding, replacement, repairing, operation, distribution, and maintenance of lift stations, force mains, water lines, gravity sewers, well production facilities, reclaimed water lines, communications systems, and all appurtenances relative to these facilities or systems.

2. Grantee shall have the right and privilege from time to time to alter, improve, enlarge, add to, change the nature or physical characteristics or replace, remove or relocate such facilities or systems in, upon, over, under, through, and across the Easement Land along with all rights and privileges necessary or convenient for the full benefit and the use thereof for purposes described in this instrument, including, but not limited to, the right to clear obstructions within the Easement area that might interfere with the purposes for which such facilities or systems which is or might be constructed, along with the right of ingress and egress for personnel and equipment of Grantee, its contractors, agents, successors or assigns, over the adjoining lands of the Grantor, its successors and assigns, including successors in title, for the purpose of maintaining the above facilities and systems which are located in the Easement area.

3. The Easement granted shall be binding upon the Grantor and its successors and assigns. This Easement shall not be released or amended in any manner without the written consent of all entities having facilities or systems located within the Easement Land, and which consent must be evidenced by an instrument executed with the same formalities as this document.

4. Grantor warrants that Grantor has good and indefeasible fee simple title to and possession of the Easement Land and that it has good and lawful right to grant this Easement, and that the Grantee, its successors and assigns shall have all of the rights to the Easement Land as stated herein.

5. All provisions of this Easement, including the benefits and burdens, run with the land and are binding upon and inure to the heirs, assigns, successors, tenants and personal representatives of the parties hereto.

6. Grantor warrants that to the best of Grantor's knowledge and belief, the Easement Land is free and clear of soil and ground water contamination. For and in consideration of ten dollars ($10), receipt of which is acknowledged, Grantor shall indemnify and hold Grantee harmless for all claims and damages resulting from any such contamination.

ACKNOWLEDGEMENT OF INDIVIDUAL OR PARTNERSHIP

IN WITNESS WHEREOF, the Grantor has caused this Utility Easement to be executed in Grantor's name, and official seal by the proper officer(s) or representative(s) duly authorized, as of the day and year first above written.

WITNESSES:
Name of Partnership, Grantor

_____
Print Name:_____
_____, General Partner

_____
Print Name:_____

_____

By:_____

State of_____

County of_____

On _____(date), _____, General Partner for _____(Grantor), who is authorized to execute the foregoing on behalf of the Grantor, personally appeared before me and executed this instrument and is:

_____is personally known to me or
_____produced_____as identification;

and who

_____did take an oath or
_____did not take an oath.

_____
Notary Public
Print Name:_____

My Commission Expires:

ACKNOWLEDGEMENT FOR CORPORATION

IN WITNESS WHEREOF, the Grantor has caused this Utility Easement to be executed in its name, and its corporate seal is to be hereunto affixed, by its proper officers or representatives hereunto duly authorized, as of the day and year first above written.

WITNESSES:
Name of Grantor

_____
Print Name:_____

By:_____

Title:_____

_____
Print Name:_____

Attest:_____
Corporate Secretary

(CORPORATE SEAL)

On _____(date), _____, whose title is _____, and who is authorized to sign the foregoing on behalf of_____, personally appeared before me and executed this instrument and is:

_____is personally known to me or
_____produced_____as identification;

and who

_____did take an oath or
_____did not take an oath.

_____
Notary Public
Print Name:_____

My Commission Expires:

JOINDER AND CONSENT OF MORTGAGEE

_____, being the holder of that certain mortgage dated the_____day of_____,20 , and recorded the_____day of_____, 20 , in Official Record Book _____, at Page_____, of the Public Records of Martin County, Florida, hereby consents and subordinates its mortgage to the foregoing Utility Easement.

WITNESSES:
Mortgage Holder

_____

Print Name:_____

By:_____

Title:_____

_____

Print Name:_____

On _____(date), _____, whose title is _____, and who is authorized to sign the foregoing Joinder and Consent of Mortgage for _____ (mortgage holder), personally appeared before me and executed this instrument and is:

_____is personally known to me or
_____produced_____as identification;

and who

_____did take an oath or
_____did not take an oath.

_____

Notary Public
Print Name:_____

My Commission Expires:

Bill of Sale

Prior to the acceptance of the system, a proper bill of sale absolute granting ownership rights to the Town must be provided on the approved format. See sample document.

This document will provide title and interest in and to all of the water and sewer lines, mains, connections, pipes, valves, meters, and equipment installed within the granted easements and rights-of-way as provided for in the plans and specifications to be prepared pursuant to the Town's requirements.

Along with the Bill of Sale Absolute, the Owner must provide to the Town an affidavit that all persons, firms, or corporations who furnished labor or material used directly or indirectly in the prosecution of the work required to be performed by the Developer pursuant to the Utility Permit have been paid and that there are no liens associated with the construction of the utilities for this project.

In addition to the Bill of Sale, the Owner must provide the Town a detailed listing of materials and component parts and equipment transferred to the Town, together with quantities and unit prices for such items. The summed total value of these materials and component parts and equipment must equal the stated value on the Bill of Sale. The format for such submittal is set forth below:

COMPONENT	SIZE	QUANTITY	UNIT	UNIT COST	TOTAL COST
WATER					
Gate Valve			**Each**	**$**	**$**
Water Main			**Lineal Feet**	**$**	**$**
Single Service			**Each**	**$**	**$**
Double Service			**Each**	**$**	**$**
Fire Hydrant			**Each**	**$**	**$**
				Total Water	**$**
WASTEWATER					
Gate Valve			**Each**	**$**	**$**
Force Main			**Lineal Feet**	**$**	**$**
Gravity Sewer			**Lineal Feet**	**$**	**$**
Single Service			**Each**	**$**	**$**
Double Service			**Each**	**$**	**$**
Manholes			**Each**	**$**	**$**
Lift Stations			**Each**	**$**	**$**
Backflow Preventers			**Each**	**$**	**$**
				Total Wastewater	**$**
				System Total	**$**

BILL OF SALE

KNOW ALL MEN BY THESE PRESENTS that_____(hereinafter referred to as the "Grantor"), for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable considerations to it paid by the Town of Jupiter Island, (hereinafter referred to as "Town "), the receipt of which is hereby acknowledged, has granted, bargained, sold, transferred, set over and delivered, and by these presents does grant, bargain, sell, transfer, set over and deliver unto Town, its successors and assigns, all those certain goods and chattels described as follows:

Potable water lines and/or sanitary sewage collection lines and/or lift stations and/or water production facilities and/or reclaimed water lines and related facilities constructed within the right-of-way and/or property of Grantor and/or properly dedicated easement to the Town, which system is more completely described in Exhibit "1 A" and/or "1 B", with a total constructed value of $.

TO HAVE AND TO HOLD the same unto Town, its successors and assigns forever.

And the GRANTOR, for itself and its successors, hereby covenants to and with Town, its successors and assigns, that it is the lawful owner of the said goods and chattels, that they are free from all liens and encumbrances, that it has good right to sell the same as aforesaid, and that it will warrant and defend the same against the lawful claims and demands of all persons whomsoever.

In addition, the GRANTOR hereby warrants said potable water systems and/or sanitary sewage collection systems and/or lift stations and/or water production facilities and related facilities to be free from defects due to installation and/or materials for a period of twelve (12) months from the date of execution of this document and GRANTOR further agrees to reimburse Town in full for reasonable and necessary repairs (as determined by Town), due to said defects during the twelve (12) month period; cost of same shall be set out on an invoice from the person performing the repairs.

GRANTOR:

By:_____

_____
Print Name

By:_____

_____
Print Name

STATE OF FLORIDA)
) SS:
COUNTY OF MARTIN)

The foregoing instrument was acknowledged before me this _ day of_____, 20 , by _____ and_____, the_____President and_____Secretary of _____, who are both personally known to me OR who have produced _____as identification and who did_____take an oath.

_____
Notary Signature

_____
Print Notary Name

NOTARY PUBLIC
State of Florida at Large: _____
Commission No. _____
My Commission Expires: _____

RECORD DRAWINGS

At the completion of the construction of water and sewer systems, record plans are to be prepared and submitted to the Town for review. These drawings are to include all of the following information and are to represent actual field construction of the utilities. These drawings are to be signed and sealed along with the certification language by both a professional land surveyor and engineer.

Provide two (2) sets of signed and sealed 24" x 36" drawings with the following minimum requirements:

1. Address of building & lot / block of each unit.

2. Location sketch and north arrow. Specify section, township, and range.

3. Applicable scales: plans, profiles, details.

4. "Record Drawing" in large bold letters.

5. Provide accompanying survey sketch and legal description to verify easement locations on record drawings. Ensure utilities are covered by easements and include all fire hydrants and services to water meters. Size of easements must be noted.

6. Identify right-of-way lines. Clearly show property boundary lines.

7. Location of water and sewer installations within dedicated right-of-way or within the easements to be dedicated.

8. Location of easements and the location of the installations within the easements.

9. Distances from R/W lines to utilities.

10. Vertical Locations:

    Sanitary Services: Top of pipe elevation at end of lateral.

    Sanitary Manholes: Final rim and invert elevations of all pipes entering manhole.

    Water, Wastewater, Reuse Mains: Top of pipe elevations on approximately 100' intervals.

    Water, Wastewater, Reuse Fittings: Top of pipe elevations on all fittings and at all values.

11. Horizontal Locations:

    Sanitary Service - station along the sewer main, using the downstream manhole on each run as 0700, for each W9E and a separate station for the end of the lateral including an offset distance from the main measured at 90° to the main.

    Sanitary Manholes - distance between each manhole, measured along connecting sewer main.

    Water, Wastewater, Reuse Mains - location relative to a permanent surface feature at approximately 200' intervals.

    Water, Wastewater, Reuse Fittings - location of each buried fitting or value referenced to two (2) permanent surface features no more than 100' from the value or fitting.

12. Type of pipe - size and material.

13. Identify private systems not maintained by the Town. (Lift stations, gravity lines, force mains, and/or water lines.)

14. Identify abandoned sections and lines that have been removed, if applicable.

15. All final planned installations shall be shown on the drawings including the buildings, storm drainage, other utilities, landscaping, trees, asphalt roadways, tile, pavers, etc.

16. Names of streets and public rights-of-way, widths of streets and public rights-of-way, width of easements, limit lines for all easements.

17. Location and elevation of bench marks and source.

18. Meter size and location.

19. Name, address and telephone number of Certifying Engineer.

20. Name, address and telephone number of Certifying Professional Land Surveyor.

21. Signed, sealed, and dated by Engineer **AND** Professional Land Surveyor.

22. Owner/Developer's name, address and phone number.

23. Verify that installations are identical to approved design drawings . Any changes made during construction must be shown on the record drawings.

24. Location of building lines.

26. Section lines/reference points.

27. Lift station record drawings, including profile, details, electrical schematics, pump details, O&M manuals.

Both of the following statements shall appear on all As-Built submittals:

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THE AS-BUILT MEASUREMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AS SURVEYED IN THE FIELD UNDER MY DIRECTION ON , 20 .

_____

_____**, P.L.S. #**

“RECORD DRAWING”

THE INFORMATION SHOWN ON THIS RECORD DRAWING WAS SUPPLIED BY _____ REGISTERED LAND SURVEYOR #_____ THE STATE OF FLORIDA. THE ENGINEER’S SIGNATURE AND SEAL AFFIXED TO THIS DRAWING IS ONLY TO BE INTERPRETED TO CONFIRM THAT THE INFORMATION PROVIDED HAS BEEN REVIEWED FOR CONFORMANCE WITH ALL APPLICABLE ENGINEERING DESIGN STANDARDS.

Section II

CONSTRUCTION OF WATER DISTRIBUTION, SEWAGE COLLECTION AND RECLAIMED WATER DISTRIBUTION SYSTEMS

GENERAL

Applicability of Standards

These minimum requirements are to be used as a guide for the design and construction of water, wastewater and reclaimed water systems. All systems which will be transferred to and accepted by the Town as a part of the Town's systems must be designed and constructed in accordance with these specifications. Any requests for deviations from these specifications may be requested in writing to the Town. Authorization for the deviation, if approved, shall be in writing from the Town. Verbal communications shall not constitute a valid request and only written approvals or authorizations to proceed with the changes will be recognized.

Shutdown of Existing Utilities

Continuous operation of the Town's existing utility facilities is of critical importance. The contractor at no time shall close off any lines or turn any valves or take any action which would affect the operation of the existing facilities. The contractor shall request approval two (2) working days in advance of the time the interruption of the existing system is required. An approved notice must be distributed to the affected customers no less than two (2) working days prior to shutdown and must include the following information:

1. Start time and date and approximate duration of planning interruption.
2. Location of work.
3. Telephone number and contact name of contractor performing work.
4. Telephone number and contact name of Town representative overseeing work.

All interruptions must be coordinated with the Town.

Storage of Materials

Materials shall be stored as to ensure the preservation of their quality and fitness for the project. When necessary, wood platforms or other hard, clean surfaces may be used for placement.

Underground and Above Ground Structures

Necessary precautions must be taken to prevent damage to existing structures whether on the surface, above ground, or underground.

All above ground installations shall be braced with supports or protected with guard posts.

For location of existing underground facilities, contact the Sunshine State One Call underground notification center at 1-800-432-4770.

Land Monuments

The contractor shall notify the Engineer of Record and the Town of any existing Federal, State, County, or private land monuments encountered.

Private monuments shall be preserved or replaced by a licensed land surveyor at the Developer's or Contractor's expense. When government monuments are encountered, the Contractor shall notify the Engineer of Record in order to allow for proper notification to the authority having jurisdiction for later replacement by a registered land surveyor in the State of Florida.

Safety

All permitted work must be done in strict accordance with the provisions of the Occupational Safety and Health Administration Regulations (OSHA), the Trench Safety Act, and all other applicable codes.

Dust Prevention

All unpaved streets, roads, detours, or haul-roads used in the construction area must utilize approved dust-preventive treatment or periodically apply water to prevent dust. Applicable environmental regulations for dust prevention shall be strictly enforced.

Traffic Maintenance and Safety

The contractor shall comply with all rules and regulations of the State, County, and Town authorities regarding the closing or restricting the use of public streets or highways. No public or private road shall be closed except by express permission of the proper authority. The contractor shall conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. The contractor shall protect all obstructions within traveled roadways by installed approved signs, barricades, and lights where necessary for the safety of the public. The convenience of the general public and residents adjacent to the project and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner.

Where traffic will pass over trenches after they are backfilled and before they are paved, the top of the trench shall be maintained in a condition that will allow normal vehicular traffic to pass over. Temporary access driveways must be provided where required. Cleanup operations shall follow immediately behind backfilling and the work site shall be kept in an orderly condition at all times. A Maintenance of Traffic (M.O.T.) Plan in conformance with FDOT requirements must be approved by the Utility prior to implementation.

Proper notification will be required to the Police and Fire Departments of the jurisdiction in which the work is performed prior to the closing of any street or portion thereof. No closing shall be made without the approval of the proper authority. Notify said departments when the streets are again passable for emergency vehicles. Emergency contact numbers of the contractor shall be provided to the Police Department of the jurisdiction in which the work is performed so that contact may be made easily at all times in case of barricade or flare troubles or other emergencies.

Finishing of Site, Borrow, and Storage Areas

Upon completion of the project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the surrounding terrain.

Miscellaneous

1. All materials shall be new and unused.
2. All permits shall be issued prior to construction.
3. For the purpose of standardization, materials should be as much as possible of a like kind in order to achieve conformity & meeting AWWA/ANSI Standards.
4. The contractor shall at all times maintain on the site a current set of approved construction plans and permits.
5. The contractor shall field verify the locations of all existing utilities shown on the approved plans. Approval of the development plans by the Town in no way implies verification of the accuracy of those plans or features depicted thereon. The Developer's Engineer shall bring to the attention of the Town any discrepancy in, or variation from, the approved plans.

6. The contractor shall be responsible for obtaining locations of all utilities and modifications from Sunshine State One Call of Florida at 1-800-432-4770, 48 hours in advance of construction.
7. The contractor shall be responsible for the scheduling of, and payment for, such tests as may be deemed necessary by the Developer's Engineer or the Town Engineer, and as called for in the plans and specifications.
8. The Developer's Engineer shall make sufficient inspections of the work to enable him to certify the installation as being in conformance with the applicable standards and specifications.
9. No deviations from the approved plans will be permitted without the consent of the Town Engineer.

WATER DISTRIBUTION SYSTEM

000.00	WATER MAINS - MATERIALS
001.00	PIPE
002.00	FITTINGS
003.00	JOINTS
004.00	BUTTERFLY VALVES 12” & LARGER
005.00	RESILIENT SEAT VALVES 4” THRU 10”
006.00	VALVE BOXES
007.00	TAPPING SLEEVES AND VALVES
008.00	FIRE HYDRANTS
009.00	COMBINATION AIR RELEASE/AIR AND VACUUM VALVES
010.00	TRACING WIRE
011.00	THRUST RESTRAINTS

000.00 WATER MAINS - Materials

001.00 Pipe

1. All pipe, fittings and specials intended for conveying or transmitting service of treated water shall be designed for a minimum working pressure of 150 PSI.

2. Ductile Iron Pipe shall conform to ANSI/AWWA Standard C151/A21.51 latest revision, "Ductile Iron Pipe centrifugally cast in metal molds or sand-lined molds" with a minimum wall thickness of Class 50 for 8" and above, and Class 52 for 4" and 6", unless otherwise directed by the Town during the transition period. For future projects adhere to pressure classification:

   4" - 24" - Pressure Class 350

3. Ductile Iron Pipe shall be double cement lined and seal coated in accordance with ANSI/AWWA Standard C104/A21.4 latest revision. The pipe shall be adapted for use with Class 250 fittings through 12" and for Class 150 fittings in sizes 16" and over.

4. PVC pressure pipe 4" through 12" shall conform to ANSI/AWWA Standard C900 latest revision. PVC pressure pipe shall be made from Class 12454-A or Class 12454-B material and conform with the outside diameter of cast iron pipe with a minimum wall thickness of DR series 18. Ultra violet degradation or sun bleached pipe will be cause for rejection. PVC pressure pipe, in sizes 14" through 36", shall conform to AWWA/ANSI Standard C905, shall be of Class 12454-A or 12454-B virgin compounds, shall conform to the outside diameter of ductile iron pipe and shall have a minimum wall thickness of DR series 25.

5. The use of pipe 4" in diameter or smaller shall only be permitted where approved by the Town .

6. Flow characteristics shall determine the size of pipes to be used in mains over 6" in diameter.

7. Asbestos cement pipe shall not be permitted on new construction.

8. Color and Marking of Pipe. P.V.C. pipe used as potable water mains shall be blue or white in color. When white in color, it shall be continuously marked on at least three sides with blue lettering indicating "potable water main." P.V.C. pipe used for force mains shall be brown or white in color. When white in color, it shall be continuously marked on at least three sides with brown lettering indicating "sewage force main." Reclaimed water main shall be purple or white in color. When white in color, it shall be continuously marked on at least three sides with purple lettering indicating "reclaimed water main."

002.00 Fittings

1. Cast iron and ductile iron fittings shall conform to ANSI/AWWA Standard C110 A21.10 latest revision. Fittings 4" and larger shall be cement lined and seal coated in accordance with ANSI/AWWA Standard C104 A21.4 latest revision.

003.00 Joints

1. Joints for bell and spigot ductile iron pipe shall conform to ANSI/AWWA Standard C111/A21.11 latest revision. Mechanical joint or push-on joint to be rubber gasket compression-type. Special fittings shall be considered for specific installation subject to the approval of the Town .

2. Joints for P.V.C. pressure pipe shall be bell and spigot push on rubber gasket type only. No solvent weld or threaded joints will be permitted.

3. Restraint. At all tees, crosses, fire hydrants and all changes in direction requiring a fitting, adequate restraint shall be provided to prevent movement of the pressure pipe system under test and operating pressures.

   Restraint shall be provided by the use of mechanical ears or ¾" steel loop bolts used as flange bolts which are then tied together with ¾" threaded steel rods. The rods, washers and nuts shall be galvanized, stainless steel or bituminous coated steel. Full circle pipe claims with grooves or ridges that "bite" into the pipe shall also be used to prevent movement of the pipe away from a fitting.

   Restraint may also be provided by thrust blocking against undisturbed soils with concrete thrust blocks. Minimum thrust areas for 2000 p.s.i. soil bearing values are 4, 7, 11, and 16 square feet for 6, 8, 10, and 12 inch pipe sizes, respectively. The concrete shall have achieved a minimum compressive strength of 2500 p.s.i. before pressure testing is started.

   Before backfilling, all restraint devices or thrust blocks must be viewed by the Town's inspector. Additional restraining or thrusting may be recommended or may be required by the inspector before pressure testing is started. However, the viewing of the restraint or thrust blocking by the inspector does not guarantee approval or acceptance of the installation or of its ability to withstand the pressure testing.

004.00 Butterfly Valves - 14" and Larger

1. Butterfly valves shall be designed and manufactured in accordance with ANSI/AWWA Standard C504 latest revision for Rubber Seated Valves Class 150 B. The operating mechanism shall be designed so that the valve disc is held rigid when in any position. The valve shall be fitted with a 360 degree 18-8 stainless steel seat offset from the shaft and mechanically retained in the body or on the disc of the valve. Mechanical retention shall not be effected by the mating flange.

2. The valve disc or valve body shall be cast iron or ductile iron. The valve disc or valve body shall be fitted with a resilient seat of synthetic rubber retained with an 18 - 8 stainless steel clamp ring and stainless bolting. The resilient seat shall be designed with a cross section providing 360 degree mechanical retention against pulling out from between the retaining ring and disc. Retaining ring cap screws shall pass through the rubber seat.

3. The valve disc shall be rigidly attached to the shafts with keys to absolutely eliminate relative motion between the disc and shafting. The shaft keys shall be made of heat treated 410 or 416 stainless steel to prevent brinelling of the shaft keys in service. The keys shall be held in position with 18-8 stainless nuts.

4. Valve shafts shall be made from 18 - 8 stainless and shall be offset from the disc and body seats so that the shafting does not intersect the disc or body seats. Valve shafts 3" and smaller shall be one piece through shafts with factory set thruster to center the disc in the seat. Valve shafts larger than 3" shall be stub shafts, each rigidly keyed to the disc and provided with an adjustable thruster to move the disc and shaft assembly positively in either direction to center the disc in the seat of the valve. Shaft seal shall be designed for the use of standard split V type packing for standard O ring seals or for a pull down packing. Valve operators for valves 24" and smaller shall be traveling nut or worm gear type, fully field adjustable stops so the operator does not have to be disassembled for valve seat adjustment. Valves larger than 24" shall be equipped with worm gear type operators per ANSI/AWWA Standard C504 latest revision. Valves shall open left or counter clockwise. The operating mechanism shall be for buried service with a 2-inch square operating nut.

005.00 Gate Valves 2" thru 12"

1. All valves 4" thru 12" are to be resilient seat valves and comply with AWWA Standard C-509 latest revisions and shall have the following design standards.

2. All Resilient Seat Valves are to be iron body, resilient seat type non-rising stem, opening left (counter clockwise). Valves shall be furnished with "O" ring packing (two "O" rings). The operating mechanism shall be for buried service with a 2-inch square operating nut.

3. Valve disc shall be contoured to assure uniform seating.

4. Valves shall be coated with a two-part thermosetting epoxy coating on inside of valve body and on valve disc or as approved by the Town . The type of end connection shall be flanged or mechanical joint. No push or joints are allowed. Flange ends may be used only with specific approval..

5. Resilient Seat Valves shall have a maximum working pressure of 200 P.S.I. and be tested at 400 P.S.I. between disc seat ring and body seating surface. Seat ring seals shall be replaceable and made from internally reinforced molded natural rubber (ASTM D2000). Seat ring shall be attached to disc with stainless steel screws.

6. Gate valves smaller than 4" shall be bronze conforming to M.S.S. Standard Practice SP-37.

7. No leakage will be allowed.

006.00 Valve Boxes

1. Valve boxes shall be cast iron extension type with not less than 5" diameter shaft and with covers marked "water". The stem of a buried valve shall be within 12" of finished grade unless otherwise specified by the Town . Valve boxes shall be located in right-of-way and/or located in utility easement. Size and type of valve shall be stamped on a permanent tag located at the valve box per the standard detail.

2. All valve boxes shall have a 24" x 24" x 4" thick concrete collar in accordance with the standard detail. The top of the box shall be plus with the concrete pad.

007.00 Tapping Sleeves and Valves

1. Steel tapping sleeves shall have a welded steel body with flat faced steel flange, recessed for a tapping valve, in accordance with MSS Standard S.P.-60. Gaskets shall be neoprene "O" ring type with some type of gasket restraint incorporated in the sleeve. Test plug shall be provided on the outlet throat. The entire assembly is to be epoxy coated.

2. Cast iron tapping sleeves shall be of the mechanical joint type having a flat faced cast iron flange, recessed for a tapping valve. All end and side gaskets shall be totally confined. The throat section of tapping sleeves through 12" size shall conform to MSS Standard S.P.-60. Test plug shall be provided on the outlet throat.

3. Tapping valves 4" and larger shall comply with AWWA Standard C-509 latest revision and shall have the following design standards plus the valve port shall be free and full to allow passage without interference.

4. All tapping valves are to be iron body, bronze mounted, double disc, nonrising stem, parallel seat type, opening left (counter clockwise). Non geared valves shall be furnished with "O" ring packing (two "O" rings). The operating mechanism shall be for buried service with a 2 inch square operating nut.

5. The disc mechanism shall be designed so that the seating pressure is applied equally at four separate contact points near the outer edge of each disc or in the case of fully revolving disc valves, this shall be accomplished by two flat rectangular contact strips producing an equivalent effect, the upper contact strip shall be faced with stainless steel.

6. Valves 16" and larger shall be furnished with bevel gears and by-pass valves. Bevel geared valves shall have roller, tracks and scrapers.

7. The type of end connection shall be determined by the type of pipe used.

8. Tapping valves 4" - 12" shall have a maximum working pressure of 200 P.S.I. and be tested at 400 P.S.I. Valves 16" - 48" shall have a maximum working pressure of 150 P.S.I. and be tested at 300 P.S.I.

9. Wet taps shall only be permitted where approved by the Town .

10. Size on size wet taps will not be permitted.

11. Restraint. The tapping tee with attached gate valve shall be thrust blocked and also supported with concrete having a minimum compressive strength of 2500 p.s.i. Before placing the concrete, plastic sheeting shall be wrapped around the tapping tee and gate valve. Thrust blocks shall be placed against undisturbed soil. Minimum bearing areas for thrust blocks shall be 4, 7, 11 and 16 square feet for 6, 8, 10, and 12 inch mains, respectively, for soil bearing values of 2000 p.s.i. or more.

12. Installation. A Utility inspector shall view and approve each proposed tapping location before the tapping tee is installed on the main. Tapping tees shall not be installed within 3 feet of any joint, fitting or service saddle. Before installation of the tapping tee, the pipe shall be thoroughly cleaned with potable water. Then the tapping tee and the main shall be swabbed with a 50 p.p.m. chlorine or bleach solution. After attaching the tee to the main and installing the gate valve, the gate valve shall be closed and the assembly shall be tested with potable water for 30 minutes at a pressure of 150 p.s.i. No visible leaks or loss of pressure shall be evident. After pressure testing, the main may be tapped with a hole saw which retains the coupon from the pipe. The coupon shall be delivered to the Utility's inspector after tapping is completed.

008.00 Fire Hydrants

1. All fire hydrants shall comply with AWWA Standards C502 latest revisions thereof and the following design standards.

2. Fire hydrants shall be of the compression type, opening against the pressure and closing with the line pressure with a 5 1/4" minimum valve opening. The hydrant shall be equipped with 2-2 1/2" hose and 1-4 1/2" steamer nozzles to meet the American National Standard hose thread.

3. Hydrants shall be furnished with a sealed oil or grease reservoir located in the bonnet so that all threaded and bearing surfaces are automatically lubricated when the hydrant is operated. The hydrant will be designed for disassembly by use of a short disassembly wrench or the hydrant shoe having integral cast tieback lugs on the main valve to permit the main valve assembly and valve seat to be removed without digging earth or disassembling the hydrant barrel.

4. Hydrants shall be furnished with a breakable feature that will break cleanly upon impact. This shall consist of a two part breakable safety flange with a breakable stem coupling. The upper and lower barrels shall be fluted and ribbed above and below the safety flange or have an extra strength lower barrel.

5. The hydrant internal valve shall be 5 1/4" minimum. The pentagonal operating nuts and the cap nuts shall be 1 1/2" point to flat. Drain valve outlets shall be plugged or omitted. The hydrants shall open counter-clockwise and the direction of opening shall be cast on top.

   The bury length measured from the bottom of the connecting pipe to the ground line at the hydrant shall be a minimum of 3 feet 6 inches.

6. The hydrant shall be equipped with a 6" mechanical joint base inlet unless otherwise specified by the Town.

7. Fire hydrant spacing and flow requirements shall conform to the latest requirements of the Town of Jupiter Island Fire Marshal standards, or the requirements of any local fire department having jurisdiction.

8. Fire hydrants shall be painted yellow or silver with a reflective type paint and glass beads all in accordance with N.F.P.A. #291 or per the latest requirements of the Town of Jupiter Island Fire Marshal standards or any local fire department having jurisdiction. Contact the local fire department having jurisdiction for color requirements outside the Town of Jupiter Island Town limits.

9. Raised reflective pavement marker in blue shall be used to identify the fire hydrant location. The placement of the reflector to be at the center line of the outside roadway lane unless otherwise directed by the Fire Marshal or local fire department having jurisdiction.

10. Bollards shall be placed around hydrant as applicable and in accordance with the Town's Standard Detail.

11. Installation. Hydrants shall be installed plumb with the larger nozzle facing the street or access area. A 3' x 3' by 4" thick concrete pad shall be poured near the base of the hydrant below the shear point. Hydrants shall be placed on or very near the lot lines and within 15' of the street or paved area where possible. When they are placed within 4' of a street or paved area, they shall be protected by four 4" concrete filled steel posts, 6' in length with 3' below grade. The posts shall be set in a square pattern around the hydrant in a manner that will not block access to the hydrant connections by fire personnel. Where possible, the tee on the main shall be an anchor tee to which the gate valve is attached and installed onto. A Grade Lock long sweep device with anchor fittings shall then be attached to the gate valve and the hydrant shall be attached to the Grade Lock device. Where anchor fittings can not be used, the components shall be tied together with ¾" stainless, galvanized or bituminous coated steel rods.

009.00 Combination Air Release/Air & Vacuum Valve

1. Combination Air Valves shall be of the single housing style that combines the operating features of both an Air/Vacuum and Air Release Valve.

2. The Air/Vacuum portion shall automatically exhaust large quantities of air during the filling of the pipeline and automatically allows air to re-enter the pipeline when the internal pressure of the pipeline approaches a negative value due to column separation, draining of the pipeline, power outage, pipeline break, etc.

3. The Air Release portion shall automatically release small pockets of air from the pipeline while the pipeline is in operation and under pressure.

4. The Combination Air Valve shall have 2" NPT inlet and outlet connections and a 3/32" diameter orifice for a maximum working pressure of 150 PSI. The sizing of the valve may be varied based upon an analysis of the application.

5. The materials of construction shall be: Body, Cover and Baffle of Cast Iron; Float and all other trim shall be of Stainless Steel with the exception of the seat and adjustable Orifice Button.

6. Valves shall be Val-Matic Model #202C, or approved equal.

7. See the Standard Detail Drawings for additional information.

010.00 Tracing Wire

1. All water main, water service, sewage force main, sewer services, and reclaimed water pipe up to the point of the customer's connection shall be installed with a #14 gauge stranded insulated wire for location purposes. The insulation of the wire shall be rated UF, THW, or THWN by the National Electric Code. It shall be located adjacent to the water main, force main, reclaimed water main or adjacent to the water or sewer service and shall be secured to the mains by looping it at every bell end or joint. The wire shall be spliced together with waterproof splices and/or looped to create one continuous circuit for the entire installation. The splices shall be made with Imperial Snip-Snap plastic caps filled with silicone sealant or other approved alternate. At every intersection where valves are installed, the wire shall be looped or stubbed into one of the valve boxes.

011.00 Thrust Restraint

1. All bends, tees, crosses, reducers, and dead ends shall be restrained through an approved means of mechanical joint restraint. All branch valves shall be restrained with MEGALUGS or approved equal or anchor tees. Any line terminated as a construction phase that is a known future extension, shall have a plugged valve at the end and restrained with MEGALUGS or approved equal.

2. All bends, tees, crosses, reducers, and dead ends for 16" diameter pipe and larger shall have mechanical joints with MEGALUGS or approved equal for restraint in lieu of thrust blocks.

3. The following table shall serve as a general guide only. It is the Engineer of Record's responsibility to correctly design and specify the minimum lengths of restrained pipe considering the existing soil composition and pipe laying conditions. The minimum test pressure shall be 150 psi with a 2.5 safety factor.

Full Thrust Conditions:

Pipe Diameter	90^o Elbow	45^o Elbow	$22\text{-}1/2^o$ Elbow	$11\text{-}1/4^o$ Elbow
	Vertical Down Branch of Tee or Cross	Horizontal or Vertical up	Horizontal or Vertical up	Horizontal or Vertical up
4"	2L 3L	1L	1L	1L
6"	3L 4L	2L	1L	1L
8"	4L 5L	2L	1L	1L

10”	5L 5L	2L	1L	1L
12”	5L 6L	2L	1L	1L
16”	6L 8L	3L	2L	1L

** L = ONE PIPE LENGTH (18 FEET)

WATER SERVICES -MATERIALS

101.00	TUBING
102.00	CASING PIPE
103.00	JOINTS
104.00	METER VALVES/CURB STOPS
106.00	CORPORATION STOPS
107.00	SERVICE SADDLES
108.00	WATER METERS
109.00	BACKFLOW PREVENTION DOUBLE CHECK VALVE WITH DETECTOR BYPASS FOR FIRE LINES
110.00	OTHER BACKFLOW PREVENTERS
111.00	METER BOXES

101.00 Polyethylene Tubing

1. The polyethylene compound from which the tubing is made shall be an ethylene hexene copolymer and shall comply with the applicable requirements as specified in ASTM D3350 providing a cell classification of 355434C and simultaneously be as specified in ASTM D1248 for Type 111 Category 5, Grade P34, Class C, PE3408 very high molecular weight, high density polyethylene plastic material.

2. Polyethylene shall comply with the following:

   A. Tubing shall have a working pressure at 200 PSI at 73.4 degrees F.

   B. All tubing furnished under these specifications shall conform to the following standards:

      AWWA C-901, ASTM D2239, ASTM D2737, ASTM D3350, ASTM D1248 ASTM F1248, ASTM D1693, ASTM D2837 and ASTM D3140.

   C. Tubing dimensions and tolerances shall conform to the following requirements:

      1. Polyethylene tubing surfaces shall be mirror smooth, and shall be free from bumps and irregularities. Materials must be completely homogenous and uniform in appearance.

   D. Tubing dimensions and tolerances shall correspond with the values listed in AWWA C901 with a dimension ratio (DR) of 9.

   E. Tubing shall be fully labeled at intervals of not more than 5 feet with brand name and manufacturer, the nominal size, PE 3408, the word "Tubing" and DR9, PC 200, AWWA C901-88, and the seal, or mark, of the testing agency.

   F. 1" tubing shall be used for single services and 1-1/2" tubing shall be used for double services

101.01 General Notes:

Polybutylene tubing is not approved.

102.00 Casing Pipe

1. Casing pipe for water services shall be SCH 40 per ANSI/AWWA.

2. Casing ends shall be sanded smooth and sealed using acceptable methods used in the industry.

3. Casing size to be a minimum of 150% of the tubing diameter.

103.00 Joints

1. For new services, no joints are permitted.

2. Where joints become necessary, they shall be of the compression type utilizing a totally confined grip seal and coupling nut. Stainless steel tube stiffener insert shall also be used for tubing services.

104.00 Meter Valves/Curb Stops

1. Meter valves shall be of bronze construction in accordance with ASTM Specification B62 latest revision.

2. Meter valves shall be closed bottom design and resilient O ring sealed against external leakage at the top. Shut-off shall be affected by a resilient pressure actuated seal so positioned in the plug as to completely enclose the flow way in the closed position. The inlet side of all meter valves shall have a compression type fitting as specified in Section C. Meter valves for meter sizes 1 1/2" and under shall be equipped with a meter coupling nut on the outlet sides.

3. Meter valves for 1 1/2" and 2" meters shall have flanged connections on the outlet sides. Meter valves over 2" will be considered on individual basis for the particular installation involved.

4. Meter valves 2" or less shall be ball type.

5. Curb Stops shall be of the Ball Valve type. These valves shall be of cast red brass containing copper, tin, lead and zinc. The ball shall be teflon coated brass and shall be held in position by and seal off against seats of Buna N rubber that are held securely in place with epoxy adhesive.

Valves shall be water-tight against flow in either direction. The waterways shall be no smaller than the normal size of the valve and shall be smooth, with no abrupt changes in size to create resistance to flow. The stem that turns the ball shall exert no other force on it except to open or close the ball and shall be held securely in place by means of a bronze ring. The minimum diameter of the stem at the point of attachment to the valve body shall be as follows:

Valve Size	**Minimum Diameter**
3/4"	11/16"
1"	11/16"
1-1/4"	7/8"
1-1/2"	7/8"
2"	1"

6. The seal around the stem shall consist of two "O" rings. Each valve shall have a substantial T-head for the operation of opening and closing with a 90 degree turn of a standard slotted wrench. The stops or lugs for controlling the motion of the T-head shall be enclosed and properly positioned to line up the waterways through the ball with the water passage through the valve body.

7. The end connections shall be Pack Joint (compression type) connections polyethelene tubing. The valve shall be available in sizes 3/4" through 2". The valve shall turn easily and shall be an approved equal to Ball Valve Curb Stops, BA-43 series manufactured by The Ford Meter Box Company Inc., Wabash, Indiana.

105.00 Corporation Stops

1. Corporation stops shall be manufactured of brass alloy in accordance with ASTM Specification B62 latest revision. These corporation stops shall be of the ball valve type.

2. Inlet thread shall be AWWA iron pipe thread in all sizes in accordance with AWWA. Outlet connections shall have a compression type fitting.

106.00 Service Saddles

1. Service saddles shall be bronze ASTM A536, which tighten to conform to the curvature of the pipe sealing O-ring gasket confined in a retaining groove, for pressure tight seal on the main.

2. Service saddles shall be Ford Meter Box - Double 202B or approved equal.

108.00 Water Meters

1. All meters will be installed by the Town .

109.00 Backflow Prevention Double Check Valve with Detector Bypass for Fire Systems

1. The Backflow Preventer is designed for two purposes:

   A. To detect leakage or unauthorized use of water from fire or automatic sprinkler systems.

   B. To protect the potable water system from contamination by the fire system.

2. The mainline assembly consists of a double check valve assembly. The bypass consists of an approved double check valve assembly, shut-off valves, testcocks and a meter with a sealed register.

3. Internal working parts are to be readily accessible for repair, removal or replacement without removal of the valve from the pipeline. The mainline assembly opens up to allow full flow of water to the user.

4. Backflow prevention double check valve with low flow bypass meter must meet Underwriter's Laboratories and Factory Mutual approvals.

5. Backflow prevention double check valve shall be designed and manufactured in accordance with AWWA Standard C506 latest revision and shall have the following design standards:

   A. Backflow preventer shall be of the double check valve type. The assembly shall have two spring-loaded independently operating poppet-type valves mounted in a common body, two gate valves and four test cocks and shall be designed for installation in a normal horizontal flow attitude.

   B. The test cock arrangement will be such that each check valve can be tested without removal of the assembly from the line.

   C. The check valves shall be designed to open under normal flow conditions at a pressure differential not less than 1 PSI at each check valve. The check valves will be designed to close when the downstream pressure is greater than the supply pressure.

   D. The assembly shall be manufactured of corrosion resistant materials.

   E. The assembly shall have all internal parts accessible and removable for repair without removing the assembly from the line.

   F. Detector check valves 3" to 10" shall have maximum working pressure of 175 PSI and be tested at 350 PSI.

   G. The detection meter on the low flow bypass line to contain the same type of double check valve assembly, shutoff valves, testcocks fittings and piping of bronze or stainless steel materials. Meter

size per manufacturer's requirements to meet displacement water meter standard per Section 2.08 part C.

6. Backflow prevention double check valve with detector bypass shall be tested by a certified testing technician prior to acceptance by the Town .

7. The Town of Jupiter Island will accept ownership up to the first gate valve on this assembly and as shown on the Town's Standard Details.

110.00 Other Backflow Preventers

1. Other backflow prevention devices required by the applicable governing authorities are to be in accordance with those authorities' requirements, and are not addressed by these standards.

111.00 Meter Boxes

1. The Town will supply meter boxes for meters 2" and smaller.

2. For meters over 2" in size, the contractor will provide the meter box and will submit shop drawings to be approved by the Engineer of Record and the Town prior to installation.

3. Meter boxes and covers shall meet the requirements of Section A-8 of ASTM C-857 on minimum structural design loading for underground precast utility structures. Meter boxes and covers shall meet ASTM D570 standards for water absorption.

GRAVITY SEWERS -MATERIALS

200.00 GRAVITY SEWERS - MATERIALS

201.00 Pipe

1. Sewer Pipe. Gravity sewer pipe shall be P.V.C. conforming to ASTM D3034. It shall be S.D.R. 35 for depths up to 14 feet and S.D.R. 35/26 for depths of 14 feet to 20 feet. Depths over 20 feet shall not be allowed. Joints shall be bell and spigot push on with solid elastomeric gaskets. The pipe shall be green in color and shall have the pipe manufacturer's information stamped on the pipe. The information shall include the manufacturer's name, the S.D.R. number, the words "gravity sewer," and compliance with ASTM D3034.

202.00 Fittings

1. Ductile iron fittings shall conform to ANSI/AWWA Standard C110 A21.10 latest revision. Fittings 4" and larger shall be coated in accordance with paragraph 201.00.2. (above).

2. P.V.C. fittings shall be of monolithic construction and of the type specified by the manufacturer of the pipe being used. No solvent welds will be permitted.

203.00 Joints

1. Joints for bell and spigot ductile iron pipe and fittings shall conform to ANSI/AWWA Standard C111/A21.11 latest revision. Mechanical joint or push-on joint to be rubber gasket compression-type. Special fittings and joints shall be considered for specific installation subject to the approval of the Town.

2. Joints for P.V.C. non-pressure pipe shall be bell and spigot push on rubber gasket type only. No solvent weld or threaded joints will be permitted.

3. When requested by the Town, the pipe manufacturer shall furnish evidence in the form of affidavits, certified laboratory reports and other data as may be required that the material being used in the manufacturer of the seal or gasket is in strict accordance with the material supplier's recommendations.

4. The jointing of the pipe on the job shall be done in strict accordance with the pipe manufacturer's instructions and shall be done entirely in the trench unless otherwise directed by the Town .

204.00 Manholes

1. Precast reinforced concrete manholes shall conform to the requirements of ASTM C478 latest revision, and the following modifications thereto:

   A. Minimum wall thickness shall be eight inches (8").

   B. Minimum inside diameter of base sections shall be forty eight inches (48").

   C. The precast reinforced base shall be a minimum of eight inches (8") thick and be cast monolithically with the bottom section of manhole walls.

   D. Lifting holes through the structures shall be permitted; however, holes shall be plugged with non-shrink grout or other methods approved by the Town .

   E. Minimum height of base sections shall be three feet (3') from the bottom of base slab.

F. Manhole sections shall be joined with a row of "Ram-Neck" or equal sealant. Use a double row on joints over 10' deep.

(1) After the sections are assembled, the remaining space in the joint shall be pointed up and filled with a dense cement mortar and finished so as to make a smooth, continuous surface inside and outside the wall sections.

G. Deep manholes (7 feet or deeper) may substitute an eight inch (8") precast reinforced concrete slab on the top in lieu of the cone section. Top slabs shall have a twenty four inch (24") diameter access hole centered in the slab. Slabs, if used, shall terminate at such elevations as will permit laying up a minimum of two (2) courses of clay brick under the manhole frame to make allowance for future street grade adjustments.

H. Precast manhole cones, if used, shall terminate at such elevations as will permit laying up a minimum of two (2) courses and maximum of (5) courses of clay brick under the manhole frame to make allowance for future street adjustment.

I. Brick for manhole construction shall be dense, hard burned, common clay brick conforming to ASTM C62 latest revision, except that brick absorption shall be between five (5) and twenty five (25) grams of water absorbed in one minute by dried brick, set flat face down, in one eighth inch (1/8") of water. All brick shall be thoroughly wet before laying up and shall be laid with a shove joint in full mortar beds and shall be thoroughly slushed up with mortar at every course.

J. Where shown on the drawings, the contractor shall place opening for future extensions. The openings shall be closed with a plug as specified by the Town .

K. Service laterals will not be permitted through manhole walls.

L. The invert channels shall be smooth and accurately shaped to a semicircular bottom conforming to the inside of the adjacent sewer section. Steep slopes outside the invert channels shall be avoided. Changes in the size and grade shall be made gradually and evenly. Changes in the direction of the sewer or entering branch shall be a smooth curve with radius as long as practicable.

M. Outside drop connections will not be permitted.

N. Steps or ladders will be omitted unless specifically requested by the Town .

O. Two coats of protective material, Kopper's 300M or equal, shall be applied to the entire inside and outside surfaces of the manhole at the job site. This material shall be applied in accordance with the manufacturer's specifications. The coats shall have contrasting colors so as to be easily verified or when specified by the inspector.

P. Sewers shall be grouted in place using a waterproof, expanding grout, acceptable to the Town . All openings and joints shall be sealed watertight. All holes to be either cast or cut by boring with hole saw. No breaking of manhole will be allowed.

Q. The lid and frame shall be cast of close ground grey iron conforming to ASTM A48 latest revision, and shall be of uniform quality, free of blow holes, porosity, cracks and other obvious visual defects. The combined weight of the frame and lid shall not be less than 525 pounds, and the lid shall weight a minimum of 160 pounds. The seating surfaces between frames and covers shall be machined to fit true. No plugging or filling will be allowed. Casting patterns shall conform to those designated by the Town . Castings shall be cleaned. Pick type lifting holes will

be cast into lids, but shall not go clear through the lid. Manhole lid adapters of up to 2" are allowed.

R. All concrete used in manhole construction shall use Type II cement. All concrete shall have not less than 4000 psi compressive strength at 28 days.

Reinforcing steel for manholes shall conform to the requirements of ASTM A-615 and A-305 latest revision. Splices shall have a minimum overlap of 24 bar diameters. Minimum cover over reinforcing steel shall be 3". Grade 60 steel shall be used for the top and bottom slabs.

S. Manhole adapter couplings or flexible connectors are to be required at all manhole connections when using P.V.C. pipe.

T. Manhole frame and cover to be U.S. Foundry 260G with raised letters that state "Sanitary Sewer."

U. All precast manholes shall bear the stamp of a certified testing laboratory, signed and dated, certifying that they meet the requirements of ASTM C-478 for concrete strength, steel reinforcement area and placement, and appearance when manufactured. Manholes must be inspected by the Town prior to the removal from the truck and installation.

2. Shop drawings shall be submitted to the Town and approved by the Contractor, Engineer of Record, and Town prior to fabrication.

SEWER SERVICES - MATERIALS

301.00	PIPE
302.00	FITTINGS
303.00	JOINTS
304.00	CLEANOUTS
306.00	ADAPTERS

300.00 SEWER SERVICES - MATERIALS

301.00 Pipe

1. P.V.C. non-pressure pipe shall conform to ASTM D3034 latest revision (SDR 35). Ultra violet degradation or sun bleached pipe shall be cause for rejection.

302.00 Fittings

1. Cast iron and ductile iron fittings shall conform to ANSI/AWWA Standard C110 A21.10 latest revision. Fittings 4" and larger shall be coated in accordance with paragraph 301.00.2 (above)

2. P.V.C. fittings shall be of monolithic construction and of the type specified by the manufacturer of the pipe being used. No solvent welds will be permitted.

303.00 Joints

1. Joints for bell and spigot Ductile Iron Pipe and fittings shall conform to ANSI/AWWA Standard C111/A21.11 latest revision. Mechanical joint or push-on joint to be rubber gasket compression-type. Special fittings and joints shall be considered for specific installation subject to the approval of the Town.

2. Joints for P.V.C. non-pressure pipe shall be bell and spigot push on rubber gasket type only. No solvent weld or threaded joints will be permitted.

3. When requested by the Town, the pipe manufacturer shall furnish evidence in the form of affidavits, certified laboratory reports, and other data as may be required that the material being used in the manufacturer of the gasket is in strict accordance with the material supplier's recommendations.

4. The jointing of the pipe on the job shall be done in strict accordance with the pipe manufacturer's instructions and shall be done entirely in the trench unless otherwise directed by the Town.

304.00 Clean-Outs

1. P.V.C. clean-outs to have screw type access plug. Long radius wye connections and fittings shall be used in order to access clean-out operations.

2. Clean-outs located in pavement or concrete driveways shall have a cast iron cap with brass plug and have a 12" x 12" x 6" concrete collar in accordance with the Town's standard detail.

306.00 Adapters

1. Donut type adapters shall be manufactured from virgin polyvinyl chloride (PVC). Material shall conform to applicable sections of ASTM Specifications C-443, C-425, C-594, C-564 and D-1869.

SEWAGE FORCE MAINS - MATERIALS

401.00	PIPE
402.00	FITTINGS
403.00	JOINTS
404.00	FLANGES
405.00	RESILIENT SEAT VALVES 4” THRU 16”
406.00	CHECK VALVES
407.00	VALVE BOXES
408.00	TAPPING SLEEVES AND VALVES
409.00	SEWAGE COMBINATION AIR VALVES
410.00	SERVICE SADDLES
411.00	TRACING WIRE
412.00	THRUST RESTRAINT

400.00 SEWAGE FORCE MAINS - Materials

401.00 Pipe

1. All pipe, pipe fittings and specials intended for conveying or transmitting service of raw sewage shall be designed for a minimum working pressure of 150 PSI.

2. Ductile Iron Pipe shall conform to ANSI/AWWA Standard C151/A21.51 latest revision, "Ductile Iron Pipe centrifugally cast in metal molds or sand-lined molds" with a minimum wall thickness of Class 50, unless otherwise directed by the Town during the transition period. For future projects adhere to Pressure Class 350 for all pipe 4" - 24" in diameter.

   Ductile iron pipe shall be epoxy lined and coated with the manufacturer's coating system. Cement mortared linings are not appropriate for this application.

3. PVC pressure pipe 4" through 12" shall conform to ANSI/AWWA Standard C900 latest revision. PVC pressure pipe shall be made from Class 12454-A or Class 12454-B material and conform with the outside diameter of cast iron pipe with a minimum wall thickness of DR series 18. Ultra violet degradation or sun bleached pipe shall be cause for rejection.

4. The use of pipe 4" in diameter or smaller shall only be permitted where approved by the Town .

5. Flow characteristics shall determine the size of pipes to be used in mains over 6" in diameter. Engineering calculations must be provided to justify proposed sizes.

6. Asbestos cement pipe shall not be permitted on new construction.

402.00 Fittings

1. Cast iron and ductile iron fittings shall conform to ANSI/AWWA Standard C110 A21.10 latest revision. Fittings 4" and larger shall be coated in accordance with paragraph 401.00.2 (above).

2. Fittings for prestressed concrete pressure pipe shall conform to AWWA Standard C301 or latest revision.

3. PVC fittings shall be of monolithic construction and of the type specified by the manufacturer of the pipe being used and will be subject to approval by the Utility. No solvent welds will be permitted.

403.00 Joints

1. Joints for bell and spigot ductile iron pipe and fittings shall conform to ANSI/AWWA Standard C111/A21.11 latest revision. Mechanical joint or push-on joint to be rubber gasket compression-type. Special joints shall be considered for specific installation subject to the approval of the Town .

2. Joints for P.V.C. pressure pipe shall be bell and spigot push on rubber gasket type only. No solvent weld or threaded joints will be permitted.

404.00 Flanges

1. Flanges on flanged ductile iron pipe for short canal crossings and above ground in general shall conform to ANSI/AWWA Standard C110/A21.10.

405.00 Resilient Seat Gate Valves 4" thru 16"

1. Resilient Seat Gate Valves shall comply with AWWA Standard C-509 latest revisions and shall have the following design standards.

2. All Resilient Seat Gate Valves are to be iron body, resilient seat type, non-rising stem, opening left (counter clockwise). Valves shall be furnished with "O" ring packing (two "O" rings). The operating mechanism shall be for buried service with a 2-inch square operating nut.

3. Valve disc shall be contoured to assure uniform seating.

4. Valves shall be coated with a two-part thermosetting epoxy coating on inside of valve body and on valve disc or as approved by the Town . The type of end connection shall be determined by the type of pipe used.

5. Resilient Seat Gate Valves shall have a maximum working pressure of 200 P.S.I. and be tested at 400 P.S.I. between disc seat ring and body seating surface. Seat ring seals shall be replaceable and made from internally reinforced molded natural rubber (ASTM D2000). Seat ring shall be attached to disc with stainless steel screws.

406.00 Check Valves

1. Check valves 2" and larger shall comply with AWWA specifications C-508 latest revisions and shall have the following design standard.

   A. All check valves to be iron body, bronze mounted, full opening with outside lever and weight with removable cover for inspection.

   B. Internal working parts to be readily accessible for repair, removal or replacement without removal of the valve from the pipeline.

   C. Internal working parts to be of brass, bronze or stainless steel material.

   D. Seating surface to be bronze metal-to-metal and may be integral or a separate ring fastened securely to the disc.

   E. Check valves 2" - 12" shall have minimum working pressure of 175 P.S.I.

   F. Check valves 16" - 24" shall have minimum working pressure of 150 P.S.I.

407.00 Valve Boxes

1. Valve boxes shall be cast iron extension type with not less than 5" diameter shaft and with covers marked "sewer". The stem of a buried valve shall be within 12" of finished grade unless otherwise specified by the Town . Valve boxes shall be located in right-of-way and/or located in utility easement. The type of valve stamped on a permanent tag shall be located on the valve box.

408.00 Tapping Sewage Transmission Lines

1. See Section 007.00

409.00 Sewage Combination Air Valves

1. Sewage Combination air valves shall consist of one sewage air release valve and one sewage air and vacuum valve. The valves shall be piped into a compact assembly.

2. Sewage air release valves shall be of the type that automatically releases air, gas or vapor under pressure during system operation. The valve shall have a 2 inch N.P.T. inlet with a 1/2 inch N.P.T. outlet and a 3/16 inch venting orifice for a maximum working pressure of 150 P.S.I. The valve shall be constructed with a cast iron body and cover, stainless steel trim and float, with an adjustable resilient orifice button to insure positive seating.

3. Sewage air and vacuum valves shall be of the type that automatically exhaust large quantities of air during the filling of a system and allows air to re-enter during draining or when a vacuum occurs. The valve shall have a 2 inch N.P.T. inlet with a 1 inch N.P.T. outlet for a maximum working pressure of 150 P.S.I. The valve shall be constructed with a cast iron body and cover, stainless steel trim and float with a Buna-N seat for positive seating.

4. Valves shall be Val-Matic Model No. 48S/301S or approved equal.

5. See the Standard Detail Drawings for additional information.

411.00 Tracing Wire

1. See Section 010.00.

412.00 Thrust Restraint

1. See Section 011.00

LIFT STATIONS - GENERAL NOTES

501.00 CONCRETE

502.00 ELECTRICAL

503.00 OPERATION

504.00 ENGINEERING DRAWINGS

505.00 STANDARD DETAIL DRAWINGS

501.00 General

1. Scope:

The work included under this specification consists of a guide for the design of lift stations and pump stations to be owned and operated by the Town of Jupiter Island Utilities Department. A lift station will be comprised of eight (8) major elements:

A. Wet well and submersible pumps
B. A covered valve pit
C. Control panel
D Parking area
E. Pipe line
F. Concrete slab
G. Fence
H. Water service

2. Applicability:

These specifications apply for normal domestic sewage where the sewage temperature will not exceed 115 degrees Fahrenheit.

3. General Notes

A. All construction and materials shall comply with all applicable local, state, national codes/regulations, and these specifications.

B. Base concrete shall have not less than 4000 P.S.I. compressive strength at 28 days and shall be cast monolithically with bottom section of wet well. All holes required for piping shall be cast at time of manufacture. Type II cement must be used.

C. All nuts, bolts, fasteners, brackets and other hardware shall be Type 304 (or 18-8) stainless steel.

D. Fabrication and erection of reinforcing bars shall conform to the applicable sections of the A.C.I. Code.

E. Exposed concrete edges shall be chamfered 3/4 of an inch.

F. A drawing shall be required showing lift station location, roads, paved service truck parking area, controller location, pipe layout, force main route and easements. A 6' high chain link fence is required.

G. Calculations shall be required showing influent flow rate, wet well storage capacity, pump static and dynamic head conditions, pump sizing, float elevations, and pump cycle time.

H. Motor electrical cables shall be ordered of sufficient length to extend from the motor to the control panel unspliced. Motor cables shall be supplied by the pump manufacturer.

I. Force main will be ductile iron pipe from the valve pit to 20' outside the pit. Converging pipe lines on the discharge side of the force main will be interconnected with a wye. The use of straight or reducing tees for this purpose shall not be accepted.

J. The first run of gravity main from the wetwell to the receiving manhole shall be either epoxy lined and coated with the manufacturer's coating system or PVC ANSI/AWWA C900.

501.00 Concrete

1. All stations shall be surrounded by a concrete pad/slab as detailed in the Town of Jupiter Island standard lift station details. The concrete shall have a minimum design strength of 4000 P.S.I. at 28 days, as determined by standard laboratory tests. Reinforcing steel shall be in accordance with the Town of Jupiter Island Standard Detail Drawings for Lift Stations. All exposed edges of the slab shall have a 3/4" chamfer.

2. Two coats of protective material, Kopper's 300M or equal, shall be applied to the entire inside and outside surfaces of the wetwell at the job site. This material shall be applied in accordance with the manufacturer's specifications. The coats shall have contrasting colors so as to be easily verified or when specified by the inspector.

502.00 Electrical

1. All equipment and materials shall be permanently grounded in accordance with the requirements of the National Electrical Code and the South Florida Building Code. All cable and wire for feeders and branch wiring shall be copper type "THW". The contractor shall furnish all labor, materials, equipment, facilities, transportation and services required for furnishing, delivery and installation of the electrical work as indicated on the Town of Jupiter Island Standard Lift Station Details.

503.00 Operation

1. The operation of the lift station will be based on a point control with an emergency back-up system. In ascending order the four points are:

   a. low water cut off point
   b. lead pump start point
   c. lag pump start point
   d. high water alarm point

   The lead pump is energized when the sewage level reaches the "lead pump start point". The lead pump operates continuously until the water level is lowered to the "low water cut off point". The lag pump is energized if the lead pump is incapable of handling the flow of sewage, allowing the water level to reach the "lag pump start point." The lag pump then operates in unison with the lead pump until the water level is lowered to the "low water cut off point". At this time, both pumps are de-energized. An automatic circuit will alternate the lead pump, lag pump sequence on every pump down cycle. An alarm bell and light (with weather-proof alarm bell on-off switch located inside of the control box) will be activated if the water level reaches the "high water alarm point". The alarm bell and light will be de-energized when the water level falls below the "high water alarm point". A high water indicator light, located inside the control box, is activated if the water reaches the "high water alarm point". This indicator light shall stay on after the water level falls below the "high water alarm point" and must be de-energized manually.

2. An emergency back up system shall be provided, as shown on Town of Jupiter Island standard lift station detail drawings. The emergency system shall operate the pumps if the four point system above fails.

504.00 Engineering Drawings

1. Engineering drawings are to be certified by a State of Florida registered professional engineer. The drawings are essentially diagrammatic although the location of equipment is to be shown at scale. All

information at the site which may influence the design of the station shall be shown. Pump and wet well design characteristics shall be provided.

505.00 Standard Detail Drawings

1. Standard detail drawings are available from the Utility of the Town of Jupiter Island. These drawings incorporate the latest changes in the Town's lift station design parameters.

INSTALLATION

601.00	INSTALLATION OF NEW WATER & FORCE MAINS
602.00	INSTALLATION OF NEW WATER SERVICES
603.00	PIPE BORING AND JACKING
604.00	INSTALLATION OF GRAVITY WASTEWATER MAINS
605.00	PAVEMENT RESTORATION FOR OPEN CUTS WITHIN TOWN OF JUPITER ISLAND RIGHT-OF-WAY
606.00	CANAL CROSSINGS

601.00 Installation of Water Mains & Force Mains

1. The installation and testing of all new water mains shall be done in accordance with the latest revision of AWWA Standard C600 plus the additional requirements of the Town of Jupiter Island.

2. Pipe Deflection - When it is necessary to deflect pipe from a straight line in either the vertical or horizontal plane or where long radius curves are permitted, the amount of deflection shall not exceed 75% of the maximum deflection recommended by manufacturer. No deflection at the joint is allowed for PVC pipe. PVC pipe curvature shall be accomplished by bending the pipe. The bent PVC pipe shall form a true arc, i.e., the pipe is curved uniformly throughout its length and shall not exceed the following parameters:

PVC Pipe Size (Inches per 20' Length)	Min. Allowable Radius	Max Deflection -
6"	300 Ft.	8"
8"	400 Ft.	6"
10"	600 Ft.	4"
12"	600 Ft.	4"

Note: Water or sewer force mains of any size PVC or DIP pipe that cross any other utility mains without a minimum of 18" of vertical separation will not be installed by way of deflection other than with four 45 degree bends with Megalugs and thread rods to restrain all joints. The top 45 degree bends will be restrained. Field inspection by a Town Engineering Inspector will be required prior to installation.

3. Additional Installation Requirements:

A. Clearing

(1) The Contractor shall perform all clearing necessary for the proper installation of all lines and appurtenances in the locations shown on the drawings. Plantings, shrubbery, trees, utility poles or structures subject to damage resulting from the excavation shall be transplanted, relocated, braced, shored, or otherwise protected and preserved unless otherwise directed by the Town .

B. Excavation

(1). The Contractor shall perform all excavation of every description and of whatever substances encountered, to the dimensions and depths shown on the drawings or as directed. All excavations shall be made by open cut. All existing utilities such as pipes, poles, and structures shall be carefully supported and protected from injury, and in case of damage, they shall be restored at no cost to the Town .

(2) Work shall be properly sheeted and braced where necessary. Where certain designs of steel sheeting are used, the sheeting shall be cut off at a level two feet above the top of the installed pipe and that portion below that level shall be left in place. If interlocking steel sheeting of a design approved by the Town is used, it may be removed providing removal can be accomplished without disturbing the bedding or alignment of the pipe. Any damage to the pipe bedding, pipe, or alignment of the constructed main caused by removal of sheeting shall be cause for rejection of the affected portion of the work.

(3) Pipe trenches shall be excavated to a width within the limits of the top of the pipe and the trench bottom so as to provide a clearance on each side of the pipe barrel, measured to the face of the excavation, or sheeting if used, of not less than eight inches (8"), nor more

than twelve inches (12”). For pipe over eighteen inches (18”) in nominal size, this maximum twelve inches (12”) clearance may be increased to eighteen inches (18”). All pipe trenches shall be excavated to a level six inches (6”) below the outside bottom of the proposed pipe barrel unless otherwise directed by the Town . Properly sloped or shored per OSHA ***** requirements and job site conditions, and the Trench Safety Act ******

(4) Excavation for appurtenances shall be sufficient to provide a clearance between their outer surfaces and the face of the excavation, or sheeting if used, of not less than twelve inches (12”). Materials removed from the trenches shall be stored and disposed of in such a manner that they will not interfere unduly with traffic on public streets and sidewalks, and they shall not be placed on private property. In congested areas, such materials as cannot be stored adjacent to the trench or used immediately as backfill, if acceptable, shall be removed to convenient places of storage.

(5) All excess material suitable for use as backfill shall be hauled to and used in areas where not enough suitable material is available from the excavation.

***** Federal Register Part II, Department of Labor, OSHA 29CFR 1910; Permit required, confined spaces for General Industry, Final Rule.

****** Trench Safety Act, House Bill 3183 Law of Oct. 1, 1990.

(6) Suitable material in excess of backfill requirements and material unsuitable for backfill shall become the property of the Contractor and shall be removed from the work and disposed of by the Contractor at his expense.

(7) All unsuitable material shall become the property of the Contractor and shall be removed from the work and disposed of by the Contractor at his expense.

C. Dewatering

(1) When practical, it is a requirement of these specifications that excavation shall be free from water before pipe or structures are installed. When not practical, work shall be done as specified by the Town .

(2) The Contractor shall provide all necessary pumps, under-drains, well point systems, and other means for removing water from trenches and other parts of the work. The Contractor shall continue dewatering operations until the backfill has progressed to a sufficient depth over the pipe to prevent flotation or movement of the pipe in the trench.

(3) Water from the trenches and excavation shall be disposed of in such a manner as will not cause injury to public health, to public or private property, to the work completed or in progress, to the surface of the streets, or waterways or cause any interference with the use of the same by the public.

(4) All dewatering shall be in accordance with the Martin County Department of Natural Resource Protection discharge requirements.

D. Trench Stabilization

(1) No claims for extras, or additional payment will be considered for cost incurred in the stabilization of trench bottoms which are rendered soft or unsuitable as a result of construction methods, such as improper or inadequate sheeting, dewatering or other

causes. In no event shall pipe be installed when such conditions exist and the Contractor shall correct such conditions so as to provide proper bedding or foundations for the proposed installation at no additional cost to Town . Please refer to Trench Safety Act. House Bill 3183 Law of Oct. 1, 1990.

E. Laying

(1) A minimum two foot horizontal distance shall be maintained between new water main installations and any other utilities (See standard separation requirements).

(2) When the pipe is laid in the prepared trench, true to line and grade, the pipe barrel shall receive continuous, uniform support and no pressure will be exerted on the pipe joints from the trench bottom.

(3) The interior of the pipes shall be thoroughly cleaned of all foreign matter before being lowered into the trench. During suspension of work for any reason at any time, a suitable stopper shall be placed in the end of the pipe last laid to prevent mud or other foreign material from entering the pipe. Lines shall be laid straight, and depth of cover shall be maintained uniform with respect to finish grade whether grading is completed or proposed at time of pipe installation. Where a grade or slope is shown on the drawings, a laser beam paralleling design grade shall be used by the Contractor to assure conformance to required grade. No abrupt changes in direction or grade will be allowed. Any pipe found defective shall be immediately removed and replaced with sound pipe. Restrained joints shall be used for all bends, tees, plugs, and other fittings. The joints of all pipeline shall be made absolutely tight. The particular joint used shall be approved by the Town prior to installation.

(4) Mechanical joints shall be made up using annealed high strength cast iron bolts and rubber gaskets having either plain or ducktip as recommended by the manufacturer. All types of mechanical joint pipes shall be laid and jointed in full conformance with manufacturer's recommendations, which shall be submitted to the Town for review and approval before work is begun. Torque wrenches set as specified in AWWA Standard C111 latest revision, shall be used; or spanner type wrenches may be used with the permission of the Town .

(5) Push-on joints shall be made in strict, complete compliance with the manufacturer's recommendations. Lubricant, if required shall be an inert, nontoxic, water-soluble compound incapable of harboring, supporting, or culturing bacterial life. Manufacturer's recommendations shall be submitted to the Town for review and approval before work is begun.

(6) All DIP and PVC C-900 pipe shall have a minimum cover of 30". All other PVC pipe shall have a minimum cover of 36".

F. Backfill

(1) Backfilling of utility trenches will not be allowed until the work has been inspected by the Town and that will indicate that backfilling may proceed. Any work which is covered up or concealed without the knowledge and consent of the Town may be required to be uncovered or exposed at no cost to the Town .

(2) Backfill material shall be non-cohesive and non-plastic, free of all debris, lumps, clods, wood, broken paving or any organic or unstable material. Backfill material placed within

one foot (1.0¢) of the lines shall not contain any stones or rocks larger than two inches (2²) in diameter and no stones or rocks larger than six inches (6²) in diameter will be permitted in any backfill.

(3) If a sufficient quantity of suitable backfill material is not available from the trench excavation, or other trench excavations within the site of the work, the Town shall order the Contractor to provide additional material suitable for this purpose. The additional material shall be installed as specified herein.

(4) Selected backfill material containing no stone or rocks larger than two inches (2²) shall be placed in six inch (6²) layers and thoroughly tamped to a depth of twelve inches over the top of the pipe. Particular attention and care shall be exercised in obtaining thorough support for the branch of all service connection fittings. Care shall be taken to preserve the alignment and gradient of the installed pipe.

(5) After selected backfill has been placed to a depth of twelve inches (12²) over the pipe, backfilling shall proceed to a depth of thirty inches (30²) over the pipe by placing the backfill material in six inch (6²) layers and thoroughly compacting with mechanical vibrations. Backfill in this portion of the work shall be compacted to 100 percent of maximum density of the material as hereinafter defined.

(6) After the backfill has been placed to a level thirty inches (30²) over the pipe, the remainder of the backfill shall be placed in layers, not to exceed nine inches (9²) and compacted with mechanical vibrators, or other suitable equipment, i.e., flooding to obtain a density of the backfilled material of not less than 100 percent of its maximum density as hereinafter defined.

(7) An alternate method of backfilling shall be used when laying pipe underwater or when otherwise directed by the Town . The alternate method of backfilling shall differ from the previously mentioned specification only in that the backfill material used around the pipe and to a level one foot (1.0) above the top of the pipe barrel shall be drainfield limerock not larger than 3/4² in diameter.

G. Restoring Surfaces

(1) The top surfaces of the backfill shall be restored to the original or planned conditions or better. Trenches shall be carefully examined upon the completion of backfilling and surface irregularities that are dangerous or obstructive to traffic are to be removed. Paved sections shall conform in grade with adjacent areas and shall be of at least equal quality. Design mixes for flexible pavements shall be subject to approval by the Town or Martin County Engineering Department as applicable but shall adhere to the Florida Department of Transportation rules and regulations and standards and/or other government agencies. All damaged or undermined areas of existing pavement, not previously removed, shall be removed and restored to original condition or in the specified manner.

(2) Equipment or traffic shall not travel over loose rock fragments, or other hard material, lying on sections of pavement which are not to be removed. For traffic control and safety barricades may be required. Removal, replacement and restoration of areas of pavement shall be as indicated on drawings and in conformance with the approved details.

H. Standard Pipe Separation Requirements

(1) Sanitary sewer gravity and force mains should cross under water mains whenever possible. Sanitary sewer gravity and force mains crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the invert of the upper pipe and crown of the lower pipe whenever possible.

Where sanitary sewer gravity or force mains must cross a water main with less than 18 inches of vertical distance, both the sewer and the water main shall be constructed of ductile iron pipe (DIP),. minimum Class 52 at the crossing. Sufficient lengths of DIP must be used to provide a minimum separation of 10 feet between any two joints. All joints on the water main within 20 feet of the crossing must be mechanically restrained. A minimum vertical clearance of 12 inches must be maintained at all crossings.

All crossings shall be arranged so that the sewer pipe and the water main pipe joints are equidistant from the point of crossing (pipes centered on the crossing).

Where a new pipe conflicts with an existing pipe with less than 18 inches of vertical clearance, the pipe shall be arranged to meet the crossing requirements above.

(2) A minimum of 10 foot horizontal separation shall be maintained between any type of sewer and water main in parallel installations whenever possible.

In cases where it is not possible to maintain a 10 foot horizontal separation, the water main must be laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer or force main at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer.

Where it is not possible to maintain a vertical distance of 18 inches in parallel installations, the water main shall be constructed of DIP and the sanitary sewer or the force main shall be constructed of DIP with a minimum vertical separation of 6 inches with sand bedding. The water main should always be above the sewer. Joints on the water main shall be located as far apart as possible from joints on the sewer or force main (staggered joints).

602.00 Installation of New Water Services

1. The installation and testing of all new water services shall be done in accordance with the latest revision of AWWA Standard C600, C901 and C902 plus the additional requirements of the Town of Jupiter Island.

2. Laying

A. The bedding material used for service line installations shall consist of selected backfill material containing no stone or rocks larger than 1” in diameter, sand or drainfield lime rock not larger than 3/4” in diameter.

B. When the service line is laid in the prepared trench, special care shall be taken to insure that minimum radius is maintained on plastic service lines and that undue pressure is not exerted on the service line by rocks or other material protruding through the bedding material.

C. The interior of the service line shall be thoroughly cleaned of all foreign matter before being lowered into the trench. Compression joints and couplings shall be assembled in strict accordance with the manufacturer’s recommendations. Particular care should be taken to keep foreign materials from interfering with proper joint assembly. The mating surfaces of the compression joint should be wiped clean. The tubing should then be inserted into the compression fitting and made tight according to the manufacturer’s recommendations.

D. The maximum deflection of any service line shall not exceed 75% maximum deflection recommended by the tubing manufacturer. The service line shall terminate in an approved meter box or vault located within the public right-of-way or easement, adjacent to the property being served. The meter box or vault shall have a traffic type cover in areas where it is exposed to vehicular traffic.

E. The minimum depth of cover over the service line at street crossing shall be 24" unless otherwise directed by the Town . On installations where no street crossing is necessary, the minimum depth of cover shall be 18" unless special problems are encountered.

F. Additional requirements of Installation Section 601.00.3.

603.00 Pipe Boring and Jacking

1. The Contractor shall perform the pipe boring and jacking in accordance with the requirements specified herein.

2. Where boring and jacking is required, the casing pipe shall only be installed by accepted standard boring and jacking methods and in accordance with the State of Florida Department of Transportation's Utility Accommodation Guide, Exhibit H, Jacking and Boring Supplement, latest revision.

3. Boring and Jacking materials shall conform with the State of Florida Department of Transportation's Utility Accommodation Guide, Exhibit H, Jacking and Boring Supplement, latest revision, and be in accordance with but not limited to the following:

Material: Welded Steel Pipe, ASTM A139, Grade B.

Size & Thickness: Varies and 0.500 inches.

Coatings: Two (2) coats inside and out, Koppers Bitumastic No. 50 or equal, applied in strict accordance with manufacturer's instructions.

Pipe Ends: Beveled for field welding.

Material Certificate: Affidavit of Compliance certifying pipe complies with ASTM A139, Grade B.

Blocking: Stainless steel casing spacers with polymer runners.

Casing Pipe Ends: Masonry bulkheads as shown on the plans, or other sealing systems on new installations, subject to Engineer's approval.

4. Boring and Jacking installation work shall be installed in accordance with standard practice and above specified Florida Department of Transportation's Utility Accommodation Guide. The work shall be in accordance with and not limited to the following:

Contractor's Equipment: Shall be compatible with subsoil conditions encountered. The Town may order the Contractor to change his boring equipment if he considers it so non-compatible, and if, in his opinion, the change is necessary to safeguard the public and to protect public or private property.

Soil Stabilization: Unstable soil shall be stabilized ahead and around casing pipe by chemical grout injection and/or other acceptable methods.

Jacking:	Installation of the casing pipe shall be a continuous operation until completed. It shall be done from one end of crossing to the other without horizontal deflection or settlement of ground, surface facilities or structures.
Boring:	Excavated materials shall be removed as jacking proceeds without causing voids behind casing pipe.
Grade Control:	Casing lead pipe grade check at least every four feet or whenever directed. A jack shall be used at the head end to control grade as required.
Alignment Control:	Alignment shall be controlled by guide rails set in the jacking pit.
Casing Pipe:	Lengths shall be circumferentially welded in conformance with AWWA C206. After welding, the joint area inside and out shall be cleaned and given 2 coats of Koppers Bitumastic No. 50 or equal.
Carrier Pipe:	Jacked or cable-pulled, providing no tensile forces are exerted on any pipeline joints.

604.00 Installation of Gravity Wastewater Mains

1. Gravity wastewater mains shall be laid accurately to both line and grade. The Town will generally not accept any line laid with a slope varying by more than 15% of its design slope especially for lines laid at minimum gradients. The Town reserves the right to independently verify questionable survey results. Visible leakage, deflections, horizontal misalignment, significant bowing, non-constant slopes between manholes, and sagging joints shall each be grounds for rejection of the lines.

2. Trenches and excavations shall be kept dry while work is in progress. The contractor shall be responsible to ensure that all safety requirements are met. Unsuitable excavated material such as boulders and logs shall be removed from the site. The pipe barrel shall be uniformly supported along its entire length on undisturbed soil or bedding material. Proper bedding shall be supplied if the existing material includes rock, organic material or other sharp or unsuitable material.

3. Manholes shall be set according to construction plans and shall be precast in accordance with approved shop drawings and specification detail drawings accompanying this text. The manhole invert shall be carefully shaped to conform to the pipe flow channel. Flow channels within the manholes involving changes of direction or slide slopes shall smoothly direct the flow in accordance with detail drawings. All concrete irregularities shall be plastered with cement mortar in such a manner as to give a neat and water tight job. Manholes shall be core drilled to provide pipe opening when precast hole is not available.

605.00 Pavement Restoration for Open Cuts Within Town of Jupiter Island Right-of-Way

1. Underground facility crossings of paved roads shall be made by the “jack and bore”or “directional drilling” method unless an alternate method is approved by the Town . The minimum distance from the existing edge of pavement to a bore pit and/or a receiving pit shall be four feet unless otherwise approved. Open cuts will be permitted only when approved by the Town .

2. Where pavement is removed for installation, maintenance or removal of any underground facility, restoration shall be in accordance with the following procedures and the Town of Jupiter Island Standard Details when the project is located within Town Right-of-Way. Where the project is located within other jurisdictional Rights-of-Way, the governing authority’s specifications will dictate the restoration procedures.

3. Backfill and pavement restoration will be in accordance with the following:

A. Density tests shall be taken at each 6" lift of base rock and each 8" lift of compacted fill or backfill, according to the following schedule, prior to the placement of succeeding lifts.

(1) For any road crossing in which the road is cut and restored one lane at a time, one density test shall be taken in each lane at each lift.

(2) For any road crossing in which the road is cut and restored two lanes at a time, densities shall be tested in one lane per lift, alternating lanes with each lift.

(3) For any road crossing in which the road is cut and restored three lanes at a time, densities shall be tested in two locations per lift, staggering locations with each successive lift.

(4) Cuts in roads shall not be left open overnight unless permission has been obtained on a case-by-case basis from the Town . Trenches shall be backfilled and a temporary asphalt applied to make a smooth level patch. The trenches shall then be excavated the next day and permanent backfill and pavement installed in accordance with these standards. The only exceptions will be in cases where the facility installed must be tested before the roads are restored. In these cases, the permanent restoration must be performed on the day of testing or the next day.

(5) In cases where the installation parallels the roadway and damages the pavement, the density tests shall be made every 100 linear feet at each lift, with test locations staggered at 25 feet each lift.

(6) Roadway base material shall be compacted to a minimum of 100% of maximum dry density, as determined by AASHTO T-180 (Modified Proctor Test). Subgrade material under paved areas shall be compacted to a minimum of 100% of maximum dry density. Shoulder areas and swale areas beyond shoulders shall be compacted to a minimum of 95% of maximum dry density, all as determined by AASHTO T-99-C (Standard Proctor Test).

(7) Restoration of striping and signing devices shall be accomplished immediately after pavement restoration is completed as required.

**Copies of all Proctor and field density tests shall be provided to the Town upon request. Additional tests may be required by the Engineering Inspector if, in his opinion, the conditions or test results warrant them.

606.00 Canal Crossings

1. All exposed pipe shall be ductile iron or prefabricated steel with flanged fittings. Retainer glands and uniflange type fittings are not to be substituted for flanged fittings.

2. Fan guards are to be manufactured from galvanized steel and placed at each end of canal crossing.

3. All hardware shall be painted with coal tar epoxy.

4. All exposed piping shall be painted with Kop-Coat Bitumastic No. 50, two coats at 15-18 mils each, and Bitumastic No. 33, one coat at 12-15 mils or approved equal.

5. Pipe shall be cradled on felt (80 lb. min.) or neoprene.

6. Tie-down straps must properly fit and secure pipe in cradle. Pipe cradle in cap shall contact ½ circumference of pipe.

7. Proposed drawings to be approved by the Town shall show the ultimate canal cross section and relevant elevations and distances.

8. Pile lift cable shall be removed below the surface and the hole shall be filled with epoxy cement.

9. Concrete piles shall be no less than 10” x 10” prestressed concrete Type 1A.

10. An automatic air release valve with double strap saddle and corporation stop shall be installed.

TESTING

701.00	TESTING WATER MAIN LINES
702.00	TESTING WATER SERVICE LINES
703.00	TESTING FORCE MAIN LINES
704.00	TESTING GRAVITY SEWER MAIN LINES
705.00	TESTING GRAVITY SEWER LATERALS
706.00	VISUAL INSPECTION GRAVITY SEWER MAIN LINES
707.00	TESTING BACKFILL

701.00 Testing Water Main Lines

1. Water mains shall be tested in accordance with ANSI/AWWA Standard C600 latest revision.

2. Hydrostatic Tests:

   A. After a new water main has been laid and backfilled, it shall be pumped to a pressure of 150 P.S.I. and all visible leaks stopped by approved methods.

   B. A leakage test shall then be conducted at the above mentioned pressure and no installation will be acceptable by the Town until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = S \times D \times \frac{P \wedge 1/2}{133200}$$

   in which L equals the allowable leakage in gallons per hour; S is the length of line in feet being tested; D is the nominal diameter of the pipe in inches; and P is the average test pressure during the leakage test in pounds per square inch. The test is usually maintained for two hours but it may be continued for one additional hour if it becomes apparent that the leakage is equal to or greater than the amount allowable. Water supplied to the main during the test to maintain the required pressure shall be measured by a 5/8-inch meter installed on the discharge side of the test pump, or by pumping from a calibrated container. A hose bib connection will be provided to accept the test gauge.

   C. The section of main being tested shall be limited to a maximum length of 2000¢. When testing against closed metal-seated mainline valves, an additional leakage per closed valve of 0.0078 gal/hr/in. of nominal valve size shall be allowed. Any questions pertaining to procedures used during the test shall be decided by the Town .

   D. No allowable leakage for fire hydrants.

3. Bacteriological Tests:

   A. After the water mains have been flushed through openings of the required size, the water mains must satisfy the leakage requirements as detailed in ANSI/AWWA Standard C651 latest revision. The main shall then be sterilized in accordance with the provisions of the applicable sections of the above named specifications. On main breaks, cut-ins, etc. a liberal application of calcium hypochlorite shall be made; 50 PPM Chlorine during a 24 hour period.

   B. Mains shall not be put into domestic service until the necessary bacteriological samples have been approved by the applicable regulatory agencies.

   C. The Town of Jupiter Island will perform all bacteriological samples and analysis.

702.00 Testing Water Service Lines

1. Hydrostatic Testing

   A. Hydrostatic testing of water service lines shall be done in conjunction with the testing of the lateral or main line. No additional leakage allowance will be made for service lines or fire hydrants.

2. Sterilization

A. Sterilization of service lines shall be done in conjunction with the sterilization of the lateral or main line. Sufficient sampling points shall be taken from service line connections to assure uniform results throughout the system being tested.

703.00 Testing Force Main Lines

1. Force mains shall be tested in accordance with AWWA Standard C600 latest revision.

2. Hydrostatic Tests:

A. After a new force main has been laid and backfilled, it shall be pumped to a pressure of 150 P.S.I. and all visible leaks stopped by approved methods.

B. A leakage test shall then be conducted at the above mentioned pressure and no installation will be acceptable by the Town until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = S \times D \times \frac{P \text{ ^1/2}}{133200}$$

in which L equals the allowable leakage in gallons per hour; S is the length of line in feet being tested; D is the nominal diameter of the pipe in inches; and P is the average test pressure during the leakage test in pounds per square inch. The test is usually maintained for two hours but it may be continued for one additional hour if it becomes apparent that the leakage is equal to or greater than the amount allowable. Water supplied to the main during the test to maintain the required pressure shall be measured by a 5/8 inch meter installed on the discharge side of the test pump, or by pumping from a calibrated container. A hose bib connection will be provided to accept the test gauge.

C. The section of main being tested shall be limited to a maximum length of 2000¢. When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/hr/in. of nominal valve size shall be allowed. Any questions pertaining to procedures used during the test shall be decided by the Town .

2. Cleaning and Flushing

A. All force main piping shall be flushed with a sufficient amount of clear water to displace test water. If the discharged water shows evidence of excessive mud, sand or other deposits, the Town may direct the Contractor to continue flushing, or to clean the entire force main system by other approved methods to insure the removal of such deposits. Once complete, hydrostatic testing may occur.

704.00 Testing Gravity Sewer Main Lines

1. Infiltration, Exfiltration Gravity Sewer Main Line

A. The allowable limits of infiltration or exfiltration for the entire system, or any portion thereof, shall not exceed a rate of 100 gallons per inch of inside pipe diameter per mile of pipe per 24 hours. No additional allowance will be made for house service lines. The allowable limits of infiltration or exfiltration of manholes shall not exceed a rate of four gallons per manhole per 24 hours.

B. Any part or all of the system may be tested for infiltration or exfiltration, as directed by the Town. Prior to testing for infiltration, the system shall be pumped out so that normal infiltration conditions exist at the time of testing. The amounts of infiltration or exfiltration shall be determined by pumping into or out of calibrated drums or by other methods approved by the Town .

C. The exfiltration test will be conducted by filling the portion of the system being tested with water to a level equal to the lowest part of the manhole frame.

D. Tests shall be conducted on portions of the system not exceeding three manhole runs or maximum of 1200¢ (feet), whichever is greater, unless otherwise directed by the Town . Tests shall be run continuously for two hours.

E. Where infiltration or exfiltration exceed the allowable limits specified herein, the defective pipe, joints, or other fault construction shall be located and repaired by the Contractor. If the defective portions cannot be located, the Contractor shall remove and reconstruct as much of the work as is necessary in order to conform to the specified allowable limits.

F. The Contractor, at no expense to the Town, shall provide all labor, equipment and materials and shall conduct all testing required, under the direction of the Town .

705.00 Testing Gravity Sewer Laterals

1. Infiltration/Exfiltration Gravity Sewer Laterals

2. Infiltration and exfiltration testing (two feet of head for infiltration; zero head for exfiltration) of service connection lines shall be done in conjunction with the testing of the lateral and/or main line sewer. No additional leakage allowance will be made for service lines.

3. Infiltration testing of service lines will not be permitted unless a minimum 2¢ (feet) static head of ground water exists over the shallow end of the service line at cleanout.

706.00 Visual Inspection of Gravity Sewer Main Lines

1. On completion of each block or section of sewer, or such other times as the Town may direct, the block or section of sewer is to be cleaned, tested and inspected. Each section of the sewer is to show, in examination from either end, a full circle of light between manholes. Each manhole or other appurtenance to the system, shall be of the specified size and form, be water tight, neatly and substantially constructed, with the top set permanently to exact position and grade. All repairs shown necessary by the inspection are to be made; broken or cracked pipe replaced; all deposits removed and the sewers left true to line and grade entirely clean and ready for use.

707.00 Testing Backfill

1. Compaction and Density Testing

2. Methods of control and testing of backfill construction to be employed in this work are:

A. Maximum density of backfill material within road base or sub-base shall be determined by AASHTO Method Designation T180 Method D latest revision (ASTM D1557).

B. Maximum density of all other backfill material shall be determined by AASHTO Method Designation T99 Method D latest revision (ASTM D698).

C. Laboratory and field density tests, which, in the opinion of the Town are necessary to establish compliance with the compaction requirements of these specifications, shall be conducted at the expense of the developer. Tests shall be made at such depths and locations as selected by the Town .

D. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompacted until the required compaction is secured, at no cost to the Town .

E. First test shall be made on the backfill layer 12² above the top of pipe or at the water table, whichever is lower, and on 6² lifts thereafter.

Section III

CONSTRUCTION DETAILS

Shop Drawing Submittals & Approved Utility Products:

The procedure for the submittal of shop drawings to the Town is as follows:

1. For all items included in the referenced Approved Products List, the Contractor shall submit for approval by the Town, five (5) copies of a list indicating the manufacturer's name and model number, type, etc., for each item to be used. The list shall bear the approval of the Underground Contractor and the Engineer of Record.

2. For all items not included in the Town of Jupiter Island Approved Products List, the Contractor shall submit five (5) sets of standard shop drawings or manufacturer's catalogs with the model number or type of the item encircled or otherwise designated. The submittals shall bear the approval of the Underground Utility Contractor and the Engineer of Record.

3. Five (5) sets of complete detailed shop drawings for all sanitary manholes, wetwells, other castings, and pumps shall be submitted and shall bear the stamped approval of the Underground Utility Contractor and the Engineer of Record on each sheet. A complete set of the lift station electrical shop drawings is also required.

   The end result of the above procedure is a complete submittal to the Town of Jupiter Island of all materials and products to be used in the construction and installation of the underground water and sewer system. Further, all submittals shall be made in one package (list of items, shop drawings, catalogs, and other required drawings.). Please note that submittals must be accompanied by a cover letter of transmittal stating what the package contains.

   No permits for water and/or/sewer construction will be issued by the Town of Jupiter Island until the shop drawings and products list for all items have been approved by the Utility.

(ENGINEER'S OR UTILITY CONTRACTOR'S LETTER HEAD)

(Date)

Town of Jupiter Island

RE: (Project Name and Location)

Dear:

The following is a list of materials received for (Project Name). These products have been checked and approved by our Construction Services Department:

Item	Approved Mfg	Model/Type
D.I.P. Water Pipe	American Cast Iron Co.	Super Bell-Tite
Fire Hydrant	Mueller	Resilient Seat
Gate Valve	Mueller	H667
Tapping Sleeves	Mueller	Plugs Series 1265
Water Pipe Valve	Union Foundry	7500 Adj. Screw Type
Boxes	U.S. Foundry	

The items listed above are in complete compliance with the approved products list for utility construction in the Town of Jupiter Island and will be used in the construction of the above referenced project. We understand that any substitutions for the above products must be submitted to the Town of Jupiter Island for approval prior to their use.

Sincerely,

_____ _____

(Utility Contractor's Representative Name and Title)

(Engineer of Record)

TOWN OF JUPITER ISLAND
SOUTH MARTIN REGIONAL UTILITIES

APPROVED PRODUCTS LIST
FOR
WATER/SEWER UTILITY CONSTRUCTION

PVC WATER PIPE

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
J-M PIPE	BLUE BRUTE	PVC SHALL CONFORM TO ANSI/AWWA C900-89: CLASS 200, DR14 FOR 4" AND 6", DR 18 FOR 8" , 10" AND 12"
DIAMOND		
CERTAINTEED		PVC SHALL CONFORM TO ANSI/AWWA C905 DR25.

DIP WATER PIPE

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
AMERICAN CAST IRON CO.	TYTON JOINT - 3" - 24" FAST TITE - 30" -36"	CONFORMS TO ANSI/AWWA C151/A21.51-91 PRESSURE CLASS 350 FOR 4" -24" OR CLASS 52 OR BETTER FOR 4" AND 6" CLASS 50 OR BETTER FOR 8" AND UP
U.S. PIPE		
MCWANE/CLOW		INTERIOR CEMENT LINING, SEAL COATED

PVC SEWER PIPE

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
J-M PIPE	RING-TITE	DR35-GRAVITY SEWER; ASTM D3034 OR C900/DR-18
CERTAINTEED		DR18 - FORCE MAIN; 4" - 12"
DIAMOND		

DIP SEWER PIPE

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
AMERICAN CAST IRON CO. MCWANE/CLOW U.S. PIPE	TYTON JOINT - 3" - 24" FAST TITE - 30" - 36"	EPOXY LINED; ASPHALT COATED ON THE OUTSIDE. CLASS 50 - PRESSURE CLASS 350 FOR 4" - 24" CERAMIC EPOXY ONLY (40 MILS PERMITE OR PROTECTO)

WATER PIPE FITTINGS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
AMERICAN CAST IRON PIPE UNION FOUNDRY TYLER U.S. PIPE	CROSSES - SERIES 1235 GASKETS SERIES 410C PLUGS SERIES 1265 MECHANICAL JOINT- SSB FULL BODY	MECHANICAL JOINT DIP PER ANSI/AWWA C153/A21.10, CEMENT LINED AND SEAL COATED PER ANSI/AWWA C104/A21.4, ALL FITTINGS CLASS 350 OR AWWA C-110 FULL BODY DUCTILE IRON FITTINGS, CEMENT LINED & SEAL COATED PER ANSI/AWWA C104/A21.4

PVC SEWER PIPE FITTINGS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
MULTI VASSALLO PLASTIC TRENDS HARCO	AQUALITE GASK-O-WELD	NON PRESSURE (GRAVITY SEWER ONLY); DR 35, GASKETED, CONFORMS TO ASTM D3034

DIP SEWER PIPE FITTINGS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
U.S. PIPE UNION FOUNDRY TYLER	MECHANICAL JOINT - SSB	ALL EPOXY COATED/C-110 FULL BODY MECHANICAL JOINT DIP OR CAST IRON CONFORMS TO ANSI/AWWA C153/A21.10-82 (40 MILS - CERAMIC EPOXY ONLY) PROTECTO 401 OR PERMITE

SERVICE SADDLE (INCLUDES SADDLE TOPS)

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
FORD METER BOX CO.	DOUBLE 202B (1-1/2" SERVICE OR LARGER) S90 FLAT	BRONZE SADDLE WITH BRASS BALES IRON PIPE THREAD
MUELLER	BR2B SERIES	IRON PIPE THREAD

TAPPING VALVES

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
AMERICAN FLOW CONTROL	500 - 2500 SERIES	FLANGE BY MECHANICAL JOINT WITH CENTERING RING
CLOW	F-6114	
MUELLER	T2360	

TAPPING SLEEVES

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
AMERICAN FLOW CONTROL	2800 SERIES 1004 SERIES	MECHANICAL JOINT EPOXY COATED WITH STAINLESS STEEL
CLOW	F-5205	BOLTS
MUELLER	H615	
JCM INDUSTRIES	JCM 412	
TYLER	MJ CAST IRON 5-149-CI	
SMITH-BLAIR	622 OR 633	
U.S. PIPE		

CORPORATION STOPS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
FORD METER BOX CO.	BALL CORP FB1100	BRASS BALL VALVE TYPE; CONFORMS TO ANSI/AWWA C800
MUELLER	110 COMPRESSION OUTLET B25028-1.P B25008-C.C.	IRON PIPE THREADS

CURB STOPS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
MC DONALD	ANGLE BALL TYPE	BALL VALVE TYPE
MUELLER		BRASS; CONFORMS TO ANSI/AWWA C800
FORD METER BOX CO.	BA-43	

BRANCH VALVE ASSEMBLIES

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
MUELLER	H-15363	1 ½" COMPX MIP WITH ANGLE BALL VALVE
MACDONALD		
FORD METER BOX CO.	UVB43-62W	WITH BALL ANGLE STOPS

AIR RELEASE VALVES

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
VAL-MATIC	202C (WATER) 485/301BW (FORCEMAIN)	STAINLESS STEEL TRIM
CRISPIN		MEETING APPLICATION AND TYPE OF MAIN AIR RELEASE
APCO		
EMPIRE/GOLDEN - ANDERSON		

GATE VALVES

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
AMERICAN FLOW PROD.	500/2500 SERIES	MECHANICAL JOINT; CONFORMS TO ANSI/AWWA C509
MUELLER	RESILIENT SEAT	RESILIENT SEAT OR RESILIENT WEDGE NON RISING STEM
KENNEDY VALVE	KEN-SEAL	
CLOW	F-6100 RESILIENT WEDGE	
U.S. PIPE	METROSEAL	

BUTTERFLY VALVES

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
MUELLER/PRATT	GROUNDHOG	CONFORMS TO ANSI/ASTM C504
DEZURIK		
1OW/M&H VALVE	4500 SERIES	

VALVE BOXES & COVERS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
TYLER	6850 SERIES	CAST IRON
U.S. FOUNDRY	461-S TYPE #7630 STD. TYPE	COVERS TO BE MARKED EITHER "WATER" OR "SEWER"
WAGER COMPANY	BRONZE ID DISK	PERMANENT TAGS REQUIRED AT THE VALVE BOX

FIRE HYDRANTS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
MUELLER	CENTURION #A-423	BREAKAWAY TRAFFIC-TYPE WITH 5-1/4" MAIN VALVE OPENING
AMERICAN FLOW CONTROL	B84B 6"	
CLOW	MEDALLION F-2545	
KENNEDY VALVE	GUARDIAN K-81-A	
U.S. PIPE	METROPOLITAN	

SERVICE LINES

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
PHILLIPS	DRISCOPIPE ULTRA LINE	DR9, PE 3408. CONFORMS TO ASTM D1248

SERVICE FITTINGS, COUPLINGS, CLAMPS & HARDWARE

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
MUELLER	110 CONDUCTIVE	COMPRESSION COUPLINGS FOR POLY ETHYLENE TUBING
FORD METER CO.	C14;C84;C44	

SERVICE LOCATORS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
3M SCOTCH MARK	1253 GREEN LARGE MARKER	

PVC PIPE MANHOLE ADAPTORS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
HARRINGTON CORP.	PVC SEWER ADAPTER	GROUTED REPAIR COUPLING

FLEXIBLE MANHOLE CONNECTORS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
KOR-N-SEAL		MANHOLE BOOT SUPPLIED BY PRECAST COMPANY

MANHOLE LIDS, FRAMES & RINGS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
U.S. FOUNDRY	420G	RAISED LETTERS - “SANITARY SEWER “ & “TOWN OF JUPITER ISLAND”

WATER METERS ABOVE 2”

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
SCHLUMBERGER	NEPTUNE	TURBINE METERS OVER 2” IN SIZE
BADGER		

Note: Town to supply meters 2” in size and smaller. Contractors to provide meters over 2” insize.

DEBRIS CAP

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
SERVICES	SCOTCH MARK 4” DISC MARKER	4” DIAMETER X 3/8” THICK 1.4 OZ. COLOR CODED TO APWA STANDARDS

PIPE RESTRAINTS

BRAND NAME	MODEL TYPE	SPECIFICATIONS & REQUIREMENTS
EBBA UNIFLANGE US PIPE AMERICAN CAST IRON PIPE EBBA	FITTINGS/VALVES: IRON - MEGALUG -1100 PVC - 2100 PV BELL HARNESS (PVC): 1600/2800 SERIES 1300	FOR DIP @ MJ CONNECTIONS FOR PVC @ MJ CONNECTIONS FIELD LOC GASKETS FOR TYTON JOINT DIP FAST GRIP GASKETS FOR FAST TITE DIP

Construction Details

General

Water Distribution System

Sanitary Sewer Collection System