RUDEN
McCLOSKY
SMITH
SCHUSTER &
RUSSELL, P.A.
ATTORNEYS AT LAW

RECEIVED-FPSC
99 APR 15 PM 2:20
RECORDS AND
REPORTING

215 SOUTH MONROE STREET
SUITE 815
TALLAHASSEE, FLORIDA 32301

TELEPHONE: (850) 681-9027
FAX: (850) 224-2032

E-MAIL: KGC@RUDEN.COM

April 15, 1999

Blanca S. Bayo, Director
Division of Records & Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

VIA HAND DELIVERY

990489-WS

Re: Application for transfer of water and wastewater facilities of Florida Cities Water Company and Poinciana Utilities Inc. to Governmental Utility Authority

Dear Ms. Bayo:

Enclosed is an original and two copies of the Application for Transfer of Facilities to Governmental Authority by Florida Cities Water Company.

The required filing fee will be hand delivered tomorrow, April 16, 1999.

Please open a docket to consider this application.

Please acknowledge receipt of the foregoing by stamping the enclosed extra copy of this letter and returning same to my attention. Thank you for your assistance.

Thank you.

Sincerely,

RECEIVED & FILED
FPSC-BUREAU OF RECORDS

Kathryn G.W. Cowdery

AFA
APP
CAF
CMU
CTR
EAG
LEG app only
MAS
OPC app only
RRR
SEC 1
WAW
OTH

KGWC/ldv
Enclosures

DOCUMENT NUMBER-DATE
04822 APR 15 99
FPSC-RECORDS/REPORTING

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application for transfer of water and wastewater facilities of Florida Cities Water Company and Poinciana Utilities Inc. to Governmental Utility Authority	)	Docket No. 990489-WS
		Filed: April 15, 1999

APPLICATION FOR TRANSFER OF FACILITIES TO GOVERNMENTAL AUTHORITY

Applicants, Florida Cities Water Company (FCWC) and Poinciana Utilities Inc. (Poinciana) file this their Application for Transfer of Water and Wastewater Facilities to GUA pursuant to § 367.071(4) Fla. Stat. (1997), and state:

1. FCWC operates in the following counties pursuant to certificates issued by the Commission:

a) Lee County, Certificate Nos. 027-W, 024-S, and

b) Brevard County, Certificate Nos. 007-W, 003-S.

2. Poinciana operates in Polk and Osceola counties pursuant to Commission Certificate Nos. 146-W and 103-S.

3. The Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to § 163.01(7)(g), Fla. Stat., is exempt from regulation by the Commission.

TAL:20152:1

DOCUMENT NUMBER-DATE
04822 APR 15 99
FPSC-RECORDS/REPORTING

4. The name and address of Florida Cities Water Company, Poinciana Utilities Inc., and its authorized representative, for purposes of this application, are:

Florida Cities Water Company
4837 Swift Road, Suite 100
Sarasota, FL 34231

Authorized representative:

B. Kenneth Gatlin
Ruden, McClosky, Smith, Schuster
& Russell, P.A.
215 S. Monroe Street, Suite 815
Tallahassee, FL 32301
(850) 681-9027

5. A copy of the Utility System Asset Acquisition Agreement ("Contract") transferring the water and wastewater facilities to GUA is attached hereto as Appendix "A."

6. FCWC and Poinciana are transferring all of their utilities assets to GUA except that FCWC is not transferring that portion of its certificated territory nor is FCWC transferring the facilities located in and serving customers within the Town of Ft. Myers Beach (hereinafter referred to as "the Town System"). Attached as Appendix "B" are a legal description and map of the remaining territory to be served by FCWC, and copies of the current tariff sheets, which will remain effective within the Town of Ft. Myers Beach.

7. The territory which is not being transferred, as described in Appendix "B" hereto, and referred to as the "Town System," is currently served by the South Ft. Myers Division of FCWC. The Town System is not being transferred at this time due to the Town of Ft. Myers Beach disputing the proposed transfer of the Town System to the GUA. The Town of Ft. Myers Beach has filed a lawsuit in Town of Fort Myers Beach v. Lee County, Lee County Circuit Court Case No. 99-1753-CA-JBR. The Contract between GUA and FCWC addresses a deferred closing on the Town System, as set forth in the Assignment from the GUA to Lee County and Addendum to the Utility Asset Acquisition Agreement Concerning the Fort Myers Utility System, included in Appendix "A" attached hereto.

8. GUA has obtained from FCWC and Poinciana the most recent available income and expense statement, balance sheet, statement of rate base for regulatory purposes, and contributions-in-aid-of-construction.

9. The transfer of the water and wastewater facilities from FCWC and Poinciana to GUA, as described in paragraph 6, above, has occurred on April 15, 1999.

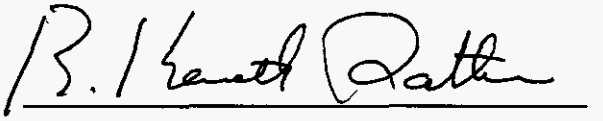
10. Customer deposits and the interest thereon will be transferred to GUA as provided in the Contract, Section 5.05.

11. Regulatory assessment fees will be paid to the Commission by FCWC and Poinciana through the date of the transfer. There are no fines or refunds owed. However, on April 8, 1999, the Commission issued Order No. PSC-99-0691-FOF-SU, Notice of Proposed Agency Action Order Correcting and Removing Used and Useful Adjustments to Reuse Facilities, and Final Order Setting Wastewater Rates, Requiring Refunds, and Granting in Part and Denying in Part Motion to Make Rates Permanent, in Docket 950387-SU, In re: Application for a rate increase for North Ft. Myers Division in Lee County by Florida Cities Water Company - Lee County Division. Upon approval of this application to transfer to a governmental authority, FCWC will effect the refund as set forth in the final order, pages 18-19. FCWC does not intend to appeal Order No. PSC-99-0691-FOF-SU due to the transfer of its North Ft. Myers Division facilities to GUA. However, the rules of appellate procedure require that if FCWC were to appeal, a notice of administrative appeal would have to be filed no later than May 10, 1999. In the event that this transfer application is not approved by that date, FCWC intends to file a notice of administrative appeal in order to protect its rights.

WHEREFORE, the applicants request that this Commission approve the transfer of water and wastewater facilities of Florida Cities

Water Company and Poinciana Utilities Inc. to the Florida Governmental Utility Authority as a matter of right, recognize the Florida Governmental Utility Authority to be exempt from the Commission's jurisdiction and cancel the water and wastewater certificates of Florida Cities Water Company and Poinciana Utilities Inc.

DATED this 15th day of April, 1999.



B. KENNETH GATLIN
Fla. Bar No.: 0027966
Ruden, McClosky, Smith,
Schuster & Russell, P.A.
215 South Monroe Street,
Suite 815
Tallahassee, FL 32301
Phone: (850) 681-9027

Attorneys for FLORIDA CITIES WATER COMPANY and POINCIANA UTILITIES INC.

TAL:20152:1

THE FLORIDA GOVERNMENTAL UTILITY AUTHORITY

315 South Calhoun Street, Suite 830, Tallahassee, Florida 32301, Phone (850) 681-0423, (850) 681-0434, Fax (850) 224-7206

Re: Assignment (from Florida Governmental Utility Authority to Lee County)

I HEREBY CERTIFY THAT I, Robert E. Sheets, am the duly appointed Secretary-Treasurer of the Florida Governmental Utility Authority and, in that capacity, the duly appointed custodian of records of the Florida Governmental Utility Authority.

I FURTHER CERTIFY this document to be a true and correct copy of the original document on file with the Florida Governmental Utility Authority.

Dated this 12 day of April, 1999.

ROBERT E. SHEETS
Secretary-Treasurer, Florida Governmental Utility Authority

ASSIGNMENT

THIS ASSIGNMENT is made and agreed to this 7 day of April, 1999, by and among the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to Section 163.01 (7), Florida Statutes, (the "Purchaser"), Lee County, Florida, a political subdivision of the State of Florida (the "Assignee"), and consented to by Florida Cities Water Company, a Florida corporation ("FCWC") and Poinciana Utilities, Inc., a Florida corporation ("PUI"). FCWC and PUI are collectively referred to herein as the "Sellers".

W I T N E S S E T H

NOW THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, together with $10 and other good and valuable consideration exchanged between the parties, the parties to this Assignment do undertake, promise and agree for themselves and their permitted successors and assigns as follows:

SECTION 1. DEFINITIONS. As used in this Assignment capitalized terms shall have meanings as defined in the Utility System Asset Acquisition Agreement dated April 1, 1999, and entered into between the Purchaser and the Seller (the "Agreement") and the meanings as defined herein unless the context requires otherwise:

SECTION 2. FINDINGS. It is hereby ascertained, determined and declared that :

(A) Purchaser and Sellers have entered into the Agreement, which provides in Section 6.06 thereof that the transactions contemplated therein are severable; provided all of the water and wastewater utility systems addressed therein are purchased and sold simultaneously, and that any such assignment shall not be effective unless and until the Assignee and the Purchaser have executed and delivered to the Sellers a satisfactory assignment and assumption agreement.

(B) The Assignee is one of the initial members of the Interlocal Agreement Relating to Establishment of the Florida Governmental Utility Authority dated February 1, 1999 (the "Interlocal Agreement"). Pursuant to the Interlocal Agreement, the Assignee has the right to acquire the Purchased Assets comprising the Ft. Myers System.

(C) The Assignee desires to immediately acquire the Purchased Assets relating to the Ft. Myers System and the Purchaser is willing assign to the Assignee such rights in conformance with the Agreement and the Interlocal Agreement.

SECTION 3. ASSIGNMENT AND ASSUMPTION.

(A) Pursuant to the Interlocal Agreement and the Agreement, the Purchaser hereby assigns, transfers, conveys, grants, bargains and sells unto the Assignee all of Purchaser's rights, remedies, powers, title, interests, duties, obligations and responsibilities arising under the Agreement which relate to the Ft. Myers System and the Purchased Assets associated therewith; and Sellers hereby consent and agree to such assignment and assumption. Except as provided in subsection (B) of this Assignment, such assignment and assumption shall be deemed subject to and be in all respects in conformance with all provisions of the Agreement.

(B) Notwithstanding the provisions of Section 4.06 of the Agreement, the Net Interest Adjustment to the purchase price of $135,885,000 for the Ft. Myers System shall be based on an assumed Arbitrage Yield on the Bonds issued by Lee County calculated by using the lowest bond yield achieved on any series of Bonds issued by the GUA rather than the bond yield achieved on the Bonds issued by Lee County and a bond insurance premium of 22.75 basis points.

(C) The Assignee hereby accepts and agrees to, and the Sellers hereby consent to, the assignment and assumption of all of the Purchaser's rights, remedies, powers, title, interests, duties, obligations and responsibilities arising under the Agreement which relate to the Ft. Myers System and the Purchased Assets associated therewith.

(D) The parties agree and acknowledge that in facilitating closing all instruments required to close relating to the Ft. Myers System will be separately executed and directly conveyed from the Sellers to the Assignee.

(E) The Agreement is hereby incorporated herein by reference.

SECTION 4. BINDING EFFECT. This assignment shall inure to the benefit of and be binding upon the parties hereto and their successors and assigns.

SECTION 4. BINDING EFFECT. This assignment shall inure to the benefit of and be binding upon the parties hereto and their successors and assigns.

IN WITNESS WHEREOF, the Purchaser has caused this Assignment, the Assignee has accepted same, and the Sellers have consented thereto; this Assignment has been duly executed and entered into on the date first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

ATTEST:

By: _____
Chairman

By: _____
Secretary-Treasurer

BOARD OF COUNTY COMMISSIONERS OF LEE COUNTY, FLORIDA

(SEAL)

BY: _____
Vice- Chairman

ATTEST:

CHARLIE GREEN, Clerk
of the Circuit Court
and Ex-Officio Clerk
of the Board of County
Commissioners of Lee
County, Florida

By: _____, Deputy Clerk
Clerk

APPROVED AS TO FORM
By _____
OFFICE OF COUNTY ATTORNEY

FLORIDA CITIES WATER COMPANY

By: _____
Vice - President

ATTEST:

By: _____
~~Secretary~~

POINCIANA UTILITIES, INC.

ATTEST:

By: _____
Vice President

By: _____
~~Secretary~~

THE FLORIDA GOVERNMENTAL UTILITY AUTHORITY

315 South Calhoun Street, Suite 830, Tallahassee, Florida 32301, Phone (850) 681-0423, (850) 681-0434, Fax (850) 224-7206

Re: Addendum to Utility System Asset Acquisition Agreement Concerning the Fort Myers Utility System

I HEREBY CERTIFY THAT I, Robert E. Sheets, am the duly appointed Secretary-Treasurer of the Florida Governmental Utility Authority and, in that capacity, the duly appointed custodian of records of the Florida Governmental Utility Authority.

I FURTHER CERTIFY this document to be a true and correct copy of the original document on file with the Florida Governmental Utility Authority.

Dated this 12 day of April, 1999.

ROBERT E. SHEETS
Secretary-Treasurer, Florida Governmental Utility Authority

ADDENDUM TO UTILITY SYSTEM ASSET ACQUISITION AGREEMENT CONCERNING THE FORT MYERS UTILITY SYSTEM

THIS ADDENDUM is made and agreed to this 7th day of April, 1999, by and between Lee County, Florida, a political subdivision of the State of Florida (the "County"), and Florida Cities Water Company, a Florida corporation ("FCWC") and Poinciana Utilities, Inc., a Florida corporation ("PUI"). FCWC and PUI are collectively referred herein as the "Sellers".

WITNESSETH

NOW THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, together with $10.00 and other good and valuable consideration exchanged between the parties, the parties to this Addendum do undertake, promise and agree for themselves and their permitted successors and assigns as follows:

SECTION 1. DEFINITIONS. As used in this Addendum capitalized terms shall have meanings as defined in the Utility System Asset Acquisition Agreement dated April 1, 1999, (the "Agreement"), the Assignment from the Florida Governmental Utility Authority to the County dated April 7, 1999 relating to the Fort Myers System (the "Assignment") and the meanings as defined herein unless the context requires otherwise:

(A) **"Town System"** means that portion of the Fort Myers System located substantially within and which predominantly serves the incorporated area of the Town of Fort Myers Beach, Florida, commencing at a point of connection as designated in the Bulk Service Agreement attached hereto as Exhibit 1.

SECTION 2. FINDINGS. It is hereby ascertained, determined and declared that:

(A) Pursuant to the Interlocal Agreement Relating to Establishment of the Florida Governmental Utility Authority dated February 1, 1999, and the Agreement, the Florida Governmental Utility Authority has assigned to the County the right and obligation to acquire the Purchased Assets comprising the Fort Myers System and the Sellers have consented to such assignment (the "Assignment").

SECTION 3. FINDINGS CONCERNING THE TOWN OF FORT MYERS BEACH. It is hereby ascertained, determined and declared by the County that:

(A) The acquisition of the Fort Myers System by the County serves a public purpose and is in the best interest of the citizens of the County.

(B) In recognition of the addendum to the Agreement authorized by Section 4

hereto, that the portion of the Fort Myers System located substantially within and which predominantly services the incorporated area of the Town of Fort Myers Beach is separate, distinct and severable from the remaining assets of the Fort Myers System which is located outside of the municipal boundaries of the Town.

(C) The severance of the Fort Myers System and the acquisition of only that portion of the Fort Myers System which is outside of the municipal boundaries of the Town of Fort Myers Beach, is both physically and financially feasible and that not detrimentally impact the service within either area. The County anticipates that water will be provided to those customers within the Town of Fort Myers Beach through a "bulk service" type agreement at rates consistent with those that are currently being imposed by the County.

SECTION 4. ADDENDUM TO ACQUISITION AGREEMENT.

(A) The County and the Sellers agree that closing shall occur as contemplated in the Agreement and the Assignment for the Fort Myers System, save and except that portion thereof described as the Town System. Closing shall occur on the Town System as provided herein.

(B) The purchase price allocated to the Fort Myers System shall be reduced by the amount of $3,330,255 and the purchase price for the Town System shall be $3,330,255; all subject to terms, conditions, prorations and other adjustments as provided in the Agreement, the Assignment and this Addendum.

(C) Closing on the Town System shall be delayed until the sooner of thirty (30) days after (1) the negotiated resolution of the objections raised by the Town of Fort Myers Beach in Lee County Case No. 99-1753CA-JBR; or (2) a final judicial determination thereof.

(D) In order to facilitate the provisions of this Addendum: (1) the County and Florida Cities Water Company shall enter into a Bulk Service Agreement in substantially the form attached hereto as Exhibit 1 for the provision of potable water services to the Town System; (2) the County and Avatar Utility Services, Inc. shall amend the Fort Myers System Utility Operations, Billing and Customer Service Agreement in substantially the form attached hereto as Exhibit 2; (3) the parties agree that the estimates of liabilities assumed for customer deposits in Section 5.05 (B)(6) of the Agreement will be adjusted from $830,000 to $735,000; and (4) the parties agree that the estimates of billed accounts receivable and unbilled accounts receivable in Section 5.05(C)

will be adjusted from $900,000 to $797,000 and from $885,000 to $783,000, respectively.

(E) Except as otherwise provided herein the Agreement and the Assignment shall otherwise remain in full force and effect.

(F) The Agreement and the Assignment are hereby incorporated herein by reference.

SECTION 5. BINDING EFFECT. This Addendum shall enure to the benefit of and be binding upon the parties hereto and their successors and assigns.

IN WITNESS WHEREOF, this Addendum has been duly executed and entered into on the date first above written.

BOARD OF COUNTY COMMISSIONERS
OF LEE COUNTY, FLORIDA

By: _____
Vice- Chairman

ATTEST: CHARLIE GREEN
CLERK OF COURTS

By: _____
Deputy Clerk

APPROVED AS TO FORM:

By: _____
Office of the County Attorney

FLORIDA CITIES WATER COMPANY

ATTEST:

By: _____
Vice- President

By: _____
Secretary

POINCIANA UTILITIES, INC.

ATTEST:

By: _____
Vice- President

By: _____
Secretary

EXHIBIT 1

BULK SERVICE AGREEMENT

AGREEMENT FOR SALE AND PURCHASE OF TREATED POTABLE WATER BY AND BETWEEN LEE COUNTY, FLORIDA AND FLORIDA CITIES WATER COMPANY

THIS AGREEMENT is made and entered into on this ___ day of _____, 1999, by and between **LEE COUNTY**, Florida, a political subdivision of the State of Florida ("County") and **FLORIDA CITIES WATER COMPANY**, a Florida corporation ("FCWC"), collectively the "Parties", for the sale and purchase of treated potable water.

WHEREAS, the County has determined that it is in its best interests to acquire from FCWC, own, operate and maintain certain potable water production and treatment facilities located within unincorporated Lee County, which produce treated potable water for customers in the service areas formerly served by FCWC; and,

WHEREAS, the said County potable water production and treatment facilities have sufficient capacity, and will continue to do so for the term of this Agreement, to provide treated potable water to the FCWC water customers located within the corporate limits of the Town of Fort Myers Beach; and,

WHEREAS, FCWC desires to purchase, and the County desires to sell, treated potable water to FCWC for so long as FCWC provides potable water service to FCWC's water customers located within the corporate limits of the Town of Fort Myers Beach ("Town"); and,

WHEREAS, both the County and FCWC have the legal ability and authority to enter into an agreement for the sale and purchase of treated potable water; and,

WHEREAS, this is solely a contract for the sale of treated potable water to an independent Florida corporation authorized and franchised by the Florida Public Service

Commission pursuant to Chapter 367, Florida Statutes, and is not to be construed in any manner as a change to any of the billing policies for either the County or FCWC with respect to the sale of potable water to customers on a non-emergency basis; and,

WHEREAS, the Parties find that this Agreement serves a public purpose and is to the public's benefit.

NOW THEREFORE, in consideration of the above, and the conditions, covenants and obligations between the Parties as outlined further herein, the sufficiency of which is acceptable to the Parties, the Parties agree as follows:

ARTICLE I. GENERAL CONDITIONS

1.1 The preamble statements are accepted and approved by the Parties, and are incorporated herein as if set out at length.

1.2 The County agrees to provide to FCWC and FCWC agrees to accept, pursuant to the terms and conditions set forth herein, a quantity of treated potable water, treated in accordance with and conforming to the existing standards of the Department of Environmental Protection, the Division of Health, and/or County Health Department and all other governmental bodies having regulatory jurisdiction over such matters, as may be modified by those agencies from time to time. The County represents to FCWC that its water treatment facilities presently operate and produce treated potable water in accordance with existing regulations and standards. The County further agrees that during the life of this Agreement, the water quality shall be maintained at a level to conform with present and future requirements of all regulatory agencies having jurisdiction thereof, or

in the event there are any changes in the regulations of the relevant regulatory agencies, the County shall have use of all of the time that is allotted by the regulatory agency to bring the water quality to the new regulated standards.

1.3 The County shall provide and connect, at its expense, two (2) master meters ("Meters") of a type approved by the County to the existing County water transmission lines at a mutually acceptable location near the boundary of the Town. FCWC shall cooperate with the County to design and install the necessary Meters.

1.4 The County shall be responsible for obtaining all permits necessary to accomplish the installation of the Meters. Upon completion, the County shall provide the FCWC with "as built" plans showing the exact location of the Meters.

1.5 The Meters shall be and remain the property of the County.

1.6 The County shall not, at any time, assume or be obligated to assume any financial responsibility for the operation and maintenance of the FCWC water distribution lines lying within the corporate limits of the Town.

1.7 The terms and conditions set forth in this Agreement, including rates for the services to be provided by FCWC, are subject to the approval of the Florida Public Service Commission to the extent of its statutory authority.

ARTICLE II. REPRESENTATIONS

2.1 The County hereby represents to FCWC that it has and will continue to have the ability to provide FCWC with sufficient treated potable water, of the quality required by this Agreement, for the existing service territory, during the term of this Agreement.

2.2 The County represents to FCWC that it will, during the term of this

Agreement, have sufficient raw water supply capacity, and water treatment capacity, to furnish the treated potable water in sufficient quantity referred to above, except for those events beyond the County's reasonable control, to include, but not be limited to: mechanical failure, repairs, routine maintenance, Acts of God, rationing, or additional regulation by any State or Federal agencies which would potentially alter the quantity and/or the quality of the delivered water, or any other matters beyond the reasonable, lawful control of the County.

ARTICLE III. CHARGES AND MAINTENANCE

3.1 FCWC shall pay the County's rate of $2.71 per 1,000 gallons of water consumption until May 31, 2000. After May 31, 2000, and upon sixty (60) days notice, the rate may be modified by the County from time to time, system-wide.

3.2 FCWC shall be responsible for payment for water delivered by the County to FCWC. FCWC shall make a reasonable effort to minimize leakage within their water distribution system.

A. Prior to installation of the Meters or May 31, 2000, whichever is later, the water delivered shall be the total water consumption billed in the Town by FCWC.

B. Subsequent to the installation of the Meters or May 31, 2000, whichever is later, the water delivered shall be based upon the sum of recorded volume of the Meters.

3.3 The County shall be responsible for all maintenance and repairs on the Meters.

3.4 The Meters required hereunder shall be easily accessible for reading, testing and maintenance. The County shall be responsible for maintaining the Meters in good working condition at all times and testing the Meters. The Meters shall be tested at least annually in accordance with American Water Works Association Standards for Meter Testing or other mutually agreeable standards.

3.5 The County shall have the right, upon reasonable notice to FCWC, and when reasonably necessary, to enter upon FCWC's land and improvements thereon to review and inspect FCWC's operating practices as they relate to this Agreement.

3.6 FCWC and the County shall jointly read the Meters recording the volume of water delivered by the County on the last day of each month unless said last day occurs on a weekend or holiday observed by either party, in which cases the reading shall be taken on the work day preceding the end of the month.

3.7 Payment for all charges from the County by FCWC, shall be made to the County on a monthly basis during the term of this Agreement within 30 days or as otherwise mutually established by the parties.

ARTICLE IV. TERM OF AGREEMENT

4.1 This Agreement shall remain in full force and effect so long as FCWC provides potable water to the FCWC's customers located within the Town.

4.2 This Agreement shall automatically expire if FCWC no longer owns, operates or maintains the potable water distribution system lying within the corporate limits of the Town, unless the Agreement has been assigned to another party, in accordance with

Section 5.8 of this Agreement.

ARTICLE V. ADDITIONAL PROVISIONS

5.1 This Agreement shall be binding on and inure to the benefit of the successors and assigns of the County and FCWC. This Agreement may only be amended by a mutual agreement of the Parties hereto, which amendment shall be reduced to writing and executed with the same formalities as the execution of this Agreement.

5.2 This Agreement shall be construed and enforced in accordance with the laws of the State of Florida.

5.3 Notices provided by this Agreement to be served in writing upon either of the Parties shall be deemed sufficient if delivered to an authorized representative of either of the Parties, or if mailed by registered or certified mail, return receipt requested, to the address of the party below written or such other addresses as the Parties may designate in writing. Such notices shall be effective from the date the same is deposited in the mails, registered, first class postage prepaid and addressed, whether or not received.

FCWC:	Florida Cities Water Company 4837 Swift Road, Suite 100 Sarasota, FL 34231	Copy to: Florida Cities Water Company Attn: General Counsel 201 Alhambra Circle Coral Gables, FL 33134
County:	Glenn Greer, P.E., Director Department of Lee County Utilities Post Office Box 398 Fort Myers, FL 33902-0398	Copy to: Office of Lee County Attorney Post Office Box 398 Fort Myers, FL 33902-0398

5.4 If for any reason during the term of this Agreement any local, state or federal

governments or agency shall fail to issue necessary permits, grant necessary approvals, or require any change in the operation of the treatment, transmission and distribution systems by FCWC, then, to the extent that such requirements shall affect the ability of either party to perform any of the terms and conditions of this Agreement, the affected party shall be excused from the performance thereof.

5.5 A. The County, pursuant to Florida law, in particular Section 768.28, Florida Statutes, hereby assumes all responsibility and liability for injury or death of any person, or loss or damage to any property, contributed to or caused by its negligence, or the negligence of its agents, servants, employees, contractors or subcontractors in the performance of its obligations hereunder. Accordingly, the County, to the extent provided for under Florida law, in particular Section 768.28, Florida Statutes, indemnifies and holds harmless FCWC, its officers, directors, agents, and employees, from and against claims and expenses, including penalties and assessments, attorney's fees and court costs at all judicial levels, to which FCWC may be subjected by reason of such injury, death, loss, claim penalty, assessment or damage; and in case of any suit or other proceeding shall be brought on account hereof.

B. Pursuant to Florida law, FCWC assumes the entire responsibility and liability for injury or death of any person, or loss or damage to any property, contributed to or caused by its negligence, or the negligence of its agents, servants, employees, contractors or subcontractors in the performance of its obligations hereunder. Accordingly, FCWC indemnifies and holds harmless the County, its officers, directors, agents and employees, from and against claims or expenses, including penalties and assessments

and attorney's fees and court costs, at all judicial levels, to which the County may be subjected by reason of such injury, death, loss, claim, penalty, assessment or damage; and in case of any suit or other proceeding shall be brought on account thereof.

5.6 This Agreement is solely for the benefit of the Parties signing hereto, their successors and assigns, and no right nor cause of action shall accrue upon or by reason hereof to or for the benefit of any third party not a signatory hereof.

5.7 This Agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the Parties hereto, except as expressly limited herein.

5.8 A. FCWC shall have the right to assign this Agreement with the consent of the County Board, which consent shall not be unreasonably withheld. An assignee shall be required to assume the obligations of the assigning party by written assignment in a form reasonably satisfactory to the County's attorney.

B. The County may not designate, assign, sublet, or transfer its duties or interest in this Agreement without the written approval of FCWC.

5.9 All rights, remedies and powers granted to FCWC or the County herein shall be cumulative and may be exercised singly or concurrently.

In the event that a dispute arises between FCWC and the County relating to the performance of the respective obligations under this Agreement and such dispute results in litigation, it is agreed that the prevailing party shall be entitled to recover all reasonable costs incurred in the prosecution or defense of the claim at all judicial levels, including staff time, court costs, attorney fees, and other claim-related expenses.

5.10 Each party hereto shall keep, observe and perform all requirements of local,

state and federal laws, rules, regulations, or ordinances applicable to this Agreement while it is in force and effect.

5.11 The failure of either party hereto to enforce any of the provisions of this Agreement or the waiver thereof, in any instance, shall not be construed as a general waiver or relinquishment on its part of any such provision but the same shall, nevertheless, be and remain in full force and effect.

5.12 Where any consent, approval or standard is required by the Parties hereto pursuant to the terms of this Agreement, then the applicable standard for determination shall be on a reasonable basis.

5.13 The headings used in this Agreement are for reference only, and will not be relied upon nor used in the interpretation of same.

5.14 This Agreement and any addendum pertaining hereto, as may be executed by the Parties, represents the entire understanding between the Parties with respect to the undertakings covered hereunder and there are no oral or collateral agreements with respect thereto between the Parties. Any prior agreements or understandings dealing basically with the same subject matter of this Agreement shall be superseded by this Agreement and no longer of force and effect. Neither party hereto shall be bound by any supplement hereto unless it is signed by an authorized representative of each of the Parties.

IN WITNESS WHEREOF, the Parties have executed this Agreement by their duly authorized officials, on the date above first written.

WITNESS:

By: _____

By: _____

FLORIDA CITIES WATER COMPANY

By: _____
Michael E. Murphy, VP

APPROVED AS TO FORM:

By: _____
Attorney for FCWC

ATTEST: CHARLIE GREEN
CLERK OF COURTS

By: _____
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS
OF LEE COUNTY, FLORIDA

By: _____
Vice-Chairman

APPROVED AS TO FORM:

By: _____
Office of the County Attorney

EXHIBIT 2

ADDENDUM TO FORT MYERS SYSTEM UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT

ADDENDUM TO FORT MYERS SYSTEM UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT

THIS ADDENDUM is made and agreed to this __ day of April, 1999, by and between Lee County, a political subdivision of the State of Florida (the "County"), and Avatar Utility Services Inc., a Florida corporation (the "Contractor").

WHEREAS, the County and the Contractor have entered into that certain Fort Myers System Utility Operations, Billing and Customer Service Agreement (the "Operations Agreement") as a condition precedent to the transfer of the assets of the Fort Myers System under the Utility System Asset Acquisition Agreement dated April 1, 1999 between the Florida Governmental Utility Authority and Florida Cities Water Company and Poinciana Utilities Inc. (the "Asset Acquisition Agreement"); and

WHEREAS, the Florida Governmental Utility Authority, with the consent of Florida Cities Water Company and Poinciana Utilities Inc., has assigned to the County the right and obligation to acquire the Purchased Assets comprising the Fort Myers System under the Asset Acquisition Agreement. The County, Florida Cities Water Company and Poinciana Utilities Inc. have entered into an Addendum which provides for the severance of the Fort Myers System and delays closing on a portion thereof relating to the Town of Fort Myers Beach.

NOW THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained therein, the parties to this Addendum do agree for themselves, their permitted successors and assigns as follows:

SECTION 1. DEFINITIONS. As used in this Addendum, capitalized terms shall have the meanings as defined in the Utility System Asset Acquisition Agreement dated April 1, 1999, the Assignment from the Florida Governmental Utility Authority to the County dated April __, 1999 relating to the Fort Myers System (the "Assignment") the Fort Myers System Utility Operations, Billing and Customer Service Agreement and the meanings defined herein unless the context requires otherwise.

SECTION 2. ADDENDUM TO OPERATIONS AGREEMENT.

(A) In the event closing on the Town System is delayed as provided in the Addendum, the payment for Basic Billing and Customer Service Fee as provided in Section 4.09 of the Operations Agreement shall be reduced from $705,100 to $694,100 on a fixed annual basis and such amount shall be prorated through the date of closing on the Town System by Lee County. After the date of closing on the Town System by Lee County, the amount for Basic Billing and Customer Service Fee shall be increased to a fixed annual price

of $705,100 and such fixed annual price shall be prorated thereafter from the date of closing on the Town System by Lee County.

(B) In the event closing on the Town System is delayed as provided in the Addendum, the payment for Basic Operation and Maintenance Service Fee as provided in Section 3.06(A) of the Operations Agreement shall be reduced from $4,195,353 to $4,126,353 on a fixed annual basis and such amount shall be prorated through the date of closing on the Town System by Lee County. After the date of closing on the Town System by Lee County, the amount for Basic Operation and Maintenance Service Fee shall be increased to a fixed annual price of $4,195,353 and such fixed annual price shall be prorated thereafter from the date of closing on the Town System by Lee County.

(C) To facilitate the provisions of the Addendum, the parties agree that the estimates of billed accounts receivable and unbilled accounts receivable in Section 4.13 of the Operations Agreement will be adjusted from $900,000 to $797,000 and from $885,000 to $783,000 respectively.

(D) Except as otherwise provided herein, the Operations Agreement shall otherwise remain in full force and effect.

SECTION 3. BINDING EFFECT. This Addendum shall inure to the benefit of and be binding upon the parties hereto and their successor and assigns.

IN WITNESS WHEREOF, the County and the Contractor have caused this Addendum to be duly executed and entered into on the date first above written.

APPROVED AS TO FORM
By James Goeger
OFFICE OF COUNTY ATTORNEY

Attest: Charlie Green, Clerk

By: Lisa B. Pierce
Deputy Clerk

LEE COUNTY, FLORIDA

By: John E. Albion
Its: Vice-Chairman

AVATAR UTILITY SERVICES, INC.

By: Michael E. Murphy
Its: Treasurer

Attest:

Anita C. Chamberlain

THE FLORIDA GOVERNMENTAL UTILITY AUTHORITY

315 South Calhoun Street, Suite 830, Tallahassee, Florida 32301, Phone (850) 681-0423, (850) 681-0434, Fax (850) 224-7206

Re: Utility System Asset Acquisition Agreement

I HEREBY CERTIFY THAT I, Robert E. Sheets, am the duly appointed Secretary-Treasurer of the Florida Governmental Utility Authority and, in that capacity, the duly appointed custodian of records of the Florida Governmental Utility Authority.

I FURTHER CERTIFY this document to be a true and correct copy of the original document on file with the Florida Governmental Utility Authority.

Dated this 7th day of April, 1999.

ROBERT E. SHEETS
Secretary-Treasurer, Florida Governmental Utility Authority

[redacted]

FLORIDA CITIES WATER COMPANY
North Ft. Myers Div.

Sixth Revised Sheet No. 21.1
Canceling Fifth Revised Sheet No. 21.1

RESIDENTIAL SERVICE

RATE SCHEDULE RW - WATER SERVICE

Availability - Water service in accordance with this rate schedule is available throughout the certificated area in North Lee County, Florida.

Applicability - This rate schedule is applicable for all purposes in single family residences and separately metered multiple family units.

Limitations - Subject to all of the Rules and Regulations of the Company.

Monthly Rate

Meter Size	Base Facility Charge
5/8" x 3/4"	$ 5.69
3/4"	7.92
1"	12.41
1-1/2"	23.58
2"	37.01
Plus Gallonage Charge	$ 2.91 per 1,000 Gallons Used

Terms of Payment - Bills are due and payable when rendered and become delinquent if not paid within twenty (20) days. Service may be discontinued after five (5) working days' written notice is mailed to the customer separate and apart from any other bill.

Additional Clauses - Water and sewer charges are billed concurrently and payment for water service only is not acceptable to the Company without concurrent or simultaneous payment of the sewer charge. Non-receipt of total charges may result in discontinuance of service.

Effective Date: "For service rendered on or after August 15, 1996".

Type of Filing: 1996 Rate Reduction.

Gerald S. Allen

President

WP 7/96

FLORIDA CITIES WATER COMPANY
North & South Ft. Myers Div.

Seventh Revised Sheet No. 22.0
Canceling Sixth Revised Sheet No. 22.0

MULTIPLE DWELLING SERVICE

RATE SCHEDULE MDW - WATER SERVICE

Availability - Water service in accordance with this rate schedule is available to all multiple dwelling units throughout the certificated area in Lee County, Florida.

Definition - Any single structure or group of structures containing more than one dwelling unit whose water service is provided through one meter. This shall include, but not be limited to, highrise apartment complexes, garden-style apartment complexes, duplexes, triplexes, condominiums and trailer parks, and other structures with similar service characteristics.

Rate - Same as General Service (GSW).

Terms of Payment - Bills are due and payable when rendered and become delinquent if not paid within twenty (20) days. Service may be discontinued after five (5) working days' written notice is mailed to the customer separate and apart from any other bill.

Additional Clauses - Water and sewer charges are billed concurrently and payment for water service only is not acceptable to the Company without concurrent or simultaneous payment of the sewer charge. Non-receipt of total charges may result in discontinuance of service.

Limitations - Subject to all of the Rules and Regulations of the Company.

Effective Date: "For service rendered on or after August 15, 1996.

Type of Filing: 1996 Rate Reduction.

Gerald S. Allen

President

WP 7/96

FLORIDA CITIES WATER COMPANY
South Ft. Myers Div.

Twelfth Revised Sheet No. 23.0
Canceling Eleventh Revised Sheet No. 23.0

GENERAL SERVICE

RATE SCHEDULE GSW - WATER SERVICE

Availability - Water service in accordance with this rate schedule is available throughout the certificated area in South Lee County, Florida.

Applicability - This rate schedule is applicable for to any customer for which no other rate schedule is applicable.

Limitations - Subject to all of the Rules and Regulations of the Company.

Monthly Rate

Meter Size	Base Facility Charge
5/8" x 3/4"	$ 5.69
3/4"	7.92
1"	12.41
1-1/2"	23.58
2"	37.01
3"	72.82
4"	113.10
6"	224.98
8"	359.24
Plus Gallonage Charge	$ 2.91 per 1,000 Gallons Used

Terms of Payment - Bills are due and payable when rendered and become delinquent if not paid within twenty (20) days. Service may be discontinued after five (5) working days' written notice is mailed to the customer separate and apart from any other bill.

Additional Clauses - Water and sewer charges are billed concurrently and payment for water service only is not acceptable to the Company without concurrent or simultaneous payment of the sewer charge. Non-receipt of total charges may result in discontinuance of service.

Effective Date: "For service rendered on or after August 15, 1996.

Type of Filing: 1996 Rate Reduction.

Gerald S. Allen

President

WP 7/96

PRIVATE FIRE PROTECTION SERVICE

RATE SCHEDULE FPW - WATER SERVICE

Availability - Fire Protection service in accordance with this rate schedule is available throughout the certificated area in South Lee County, Florida.

Applicability - This rate schedule is applicable for Private Fire Protection service only. No other type of service will be supplied through these lines. Applicant must be located on the Company's distribution mains suitable for applying the service requested in South Lee County, Florida. Applicant shall install fire meters, service lines, and cross connection control devices at its sole expense.

Monthly Rate

Line Size	Base Facility Charge
1"	$ 4.34
1-1/2"	8.67
2"	13.15
3"	25.07
4"	38.51
6"	75.81
8"	120.55
10"	172.77

Terms of Payment - Bills are due and payable when rendered and become delinquent if not paid within twenty (20) days. Service may be discontinued after five (5) working days' written notice is mailed to the customer separate and apart from any other bill.

Effective Date: "For service rendered on or after January 16, 1998 .

Type of Filing: Applicability clarification.

Gerald S. Allen

President

WP 5/97

TOWN

OF

FORT MYERS BEACH

CHARTER

(AS PASSED JULY 25, 1995)

WITH LEGISLATIVE HISTORY AND TABLE OF CONTENTS

Distributed as a courtesy by the LAW OFFICES OF CHARLES R. MEADOR, JR., P.A., 1661 ESTERO BOULEVARD, SUITE 16, POST OFFICE BOX 2520, FORT MYERS BEACH, FLORIDA 33932-2520. TELEPHONE (941) 463-6619 / FACSIMILE (941) 463-6454

election and terms, date and creation and establishment of the municipality, payment of certain revenues, and transitional comprehensive plan and land development regulations; entitling the town to state shared and local option gas tax revenues; providing for contractual services and facilities; eliminating transition elements; providing for services of independent special districts; providing for credit for special district taxes in qualifying for state revenue sharing; providing for a referendum; providing effective dates.

Be It Enacted by the Legislature of the State of Florida:

Section 1. The "Town of Fort Myers Beach Charter" is created to read:

ARTICLE I: CORPORATE NAME; PURPOSE OF THE CHARTER

Section 1.01 Town of Fort Myers Beach. -- The municipality hereby established shall be known as the Town of Fort Myers Beach, Florida.

Section 1.02 Purpose of the charter. -- This charter is ordained and established by the people of the Town of Fort Myers Beach, Florida, to promote the general welfare and common good of the community by providing the framework for a municipal corporation to exercise municipal home rule powers under the Constitution and laws of the State of Florida.

ARTICLE II: TERRITORIAL BOUNDARIES

Section 2.01 Boundaries of the Town of Fort Myers Beach. -- The territorial boundaries of the Town of Fort Myers

Beach upon the date of incorporation shall include the following areas situated in the County of Lee, State of Florida:

> A corporate limit lying offshore from Estero Island, which line is described as follows: all that part of Lee County that is located and situated within Estero Island, including a corporate limit line offshore 1,000 feet in the Gulf of Mexico and 1,000 feet in the inland bays, and parallel with the shore line of said Estero Island, excluding all of San Carlos Island, Black Island and, structures exclusively attached thereto.

Section 2.02 Extension of the corporate limits; annexation. -- The corporate limits of the Town of Fort Myers Beach may be revised as provided by general law.

ARTICLE III: GENERAL POWERS OF THE MUNICIPALITY

Section 3.01 All powers possible. -- The Town of Fort Myers Beach shall have all governmental, corporate, and proprietary powers to enable it to conduct municipal government, perform municipal functions, and render municipal services, and may exercise any power for municipal purposes except as otherwise provided by law. The powers of the Town of Fort Myers Beach shall be construed liberally in favor of the municipality, limited only by the Constitution, general law, and specific limitations contained herein.

Section 3.02 Joint exercise of powers. -- The town may exercise any of its powers or perform any of its functions and may participate in the financing thereof, jointly or in

IN TOWNSHIP 46 SOUTH, RANGE 24 EAST:

Section 19:
All that part on Estero Island

Section 20:
All that part on Estero Island

Section 28:
All that part on Estero Island

Section 29:
All that part on Estero Island

Section 30:
All that part on Estero Island

Section 33:
All that part on Estero Island

Section 34:
All that part on Estero Island

IN TOWNSHIP 47 SOUTH, RANGE 24 EAST:

Section 3:
All that part on Estero Island

IN TOWNSHIP 46 SOUTH, RANGE 23 EAST:

Section 24:
All that part on Estero Island

APPENDIX A

REAL PROPERTY TO BE CONVEYED TO THE GUA

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL 1: BAREFOOT BAY WATER TREATMENT PLANT

Tract D of BAREFOOT BAY UNIT TWO PART ELEVEN, according to the Plat thereof, recorded in Plat Book 22, Page 116, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-10-JT-0000D.0-0000.00

PARCEL 2: LIFT STATION C

Lot 8 in Block 80 of BAREFOOT BAY UNIT TWO PART TEN, according to the Plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-10-JS-00080.0-00080.00

PARCEL 3: LIFT STATION E

Tract 39 in Block 142 of BAREFOOT BAY UNIT TWO PART TEN, according to the Plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-09-JS-00142.0-0039.0

PARCEL 4: LIFT STATION B

A portion of Government Lot 2 of Fractional Section 11, Township 30 South, Range 38 East, more particularly described as follows:

BEGINNING at a point on the West line of said Section 11, said point being South 0° 9' 34" East, 429.42 feet from the West 1/4 corner of said Section 11; running thence South 0° 09' 34" East, 56.0 feet; thence North 89° 50' 26" East, 50.0 feet; thence North 0° 09' 34" West, 56.0 feet; thence South 89° 50' 26" West, 50.0 feet to the POINT OF BEGINNING.

Folio No.30-38-11-00-00533.0-0000.00

LEGAL DESCRIPTION CONTINUED

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL 5: LIFT STATION D

Lot 14 in Block 44 of BAREFOOT BAY UNIT TWO PART TEN, according to the Plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-09-JS-00044.0-0014.00

PARCEL 6(a): BAREFOOT BAY WASTEWATER TREATMENT PLANT

That portion of Tract F in UNIT 2, PART 10, BAREFOOT BAY, according to the plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida.

BEGINNING at a point on the West line of the S.E. 1/4 of N.W. 1/4, Section 9, Township 30 South, Range 38 East; said point being N 00° 29' 39" W, 150.01 feet from the Southwest corner of the Southeast 1/4 of the Northwest 1/4 of said Section 9; running thence N 00° 29' 39" W, 975.03 feet along the West line of said Southeast 1/4 of the Northwest 1/4 of Section 9; thence S 89° 49' 31" E, 521.13 feet; thence S 00° 10' 29" W, 800.00 feet; thence S 89° 49' 31" E, 162.00 feet to the Southwest corner of Lot 1, Block 47 of the aforementioned BAREFOOT BAY; thence S 00° 10' 29" W, 175.00 feet to the Southwest corner of Lot 1, Block 50 of the aforementioned BAREFOOT BAY; thence N 89° 49' 31" W, 671.75 feet to the POINT OF BEGINNING.

LESS AND EXCEPT property described in Official Records Book 2725, Page 768 and Corrected in Official Records Book 2807, Page 793, of the Public Records of Brevard County, Florida.

LESS AND EXCEPT property described in Official Records Book 1916, Page 521, of the Public Records of Brevard County, Florida.

Folio No. 30-38-09-JS-0000F.1-0000.00

LEGAL DESCRIPTION CONTINUED

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL 6(b): WATER PLANT PARCEL

Tract G of BAREFOOT BAY UNIT TWO PART THIRTEEN, according to the Plat thereof, recorded in Plat Book 23, Page 29, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-10-76-0000G.0-0000.00

PARCEL "A": 40 ACRE SPRAY FIELD

The Northeast 1/4 of the Northwest 1/4 of Section 9, Township 30 South, Range 38 East, LESS the West 40 feet thereof, Brevard County, Florida.

Folio No. 30-38-09-00-00250.0-0000.00

PARCEL "B": ORANGE GROVE (320 ACRE FIELD)

That part of the Northwest 1/4 of Section 8, Township 30 South, Range 38 East, Brevard County, Florida, lying North of the center line of the vacated San Sebastian Drainage Canal.

TOGETHER WITH:

The Northeast 1/4 of Section 8, Township 30 South, Range 38 East, Brevard County, Florida.

Folio No. 30-38-08-00-00001.0-0000.00

PARCEL "C1": ORANGE GROVE PARCEL A

The East 50 feet of the Northeast 1/4 of Section 7, Township 30 South, Range 38 East, Brevard County, Florida, lying North of the center line of the vacated San Sebastian Drainage Canal.

Folio No. 30-38-05-00-00500.0-0000.00

LEGAL DESCRIPTION CONTINUED

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL "C2": ORANGE GROVE PARCEL B, PART 1

The South 50 feet of the Southwest 1/4 of Section 5, Township 30 South, Range 38 East, Brevard County, Florida.

Folio No. 30-38-05-00-00500.0-0000.00

PARCEL "C3": ORANGE GROVE PARCEL B, PART 2

The South 50 feet of the Southeast 1/4 of Section 5, Township 30 South, Range 38 East, Brevard County, Florida.

Folio No. 30-38-05-00-00758.0-0000.00

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

PARCEL 1: PUMP STATION #1

That part of Lot 31, Block 3, of CARROLLWOOD SUBDIVISION UNIT NO. 1, according to the Plat thereof, filed in Plat Book 35, Page 40, of the Public Records of Hillsborough County, Florida, described as follows:

FROM the Southeast corner of said Lot 31, run North 84° 19' 48" West along the Southerly boundary of said Lot 31, a distance of 41.00 feet to the POINT-OF-BEGINNING; from said POINT-OF-BEGINNING, run North 5° 40' 12" East a distance of 90.00 feet; run thence, North 84° 19' 48" West a distance of 29.50 feet; run thence, South 5° 40' 12" West a distance of 88.43 feet to a point on the Southerly boundary of said Lot 31; run thence, Southeasterly along said Southerly boundary of Lot 31 a distance of 29.55 feet to the POINT-OF-BEGINNING.

Folio No. 022639.0000

PARCEL 2: LIFT STATION #2

Lot 2, Block 37, of CARROLLWOOD SUBDIVISION UNIT NO. 2, according to the Plat thereof, filed in Plat Book 35, Page 54, of the Public Records of Hillsborough County, Florida, LESS AND EXCEPT the following described:

The Easterly 30.00 feet of Lot 2, Block 37, of CARROLLWOOD SUBDIVISION UNIT NO. 2, according to the Plat thereof, filed in Plat Book 35, Page 54, of the Public Records of Hillsborough County, Florida; said Easterly 30.00 feet of Lot 2 being more particularly described as that part of said Lot 2 lying East of a line parallel to and 30.00 feet West of the East boundary of said Lot 2.

Folio No. 022784.0000

PARCEL 3: EJECTOR STATION #3

Lot 1, Block 1, of CARROLLWOOD SUBDIVISION UNIT NO. 14 according to the Plat thereof, filed in Plat Book 39, Page 86, of the Public Records of Hillsborough County, Florida.

Folio No. 023131.0000

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

PARCEL 4: LIFT STATION #4

Lot 24, Block 17, of CARROLLWOOD SUBDIVISION UNIT NO. 5, according to the Plat thereof, filed in Plat Book 37, Page 62, of the Public Records of Hillsborough County, Florida.

Folio No. 022887.0000

PARCEL 5: MASTER REPUMP STATION

That part of Northerly one-half of Lots 39 and 40, of W.E. HAMNER'S HORSESHOE ACRES, according to the Plat thereof, filed in Plat Book 26, Page 39, of the Public Records of Hillsborough County, Florida, described as follows:

FROM the Northeast corner of Section 16, Township 28 South, Range 18 East, North 89° 26' 02" West 25 feet to Northeast corner of Lot 40 being Westerly Right-of-Way line of Orange Grove Drive South 01° 27' 58" West for 610.35 feet to the POINT OF BEGINNING; thence South 01° 27' 58" West for 30.76 feet; thence South 07° 30' 52" West for 13.09 feet to the South boundary of North 1/2 of Lots 39 and 40; thence North 89° 27' 42" West for 76.71 feet; thence North 00° 35' 32" East for 54.73 feet; thence North 89° 48' 52" East for 50.43 feet; thence South 67° 11' 13" East for 30.61 feet to the POINT OF BEGINNING.

Folio No. 023694.0200

PARCEL 6: WELL #1

That part of Lot 7, Block 16, of CARROLLWOOD SUBDIVISION UNIT 16, according to the Plat thereof, filed in Plat Book 39, Page 97, of the Public Records of Hillsborough County, Florida, described as follows:

A tract in the Southeast 1/4 of the Northeast 1/4 of the Northwest 1/4 of Section 15, Township 28 South, Range 18 East, Hillsborough County, Florida, described as follows:

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

FROM the Northeast corner of said Southeast 1/4 of the Northeast 1/4 of the Northwest 1/4 of Section 15, run South 0° 06' 45" East a distance of 150.0 feet; run thence, South 89° 54' 39" West a distance of 30.0 feet to the POINT-OF-BEGINNING; From said POINT-OF-BEGINNING, continue South 89° 54' 39" West a distance of 95.05 feet; run thence, North 0° 05' 21" West a distance of 120.0 feet; run thence, North 89° 54' 39" East a distance of 95.05 feet; run thence, South 0° 05' 21" East a distance of 120.0 feet to the POINT-OF-BEGINNING.

Folio No. 019551.5000

PARCEL 7: WELL #3

A tract in the Northwest 1/4 of Section 15, Township 28 South, Range 18 East, Hillsborough County, Florida, described as follows:

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH **- 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:**

BEGINNING at the Northwest corner of Lot 29, Block 19, of CARROLLWOOD SUBDIVISION UNIT NO. 16, (Plat Book 39, Page 97), of the Public Records of Hillsborough County, Florida; run South 0° 05' 21" East along the West boundary of said Lot 29 a distance of 125.00 feet to the Southwest corner of said Lot 29; run thence, South 89° 54' 39" West, parallel to and 40.0 feet North of the South boundary of the North 1/4 of the Northwest 1/4 of said Section 15 a distance of 75.00 feet; run thence, Northwesterly along the arc of a curve which lies Southwesterly of its chord (chord, North 45° 05' 21" West 35.36 feet; radius 25.00 feet; central angle 90° 00' 00") a distance of 39.27 feet; run thence, North 0° 05' 21" West, parallel to and 100.00 feet West of the West boundary of said Lot 29, a distance of 100.00 feet; run thence, North 89° 54' 39" East a distance of 100.00 feet to the POINT-OF-BEGINNING.

A/K/A Lot 30 in Block 19 of CARROLLWOOD SUBDIVISION UNIT NO. 20, according to the Map or Plat thereof, as recorded in Plat Book 41, Page 8, per Hillsborough County Tax Rolls.

Folio No. 019624.0000

PARCEL 8a: WATER TREATMENT PLANT WELL #2, PART A

A portion of Lot 23, Block 34, of CARROLLWOOD SUBDIVISION UNIT NO. 22B, according to the Plat thereof, filed in Plat Book 43, Page 72, of the Public Records of Hillsborough County, Florida, described as follows:

FROM the Southwest corner of said Lot 23, proceed on the South boundary thereof, East a distance of 218.25 feet to the POINT-OF-BEGINNING; thence, departing from said South boundary, North a distance of 133.42 feet; thence, East a distance of 30.00 feet; thence, South a distance of 133.42 feet, to point on the South boundary of said Lot 23; thence, on said South boundary, West a distance of 30.00 feet to the POINT-OF-BEGINNING.

Folio No. 023288.1548

Parcel 8b: WATER TREATMENT PLANT WELL #2, PART B

A portion of Lot 23, Block 34, of CARROLLWOOD SUBDIVISION UNIT NO. 22B, according to the Plat thereof, filed in Plat Book 43, Page 72, of the Public Records of Hillsborough County, Florida, described as follows:

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

COMMENCING at the Southwest corner of Lot 23, Block 34 and run East 248.25 feet; thence run, North 133.42 feet to the POINT OF BEGINNING; thence West 30.00 feet; thence North 30.00 feet; thence East 30.00 feet and South 30.00 feet to the POINT OF BEGINNING.

Folio No. 023288.1541

PARCEL 8c: WATER TREATMENT PLANT WELL #2, PART C

A portion of Lot 23, Block 34, of CARROLLWOOD SUBDIVISION UNIT NO. 22B, according to the Plat thereof, filed in Plat Book 43, Page 72, of the Public Records of Hillsborough County, Florida, described as follows:

COMMENCING at the Southwest corner of Lot 23, Block 34 and run East 248.25 feet and North 102.08 feet to the POINT OF BEGINNING; run thence North 61.34 feet; West 30.00 feet; North 18.66 feet; East 42.6 feet; South 80.00 feet and West 12.6 feet to the POINT OF BEGINNING.

Folio No. 023288.1542

PARCEL 8d: PUMP STATION #5

Lot 12, Block 28, of CARROLLWOOD SUBDIVISION UNIT NO. 21, according to the Plat thereof, filed in Plat Book 42, Page 39, of the Public Records of Hillsborough County, Florida.

Folio No. 019664.0000

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

Parcel 1a: FIESTA VILLAGE WASTEWATER TREATMENT PLANT PARCEL A

The East 22.78 of Lot 6, and all of Lot 7, Block 5, FIESTA VILLAGE FIRST ADDITION, a Subdivision, according to the Plat thereof, as recorded in Plat Book 12, Page 135; LESS right of way for San Souci Drive; all lying and being in Lee County, Florida.

Folio No. 21-45-24-02-00005.0070

PARCEL 1b: FIESTA VILLAGE WASTEWATER TREATMENT PLANT PARCEL B

The East 1/2 of the East 1/2 of the Southeast 1/4 of the Southeast 1/4 of Section 21, Township 45 South, Range 24 East, which includes:

The Southerly 22.46 feet of Lot 12, Block 1, FIESTA VILLAGE, a Subdivision, according to the Plat thereof, as recorded in Plat Book 10, Page 65.

Folio No. 21-45-24-00-00014.0010

PARCEL 2: MINERS CORNER BOOSTER STATION

All of that piece or parcel of land lying in the Northeast quarter (NE 1/4) of Section 31, Township 45 South, Range 24 East, Lee County, Florida. The said parcel being described as follows:

FROM the Northeast corner of said Section 31, run Westerly along the North line of said Section N 89° 41' 24" W for 238.87 feet to the Southeasterly right-of-way line of McGregor Boulevard (80 feet wide); thence run Southwesterly along the Southeasterly right-of-way line of McGregor Boulevard S 50° 28" W for 942.18 feet to the Easterly side of a roadway easement (35 feet East of the centerline of said easement); thence run along the East side of said roadway easement S 0° 17' 04" E for 451.96 feet to the POINT OR PLACE OF BEGINNING of the herein described parcel; from said POINT OF BEGINNING continue South along said East right-of-way line S 00° 17' 04" E 150.00 feet; thence run N 89° 42' 56" E 150.00 feet; thence run N 00° 17' 04" W 150.00 feet; thence run S 89° 42' 56" W for 150.00 feet to the POINT OF BEGINNING.

Folio No. 31-45-24-00-00007.4000

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

PARCEL 3: WATERWAY ESTATES WASTEWATER TREATMENT PLANT

A tract or parcel of land lying in Tract "B" of WATERWAY ESTATES OF FORT MYERS, UNIT 2, according the Map or Plat thereof, recorded in Plat Book 12, at Page 64, of the Public Records of Lee County, Florida, described as follows:

FROM a point of curvature on the South line of said Tract "B" which is designated as curve "K" on said Plat run N 89° 24' 20" E along said South line and along the North line of a canal for 201.00 feet to the P.O.B. of the lands herein described. From said POINT OF BEGINNING continue N 89° 24' 20" E along said South line for 186.00 feet; thence run N 0° 35' 40" W perpendicular to said South line for 263.50 feet; thence run S 89° 24' 20" W parallel with said South line for 90.00 feet; thence run S 43° 56' 40" W parallel with the Northwesterly line of said Tract "B" for 134.68 feet to an intersection with a line perpendicular to said South line of Tract "B" passing through the POINT OF BEGINNING; thence run S 0° 35' 40" E along said perpendicular line for 168.58 feet to the POINT OF BEGINNING.

Folio No. 16-44-24-03-0030B.00A0

PARCEL 4: WATERWAY ESTATES WATER TREATMENT PLANT

BEGIN at Northeast corner of Northwest One-Quarter of Section 16, Township 44 South, Range 24 East, Lee County, Florida; thence North 88° 55' 40" West a distance of 50.00 feet to the Westerly right-of-way of Orange Grove Boulevard; thence South 0° 13' 02" West along said Westerly right-of-way a distance of 905.11 feet; thence North 89° 46' 58" West a distance of 306.40 feet to the POINT OF BEGINNING; thence continue North 89° 46' 58" West a distance of 300.00 feet; thence South 0° 13' 02" West a distance of 300.00 feet; thence South 89° 46' 58" East a distance of 250.00 feet; thence South 0° 13' 02" West a distance of 100.00 feet; thence South 89° 46' 58" East a distance of 50.00 feet; thence North 00° 13' 02" East a distance of 400.00 feet to the POINT OF BEGINNING, being a part of a parcel in the Northwest One Quarter of Section 16, Township 44 South, Range 24 East, being a part of Tract G of WATERWAY ESTATES OF FORT MYERS, UNIT 2, as recorded in Plat Book No. 12, Page 67, Lee County, Florida.

TOGETHER WITH: The West 225 feet of Tract A, WATERWAY ESTATES, Block 3, Unit 1, according to the Plat thereof as recorded in Plat Book 28, Pages 87-89 inclusive of the Public Records of Lee County, Florida;

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

AND

The East 25 feet of tract A, WATERWAY ESTATES, Block 3, Unit 1, according to the Plat thereof as recorded in Plat Book 28, Page 87-89 inclusive of the Public Records of Lee County, Florida.

Folio No. 16-44-24-03-0030G.00B0

PARCEL 5: WATERWAY ESTATES LIFT STATION #1

The North 110 feet of the South 185 feet of the West 50 feet of Tract "D" as recorded in the Office of the Clerk of the Circuit Court, Lee County, Florida, in Plat Book 12, at Page 63 and Replat of Block 1 and part of Block 2, as recorded in Plat Book 17, at Page 165.

Folio No. 16-44-24-05-00-0030D.0020

PARCEL 6: ALICO ROAD WATER TANK & BOOSTER STATION

Lots 1, 2, 3, 4, 5 and 6, Block 187, UNIT 16, SAN CARLOS PARK, a Subdivision, according to the Plat thereof, as recorded in Official Records Book 50, at Page 377, in the Public Records of Lee County, Florida.

Folio No. 09-46-25-05-00187.0010

PARCEL 7: GREEN MEADOWS WATER TREATMENT PLANT

A parcel of land located in the Southwest corner of Section 33, Township 45 South, Range 26 East, Lee County, Florida, being more particularly described as the South 950.00 feet of the West 989.00 feet of Section 33, Township 45 South, Range 26 East, Lee County, Florida; the POINT OF BEGINNING.

Folio No. 33-45-26-00-00001.2000

PARCEL 8: SOUTH BEACH WATER TANK & BOOSTER STATION

A parcel of land in Government Lot 1, Section 3, Township 47 South, Range 24 East, Lee County, Florida, more particularly described as follows:

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

COMMENCE at the point of intersection of the Easterly right of way line of Estero Boulevard (S.R. No. 865) with the South line of said Government Lot 1; thence North 18° 34' 20" West for 63.00 feet to an intersection with the Northerly right of way line of Lenell Road as described in Official Records Book 849, at Page 282, of the Public Records of Lee County, Florida; thence North 89° 11' 00" East along said right of way line for 423.81 feet along said right of way line to the POINT OF BEGINNING of the herein described parcel of land; thence continue North 89° 11' 00" East along said right of way line for 150.00 feet; thence North 00° 49' 00" West for 199.53 feet; thence South 89° 11' 00" West for 150.00 feet; thence South 00° 49' 00" East for 199.53 feet to the POINT OF BEGINNING.

Folio No. 03-47-24-W1-00004.E000

PARCEL 9: COLLEGE PARKWAY WATER TREATMENT PLANT

BEGIN at the SW corner of the SE 1/4 of Section 14, Township 45 South, Range 24 East; thence North 02° 11' 15" West along the Westerly line of said SE 1/4 for 616.65 feet; thence North 89° 08' 50" East for 125 feet to the POINT OF BEGINNING; thence continue North 89° 08' 50" E for 60.01 feet; thence North 02° 11' 15" West for 436.56 feet to Southerly right-of-way of proposed 100' wide College Parkway; thence South 89° 05' 55" West along said Southerly right-of-way for 60.01 feet; thence South 02° 11' 15" East for 436.51 feet to the POINT OF BEGINNING.
AND
BEGIN at the SW corner of the SE 1/4 of Section 14, Township 45 South, Range 24 East for the POINT OF BEGINNING; thence North 89° 11' 35" East along Southerly line of said Section 14 for 633.45'; thence Northerly 01° 55' 08" West for 617.09'; thence South 89° 08' 50" West for 636.33' to the Westerly line of said Southeast quarter; thence South 02° 11' 15" East along said Westerly line of said Southeast quarter for 616.65' to the POINT OF BEGINNING.

Subject to Iona Drainage District right-of-way over the Southerly 50'.

Folio No. 14-45-24-00-00004.0110

PARCEL "F1": FT. MYERS BEACH WELL #2

A parcel of land lying and being in Lot 4, Block 8, BUSINESS CENTER, a Subdivision according to the Plat thereof, as recorded in Plat Book 9, Page 9, described as follows:

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

BEGINNING at the Northwest corner of said Lot 4, where the Westerly line of said Lot 4, adjoins Lots 2 of said Block 8; thence Easterly along the rear line of said Lot 4, a distance of 7 feet; thence southwesterly perpendicular to the first line a distance of 7 feet; thence Northwesterly 7 feet to the Westerly line of said Lot 4; thence Northwesterly to the POINT OF BEGINNING; being a tract of land 7 feet square in the Northwesterly corner of said Lot 4, together with a strip of land along the Westerly side of said Lot 4 running from Estero Boulevard to the rear of such lot for a width of 2 feet along the line common to Lots 2 and 3 where the same adjoins said Lot 4, Lee County, Florida.

Folio No. 24-46-23-W3-00208.004A

PARCEL "G": CAPE CORAL WATER TREATMENT PLANT & WELLS

All of Block 2088, Unit 31, CAPE CORAL SUBDIVISION, according to the Plat thereof, recorded in Plat Book 14, Page 149, of the Public Records of Lee County, Florida.

Folio No. 06-44-24-C2-02088.0000

PARCEL "I": NORTH BEACH BOOSTER STATION

Lots 40 and 41, Block A, Unit No. 2 ISLAND SHORES, a Subdivision, according to the Plat thereof as recorded in Plat Book 9, Page 25, Public Records of Lee County, Florida; LESS AND EXCEPT all portions of said Lots 40 and 41 lying Northwest of a line described as follows: Commence at a point of intersection between the Northwestern right-of-way boundary of Lagoon Street and the Northeastern right-of-way boundary of Estero Boulevard as depicted on the Plat recorded at Plat Book 9, Page 25, Public Records of Lee County, Florida; said point also being the Southern corner of Lot 41 as depicted on said Plat. Thence Northwest along said Northeasterly right-of-way boundary of Estero Boulevard, 60 feet to the POINT OF BEGINNING. Thence Northeasterly along the boundary line between Lots 41 and 42 as depicted on said Plat to a Point where said boundary line between Lots 41 and 42 as depicted on said Plat bears in a Northerly direction. Thence from said Point along the same bearing as the boundary line lying Southwest of said Point, across portions of Lots 41 and 40, to a point where such line with the same bearing as the Southwestern portion of the boundary line between Lots 41 and 42 intersects with the southern boundary of the canal depicted on said Plat.

Folio No. 24-46-23-WS-0050A.0400

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

COLLIER — 1, 2, 3, 4

PARCEL 1: GREEN BLVD. WATER TANK & BOOSTER STATION

Tract 1, GOLDEN GATE ESTATES, UNIT 26, a Subdivision, according to the Map or Plat thereof on file and recorded in the Office of the Clerk of the Circuit Court, recorded in Plat Book 7, Pages 15 and 16, Public Records of Collier County, Florida; LESS AND EXCEPT that parcel of land conveyed to South Florida Management District described in Quit Claim Deed recorded in Official Records Book 1604, Page 800.

Folio No. 37920040003

PARCEL 2: GOLDEN GATE WASTEWATER TREATMENT PLANT

All of Blocks 255, 257 and lots 1 through 8 inclusive of Block 258, Unit 7, GOLDEN GATE, a subdivision, according to the Map or Plat thereof on file and recorded in the Office of the Clerk of the Circuit Court, recorded in Plat Book 5, Page 135, in the Public Records of Collier County, Florida.

Folio No. 36450440006

PARCEL 3: GOLDEN GATE WATER TREATMENT PLANT

A parcel of land in Collier County, Florida, more particularly described as follows and being a part of the Plat of Tract A of GOLDEN GATE UNIT 8, PART 2, as recorded in Plat Book 9, Page 111, of the Public Records of Collier County, Florida, more particularly described as follows:

COMMENCING at the Northwest corner of Tract A; thence running South a distance of 649.27 feet along the West boundary of said Tract A; thence running East 336.31 feet to a point, said point being also described as the POINT OF BEGINNING; thence run North 89° 54' 21" East, a distance of 333.15 feet to a point; thence run North 0° 09' 03" East a distance of 75.04 feet to a point; thence run North 23° 43' 43" East a distance of 104.18 feet to a point; thence run North 47° 07' 42" West a distance of 196.55 feet to a point; thence run South 89° 44' 56" West a distance of 184.50 feet to a point; thence run South 50° 09' 46" West a distance of 14.20 feet to a point; thence run South 11° 04' 09" West a distance of 113.36 feet to a point; thence run South 3° 45' 30" West a distance of 183.92 feet to the POINT OF BEGINNING.

Folio No. 36560120009

LEGAL DESCRIPTION CONTINUED

COLLIER — 1, 2, 3, 4

PARCEL 4: LIFT STATION #5

The South 35 feet of the West 35 feet of Lot 1, Block 59, UNIT 2, GOLDEN GATE SUBDIVISION, according to the Map or Plat thereof on file and recorded in the Office of the Clerk the Circuit Court, recorded in Plat Book 5, Pages 65 thru 77, in the Public Records of Collier County, Florida.

Folio No. 35774000000

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

PARCEL 1: WASTEWATER POND FOR WASTEWATER TREATMENT PLANT #1

The South 935.00 feet of the East 935.00 feet of the NW 1/4 of the NE 1/4 of Section 10, Township 26 South, Range 28 East, Osceola County, Florida. BEGIN at the Southwest corner of the NE 1/4 of said Section 10, also being the Southeast corner of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, as shown on the Plat thereof, recorded in Plat Book 3, at Page 240, Public Records of Osceola County, Florida; thence N 89° 55' 55" W, along the South line of the North half of the NE 1/4 of said Section 10 for a distance of 935.01 feet; thence N 0° 13' 10" E, along a line 935.00 feet West of as measured at right angles to and parallel with the west line of the NE 1/4 of the NE 1/4 of said Section 10, for a distance of 935.01 feet; thence South 89° 59' 55" E, along a line 935.00 feet North of as measured at rights angles to and parallel with the South line of the N 1/2 of the NE 1/4 of said Section 10, for a distance of 935.01 feet to a point on the West line of said Plat of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C; thence S 0° 13' 10" W, along the West line of said Plat of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, for a distance of 935.01 feet to the POINT OF BEGINNING.

TOGETHER WITH a perpetual, non-exclusive easement for ingress, egress, drainage and utilities over, under, upon, and across the following described property:

A one hundred foot (100') strip easement for ingress and egress situate in Tract "J" and Tract "W" of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, as recorded in Plat Book 3, Page 240, of the Public Records of Osceola County, Florida, all lying within Section 10, Township 26 South, Range 28 East, more particularly described as follows:

COMMENCE at the NW corner of the NE 1/4 of the NE 1/4 of said Section 10; thence S 00° 13' 10" W, 469.76 feet along the West line of the said NE 1/4 of the NE 1/4 of Section 10, said line also being the West line of said Tract "J", said point also being the POINT OF BEGINNING; thence N 90° 00' 00" E, 529.29 feet along a line parallel with and fifty feet (50') North of the South line of said Tract "J"; thence N 49° 36' 26" E, 55.42 feet along a non-radial line to a point on curve; said curve being the Southerly and Westerly Right-of-Way arc of Avenue "A" (a 120' R/W as shown on said Plat; thence 100.97 feet Southeasterly along the said Right-of-Way arc of a curve concave to the Northeast and having a radius of 210.00 feet and a central angle of 27° 32' 54", to a point on curve; thence S 49° 36' 26" W, 92.20 feet along a non-radial line; thence S 90° 00' 00" W, 566.45 feet along a line fifty feet (50') South of and parallel with the said South line of Tract "J", said described line lying within said Tract "W", to a point on the said West line of the NE 1/4 of the NE 1/4 of Section 10; thence N 00° 13' 10" E, 100.00 feet along the last said described West line to the POINT OF BEGINNING.

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

AND TOGETHER WITH an exclusive irrevocable easement for discharging treated water in, over, under, upon and across the following described property, as granted by agreement recorded in Official Records Book 763, Page 2435, Public Records of Osceola County, Florida.

The West 1/2 of the Northwest 1/4 of the Northeast 1/4 of Section 10, Township 26 South, Range 28 East and the North 1/2 of the Northwest 1/4 of Section 10, Township 26 South, Range 28 East.

Folio No. 10-26-28-0000-0015-0000

PARCEL 2: WATER TREATMENT PLANT #1

A portion of Section 3, Township 26 South, Range 28 East, Osceola County, Florida, also being a portion of Tract "E" of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION A, as recorded in Plat Book 3, Pages 208 thru 210, of the Public Records of Osceola County, Florida, more particularly described as follows:

COMMENCE at the Southwest corner of the East 1/2 of the Northeast 1/4 of said Section 3; thence S 00° 10' 12" E, 465.79 feet along the Easterly boundary of Tract "G", said line also being a portion of the Westerly boundary of Tract "D", to a point on the centerline of Industrial Lane (a 120' Right of Way) as shown on said Plat; thence N 89° 49' 48" E, 1114.00 feet along the said centerline of Industrial Lane; thence N 00° 10' 12" W, 60.00 feet to a point on the said Northerly Right of Way of Industrial Lane, said point also being on the Southerly boundary of Tract "E"; thence N 00° 00'00" E, 344.14 feet along a line coincident with the East line of a 35' Railroad and Drainage Easement of Tract "E" and the West line of a 20' utility easement of Tract "E", as shown on said Plat to the POINT OF BEGINNING; thence continuing N 00° 00' 00" E, 130.00 feet along the said East line of the 35' RailRoad and Drainage Easement; thence N 90° 00' 00" E, 100.00 feet; thence S 00° 00' 00" W, 130.00 feet; thence S 90° 00' 00" W, 100.00 feet to a point on the said line coincident with the East line of the 35' Railroad and Drainage Easement and the West line of the 20' utility easement, said point also being the POINT OF BEGINNING.

TOGETHER WITH a perpetual, non-exclusive easement for ingress, egress, drainage and utilities over, under, upon and across the following described property:

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

That certain 20 foot easement extending from the Northerly right of way line of Industrial Lane, a/k/a Robert McLane Drive, to the Southerly boundary of Parcel 2, which easement is shown on recorded Plat for Tract "E", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION A, as recorded in Plat Book 3, Pages 208 thru 210, of the Public Records of Osceola County, Florida.

Folio No. 25-26-28-6180-000E-001A

PARCEL 3: WATER TREATMENT PLANT #1 STORAGE TANK

Tract "H", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, according to the Plat thereof, recorded in Plat Book 3, Pages 239 to 242, inclusive, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6184-000H-0010

PARCEL 4: LAND FOR LIFT STATION OR WELL SITE

Tract "X", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, according the Plat thereof, recorded in Plat Book 3, Pages 239 to 242, inclusive, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6184-000X-0010

PARCEL 5: WASTEWATER TREATMENT PLANT #1

Tract "G", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION A, according to the Plat thereof, recorded in Plat Book 3, Pages 208 through 210, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6180-000G-0010

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

PARCEL 6: WATER TREATMENT PLANT #2

All of Tract "P", POINCIANA NEIGHBORHOOD I, VILLAGE 2, according to the Plat thereof, recorded in Plat Book 3, Pages 69 through 87, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6100-000P-0010

PARCEL 7: WASTEWATER TREATMENT PLANT #3

Tract "G" of POINCIANA NEIGHBORHOOD I, VILLAGE 3, according to the Plat thereof, recorded in Plat Book 52, Page 8, Public Records of Polk County, Florida.

Folio No. 13-27-28-933480-020002

PARCEL 8: WATER TREATMENT PLANT #3

Tract "L" of a REPLAT OF A PORTION OF POINCIANA NEIGHBORHOOD I, VILLAGE 3, according to the Plat thereof, recorded in Plat Book 58, Page 31, Public Records of Polk County, Florida.

Folio No. 13-27-28-933490-062003

PARCEL 9: WATER TREATMENT PLANT #5

A portion of Tract "G" of POINCIANA NEIGHBORHOOD 5, VILLAGE 7, according to the Plat thereof, recorded in Plat Book 53, Page 19, more particularly described as follows: BEGIN at the Northwest corner of the aforementioned Tract "G", thence run S 50° 43' 36" East along the Southwesterly right of way line of Hemlock Avenue a distance of 187.81 feet to a point of curve, thence with the arc of a curve to the right, having for its elements, a radius of 2900.00 feet, a central angle of 05° 43' 06", a distance of 289.43 feet to a point on curve, thence departing said curve and Southwesterly right of line, run South a distance of 385.16 feet, thence run West a distance of 400.00 feet to a point on the West line of the aforedescribed Tract "G", thence run North along said West line of Tract "G" a distance of 645.00 feet to the POINT OF BEGINNING.

Folio No. 03-28-28-934760-086020

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

PARCEL 10: WASTEWATER TREATMENT PLANT #5

Tract "A" of POINCIANA NEIGHBORHOOD 2, VILLAGE 8, according to the Plat thereof, recorded in Plat Book 53, Page 29, Public Records of Polk County, Florida.

Folio No. 10-28-28-935240-00003

PARCEL 11: WASTEWATER TREATMENT PLANT #2

A portion of Section 10, Township 27 South, Range 28 East, Osceola County, Florida, also being a portion of Tract A, MULTIFAMILY AND COMMERCIAL OF POINCIANA NEIGHBORHOOD 5 EAST, /ILLAGE 2, as recorded in Plat Book 3, at Page 134, of the Public Records of Osceola County, Florida, more particularly described as follows:

LEGAL DESCRIPTION CONTINUED

OSCEOLA **— 1, 2, 3, 4, 5, 6, 11, 12**
POLK — 7, 8, 9, 10

COMMENCE at the most Westerly corner of Tract B, RETENTION AREA R-2, as shown on said Plat and also being on the Westerly boundary of said Plat; thence N 15° 12' 01" W, along said Westerly boundary, for a distance of 438.78 feet to a point of curvature of a curve concave to the East having a radius of 4425.00 feet; thence Northwesterly, along said Westerly boundary and the arc of said curve thru a central angle of 06° 35' 53", for a distance of 509.58 feet to the POINT OF BEGINNING, said point bears S 81° 23' 52" W from the radius point of said curve; thence continuing Northwesterly, along said Westerly boundary and the arc of said curve thru a central angle of 05° 11' 08", for a distance of 400.48 feet to a point of tangency; thence N 03° 25' 00" W, along said Westerly boundary for a distance of 611.94 feet to a point of curvature of a curve concave to the West having a radius of 5075.00 feet; thence Northwesterly, along said Westerly boundary and the arc of said curve thru a central angle of 01° 16' 34", for a distance of 113.03 feet to a point of reverse curvature with a curve concave to the Southeast having a radius of 25.00 feet; thence Northeasterly, along the arc of said curve through a central angle of 23° 41' 53", for a distance of 10.34 feet to a point that bears N 82° 00' 00" E, for a distance of 1273.51 feet; thence S 08° 00' 00" E, for a distance of 805.48 feet; thence S 61° 10' 33" W, for a distance of 754.37 feet to a point of curvature of a curve concave to the Northwest having a radius of 850.00 feet; thence Southwesterly, along the arc of said curve thru a central angle of 20° 13' 42", for a distance of 300.09 feet to a point of tangency; thence S 81° 24' 15" W, for a distance of 348.38 feet to the POINT OF BEGINNING.

Folio No. 25-26-28-6136-000A-0020

PARCEL 12: WATER TREATMENT PLANT #4

COMMENCE at the Northeast corner of Lot 10, Unit I, Phase I, *THE WILDERNESS, as recorded in* Plat Book 4, Page 144, Public Records of Osceola County, Florida, run S 00° 16' 48" E 675.00 feet along the East line of said parcel; thence N 89° 56' 04" E 100.00 feet to the POINT OF BEGINNING; thence continue N 89° 56' 04" E, 200.00 feet; thence N 00° 16' 29" W 250.00 feet; thence S 89° 56' 04" W 200 feet; thence S 00° 16' 29" E 250 feet to the POINT OF BEGINNING also described as Tract "C", Unit II, Phase I, THE WILDERNESS, as recorded in Plat Book 4, Page 153, Public Records of Osceola County, Florida.

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

TOGETHER WITH all wells, casings, pumps, pipes, valves, tanks, electrical equipment, chlorinators, filters and all other fixtures and equipment located and/or used on said property in operation and maintenance of the water plant located thereon, and

LESS AND EXCEPT THE FOLLOWING DESCRIBED PARCEL:

BEGIN at the Northwest corner of Tract "C", THE WILDERNESS, UNIT II, PHASE I, as recorded in Plat Book 4, Page 153, of the Public Records of Osceola County, Florida; run North 89° 56' 23" East along the North line of said Tract "C", a distance of 58.05 feet to a point; thence run South 44° 52' 41" West, a distance of 16.95 feet to a point; thence run South 89° 56' 23" West, a distance of 46.03 feet to a point on the West line of said Tract "C"; thence run North 00° 16' 29" West along the West line of said Tract "C", a distance of 12.00 feet to the POINT OF BEGINNING.

Subject to easements, rights of way and restrictions of record, if any.

PLUS AN INGRESS AND EGRESS EASEMENT OVER THE FOLLOWING PROPERTY:

BEGIN at the Northwest corner of Tract "A", THE WILDERNESS, UNIT II, PHASE I, as recorded in Plat Book 4, Page 153, of the Public Records of Osceola County, Florida; said point being on the South Right of Way line of Hawkin Drive; thence run South 00° 16' 29" East along the West line of said Tract "A", a distance of 525.89 feet to a point; thence run North 89° 43' 31" East, a distance of 100.00 feet to a point on the West line of Tract "C", THE WILDERNESS UNIT II, PHASE I, as recorded in Plat Book 4, Page 153, of the Public Records of Osceola County, Florida; thence run North 00° 16' 29" West along the West line of said Tract "C", a distance of 48.18 feet to a point; thence departing the West line of said Tract "C", run North 49° 59' 53" West, a distance of 78.64 feet to a point; thence run North 00° 16' 29" West, a distance of 426.87 feet to a point on the South right of way line of Hawkin Drive; thence run South 89° 43' 31" West along the South Right of Way line of Hawkin Drive, a distance of 40.00 feet to the POINT OF BEGINNING.

Folio No. R052729-5493-0001-00C1

(END OF LEGAL DESCRIPTION)

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

SARASOTA — 1, 2, 3(a), 3(b), 3(c)

PARCEL 1: SHADOW LAKES FORMER WATER TREATMENT PLANT

Lot 33A of SHADOW LAKES, as per Plat thereof, as recorded in Plat Book 10, at Pages 67 and 67A, of the Public Records of Sarasota County, Florida.

Folio No. 0101-09-00005

PARCEL 2: SOUTHGATE WASTEWATER TREATMENT PLANT

COMMENCING at the Northwest corner of the Northeast one-quarter of Section 3, Township 36 South, Range 18 East, Sarasota County, Florida; run thence Southerly along the West line of said Northeast one-quarter a distance of 24.00 feet to the Southerly Right-of-Way line of Hyde Park Street for the POINT OF BEGINNING; run thence Easterly along said Southerly Right-of-Way line a distance of 400.00 feet to a point; run thence Southerly and parallel to the Westerly line of said Northeast one-quarter a distance of 226.00 feet to a point; run thence Westerly and parallel to the Southerly Right-of-Way line of Hyde Park Street, a distance of 400.00 feet to said Westerly line of said Northeast one-quarter; run thence Northerly along said Westerly line of said Northeast one-quarter a distance of 226.00 feet to the POINT OF BEGINNING, and lying in the Northerly part of Tracts 93 and 94, Block 1 of a recorded Plat entitled RESUBDIVISION OF A PART OF HYDE PARK CITRUS SUBDIVISION, as recorded in Plat Book 3, at Page 86, of the Public Records of Sarasota County, Florida, all lying and being in the Northeast one-quarter of Section 33, Township 36 South, Range 18 East, Sarasota County, Florida.

LESS PARCELS NO. 1 AND 2 AS SHOWN ON DEED RECORDED IN OFFICIAL RECORDS BOOK 726, PAGE 177 DESCRIBED AS FOLLOWS:

PARCEL NO. 1: A portion of Lot 94, Block 1, RESUBDIVISION OF A PART OF HYDE PARK CITRUS SUBDIVISION, Section 33, Township 36 South, Range 18 East, as per Plat thereof, as recorded in Plat Book 3, Page 86, Public Records of Sarasota County, and being more particularly described as follows:

COMMENCE at the NW corner of the NE 1/4 of Section 33, Township 36 South, Range 18 East, Sarasota County, Florida; thence South 89° 55' East along the North line of said NE 1/4 of Section 33, 400 feet; thence South 0° 04' 07" West and parallel with the West line of said NE 1/4 of Section 33, 24 feet for a POINT OF BEGINNING, said point also on the Southerly Right-of-Way of Hyde Park Street; thence continue South 0° 04' 07" West, 126 feet; thence North 16° 37' 50" West 52.20 feet; thence North 0° 04' 07" East, 76 feet to the Southerly Right-of-Way of the aforementioned Hyde Park Street; thence South 89° 55' East, 15 feet to the POINT OF BEGINNING.

LEGAL DESCRIPTION CONTINUED

SARASOTA — 1, 2, 3(a), 3(b), 3(c)

PARCEL NO. 2: A portion of Lot 93, Block 1, RESUBDIVISION OF A PART OF HYDE PARK CITRUS SUBDIVISION, Section 33, Township 36 South, Range 18 East, as per Plat thereof, as recorded in Plat Book 3, Page 86, Public Records of Sarasota County, Florida, and being more particularly described as follows:

COMMENCE at the NW corner of the NE 1/4 of Section 33, Township 36 South, Range 18 East, Sarasota County, Florida; thence South 0° 04' 07" West, along the West line of said NE 1/4 of Section 33, 218 feet for a POINT OF BEGINNING; thence South 87° 04' 28" East, 100.83 feet; thence South 68° 37' 49" East, 74.37 feet; thence North 89° 55' West, and parallel with the North line of said NE 1/4 of Section 33, 170 feet to the West line of said NE 1/4 of Section 33; thence North 0° 04'07" East along the West line of said NE 1/4 of Section 33, 32 feet to the POINT OF BEGINNING.

Folio No. 0058-02-0030

PARCEL 3a: GULFGATE WASTEWATER TREATMENT PLANT

COMMENCING at the Southeast corner of the Northwest 1/4 of the Northeast 1/4 of Section 21, Township 37 South, Range 18 East; thence run North 89° 16' 13" West, along the South line of said Northwest 1/4 of Northeast 1/4 863.44 feet for POINT OF BEGINNING; thence continue North 89° 16' 03" West 400.00 feet; thence North 0° 45' 57" East 280.00 feet; thence South 89° 16' 03" East 315 feet; thence South 33° 29' 00" East 151.16 feet; thence South 0° 43' 57" West 155.00 feet to the POINT OF BEGINNING; being a portion of the Northwest 1/4 of Northeast 1/4 of Section 21, Township 37 South, Range 18 East, recorded in the Public Records of Sarasota County, Florida.

Folio No. 0111-07-0018

PARCEL 3b: LIFT STATION

The Northerly 30 feet of the Easterly 15 feet of Lot 10, Block "K", COLONIAL TERRACE UNIT NO. 2, recorded in Plat Book 7, Page 49, of the Public Records of Sarasota County, Florida.

Folio No. 0101-12-0052

LEGAL DESCRIPTION CONTINUED

PARCEL 3c: LAND FOR WATER MAIN

The Southerly 13 feet of the Westerly 11.5 feet of Lot 338, Unit #5, PHILLIPPI GARDENS *SUBDIVISION*, as recorded in Plat Book 11, Page 26, of the Public Records of Sarasota County, Florida.

Folio No. 0086-15-0071

(END OF LEGAL DESCRIPTION)

APPENDIX B

EASEMENT INTERESTS TO BE CONVEYED TO THE GUA

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Barefoot Bay	Brevard	County of Brevard	1594	0865
		County of Brevard	1594	0862
		GAC Properties Inc.	2066	0554
		Barefoot Bay Recreation District	2859	2220
		Avatar Properties Inc.	3570	0393
		Avatar Properties Inc.	2529	1733
		Barefoot Bay Corporation	1540	0096
		Barefoot Bay Corporation	1540	0099
		Avatar Properties Inc.	3631	4269
		Wheeler Farms, Inc.	By Court Order	
		Miller Group Investment Corp.	3881	1144
		Miller Group Investment Corp.	3881	1134
		Miller Group Investment Corp.	3881	1139

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Carrollwood	Hillsborough	Carl F. & Marguerite F. Cowgill/Sunstate Builders	No recordation shown (2/15/66)	
		Carl F. & Marguerite F. Cowgill/Sunstate Builders	No recordation shown (2/15/66)	
		Sunstate Builders, Inc.	1777	0461

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers	Lee	Stardial Investments Company	2424	3331
		Beachwalk Village, Ltd	2430	1488
		Golfview Golf & Racquet Club Comm. Assn.	2029	1400
		Lake Lawn Condominium Assn.	2437	1811
		Healthpark Medical Plaza One Assoc., Ltd.	2448	3223
		Healthpark Medical Plaza One Assoc., Ltd.	2448	3232
		Lee Health Ventures, Inc.	2448	3241
		Florida Coca-Cola Bottling Company	2500	0371
		Alico Forty-One Associates, Ltd.	2374	3170
		Candler Eastwyck Corp.	2450	0071
		Alico Forty-One Associates, Ltd.	2450	0082
		Alico Forty-One Associates, Ltd.	2463	2481
		San Carlos-Alico, Ltd.	2564	2551
		Polos at Fort Myers	2214	3524
		Polos at Fort Myers	2214	3518
		NCR of North Fort Myers Inc.	2380	0550
		SumCarlos Limited Partnership	2551	0212
		Hibiscus Pointe Condominium Assn, Inc.	2522	1252
		Stardial Investments Company	2522	1264
		SCTBOP, Inc.	2566	0550
		Albertson's, Inc. and The Sumcarlos	2566	0761
		Myerlee Development Company	2497	0185
		Myerlee Development Company	2497	0178
		Myerlee Development Company	2497	0171
		Temple Beth-El	2520	1846
		Hibiscus Pointe Condominium	2579	2473
		Stardial Investments, Company	2522	1270
		Lee County School Board	2497	3541
		Lee County School Board	2497	3548
		Golfview Development Company of Lee Co.,Inc.	2600	3907
		County of Lee	2316	4546
		County of Lee	2316	0204
		Summerlin Pointe Partnership	2634	0235
		Captain's Bay, Inc.	2618	2099
		Cypress Lake Presbyterian Church	2636	2457
		Summerlin Pointe Development Properties Ptnrship	2629	2170
		Summerlin Pointe Development Properties Ptnrship	2629	2163
		Iona Venture Corporation	2611	0788
		Cypress Lake Country Club	2577	0909
		Cypress Lake Country Club	2577	0918
		Airportels, Inc.	2629	1736

EASEMENTS

System	County	Grantor		Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Summerlin Pointe Development Properties Ptnrship		2587	4129
		DOH Services, Inc.		2584	3592
		DOH Services, Inc.		2584	3571
		Terry W. Stiles		2585	2942
		DOH Services, Inc.		2584	3576
		DOH Services, Inc.		2584	3583
		Worthington Communities, Inc.		2659	2909
			&	2661	0423
		Worthington Communities, Inc.		2659	2917
			&	2661	0440
		Worthington Communities, Inc.		2659	2884
			&	2661	0348
		Worthington Communities, Inc.		2659	2894
			&	2661	0378
		Worthington Communities, Inc.		2659	2899
			&	2661	0393
		Worthington Communities, Inc.		2659	2904
			&	2661	0408
		Worthington Communities, Inc.		2659	2884
			&	2661	0348
		Worthington Communities, Inc.		2659	2899
			&	2661	0393
		Worthington Communities, Inc.		2659	2904
			&	2661	0408
		Worthington Communities, Inc.		2659	2889
			&	2661	0363
		Richard G. Couch, Trustee		2668	0428
		McGregor Boulevard Center, Ltd.		2669	3647
		Ping Lee & Jock Lee		2672	1677
		John J.Nevins As Bishop of Diocese of Venice		2611	0434
		Gerald F. Sleeter, Trustee		2641	2279
		Sam Galloway, Jr.		2682	3590
		Lee Healthcare Resources		2709	2843
		Florida Design Communities		2659	2499
		HHGGPX, Inc.		2716	4089
		James Figuerado		2721	0709
		USA Asset Holding, Inc.		2705	3927
		Parker Fort Myers, Inc.		2688	2949
		Parker Fort Myers, Inc.		2688	2962
		Summerlin Pointe Development Properties Ptnrship		2763	2017
		William D. Whitaker		2755	2834
		Iona Venture Corporation		2611	0788
		Pocahontas Corporation		2773	2929

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Victoria Cove Development Corp.	2727	2499
		Victoria Cove Development Corp.	2727	2492
		Victoria Cove Development Corp.	2727	2513
		Victoria Cove Developmetn Corp.	2727	2506
		Parker Lakeside, Inc.	2765	2929
		&	2771	2822
		Parker Lakeside, Inc.	2765	2920
		&	2771	2831
		T-N-T Development, Inc.	2754	3650
		T-N-T Development, Inc.	2751	3571
		Edisto Group, Ltd.	2738	0069
		&	2754	2088
		Cypress Lake Country Club Villas, Inc.	2825	3933
		Cypress Lake Country Club Villas, Inc.	2825	3943
		Lee County School Board	2753	3817
		&	2799	0152
		Lee County School Board	2747	1088
		Lee County School Board	2791	0081
		&	2799	0160
		Lee County School Board	2747	1088
		Chevron USA Inc.	2772	1545
		Chevron USA Inc.	2772	1554
		Chevron USA Inc.	2772	1536
		Chevron USA Inc.	2805	3186
		Florida Design Communities	2769	2583
		Casa Bay Marina Development	2776	0554
		Lee County School Board	2753	3817
		Caloosa Bayview Condominium Phase B Assn	2796	3199
		Manuel U. Cox Sr & Brenda G. Cox	2793	3583
		CNL Retail Development, Inc.	2842	0568
		CNL Retail Development, Inc.	2842	0575
		Bert L. Jenks	2859	1260
		Larry W. Noughton	2844	3017
		Majik West, Inc.	2849	2837
		Jackson Downs, L.P.d/b/a Jackson Downs, Ltd.	2849	2855
		&	2852	1581
		Majik West, Inc.	2849	2828
		Jackson Downs, L.P. d/b/a Jackson Downs, Ltd.	2849	2846
		&	2852	1593
		Pulte Home Corporation	2991	3024
		Florida Design Communities, Inc.	2565	3737
		Sterling House Corporation	2885	3280
		Q.J.R. Partnership	2865	0308
		Sterling House Corporation	2885	3275
		Lee Memorial Hospital d/b/a Lee Healthcare	3053	2077

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Admiral's Bay, Inc.	2258	4272
		Michael A. & Fay A. Allen	1983	3742
		Jack W. Hassall	1737	4374
		Jaime S. Carrion	1460	1667
		Bradley Associates	2389	2232
		St. George Packing Co., Inc. et al	2278	1146
		JJT Development Corp	2205	2770
		The Boardwalk Caper	2205	??78
		A&W Development Corp.	No recordation shown (1/23/89)	
		(J.Carl McDonald, Jr.to A&W Development,Inc.) (Warranty Deed; Easement defined therein)	1857	3092
		Ben C. Collier	1278	0149
		William E.Whitley & James R.Chitwood	1097	1535
		W. K. Smith	1400	1240
		Anen, Inc. et al	1416	0596
		Caloosa Bayview Corporation	1056	0698
		Edison Community College	1605	0589
		Canterbury School Corporation	2236	1602
		Canterbury School Corporation	2416	0346
		Robert G. O'Connor	1963	2923
		F.M. 15 Ltd.	2272	3818
		Sunset Lakes, Ltd.	2272	3808
		Sunset Lakes, Ltd.	2272	3812
		F.M. 60 Ltd.	2272	3824
		Cassilly Realty	1413	1875
		Central Park South, Inc.	1665	2822
		Central Park South, Inc.	1689	3678
		Central Park South, Inc.	1689	3683
		Diocese of Venice	2228	4335
		U.S. Home Corporation	1755	1480
		U.S. Home Corporation	1641	0383
		U.S. Home Corporation	1889	3977
		The Club at Crystal Lake (Condominium Docs)	1725	2310
		Barnett Bank of Fort Myers, N.A.	1112	1759
		Daniel W. Dodrill	2204	2783
		Florida/Ft. Myers, Ltd.	1703	2664
		Fort Myers Hotel Partnership	1880	4727
		Bunche Beach Road Group	1880	4746
		Bunche Beach and 869 Partnership I	1880	4762
		U.S. Home Corporation	1683	3013
		U.S. Home Corporation	1683	3018
		U.S. Home Corporation	1755	1492
		U.S. Home Corporation	1755	1486
		Marvin J. Nelson	1710	1460

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Povia-Ballantine Corp.	1644	1800
		Sound Builders of Lee County, Inc.	1760	2078
		Schlageter-Naumann Company	1738	4227
		Schlageter-Naumann Company (Condo Declaration)	1585	0338
		Schlageter-Naumann Company	1738	4227
		N&G Investments, Inc.	1589	2271
		Chiquita Development Corporation	1920	0240
		Cypress Enclave Corp. et al	2184	4519
		Cypress Lakes Associates, et al	1919	2859
		Cypress Lakes Associates, et al	1919	2867
		Cypress Lake United Methodist Church, Inc.	2215	3068
		Mariner Properties, Inc.	1841	1849
		Cypress Corner, Ltd.	1261	1820
		The Board of Public Instruction of Lee County	0402	0682
		Outer Island Dev. of FLA., Inc.	No recordation shown (11/18/85)	
		Outer Island Development of Florida, Inc.	1688	4582
		Outer Island Dev. of FLA., Inc.	1585	0156
		McGregor Boulevard Center, Ltd.	2024	0815
		McGregor Boulevard Center, Ltd.	2024	0809
		Richmond Hidden Gardens Condo Assn	1841	1073
		The District Board of Trustees of Edison Comm	1776	2962
		Rutenberg/Gnagey, Ltd.	No recordation shown (8/5/86)	
		First Independence Bank of Florida, Inc.	No recordation shown (2/13/91)	
		The Forest Country Club, Inc.	2263	1833
		Cathy C. Warren & Walter L. Johnson	1852	3972
		Forest Joint Venture	1887	3823
		Forest Villas Development, Inc.	1971	0098
		Forest Village Condo/Legal description only	1608	2337
		Full Service Storage Corp.	No recordation shown (9/18/87)	
		Full Service Storage Corp.	2024	0831
		The Forest Joint Venture	1661	2559
		Joseph & Ida M. Baum	0344	0015
		YANA Foundation, Inc.	2393	0826
		Fish Tale Marina, Inc.	2145	2745
		RZD, Inc.	1859	0999
		Florida Coastal Developers, Inc.	2201	3389
		The Alfes Corporation	1759	1552
		Gulf Coastal Joint Venture	1820	4682
		The School District of Lee County	2421	2874

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers (cont'd)	Lee	The School District of Lee County	2421	2900
		The School District of Lee County	2421	2887
		Caloosahatchee Hotel Associates	1759	1558
		Caloosahatchee Hotel Associates	1759	1571
		Lee Health Ventures, Inc.	2294	1384
		Lee Health Ventures, Inc.	2294	1376
		Richmond Hidden Gardens Condominium Assn.	1841	1073
		Richard J. Winkel, Jr., Trustee	1882	4534
		John Fowler Resorts	1701	0835
		Gerald J. Fleisher	2158	2417
		Iona Lakes, Ltd.	2075	2125
		Iona Pointe Shopping Center, Ltd.	1752	0746
		Florida Resort Properties	1833	2486
		John Scanlon	2346	0679
		Legal Description only	2183	2601
		Kelly Green Development Corporation	2014	3711
		Kelly Green Development Corporation	2014	3707
		Kelly Green Development Corporation	2014	3703
		Kelly Green Development Corporation	1972	3935
		Kenwood Inc.	1269	0759
		William E. Whitley & James R. Chitwood	1097	1535
		Legal Description only	1675	2677
		Lakewood at Cypress Lake, Inc.	1841	1077
		Lakewood at Cypress Lake, Inc.	1841	1080
		Lakewood at Cypress Lake, Inc.	1746	2958
		College Parkway Trust	1414	2177
		Lee County Industrial Park	1829	0687
		Condominium Docs - Linden Place	1792	1909
		Marshwood Subdivision Survey Plat	1413	1890
		Pulte-Strang of Florida, Inc.	0307	0858
		Pulte-Strang of Florida, Inc.	0307	0861
		Pulte-Strang of Florida, Inc.	0388	0559
		Martinique Partnership	1483	2068
		Gene Bartholomew	1483	2073
		LeRoy Miner	1261	1818
		L & M Development Corp.	1686	1953
		Lee County School Board	1678	1131
		L & M Development Corp.	1641	1142
		L & M Development Corp.	1071	1969
		Guy Memoli	1402	0852
		Mariner Properties, Inc.	2024	0840
		First Commercial Bank	1743	1554
		Central Park South, Inc.	1665	2822
		Lee County School Board	1655	3612
		The Landings, Ltd.	1743	1548

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers (cont'd)	Lee	The Landings, Ltd.	1766	4342
		John D. & Jane Johnson	1728	3411
		Parkway North Apartments, Ltd.	1778	1361
		Parkway North Apartments	1778	1378
		James M. Kraemer, Trustee	1467	0530
		James M. Kraemer, Trustee	1467	0535
		Orestes N. & Alexandra Karousatos	2176	0891
		Peppertree Joint Venture, James M. Kraemer	1859	3448
		Lakewood at Cypress Lake, Inc.	1489	1193
		U.S. Home of Florida, Inc.	1035	0442
		L & N Consultants, Inc.	1843	2396
		L & N Consultants, Inc.	1843	2401
		Publix Super Markets, Inc.	1261	1824
		Regal Property Development Corp.	1854	2042
		Regal Property Development Corp.	1848	0831
		North American Mortgage Investors	1529	1471
		John D. & Jane Johnson	1728	3411
		Leisure Technology of Florida, Inc.	1780	3899
		Eastern Federal Corporation	1653	1670
		B & B Cash Grocery Stores	1710	1454
		Robert Johnson & Seymour Epstein	2128	3735
		David Dickerman	2024	0821
		David Dickerman	2924	0826
		Kleist Enterprises, Inc.	1310	0692
		Kleist Enterprises, Inc.	1310	0697
		Suburban Corporation	0404	0747
		U.S. Home of Florida, Inc.	1249	0485
		James J. Himschoot	1249	0478
		Windrush Apartments, Ltd.	1640	0245
		Kelly Carlos Corporation	2212	3155
		Lee County	2438	0804
		Meister Development Group, Inc.	1733	2858
		The North Fort Myers Motel, Ltd.	1825	4407
		Norris B. Fox & Stephan D. Ellis, Co-Trustee	2061	1169
		Bradley Associates	1713	0443
		Bradley Associates	1714	1836
		Bradley Associates	1714	1826
		Bradley Associates	1714	1818
		Orange Grove Ventures	1595	0969
		AM CAN Enterprises, Inc.	1707	3774
		Martinique Partnership	1483	2068
		Edward F. Streit, Trustee	2474	1929
		Cross River, Inc.	2273	4521
		Cross River, Inc.	2056	1775
		James M. Kraemer, Trustee	1746	0042

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Guy Memoli	1904	4676
		Guy Memoli	1904	4683
		Bernard Schoninger	1350	1938
		Ocean Harbor of Fort Myers Beach, Inc.	2215	1566
		W. M. Landers, Dorado L.C.	2762	1160
		Ostego Bay Associates, Ltd.	2385	1373
		Paddle Creek Joint Venture	2268	2509
		Paddle Creek Joint Venture	2268	2498
		F&H Enterprises	1769	4557
		F&H Enterprises	1769	4553
		Peppertree Joint Venture	1859	3448
		Pine Meadows Apartments II, Ltd.	2021	3400
		Pine Meadows Apartments, Ltd.	1763	2226
		Pine Meadows Apartments, Ltd.	1763	2241
		Pine Meadows Apartments, Ltd.	1763	2256
		Pine Meadows Apartments, Ltd.	1763	2271
		Florida Health Facilities Corp.	1833	2878
		Port Iona Development Corporation	1706	0926
		Grace & Robert Conidaris	2314	0242
		Donald L. Albion	1718	3048
		New South Province Condominium Condo Docs	0949	0715
		Timberlakes Limited Partnership	1608	0746
		Royal Hawaiian Club	1614	0206
		Leisure Technology of Florida Inc.	1721	1393
		Leisure Technology Corp.	1707	3783
		Leisure Technology Corp.	1707	3779
		John Armenia, Trustee	1783	2906
		John Armenia Sanibel Harbour Spa & Racquet Club	1759	4126
		Ed Cassavell Sanibel Harbour Spa & Racquet Club	1824	3628
		James M. Kraemer, Trustee	1993	0861
		R. R. Sanibel, Inc.	2387	2256
		St. Charles Harbour Corporation	2057	3714
		Cynthia H. Lewis	2217	1353
		Eastern Federal Corporation	1653	1670
		Southside Christian Church	2234	4740
		Southside Christian Church	2234	4765
		J.E.M. Properties of Naples	2028	4221
		Summerlin Partnership	1817	3783
		Iona Point Shopping Center	1752	0746
		William W. & Aviva L. Schoo	1984	0646
		Hussey & Loveless Development Company	2002	0950
		William W. & Aviva L. Schoo	1984	0650
		Sunbanks, Inc.	2290	2217
		Westwood Associates, Inc.	2257	0235
		Westwood Associates, Inc.	2257	0242

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Windrush Apartments, Ltd.	1640	0245
		Forest Waters Edge	2093	1867
		Twin Lakes Limited Partnership	1952	0241
		Twin Lakes Limited Partnership	1952	0268
		Twin Lakes Limited Partnership	1952	0250
		Twin Lakes Limited Partnership	1952	0259
		R.H.V., Inc.	2013	0642
		Villages of Ascot, Ltd.	2195	3131
		Villages of Ascot, Ltd.	2084	1372
		Villages of Ascot, Ltd.	2195	3148
		Villages of Ascot, Ltd.	2195	3165
		University Park, Ltd.	1727	1557
		United Plaza Associates	1891	3463
		United Plaza Associates	1891	3468
		Benaja Properties, Inc.	1065	1032
		City of Cape Coral	1033	1413
		Cypress Lakes Lands, Ltd.	1010	0347
		Cypress Lakes Lands, Ltd.	1057	1859
		Cypress Lake Realty, Inc.	0478	0765
		Florida Power & Light Company (Construction Time Agreement/Easement)	No recordation shown (3/8/85)	
		Florida Power & Light Company (Permanent Agreement/Easement)	No recordation shown (3/8/85)	
		Bd of Trustees,Internal ImprovementTrust Fund (FL Dept Natural Resources #25836(2753-36)	No recordation shown (11/9/77)	
		Frank C. Gala	0233	0587
		Cypress Corner, Ltd.	1261	1820
		GAC Properties Inc.	0933	0667
		Alico, Inc.	1052	1292
		Alico, Inc.	1091	0001
		GAC Utilities Inc.	1172	1186
		GAC Utilities Inc.	1091	2159
		Alico, Inc.	1532	1016
		Alico, Inc.	1532	1020
		GAC Utilities Inc.(assignment of rights in easement)	No recordation shown (12/8/76)	
		L & M Development Corp.	1144	0224
		Ping Lee	2241	3809
		Marshwood, Inc. II	No recordation shown (7/26/78)	
		Wallace E. & Beatrice Naylor	1439	1425
		Tri-Chim Marina, Inc. of Ft. Myers, Florida	1193	1277
		Vergil A. & Thelma E. Firebaugh	1193	1272
		Louise F. Stiles & Earl James, Trustees	1193	1266
		Povia-Ballantine Corporation	1054	0026

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers (cont'd)	Lee	Joseph & Muriel Povia	0494	0057
		San Carlos Marina, Inc.	0399	0435
		USA Asset Holding	2703	3303
		NCNB National Bank of Florida	1714	4007
		Frank & Hazel Geffs	0498	0568
		Ralph E. Miller	0498	0569
		Summit Corporation	0498	0677
		Frank & Hazel Geffs	0500	0479
		Ralph E. Miller	0500	0481
		James S. Fortiner & Jean K. Fortiner, et al	0534	0382
		Colin M. Craig, et al	No recordation shown (4/29/74)	
		Harry L. & E. Wilma Sander, et al	No recordation shown (4/28/69)	
		SunTrust Bank, Southwest Florida	2697	1542
		SunTrust Bank, Southwest Florida	2697	1547
		HHGGPX, Inc.	2702	1498
		HHGGPX, Inc.	2702	1503
		Florida Cities Water Company	1953	2208
		Legal Description Only (Royal Pelican Development, Inc.)	1841	3587
		Legal Description Only (St. Charles Club Phase I)	2057	3721
		Sketch (Sea Breeze/Stella Del Mar)	1975	3783
		Cassilly Realty	1413	1878
		Exchange National Bank of Lee County (appears to be opinion on abstract)	1237	1372
		W. Ken Smith	1197	1081
		Grafton Development Corporation	0399	0437
		Florida Power & Light Co.	no recordation shown 10/6/81	
		Legal Description Only	1097	1537
		Donald Hussey, Trustee	1471	0416

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Golden Gate	Collier	Barnett Bank of Naples	1577	0534
		Avatar Properties Inc.	1102	0252
		The School Board of Collier County, Florida	1452	1430
		The School Board of Collier County, Florida	1452	1435
		Avatar Properties Inc.	1251	0790
		Avatar Properties Inc	2096	2196
		Robert & Mario Vocisano	2228	1331
		Domenic D'Agostino, et al	1131	1230
		Frank J. Callahan, et al	No recordation shown (12/20/82)	
		Golden Gate Golf & Country Club, Inc.	0530	0922
		GAC Properties Inc.	0530	0916
		Northgate Place Apartments, Ltd.	No recordation shown (12/10/87)	
		Naples-Green Blvd. Joint Venture	1491	1351
		Naples-Green Blvd. Joint Venture	1491	1368
		Golden Gate Plaza, Ltd.	0994	1743
		Avatar Utilities of Florida, Inc.	1078	1187
		Ron De Flavis & Harry C. Good	1078	1190
		Golden Gate Shopping Center Company	1561	0417
		Golden Gate Shopping Center Company	1561	0421
		Meadowood Apartments, Ltd.	1199	0172
		Meadowood Apartments, Ltd.	1202	1084
		Meadowood Apartments, Ltd.	1199	0177
		Meadowood Apartments, Ltd.	1202	1087
		Meadowood Apartments, Ltd.	1199	0182
		Meadowood Apartments, Ltd.	1202	1081
		Meadowood Apartments, Ltd.	1199	0187
		Meadowood Apartments, Ltd.	1202	1078
		American Cablevision Services, Inc.	No recordation shown (3/30/84)	
		The David Lawrence Foundation for Mental Health, Inc.	2500	0401
		The David Lawrence Foundation for Mental Health, Inc.	2500	0411
		The David Lawrence Foundation for Mental Health, Inc.	2500	0421
		Meadowood Club Apartments	1199	0168
		Meadowood Club Apartments	1202	1076
		Robert & Mario Vosisano	no recordation shown 9/5/96	
		Easement Vacation	no recordation shown 7/9/80	

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Poinciana	Osceola	Jerry and Buster Brown	0763	2435
		Jeld-Wen, inc.	No recordation shown (6/2/98)	
		Avatar Properties Inc.	1086	2500
	Polk	Avatar Properties Inc.	2465	0265
		Diane R. Hicks & Ruth F. Hicks	4073	0566
		Avatar Properties Inc.	2206	1862
		Avatar Utilities Inc.	2218	1632

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Sarasota	Sarasota	Patricia L. Gergen & Daniel L. Hopkins	3009	720
		Beneva-Clark Corporation	1948	655
		Village Green Section 14 Association, Inc.	2247	2550
		Cohenour's Inc.	1187	2092
		Cedar Cove Corporation	766	677
		Cedar Cove Corporation - Bill of Sale	734	111
		Clark Lakes Company Inc.	710	194
		Charles H. Ball, Trustee	3005	548
		Clark Road Condominium Development Inc. et al	1708	1196
		Cohenour's Inc.	1186	2215
		Redman Development Corporation	1149	1202
		Washovea Realty Investments	1149	1210
		First Development Corporation	No recordation shown (12/11/72)	
		Palmer First Natl Bank & Trust Co, Trustee	666	53
		Palmer First Natl Bank & Trust Co, Trustee	No recordation shown (1/19/71)	
		Palmer First Natl Bank & Trust Co, Trustee	786	675
		Palmer First Natl Bank & Trust Co, Trustee	769	871
		Glenna S. Dodson	2989	1174
		General Telephone Company of Florida	898	416
		Sarasota Plaza, Inc.	827	904
		Sarasota Plaza, Inc.	768	751
		Sarasota Plaza, Inc.	410	149
		Sarasota Plaza, Inc.	410	152
		Logan & Gertrude Smith, et al (Warranty deed;Easement defined therein)	985	1817
		Wm F. & Genevieve S. Sell	827	910
		John T. & Margaret M. Cox	827	908
		Lakehouse West	3036	220
		Landings Associates Ltd Partnership	2457	1362
		First Development Corporation of America	803	653
		Raymond & Evelyn M. Everts et al	1047	100
		Manor Care of Sarasota, Inc.	2087	1070
		Manor Care of Sarasota, Inc.	2087	1076
		Phillipi Gardens Utilities, Inc.	581	431
		Fred G. & Francis R. Behrends et al	827	906
		First Federal Savings & Loan Assn of Sebring et al	809	571
		LaVerne & Linda Hostetler	2808	2012
		Geraldine Rasmussen et al	3028	770
		Rex Chainbelt Inc.	898	418
		Sarasota Bank & Trust Company	869	707
		Sarasota Beneva Place Associates Ltd	1892	434

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Sarasota (cont'd)	Sarasota	Clark Road Apartments Inc.	No recordation shown (3/11/74)	
		Brownell Associates, Inc.	No recordation shown (6/22/81)	
		Edward A. & Ruth M. Sessa	878	759
		Barry & Glorida D. Trainor	803	650
		South Winds Enterprises Incorporated	No recordation shown (2/12/70)	
		South Winds Enterprises Incorporated	No recordation shown (2/16/70)	
		Strathmore Realty Corporation	898	404
		Strathmore Realty Corporation	863	120
		United States Postal Service	No recordation shown (7/11/90)	
		A. Walter & Miriam C. Kurtz	869	709
		Sarasota Shopping Guide	869	705
		Dean M. Wilson	869	703
		Bd of County Commissioners of Sarasota FL	2999	2113
		Joseph R.Cleary/Joseph F.Dziemianzuk	1184	1136
		Sarasota Beneva Place Associates, Ltd.	1892	0438
		Cedar Cove Corporation	0588	0185
		Carlos Zalduendo	1708	1205
		Carlos Zalduendo	1708	1208
		Wachovia Realty Investments	1149	1205
		Glenna S. Dodson	2989	1179
		Glenna S. Dodson	2989	1183
		Wachovia Realty Investments	1149	1215
		Phillippi Creek Homes, Inc.	0581	0432

APPENDIX C

SCHEDULE OF PLANS AND SPECIFICATIONS

Plans for the Utility Facility in Brevard County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Barefoot Bay Division
(Brevard County)

931 Barefoot Boulevard, Suite 2
Barefoot Bay, Florida 32976
Phone: 561-664-5916
Fax: 561-664-5941

Plans for the Utility Facility in Hillsborough County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Carrollwood Division
(Hillsborough County)

10033-A North Dale Mabry
Tampa, Florida 33618
Phone:813-961-8760
Fax: 813-961-0322

Plans for the Utility Facility in Lee County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Ft. Myers Division
(Lee County)

7401 College Parkway
Ft. Myers, Florida 33907
Phone: 941-936-3931
Fax: 941-936-0549

Plans for the Utility Facility in Collier County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Golden Gate Division
(Collier County)

1805 CR 951, Suite C
Naples, Florida 34116
Phone: 941-455-1583
Fax: 941-455-5626

Plans for the Utility Facilities in Polk and Osceola Counties have been provided to GUA by copy of electronic media. Plans for the Utility Facilities are located at the following address:

Poinciana Utilities Inc.
(Polk & Osceola Counties)

871 Town Center Drive
Kissimmee, Florida 34759
Phone: 407-933-5514
Fax: 407-933-0706

Plans for the Utility Facility in Sarasota County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Sarasota Division
(Sarasota County)

2112 Gulf Gate Drive
Sarasota, Florida 34231
Phone: 941-924-1128
Fax: 941-924-1129

APPENDIX D

SCHEDULE OF THIRD PARTY WARRANTIES RELATED TO COMPLETED OR IN PROGRESS CONSTRUCTION

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Barefoot Bay	PLC and computer control at WWTP	Automation Specialties Enterprises Bradenton 941-748-6376	8/4/98
Barefoot Bay	Install two equalization pumps	McMahan Construction Deland 904-734-1071	12/31/98
Barefoot Bay	Seal joints/cracked wastewater pipe	Griner's Pipeline Services, Inc. Mount Dora 352-383-1222	12/31/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Carrollwood	There are none applicable to Carrollwood.		

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Fort Myers	Utility relocations along U.S. 41	Cabana Construction Co., Inc. Fort Myers 941-332-1665	Payment no. 15 on 1/19/99
Fort Myers	Replace existing 4" piping from sludge loading pumps to loading arm with 6" steel overhead piping	U.S. Filter / DAVCO Lakeland 941-646-7694	Project not yet completed.
Fort Myers	Utility relocations along McGregor Blvd.	Stevens & Layton, Inc. Fort Myers 941-693-1400	Payment no. 5 on 1/19/99
Fort Myers	Remove and replace methanol tanks and pumps at Fiesta Village WWTP	Apollo Construction Sun City Center 813-645-4926	Payment no. 2 on 10/20/98
Fort Myers	Sidewalk replacement and hydrant and meter relocation on Estero	Strickler Brothers, Inc. Fort Myers 941-267-2050	Payment no. 1 on 1/29/99
Fort Myers	Install VFD high service pumps at Green Meadows WTP	Edwards Electric West Palm Beach 561-683-7066	6/9/98
Fort Myers	Repair wastewater manholes	Protective Liner Systems, Inc. Oldsmar 813-855-6550	6/30/98
Fort Myers	Reclaim pond cleaning at Waterway Estates WTP	J & J Baker Enterprises, Inc. Punta Gorda 941-575-0606	6/30/98
Fort Myers	Modicon upgrade at Fiesta Village WWTP	Automation Specialties Enterprises Bradenton 941-748-6376	6/18/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Fort Myers	Install water main number 7 and 8014 at Alico Road pump station	Strickler Brothers, Inc. Fort Myers 941-267-2050	8/31/98
Fort Myers	Instrumentation shop at division office	Bowen Construction, Inc. Cape Coral 941-574-8636	7/31/98
Fort Myers	Water and wastewater valve replacements	Sun Coast Underground Utility Construction Corporation Fort Myers 941-463-6632	1/7/99
Fort Myers	Pump station renovations	Strickler Brothers, Inc. Fort Myers 941-267-2050	2/17/99
Fort Myers	Clarifier reinforcement / hydrostatic support	U.S. Filter / DAVCO Lakeland 941-646-7694	Final payment to Accounting 2/5/99
Fort Myers	Paint structures at College Parkway WTP	Eagle Tank Corporation Jacksonville 904-757-0528	11/6/98
Fort Myers	Install sludge thickener and pump	U.S. Filter / DAVCO Lakeland 941-646-7694	12/8/98
Fort Myers	Water main relocation along John Morris Road	Cabana Construction Co., Inc. Fort Myers 941-332-1665	11/17/98
Fort Myers	Filter replacement at Waterway Estates WTP	Mitchell & Stark Construction, Inc. Naples 941-597-2165	5/19/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Fort Myers	Sectional liners	Ridin Pipeline Services, Inc. Clearwater 727-524-8609	7/9/98
Fort Myers	Seal joints and cracked wastewater pipe	Griner's Pipeline Services, Inc. Mount Dora 352-383-1222	1/19/99

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Golden Gate	Drill and equip well #9	Stevens & Layton, Inc. Fort Myers 941-693-1400	Payment no. 5 paid 12/31/98
Golden Gate	Water and wastewater valve replacements	Sun Coast Underground Utility Construction Corporation 941-463-6632	1/7/99
Golden Gate	Pump station renovations	Strickler Brothers, Inc. Fort Myers 941-267-2050	2/17/99
Golden Gate	Phase out lift station float balls and replace with telemetry system	Sterling Industrial Controls Fort Myers 941-731-6167	11/17/98
Golden Gate	Install gravity sewer main in Block 65	Strickler Brothers, Inc. Fort Myers 941-267-2050	12/8/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Poinciana	Design and construct one new clarifier, sludge pump pit and yard piping at WWTP #1	Universal Construction Services Orlando 407-273-1788	8/31/98
Poinciana	Design and construction 0.29 mgd expansion to WWTP #5	U.S. Filter / DAVCO Lakeland 941-646-7694 McMahan Construction Deland 904-734-1071	U.S. Filter - 9/30/98; McMahan - February 1999 Kissimmee CC - 4/30/98
Poinciana	Stand pipe replacement at elevated water tower	Frank Shelton, Inc. Perry, GA 800-223-3695	Project not yet completed.
Poinciana	Renovate and activate pump stations	McMahan Construction Deland 904-734-1071	Payment no. 3&4 to Accounting 2/5/99
Poinciana	Paint exterior and inspect interior of elevated storage tank	Eagle Tank Corporation Jacksonville 904-757-0528	6/30/98

APPENDIX D

FCWC/PUI projects with warranties in effect as of March 31,1999

Division	Project Description	Contractor and telephone	Final payment date
Sarasota	Paint outside of elevated storage tank and miscellaneous metal replacements	Frank Shelton, Inc. Perry, GA 800-223-3695	9/10/98
Sarasota	Ashton Road water main installation	JC Pipeline, Inc. Bradenton 941-758-2228	
Sarasota	Pump station renovations	Stevens & Layton, Inc. Fort Myers 941-693-1400	4/21/98

APPENDIX E

SCHEDULE OF PERMITS

SCHEDULE OF PERMITS
BAREFOOT BAY SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
DISTRIBU	Construction	FDEP	12/02/1997	12/01/1999		WD05-0080414-001-DS	Install 6" main along Brown Rd. (permit # WD05-0080414-001-DS)	N	CO
Sod Farm	CUP	SJRWMD	09/08/1998	09/08/2018		1708	Permit requiremments for the 280 acre sod farm	N	BS
WTP	WUP	SJRWMD	02/10/1998	02/10/2008		2-009-0045NM2FR		N	
WWTP	ERP (SWMS)	FDEP	09/07/1994	09/07/1999		MS05-251388	Surface Water Managements System	N	
WWTP	Wastewater	FDEP	09/05/1997	09/03/2002		FL0042293-01	Combined Federal and State operating permit.	N	JK
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB

TANKS

BAREFOOT BAY WTP - 734 W. EGRET CIR, BAREFOOT BAY, FL 32976, BREVARD COUNTY	2,000 GAL ALUMINUM SULFATE	059601905
BAREFOOT BAY WWTP - 7773 DOTTIE LANE, BAREFOOT BAY, FL 32976, BREVARD COUNT	4,000 GAL ALUMINUM SULFATE	059401200
	2,000 GAL DIESEL	059401200
	7,000 GAL METHANOL	059401200

SCHEDULE OF PERMITS
CARROLLWOOD SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
WTP	Drin Wat System	Hillsborough County	01/15/1999	09/30/1999		6290259	Annual drinking water system permit must be renewed thru County HRS ($75).	N	MB
WTP	WUP	SWFWMD	07/30/1991	07/30/2001	01/30/2001	205886.02	Permit requires extensive reporting, consumption reduction, and conservation rate structure, expires in 2001	N	

TANKS

THERE ARE NO TANKS IN THE CARROLLWOOD SYSTEM.

SCHEDULE OF PERMITS
FT. MYERS SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
	MG Relo (SR865)	FDOT	07/01/1998			98H1920057		S	
	MG Relo (SR867)	FDOT	07/01/1998			98H1920056		S	
	McGr. Relocate	FDOH	06/18/1998	06/18/2003		0125769-028DS		S	
	US41 Util Adjus	FDOT	05/30/1997			97H1920039		S	
DISTRIBU	Construction	FDOH	10/09/1997	10/09/2002		0125769-011-DS	Install 24" main along Alico Rd.	S	GK
WTP-CP	Air Pollution	FDEP	05/19/1994	05/19/1999	03/19/1999	AO36-250717		S	GK/KB
WTP-CP	WUP	SFWMD	11/10/1993	11/10/1998	05/10/1998	36-00150-W	Timely renewal app filed.	S	RD/JK
WTP-GM	Air Pollution	FDEP	05/19/1994	05/19/1999	03/19/1999	AO36-250723		S	GK/KB
WTP-GM	Raw Line Const	Lee Health	02/06/1996	05/31/1999		DS36-251382	Install raw water line in Green Meadows well field. Seeking extension in 1998 for 1 year. SFWMD permit no. 36-00015-D expires 10/14/98.	S	
WTP-GM	US41 Util Adjus	FDOH	12/06/1996	12/06/2001		D536-297957		S	
WTP-GM	WUP	SFWMD	11/10/1993	11/10/1998	05/10/1998	36-00150-W	Timely renewal app filed.	S	RD/JK
WTP-WWE	Air Pollution	FDEP	05/19/1994	05/19/1999	03/19/1999	AO36-250718		S	GK/KB
WTP-WWE	WUP	SFWMD	06/13/1996	06/13/2001		36-00152-W		S	GK
WWE-WWTP	Consent Order	FDEP	12/31/1997			97-1469-11-DW	Order for sludge spill incident (reporting & fine imposed). With renewal of operating permit the Order will expire.	S	

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
WWTP-FV	Admin Order	FDEP	03/31/1998	03/29/2003		AO-006-SD	Requires monitoring of several contaminants detected in GWM samples to determine course of action.	S	JK/KB
WWTP-FV	McGr. Relocate	FDEP	07/24/1998	07/23/2003		47756-013-DWC		S	
WWTP-FV	NPDES Stormwate	EPA	12/31/1992	12/31/1998		FLR00A008	Multi-Sector General Permit coverage. NOI filed 2/18/99. Requires *pollution prevention plan* compliance.	S	GK/JK
WWTP-FV	Surf Wat Discha	Lee County	01/08/1993	12/19/1999		P3010801	Requires several reports and timetables to be met. Renewed annually by letter.	S	RY
WWTP-FV	US41 Util Adjus	FDEP	12/06/1996			C536-298075		S	
WWTP-FV	Wastewater	FDEP	03/30/1998	03/29/2003	09/29/2002	FL0039829-001-DW1P	Permit to operate and modify plant. Combines EPA with DEP permit.	S	JK/KB
WWTP-WWE	NPDES Stormwate	EPA	12/31/1992	12/31/1998		FLR00A007	Multi-Sector General Permit coverage. NOI filed 2/18/99. Requires pollution prevention plan compliance.	S	GK/JK
WWTP-WWE	Silo- Operation	FDEP	01/24/1996	01/24/2001		0710127-001-AC	Installation / operation permit for lime silo	S	GK
WWTP-WWE	Surf Wat Discha	Lee County	01/08/1993	12/19/1999		P3010802	Requires several reports and timetables to be met. Renewed annually by letter.	S	RY
WWTP-WWE	Wastewater	FDEP	05/17/1995	08/25/1998	05/25/1998	FL0030325	Combines EPA and FDEP (DO36-228850) permits. Must comply with all conditions of both permits. Renewal app filed in a timely manner.	S	JK/KB

TANKS

GREEN MEADOWS WTP - AIRPORT HAUL & REEVES RD., FT. MYERS, FL 33912, LEE COUNTY	5,000 GAL DIESEL	369064006
	5,000 GAL ALUMINUM SULFATE	369064006
	5,000 GAL ALUMINUM SULFATE	369064006
WATERWAY ESTATES WTP - 4271 ST. CLAIR AVE., NORTH FT. MYERS, FL 33903, LEE COUNTY	2,000 GAL DIESEL	369064005
	1,100 GAL SODIUM HYDROXIDE (empty)	369064005
	4,000 GAL ALUMINUM SULFATE	369064005
SOUTH BEACH BOOSTER STATION - 815 LENELL RD., FT. MYERS BEACH, FL 33931, LEE COUNTY	2,000 GAL DIESEL	368945132
COLLEGE PARKWAY WTP - 7401 COLLEGE PARKWAY, FORT MYERS, FL 33907	1500 GAL ALUMINUM SULFATE	
WATERWAY EST WWTP - 1667 INLET DR., NORTH FT. MYERS, FL 33903, LEE COUNTY	2,500 GAL DIESEL	369102629
	7,000 GAL ALUMINUM SULFATE	369102629
	7,000 GAL SODIUM HYDROXIDE	WATER FILLED
	2,000 GAL METHANOL	369102629
	3,000 GAL METHANOL	WATER FILLED
FIESTA VILLAGE WASTEWATER TREATMENT FACILITY - 1366 SAN SOUCI DR., FT. MYERS, FL. 33919, LEE COUNTY	3,000 GAL DIESEL	368945131
	6,000 GAL METHANOL	368945131
	7,500 GAL ALUMINUM SULFATE	368945131
	7,500 GAL ALUMINUM SULFATE	368945131
	5,600 GAL FERROUS SULFATE	368945131
	300 GAL SODIUM HYDROXIDE	368945131

SCHEDULE OF PERMITS
GOLDEN GATE SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
WTP	Air Pollution	FDEP	08/15/1995	08/15/2000	06/15/2000	AO11-272304	Requires annual visual inspection of emmisions and reporting	S	GK/KB
WTP	Const, CO2	FDEP	11/01/1995	11/01/2000		WC11-275406	Installation of CO2 feed system to replace H2SO4, also relocate NH3 feed points.	S	
WTP	Instal raw line	FDEP	09/24/1996	09/24/2001		DS11-293045	Raw water line for well #9	S	RS
WTP	WUP	SFWMD	01/14/1993	01/14/2003	07/14/2002	11-00148-W		S	RS/JK
WTP	Well #9, Pump	FDEP	12/21/1997	12/21/2002		128009-001-DS		S	
WWTP	Wastewater	FDEP	12/15/1998	12/14/2003	06/30/1998	FLA142140	Combines EPA and FDEP (DO11-254455) permits. Must comply with all conditions of both permits. App submitted in a timely manner.	S	

TANKS

GOLDEN GATE WTP - 4300 GOLDEN GATE PARKWAY, GOLDEN GATE, FL 33999, COLLIER COUNTY	2,000 GAL DIESEL	119064001
	3,000 GAL SULFURIC ACID	119064001
GOLDEN GATE WWTP - 4931 32ND AVE. SW, GOLDEN GATE, FL 33999, COLLIER COUNTY	2,000 GAL DIESEL	119064002
	275 GALLON SODIUM HYPOCHLORITE	119064002
	275 GALLON SODIUM HYDROXIDE	119064002
GOLDEN GATE BOOSTER STATION, 4781 GREEN BLVD., GOLDEN GATE, FL 33999, COLLIER COUNT	1,000 GAL DIESEL	119502077

SCHEDULE OF PERMITS
POINCIANA SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
DIVISION	Radio License	FCC	03/26/1997	03/26/2002	12/26/2001	WPLF667	Telemetry license for PUI	N	
WTP-5	Construction	FDEP	08/16/1995	08/16/2000		WC53-274958	Modification to plant - addtiona of bypass piping for ground storage and relocate Cl feed line	N	DY
WTP-ALL	WUP	SFWMD	10/12/1989	10/12/1999	04/12/1999	49-00069-W		N	
WWTP-1	Wastewater	FDEP	01/06/1999	01/01/2004	08/28/1998	FLA010968-001		N	
WWTP-2	Construction	FDEP	05/12/1997	04/24/2002		CS49-303772	Constuct collection system in V2N1 for 25 homes. Supersedes permit number CS49-209362.	N	CO
WWTP-2	Operation	FDEP	09/14/1993	09/08/1998	07/08/1998	DO49-225879	Renewal app filed in a timely manner.	N	
WWTP-3	Wastewater	FDEP	05/31/1995	06/15/1994		FL0036862	Combines NPDES and State TOP (DT49-173647) into one permit. Renewal app for AWT filed in early 1998.	N	
WWTP-5	MSSW	FDEP	06/17/1997	06/16/2002		MS53-301293	Surface water management system.	N	CO
WWTP-5	Wastewater	FDEP	12/23/1998	07/20/2002		FLA010979-002	Construction & operation of reuse and treatment facilities.	N	JK

TANKS

PUI WTP #2 -1010 PEABODY RD., POINCIANA, FL 34758, OSCEOLA COUNTY	1,500 GAL DIESEL	498838502
PUI WTP #3 - 300 S. COUNTRY CLUB ROAD, POINCIANA, FL 34759, POLK COUNTY	1,500 GAL DIESEL	539102693
PUI WWTP #5 - LAKE MARION CREEK RD., POINCIANA, FL 34759, POLK COUNTY	1,500 GAL DIESEL	539102691
PUI WWTP #2 - 1000 N. RHODODENDRON, POINCIANA, FL 34758, OSCEOLA COUNTY	3,000 GAL DIESEL	498838503

SCHEDULE OF PERMITS
SARASOTA SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
WWTP-GG	Biosolids	EPA	03/16/1998	02/28/2003	08/28/2002	FLL032816	Sludge application permit.	N	
WWTP-GG	Wastewater	FDEP	05/19/1998	05/18/2003	11/18/2002	FL0032816-01	Permit to operate and modify plant. Combines EPA with DEP permit.	N	JK/KB
WWTP-SG	Biosolids	EPA	03/16/1998	02/28/2003	08/28/2002	FLL032808	Sludge application permit.	N	
WWTP-SG	Wastewater	FDEP	04/15/1998	04/14/2003	10/14/2002	FL0032808-01	Permit to operate and modify plant. Combines EPA with DEP permit.	N	JK/KB

TANKS

GULF GATE WASTEWATER TREATMENT PLANT - 7302 BOUNTY DR., SARASOTA, FL 34231, SARASOTA COUNTY	3,000 GAL METHANOL	589045995
	2,800 GAL FERRIC SULFATE	589045995
	275 GAL SODIUM HYPOCHLORITE	589045995
	275 GAL SODIUM HYDROXIDE	589045995
AVENUE A LIFT STATION - SARASOTA, FL	1,025 GAL FERROUS SULFATE (EMPTY)	589012282
WESTLAKES LIFT STATION - SARASOTA, FL	1,550 GAL FERROUS SULFATE	589012281
SOUTH GATE WASTEWATER TREATMENT PLANT - 3209 PINE VALLEY DR., SARASOTA, FL 34239, SARASOTA COUNTY	3,000 GAL METHANOL	589045614
	2,800 GAL FERROUS SULFATE	589045614
	2,800 GAL FERRIC SULFATE	589045614
	275 GAL SODIUM HYPOCHLORITE	589045614
	275 GAL SODIUM HYPOCHLORITE	589045614
	275 GAL SODIUM HYDROXIDE	589045614
	275 GAL SODIUM HYDROXIDE	589045614
SAVAGE ROAD LIFT STATION - SARASOTA, FL	1,750 GAL FERROUS SULFATE	589401201

APPENDIX A

REAL PROPERTY TO BE CONVEYED TO THE GUA

Schedule "A" Lands

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL 1: BAREFOOT BAY WATER TREATMENT PLANT

Tract D of BAREFOOT BAY UNIT TWO PART ELEVEN, according to the Plat thereof, recorded in Plat Book 22, Page 116, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-10-JT-0000D.0-0000.00

PARCEL 2: LIFT STATION C

Lot 8 in Block 80 of BAREFOOT BAY UNIT TWO PART TEN, according to the Plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-10-JS-00080.0-00080.00

PARCEL 3: LIFT STATION E

Tract 39 in Block 142 of BAREFOOT BAY UNIT TWO PART TEN, according to the Plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-09-JS-00142.0-0039.0

PARCEL 4: LIFT STATION B

A portion of Government Lot 2 of Fractional Section 11, Township 30 South, Range 38 East, more particularly described as follows:

BEGINNING at a point on the West line of said Section 11, said point being South 0° 9' 34" East, 429.42 feet from the West 1/4 corner of said Section 11; running thence South 0° 09' 34" East, 56.0 feet; thence North 89° 50' 26" East, 50.0 feet; thence North 0° 09' 34" West, 56.0 feet; thence South 89° 50' 26" West, 50.0 feet to the POINT OF BEGINNING.

Folio No.30-38-11-00-00533.0-0000.00

LEGAL DESCRIPTION CONTINUED

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL 5: LIFT STATION D

Lot 14 in Block 44 of BAREFOOT BAY UNIT TWO PART TEN, according to the Plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-09-JS-00044.0-0014.00

PARCEL 6(a): BAREFOOT BAY WASTEWATER TREATMENT PLANT

That portion of Tract F in UNIT 2, PART 10, BAREFOOT BAY, according to the plat thereof, recorded in Plat Book 22, Page 105, of the Public Records of Brevard County, Florida.

BEGINNING at a point on the West line of the S.E. 1/4 of N.W. 1/4, Section 9, Township 30 South, Range 38 East; said point being N 00° 29' 39" W, 150.01 feet from the Southwest corner of the Southeast 1/4 of the Northwest 1/4 of said Section 9; running thence N 00° 29' 39" W, 975.03 feet along the West line of said Southeast 1/4 of the Northwest 1/4 of Section 9; thence S 89° 49' 31" E, 521.13 feet; thence S 00° 10' 29" W, 800.00 feet; thence S 89° 49' 31" E, 162.00 feet to the Southwest corner of Lot 1, Block 47 of the aforementioned BAREFOOT BAY; thence S 00° 10' 29" W, 175.00 feet to the Southwest corner of Lot 1, Block 50 of the aforementioned BAREFOOT BAY; thence N 89° 49' 31" W, 671.75 feet to the POINT OF BEGINNING.

LESS AND EXCEPT property described in Official Records Book 2725, Page 768 and Corrected in Official Records Book 2807, Page 793, of the Public Records of Brevard County, Florida.

LESS AND EXCEPT property described in Official Records Book 1916, Page 521, of the Public Records of Brevard County, Florida.

Folio No. 30-38-09-JS-0000F.1-0000.00

LEGAL DESCRIPTION CONTINUED

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL 6(b): WATER PLANT PARCEL

Tract G of BAREFOOT BAY UNIT TWO PART THIRTEEN, according to the Plat thereof, recorded in Plat Book 23, Page 29, of the Public Records of Brevard County, Florida; said lands situate, lying and being in Brevard County, Florida.

Folio No. 30-38-10-76-0000G.0-0000.00

PARCEL "A": 40 ACRE SPRAY FIELD

The Northeast 1/4 of the Northwest 1/4 of Section 9, Township 30 South, Range 38 East, LESS the West 40 feet thereof, Brevard County, Florida.

Folio No. 30-38-09-00-00250.0-0000.00

PARCEL "B": ORANGE GROVE (320 ACRE FIELD)

That part of the Northwest 1/4 of Section 8, Township 30 South, Range 38 East, Brevard County, Florida, lying North of the center line of the vacated San Sebastian Drainage Canal.

TOGETHER WITH:

The Northeast 1/4 of Section 8, Township 30 South, Range 38 East, Brevard County, Florida.

Folio No. 30-38-08-00-00001.0-0000.00

PARCEL "C1": ORANGE GROVE PARCEL A

The East 50 feet of the Northeast 1/4 of Section 7, Township 30 South, Range 38 East, Brevard County, Florida, lying North of the center line of the vacated San Sebastian Drainage Canal.

Folio No. 30-38-05-00-00500.0-0000.00

LEGAL DESCRIPTION CONTINUED

BREVARD — 1, 2, 3, 4, 5, 6(a), 6(b), A, B, C1, C2, C3

PARCEL "C2": ORANGE GROVE PARCEL B, PART 1

The South 50 feet of the Southwest 1/4 of Section 5, Township 30 South, Range 38 East, Brevard County, Florida.

Folio No. 30-38-05-00-00500.0-0000.00

PARCEL "C3": ORANGE GROVE PARCEL B, PART 2

The South 50 feet of the Southeast 1/4 of Section 5, Township 30 South, Range 38 East, Brevard County, Florida.

Folio No. 30-38-05-00-00758.0-0000.00

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

PARCEL 1: PUMP STATION #1

That part of Lot 31, Block 3, of CARROLLWOOD SUBDIVISION UNIT NO. 1, according to the Plat thereof, filed in Plat Book 35, Page 40, of the Public Records of Hillsborough County, Florida, described as follows:

FROM the Southeast corner of said Lot 31, run North 84° 19' 48" West along the Southerly boundary of said Lot 31, a distance of 41.00 feet to the POINT-OF-BEGINNING; from said POINT-OF-BEGINNING, run North 5° 40' 12" East a distance of 90.00 feet; run thence, North 84° 19' 48" West a distance of 29.50 feet; run thence, South 5° 40' 12" West a distance of 88.43 feet to a point on the Southerly boundary of said Lot 31; run thence, Southeasterly along said Southerly boundary of Lot 31 a distance of 29.55 feet to the POINT-OF-BEGINNING.

Folio No. 022639.0000

PARCEL 2: LIFT STATION #2

Lot 2, Block 37, of CARROLLWOOD SUBDIVISION UNIT NO. 2, according to the Plat thereof, filed in Plat Book 35, Page 54, of the Public Records of Hillsborough County, Florida, LESS AND EXCEPT the following described:

The Easterly 30.00 feet of Lot 2, Block 37, of CARROLLWOOD SUBDIVISION UNIT NO. 2, according to the Plat thereof, filed in Plat Book 35, Page 54, of the Public Records of Hillsborough County, Florida; said Easterly 30.00 feet of Lot 2 being more particularly described as that part of said Lot 2 lying East of a line parallel to and 30.00 feet West of the East boundary of said Lot 2.

Folio No. 022784.0000

PARCEL 3: EJECTOR STATION #3

Lot 1, Block 1, of CARROLLWOOD SUBDIVISION UNIT NO. 14 according to the Plat thereof, filed in Plat Book 39, Page 86, of the Public Records of Hillsborough County, Florida.

Folio No. 023131.0000

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

PARCEL 4: LIFT STATION #4

Lot 24, Block 17, of CARROLLWOOD SUBDIVISION UNIT NO. 5, according to the Plat thereof, filed in Plat Book 37, Page 62, of the Public Records of Hillsborough County, Florida.

Folio No. 022887.0000

PARCEL 5: MASTER REPUMP STATION

That part of Northerly one-half of Lots 39 and 40, of W.E. HAMNER'S HORSESHOE ACRES, according to the Plat thereof, filed in Plat Book 26, Page 39, of the Public Records of Hillsborough County, Florida, described as follows:

FROM the Northeast corner of Section 16, Township 28 South, Range 18 East, North 89° 26' 02" West 25 feet to Northeast corner of Lot 40 being Westerly Right-of-Way line of Orange Grove Drive South 01° 27' 58" West for 610.35 feet to the POINT OF BEGINNING; thence South 01° 27' 58" West for 30.76 feet; thence South 07° 30' 52" West for 13.09 feet to the South boundary of North 1/2 of Lots 39 and 40; thence North 89° 27' 42" West for 76.71 feet; thence North 00° 35' 32" East for 54.73 feet; thence North 89° 48' 52" East for 50.43 feet; thence South 67° 11' 13" East for 30.61 feet to the POINT OF BEGINNING.

Folio No. 023694.0200

PARCEL 6: WELL #1

That part of Lot 7, Block 16, of CARROLLWOOD SUBDIVISION UNIT 16, according to the Plat thereof, filed in Plat Book 39, Page 97, of the Public Records of Hillsborough County, Florida, described as follows:

A tract in the Southeast 1/4 of the Northeast 1/4 of the Northwest 1/4 of Section 15, Township 28 South, Range 18 East, Hillsborough County, Florida, described as follows:

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

FROM the Northeast corner of said Southeast 1/4 of the Northeast 1/4 of the Northwest 1/4 of Section 15, run South 0° 06' 45" East a distance of 150.0 feet; run thence, South 89° 54' 39" West a distance of 30.0 feet to the POINT-OF-BEGINNING; From said POINT-OF-BEGINNING, continue South 89° 54' 39" West a distance of 95.05 feet; run thence, North 0° 05' 21" West a distance of 120.0 feet; run thence, North 89° 54' 39" East a distance of 95.05 feet; run thence, South 0° 05' 21" East a distance of 120.0 feet to the POINT-OF-BEGINNING.

Folio No. 019551.5000

PARCEL 7: WELL #3

A tract in the Northwest 1/4 of Section 15, Township 28 South, Range 18 East, Hillsborough County, Florida, described as follows:

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

BEGINNING at the Northwest corner of Lot 29, Block 19, of CARROLLWOOD SUBDIVISION UNIT NO. 16, (Plat Book 39, Page 97), of the Public Records of Hillsborough County, Florida; run South 0° 05' 21" East along the West boundary of said Lot 29 a distance of 125.00 feet to the Southwest corner of said Lot 29; run thence, South 89° 54' 39" West, parallel to and 40.0 feet North of the South boundary of the North 1/4 of the Northwest 1/4 of said Section 15 a distance of 75.00 feet; run thence, Northwesterly along the arc of a curve which lies Southwesterly of its chord (chord, North 45° 05' 21" West 35.36 feet; radius 25.00 feet; central angle 90° 00' 00") a distance of 39.27 feet; run thence, North 0° 05' 21" West, parallel to and 100.00 feet West of the West boundary of said Lot 29, a distance of 100.00 feet; run thence, North 89° 54' 39" East a distance of 100.00 feet to the POINT-OF-BEGINNING.

A/K/A Lot 30 in Block 19 of CARROLLWOOD SUBDIVISION UNIT NO. 20, according to the Map or Plat thereof, as recorded in Plat Book 41, Page 8, per Hillsborough County Tax Rolls.

Folio No. 019624.0000

PARCEL 8a: WATER TREATMENT PLANT WELL #2, PART A

A portion of Lot 23, Block 34, of CARROLLWOOD SUBDIVISION UNIT NO. 22B, according to the Plat thereof, filed in Plat Book 43, Page 72, of the Public Records of Hillsborough County, Florida, described as follows:

FROM the Southwest corner of said Lot 23, proceed on the South boundary thereof, East a distance of 218.25 feet to the POINT-OF-BEGINNING; thence, departing from said South boundary, North a distance of 133.42 feet; thence, East a distance of 30.00 feet; thence, South a distance of 133.42 feet, to point on the South boundary of said Lot 23; thence, on said South boundary, West a distance of 30.00 feet to the POINT-OF-BEGINNING.

Folio No. 023288.1548

Parcel 8b: WATER TREATMENT PLANT WELL #2, PART B

A portion of Lot 23, Block 34, of CARROLLWOOD SUBDIVISION UNIT NO. 22B, according to the Plat thereof, filed in Plat Book 43, Page 72, of the Public Records of Hillsborough County, Florida, described as follows:

LEGAL DESCRIPTION CONTINUED

HILLSBOROUGH - 1, 2, 3, 4, 5, 6, 7 AND 8a, 8b, 8c, 8d:

COMMENCING at the Southwest corner of Lot 23, Block 34 and run East 248.25 feet; thence run, North 133.42 feet to the POINT OF BEGINNING; thence West 30.00 feet; thence North 30.00 feet; thence East 30.00 feet and South 30.00 feet to the POINT OF BEGINNING.

Folio No. 023288.1541

PARCEL 8c: WATER TREATMENT PLANT WELL #2, PART C

A portion of Lot 23, Block 34, of CARROLLWOOD SUBDIVISION UNIT NO. 22B, according to the Plat thereof, filed in Plat Book 43, Page 72, of the Public Records of Hillsborough County, Florida, described as follows:

COMMENCING at the Southwest corner of Lot 23, Block 34 and run East 248.25 feet and North 102.08 feet to the POINT OF BEGINNING; run thence North 61.34 feet; West 30.00 feet; North 18.66 feet; East 42.6 feet; South 80.00 feet and West 12.6 feet to the POINT OF BEGINNING.

Folio No. 023288.1542

PARCEL 8d: PUMP STATION #5

Lot 12, Block 28, of CARROLLWOOD SUBDIVISION UNIT NO. 21, according to the Plat thereof, filed in Plat Book 42, Page 39, of the Public Records of Hillsborough County, Florida.

Folio No. 019664.0000

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

Parcel 1a: FIESTA VILLAGE WASTEWATER TREATMENT PLANT PARCEL A

The East 22.78 of Lot 6, and all of Lot 7, Block 5, FIESTA VILLAGE FIRST ADDITION, a Subdivision, according to the Plat thereof, as recorded in Plat Book 12, Page 135; LESS right of way for San Souci Drive; all lying and being in Lee County, Florida.

Folio No. 21-45-24-02-00005.0070

PARCEL 1b: FIESTA VILLAGE WASTEWATER TREATMENT PLANT PARCEL B

The East 1/2 of the East 1/2 of the Southeast 1/4 of the Southeast 1/4 of Section 21, Township 45 South, Range 24 East, which includes:

The Southerly 22.46 feet of Lot 12, Block 1, FIESTA VILLAGE, a Subdivision, according to the Plat thereof, as recorded in Plat Book 10, Page 65.

Folio No. 21-45-24-00-00014.0010

PARCEL 2: MINERS CORNER BOOSTER STATION

All of that piece or parcel of land lying in the Northeast quarter (NE 1/4) of Section 31, Township 45 South, Range 24 East, Lee County, Florida. The said parcel being described as follows:

FROM the Northeast corner of said Section 31, run Westerly along the North line of said Section N 89° 41' 24" W for 238.87 feet to the Southeasterly right-of-way line of McGregor Boulevard (80 feet wide); thence run Southwesterly along the Southeasterly right-of-way line of McGregor Boulevard S 50° 28" W for 942.18 feet to the Easterly side of a roadway easement (35 feet East of the centerline of said easement); thence run along the East side of said roadway easement S 0° 17' 04" E for 451.96 feet to the POINT OR PLACE OF BEGINNING of the herein described parcel; from said POINT OF BEGINNING continue South along said East right-of-way line S 00° 17' 04" E 150.00 feet; thence run N 89° 42' 56" E 150.00 feet; thence run N 00° 17' 04" W 150.00 feet; thence run S 89° 42' 56" W for 150.00 feet to the POINT OF BEGINNING.

Folio No. 31-45-24-00-00007.4000

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

PARCEL 3: WATERWAY ESTATES WASTEWATER TREATMENT PLANT

A tract or parcel of land lying in Tract "B" of WATERWAY ESTATES OF FORT MYERS, UNIT 2, according the Map or Plat thereof, recorded in Plat Book 12, at Page 64, of the Public Records of Lee County, Florida, described as follows:

FROM a point of curvature on the South line of said Tract "B" which is designated as curve "K" on said Plat run N 89° 24' 20" E along said South line and along the North line of a canal for 201.00 feet to the P.O.B. of the lands herein described. From said POINT OF BEGINNING continue N 89° 24' 20" E along said South line for 186.00 feet; thence run N 0° 35' 40" W perpendicular to said South line for 263.50 feet; thence run S 89° 24' 20" W parallel with said South line for 90.00 feet; thence run S 43° 56' 40" W parallel with the Northwesterly line of said Tract "B" for 134.68 feet to an intersection with a line perpendicular to said South line of Tract "B" passing through the POINT OF BEGINNING; thence run S 0° 35' 40" E along said perpendicular line for 168.58 feet to the POINT OF BEGINNING.

Folio No. 16-44-24-03-0030B.00A0

PARCEL 4: WATERWAY ESTATES WATER TREATMENT PLANT

BEGIN at Northeast corner of Northwest One-Quarter of Section 16, Township 44 South, Range 24 East, Lee County, Florida; thence North 88° 55' 40" West a distance of 50.00 feet to the Westerly right-of-way of Orange Grove Boulevard; thence South 0° 13' 02" West along said Westerly right-of-way a distance of 905.11 feet; thence North 89° 46' 58" West a distance of 306.40 feet to the POINT OF BEGINNING; thence continue North 89° 46' 58" West a distance of 300.00 feet; thence South 0° 13' 02" West a distance of 300.00 feet; thence South 89° 46' 58" East a distance of 250.00 feet; thence South 0° 13' 02" West a distance of 100.00 feet; thence South 89° 46' 58" East a distance of 50.00 feet; thence North 00° 13' 02" East a distance of 400.00 feet to the POINT OF BEGINNING, being a part of a parcel in the Northwest One Quarter of Section 16, Township 44 South, Range 24 East, being a part of Tract G of WATERWAY ESTATES OF FORT MYERS, UNIT 2, as recorded in Plat Book No. 12, Page 67, Lee County, Florida.

TOGETHER WITH: The West 225 feet of Tract A, WATERWAY ESTATES, Block 3, Unit 1, according to the Plat thereof as recorded in Plat Book 28, Pages 87-89 inclusive of the Public Records of Lee County, Florida;

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

AND

The East 25 feet of tract A, WATERWAY ESTATES, Block 3, Unit 1, according to the Plat thereof as recorded in Plat Book 28, Page 87-89 inclusive of the Public Records of Lee County, Florida.

Folio No. 16-44-24-03-0030G.00B0

PARCEL 5: WATERWAY ESTATES LIFT STATION #1

The North 110 feet of the South 185 feet of the West 50 feet of Tract "D" as recorded in the Office of the Clerk of the Circuit Court, Lee County, Florida, in Plat Book 12, at Page 63 and Replat of Block 1 and part of Block 2, as recorded in Plat Book 17, at Page 165.

Folio No. 16-44-24-05-00-0030D.0020

PARCEL 6: ALICO ROAD WATER TANK & BOOSTER STATION

Lots 1, 2, 3, 4, 5 and 6, Block 187, UNIT 16, SAN CARLOS PARK, a Subdivision, according to the Plat thereof, as recorded in Official Records Book 50, at Page 377, in the Public Records of Lee County, Florida.

Folio No. 09-46-25-05-00187.0010

PARCEL 7: GREEN MEADOWS WATER TREATMENT PLANT

A parcel of land located in the Southwest corner of Section 33, Township 45 South, Range 26 East, Lee County, Florida, being more particularly described as the South 950.00 feet of the West 989.00 feet of Section 33, Township 45 South, Range 26 East, Lee County, Florida; the POINT OF BEGINNING.

Folio No. 33-45-26-00-00001.2000

PARCEL 8: SOUTH BEACH WATER TANK & BOOSTER STATION

A parcel of land in Government Lot 1, Section 3, Township 47 South, Range 24 East, Lee County, Florida, more particularly described as follows:

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

COMMENCE at the point of intersection of the Easterly right of way line of Estero Boulevard (S.R. No. 865) with the South line of said Government Lot 1; thence North 18° 34' 20" West for 63.00 feet to an intersection with the Northerly right of way line of Lenell Road as described in Official Records Book 849, at Page 282, of the Public Records of Lee County, Florida; thence North 89° 11' 00" East along said right of way line for 423.81 feet along said right of way line to the POINT OF BEGINNING of the herein described parcel of land; thence continue North 89° 11' 00" East along said right of way line for 150.00 feet; thence North 00° 49' 00" West for 199.53 feet; thence South 89° 11' 00" West for 150.00 feet; thence South 00° 49' 00" East for 199.53 feet to the POINT OF BEGINNING.

Folio No. 03-47-24-W1-00004.E000

PARCEL 9: COLLEGE PARKWAY WATER TREATMENT PLANT

BEGIN at the SW corner of the SE 1/4 of Section 14, Township 45 South, Range 24 East; thence North 02° 11' 15" West along the Westerly line of said SE 1/4 for 616.65 feet; thence North 89° 08' 50" East for 125 feet to the POINT OF BEGINNING; thence continue North 89° 08' 50" E for 60.01 feet; thence North 02° 11' 15" West for 436.56 feet to Southerly right-of-way of proposed 100' wide College Parkway; thence South 89° 05' 55" West along said Southerly right-of-way for 60.01 feet; thence South 02° 11' 15" East for 436.51 feet to the POINT OF BEGINNING.
AND
BEGIN at the SW corner of the SE 1/4 of Section 14, Township 45 South, Range 24 East for the POINT OF BEGINNING; thence North 89° 11' 35" East along Southerly line of said Section 14 for 633.45'; thence Northerly 01° 55' 08" West for 617.09'; thence South 89° 08' 50" West for 636.33' to the Westerly line of said Southeast quarter; thence South 02° 11' 15" East along said Westerly line of said Southeast quarter for 616.65' to the POINT OF BEGINNING.

Subject to Iona Drainage District right-of-way over the Southerly 50'.

Folio No. 14-45-24-00-00004.0110

PARCEL "F1": FT. MYERS BEACH WELL #2

A parcel of land lying and being in Lot 4, Block 8, BUSINESS CENTER, a Subdivision according to the Plat thereof, as recorded in Plat Book 9, Page 9, described as follows:

LEGAL DESCRIPTION CONTINUED

LEE — 1(a), 1(b), 2, 3, 4, 5, 6, 7, 8, 9, F1, G, I

BEGINNING at the Northwest corner of said Lot 4, where the Westerly line of said Lot 4, adjoins Lots 2 of said Block 8; thence Easterly along the rear line of said Lot 4, a distance of 7 feet; thence southwesterly perpendicular to the first line a distance of 7 feet; thence Northwesterly 7 feet to the Westerly line of said Lot 4; thence Northwesterly to the POINT OF BEGINNING; being a tract of land 7 feet square in the Northwesterly corner of said Lot 4, together with a strip of land along the Westerly side of said Lot 4 running from Estero Boulevard to the rear of such lot for a width of 2 feet along the line common to Lots 2 and 3 where the same adjoins said Lot 4, Lee County, Florida.

Folio No. 24-46-23-W3-00208.004A

PARCEL "G": CAPE CORAL WATER TREATMENT PLANT & WELLS

All of Block 2088, Unit 31, CAPE CORAL SUBDIVISION, according to the Plat thereof, recorded in Plat Book 14, Page 149, of the Public Records of Lee County, Florida.

Folio No. 06-44-24-C2-02088.0000

PARCEL "I": NORTH BEACH BOOSTER STATION

Lots 40 and 41, Block A, Unit No. 2 ISLAND SHORES, a Subdivision, according to the Plat thereof as recorded in Plat Book 9, Page 25, Public Records of Lee County, Florida; LESS AND EXCEPT all portions of said Lots 40 and 41 lying Northwest of a line described as follows: Commence at a point of intersection between the Northwestern right-of-way boundary of Lagoon Street and the Northeastern right-of-way boundary of Estero Boulevard as depicted on the Plat recorded at Plat Book 9, Page 25, Public Records of Lee County, Florida; said point also being the Southern corner of Lot 41 as depicted on said Plat. Thence Northwest along said Northeasterly right-of-way boundary of Estero Boulevard, 60 feet to the POINT OF BEGINNING. Thence Northeasterly along the boundary line between Lots 41 and 42 as depicted on said Plat to a Point where said boundary line between Lots 41 and 42 as depicted on said Plat bears in a Northerly direction. Thence from said Point along the same bearing as the boundary line lying Southwest of said Point, across portions of Lots 41 and 40, to a point where such line with the same bearing as the Southwestern portion of the boundary line between Lots 41 and 42 intersects with the southern boundary of the canal depicted on said Plat.

Folio No. 24-46-23-WS-0050A.0400

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

COLLIER — 1, 2, 3, 4

PARCEL 1: GREEN BLVD. WATER TANK & BOOSTER STATION

Tract 1, GOLDEN GATE ESTATES, UNIT 26, a Subdivision, according to the Map or Plat thereof on file and recorded in the Office of the Clerk of the Circuit Court, recorded in Plat Book 7, Pages 15 and 16, Public Records of Collier County, Florida; LESS AND EXCEPT that parcel of land conveyed to South Florida Management District described in Quit Claim Deed recorded in Official Records Book 1604, Page 800.

Folio No. 37920040003

PARCEL 2: GOLDEN GATE WASTEWATER TREATMENT PLANT

All of Blocks 255, 257 and lots 1 through 8 inclusive of Block 258, Unit 7, GOLDEN GATE, a subdivision, according to the Map or Plat thereof on file and recorded in the Office of the Clerk of the Circuit Court, recorded in Plat Book 5, Page 135, in the Public Records of Collier County, Florida.

Folio No. 36450440006

PARCEL 3: GOLDEN GATE WATER TREATMENT PLANT

A parcel of land in Collier County, Florida, more particularly described as follows and being a part of the Plat of Tract A of GOLDEN GATE UNIT 8, PART 2, as recorded in Plat Book 9, Page 111, of the Public Records of Collier County, Florida, more particularly described as follows:

COMMENCING at the Northwest corner of Tract A; thence running South a distance of 649.27 feet along the West boundary of said Tract A; thence running East 336.31 feet to a point, said point being also described as the POINT OF BEGINNING; thence run North 89° 54' 21" East, a distance of 333.15 feet to a point; thence run North 0° 09' 03" East a distance of 75.04 feet to a point; thence run North 23° 43' 43" East a distance of 104.18 feet to a point; thence run North 47° 07' 42" West a distance of 196.55 feet to a point; thence run South 89° 44' 56" West a distance of 184.50 feet to a point; thence run South 50° 09' 46" West a distance of 4.20 feet to a point; thence run South 11° 04' 09" West a distance of 113.36 feet to a point; thence run South 3° 45' 30" West a distance of 183.92 feet to the POINT OF BEGINNING.

Folio No. 36560120009

LEGAL DESCRIPTION CONTINUED

COLLIER — 1, 2, 3, 4

PARCEL 4: LIFT STATION #5

The South 35 feet of the West 35 feet of Lot 1, Block 59, UNIT 2, GOLDEN GATE SUBDIVISION, according to the Map or Plat thereof on file and recorded in the Office of the Clerk the Circuit Court, recorded in Plat Book 5, Pages 65 thru 77, in the Public Records of Collier County, Florida.

Folio No. 35774000000

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

PARCEL 1: WASTEWATER POND FOR WASTEWATER TREATMENT PLANT #1

The South 935.00 feet of the East 935.00 feet of the NW 1/4 of the NE 1/4 of Section 10, Township 26 South, Range 28 East, Osceola County, Florida. BEGIN at the Southwest corner of the NE 1/4 of said Section 10, also being the Southeast corner of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, as shown on the Plat thereof, recorded in Plat Book 3, at Page 240, Public Records of Osceola County, Florida; thence N 89° 55' 55" W, along the South line of the North half of the NE 1/4 of said Section 10 for a distance of 935.01 feet; thence N 0° 13' 10" E, along a line 935.00 feet West of as measured at right angles to and parallel with the west line of the NE 1/4 of the NE 1/4 of said Section 10, for a distance of 935.01 feet; thence South 89° 59' 55" E, along a line 935.00 feet North of as measured at rights angles to and parallel with the South line of the N 1/2 of the NE 1/4 of said Section 10, for a distance of 935.01 feet to a point on the West line of said Plat of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C; thence S 0° 13' 10" W, along the West line of said Plat of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, for a distance of 935.01 feet to the POINT OF BEGINNING.

TOGETHER WITH a perpetual, non-exclusive easement for ingress, egress, drainage and utilities over, under, upon, and across the following described property:

A one hundred foot (100') strip easement for ingress and egress situate in Tract "J" and Tract "W" of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, as recorded in Plat Book 3, Page 240, of the Public Records of Osceola County, Florida, all lying within Section 10, Township 26 South, Range 28 East, more particularly described as follows:

COMMENCE at the NW corner of the NE 1/4 of the NE 1/4 of said Section 10; thence S 00° 13' 10" W, 469.76 feet along the West line of the said NE 1/4 of the NE 1/4 of Section 10, said line also being the West line of said Tract "J", said point also being the POINT OF BEGINNING; thence N 90° 00' 00" E, 529.29 feet along a line parallel with and fifty feet (50') North of the South line of said Tract "J"; thence N 49° 36' 26" E, 55.42 feet along a non-radial line to a point on curve; said curve being the Southerly and Westerly Right-of-Way arc of Avenue "A" (a 120' R/W as shown on said Plat; thence 100.97 feet Southeasterly along the said Right-of-Way arc of a curve concave to the Northeast and having a radius of 210.00 feet and a central angle of 27° 32' 54", to a point on curve; thence S 49° 36' 26" W, 92.20 feet along a non-radial line; thence S 90° 00' 00" W, 566.45 feet along a line fifty feet (50') South of and parallel with the said South line of Tract "J", said described line lying within said Tract "W", to a point on the said West line of the NE 1/4 of the NE 1/4 of Section 10; thence N 00° 13' 10" E, 100.00 feet along the last said described West line to the POINT OF BEGINNING.

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

AND TOGETHER WITH an exclusive irrevocable easement for discharging treated water in, over, under, upon and across the following described property, as granted by agreement recorded in Official Records Book 763, Page 2435, Public Records of Osceola County, Florida.

The West 1/2 of the Northwest 1/4 of the Northeast 1/4 of Section 10, Township 26 South, Range 28 East and the North 1/2 of the Northwest 1/4 of Section 10, Township 26 South, Range 28 East.

Folio No. 10-26-28-0000-0015-0000

PARCEL 2: WATER TREATMENT PLANT #1

A portion of Section 3, Township 26 South, Range 28 East, Osceola County, Florida, also being a portion of Tract "E" of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION A, as recorded in Plat Book 3, Pages 208 thru 210, of the Public Records of Osceola County, Florida, more particularly described as follows:

COMMENCE at the Southwest corner of the East 1/2 of the Northeast 1/4 of said Section 3; thence S 00° 10' 12" E, 465.79 feet along the Easterly boundary of Tract "G", said line also being a portion of the Westerly boundary of Tract "D", to a point on the centerline of Industrial Lane (a 120' Right of Way) as shown on said Plat; thence N 89° 49' 48" E, 1114.00 feet along the said centerline of Industrial Lane; thence N 00° 10' 12" W, 60.00 feet to a point on the said Northerly Right of Way of Industrial Lane, said point also being on the Southerly boundary of Tract "E"; thence N 00° 00'00" E, 344.14 feet along a line coincident with the East line of a 35' Railroad and Drainage Easement of Tract "E" and the West line of a 20' utility easement of Tract "E", as shown on said Plat to the POINT OF BEGINNING; thence continuing N 00° 00' 00" E, 130.00 feet along the said East line of the 35' RailRoad and Drainage Easement; thence N 90° 00' 00" E, 100.00 feet; thence S 00° 00' 00" W, 130.00 feet; thence S 90° 00' 00" W, 100.00 feet to a point on the said line coincident with the East line of the 35' Railroad and Drainage Easement and the West line of the 20' utility easement, said point also being the POINT OF BEGINNING.

TOGETHER WITH a perpetual, non-exclusive easement for ingress, egress, drainage and utilities over, under, upon and across the following described property:

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

That certain 20 foot easement extending from the Northerly right of way line of Industrial Lane, a/k/a Robert McLane Drive, to the Southerly boundary of Parcel 2, which easement is shown on recorded Plat for Tract "E", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION A, as recorded in Plat Book 3, Pages 208 thru 210, of the Public Records of Osceola County, Florida.

Folio No. 25-26-28-6180-000E-001A

PARCEL 3: WATER TREATMENT PLANT #1 STORAGE TANK

Tract "H", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, according to the Plat thereof, recorded in Plat Book 3, Pages 239 to 242, inclusive, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6184-000H-0010

PARCEL 4: LAND FOR LIFT STATION OR WELL SITE

Tract "X", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, according the Plat thereof, recorded in Plat Book 3, Pages 239 to 242, inclusive, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6184-000X-0010

PARCEL 5: WASTEWATER TREATMENT PLANT #1

Tract "G", POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION A, according to the Plat thereof, recorded in Plat Book 3, Pages 208 through 210, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6180-000G-0010

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

PARCEL 6: WATER TREATMENT PLANT #2

All of Tract "P", POINCIANA NEIGHBORHOOD I, VILLAGE 2, according to the Plat thereof, recorded in Plat Book 3, Pages 69 through 87, Public Records of Osceola County, Florida.

Folio No. 25-26-28-6100-000P-0010

PARCEL 7: WASTEWATER TREATMENT PLANT #3

Tract "G" of POINCIANA NEIGHBORHOOD I, VILLAGE 3, according to the Plat thereof, recorded in Plat Book 52, Page 8, Public Records of Polk County, Florida.

Folio No. 13-27-28-933480-020002

PARCEL 8: WATER TREATMENT PLANT #3

Tract "L" of a REPLAT OF A PORTION OF POINCIANA NEIGHBORHOOD I, VILLAGE 3, according to the Plat thereof, recorded in Plat Book 58, Page 31, Public Records of Polk County, Florida.

Folio No. 13-27-28-933490-062003

PARCEL 9: WATER TREATMENT PLANT #5

A portion of Tract "G" of POINCIANA NEIGHBORHOOD 5, VILLAGE 7, according to the Plat thereof, recorded in Plat Book 53, Page 19, more particularly described as follows: BEGIN at the Northwest corner of the aforementioned Tract "G", thence run S 50° 43' 36" East along the Southwesterly right of way line of Hemlock Avenue a distance of 187.81 feet to a point of curve, thence with the arc of a curve to the right, having for its elements, a radius of 2900.00 feet, a central angle of 05° 43' 06", a distance of 289.43 feet to a point on curve, thence departing said curve and Southwesterly right of line, run South a distance of 385.16 feet, thence run West a distance of 400.00 feet to a point on the West line of the aforedescribed Tract "G", thence run North along said West line of Tract "G" a distance of 645.00 feet to the POINT OF BEGINNING.

Folio No. 03-28-28-934760-086020

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

PARCEL 10: WASTEWATER TREATMENT PLANT #5

Tract "A" of POINCIANA NEIGHBORHOOD 2, VILLAGE 8, according to the Plat thereof, recorded in Plat Book 53, Page 29, Public Records of Polk County, Florida.

Folio No. 10-28-28-935240-00003

PARCEL 11: WASTEWATER TREATMENT PLANT #2

A portion of Section 10, Township 27 South, Range 28 East, Osceola County, Florida, also being a portion of Tract A, MULTIFAMILY AND COMMERCIAL OF POINCIANA NEIGHBORHOOD 5 EAST, /ILLAGE 2, as recorded in Plat Book 3, at Page 134, of the Public Records of Osceola County, Florida, more particularly described as follows:

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

COMMENCE at the most Westerly corner of Tract B, RETENTION AREA R-2, as shown on said Plat and also being on the Westerly boundary of said Plat; thence N 15° 12' 01" W, along said Westerly boundary, for a distance of 438.78 feet to a point of curvature of a curve concave to the East having a radius of 4425.00 feet; thence Northwesterly, along said Westerly boundary and the arc of said curve thru a central angle of 06° 35' 53", for a distance of 509.58 feet to the POINT OF BEGINNING, said point bears S 81° 23' 52" W from the radius point of said curve; thence continuing Northwesterly, along said Westerly boundary and the arc of said curve thru a central angle of 05° 11' 08", for a distance of 400.48 feet to a point of tangency; thence N 03° 25' 00" W, along said Westerly boundary for a distance of 611.94 feet to a point of curvature of a curve concave to the West having a radius of 5075.00 feet; thence Northwesterly, along said Westerly boundary and the arc of said curve thru a central angle of 01° 16' 34", for a distance of 113.03 feet to a point of reverse curvature with a curve concave to the Southeast having a radius of 25.00 feet; thence Northeasterly, along the arc of said curve through a central angle of 23° 41' 53", for a distance of 10.34 feet to a point that bears N 82° 00' 00" E, for a distance of 1273.51 feet; thence S 08° 00' 00" E, for a distance of 805.48 feet; thence S 61° 10' 33" W, for a distance of 754.37 feet to a point of curvature of a curve concave to the Northwest having a radius of 850.00 feet; thence Southwesterly, along the arc of said curve thru a central angle of 20° 13' 42", for a distance of 300.09 feet to a point of tangency; thence S 81° 24' 15" W, for a distance of 348.38 feet to the POINT OF BEGINNING.

Folio No. 25-26-28-6136-000A-0020

PARCEL 12: WATER TREATMENT PLANT #4

COMMENCE at the Northeast corner of Lot 10, Unit I, Phase I, THE WILDERNESS, as recorded in Plat Book 4, Page 144, Public Records of Osceola County, Florida, run S 00° 16' 48" E 675.00 feet along the East line of said parcel; thence N 89° 56' 04" E 100.00 feet to the POINT OF BEGINNING; thence continue N 89° 56' 04" E, 200.00 feet; thence N 00° 16' 29" W 250.00 feet; thence S 89° 56' 04" W 200 feet; thence S 00° 16' 29" E 250 feet to the POINT OF BEGINNING also described as Tract "C", Unit II, Phase I, THE WILDERNESS, as recorded in Plat Book 4, Page 153, Public Records of Osceola County, Florida.

LEGAL DESCRIPTION CONTINUED

OSCEOLA — 1, 2, 3, 4, 5, 6, 11, 12
POLK — 7, 8, 9, 10

TOGETHER WITH all wells, casings, pumps, pipes, valves, tanks, electrical equipment, chlorinators, filters and all other fixtures and equipment located and/or used on said property in operation and maintenance of the water plant located thereon, and

LESS AND EXCEPT THE FOLLOWING DESCRIBED PARCEL:

BEGIN at the Northwest corner of Tract "C", THE WILDERNESS, UNIT II, PHASE I, as recorded in Plat Book 4, Page 153, of the Public Records of Osceola County, Florida; run North 89° 56' 23" East along the North line of said Tract "C", a distance of 58.05 feet to a point; thence run South 44° 52' 41" West, a distance of 16.95 feet to a point; thence run South 89° 56' 23" West, a distance of 46.03 feet to a point on the West line of said Tract "C"; thence run North 00° 16' 29" West along the West line of said Tract "C", a distance of 12.00 feet to the POINT OF BEGINNING.

Subject to easements, rights of way and restrictions of record, if any.

PLUS AN INGRESS AND EGRESS EASEMENT OVER THE FOLLOWING PROPERTY:

BEGIN at the Northwest corner of Tract "A", THE WILDERNESS, UNIT II, PHASE I, as recorded in Plat Book 4, Page 153, of the Public Records of Osceola County, Florida; said point being on the South Right of Way line of Hawkin Drive; thence run South 00° 16' 29" East along the West line of said Tract "A", a distance of 525.89 feet to a point; thence run North 89° 43' 31" East, a distance of 100.00 feet to a point on the West line of Tract "C", THE WILDERNESS UNIT II, PHASE I, as recorded in Plat Book 4, Page 153, of the Public Records of Osceola County, Florida; thence run North 00° 16' 29" West along the West line of said Tract "C", a distance of 48.18 feet to a point; thence departing the West line of said Tract "C", run North 49° 59' 53" West, a distance of 78.64 feet to a point; thence run North 00° 16' 29" West, a distance of 426.87 feet to a point on the South right of way line of Hawkin Drive; thence run South 89° 43' 31" West along the South Right of Way line of Hawkin Drive, a distance of 40.00 feet to the POINT OF BEGINNING.

Folio No. R052729-5493-0001-00C1

(END OF LEGAL DESCRIPTION)

L A W Y E R S T I T L E
I N S U R A N C E C O R P O R A T I O N

N A T I O N A L H E A D Q U A R T E R S
R I C H M O N D, V I R G I N I A

Schedule "A" Lands

SARASOTA — 1, 2, 3(a), 3(b), 3(c)

PARCEL 1: SHADOW LAKES FORMER WATER TREATMENT PLANT

Lot 33A of SHADOW LAKES, as per Plat thereof, as recorded in Plat Book 10, at Pages 67 and 67A, of the Public Records of Sarasota County, Florida.

Folio No. 0101-09-00005

PARCEL 2: SOUTHGATE WASTEWATER TREATMENT PLANT

COMMENCING at the Northwest corner of the Northeast one-quarter of Section 3, Township 36 South, Range 18 East, Sarasota County, Florida; run thence Southerly along the West line of said Northeast one-quarter a distance of 24.00 feet to the Southerly Right-of-Way line of Hyde Park Street for the POINT OF BEGINNING; run thence Easterly along said Southerly Right-of-Way line a distance of 400.00 feet to a point; run thence Southerly and parallel to the Westerly line of said Northeast one-quarter a distance of 226.00 feet to a point; run thence Westerly and parallel to the Southerly Right-of-Way line of Hyde Park Street, a distance of 400.00 feet to said Westerly line of said Northeast one-quarter; run thence Northerly along said Westerly line of said Northeast one-quarter a distance of 226.00 feet to the POINT OF BEGINNING, and lying in the Northerly part of Tracts 93 and 94, Block 1 of a recorded Plat entitled RESUBDIVISION OF A PART OF HYDE PARK CITRUS SUBDIVISION, as recorded in Plat Book 3, at Page 86, of the Public Records of Sarasota County, Florida, all lying and being in the Northeast one-quarter of Section 33, Township 36 South, Range 18 East, Sarasota County, Florida.

LESS PARCELS NO. 1 AND 2 AS SHOWN ON DEED RECORDED IN OFFICIAL RECORDS BOOK 726, PAGE 177 DESCRIBED AS FOLLOWS:

PARCEL NO. 1: A portion of Lot 94, Block 1, RESUBDIVISION OF A PART OF HYDE PARK CITRUS SUBDIVISION, Section 33, Township 36 South, Range 18 East, as per Plat thereof, as recorded in Plat Book 3, Page 86, Public Records of Sarasota County, and being more particularly described as follows:

COMMENCE at the NW corner of the NE 1/4 of Section 33, Township 36 South, Range 18 East, Sarasota County, Florida; thence South 89° 55' East along the North line of said NE 1/4 of Section 33, 400 feet; thence South 0° 04' 07" West and parallel with the West line of said NE 1/4 of Section 33, 24 feet for a POINT OF BEGINNING, said point also on the Southerly Right-of-Way of Hyde Park Street; thence continue South 0° 04' 07" West, 126 feet; thence North 16° 37' 50" West 52.20 feet; thence North 0° 04' 07" East, 76 feet to the Southerly Right-of-Way of the aforementioned Hyde Park Street; thence South 89° 55' East, 15 feet to the POINT OF BEGINNING.

LEGAL DESCRIPTION CONTINUED

SARASOTA — 1, 2, 3(a), 3(b), 3(c)

PARCEL NO. 2: A portion of Lot 93, Block 1, RESUBDIVISION OF A PART OF HYDE PARK CITRUS SUBDIVISION, Section 33, Township 36 South, Range 18 East, as per Plat thereof, as recorded in Plat Book 3, Page 86, Public Records of Sarasota County, Florida, and being more particularly described as follows:

COMMENCE at the NW corner of the NE 1/4 of Section 33, Township 36 South, Range 18 East, Sarasota County, Florida; thence South 0° 04' 07" West, along the West line of said NE 1/4 of Section 33, 218 feet for a POINT OF BEGINNING; thence South 87° 04' 28" East, 100.83 feet; thence South 68° 37' 49" East, 74.37 feet; thence North 89° 55' West, and parallel with the North line of said NE 1/4 of Section 33, 170 feet to the West line of said NE 1/4 of Section 33; thence North 0° 04'07" East along the West line of said NE 1/4 of Section 33, 32 feet to the POINT OF BEGINNING.

Folio No. 0058-02-0030

PARCEL 3a: GULFGATE WASTEWATER TREATMENT PLANT

COMMENCING at the Southeast corner of the Northwest 1/4 of the Northeast 1/4 of Section 21, Township 37 South, Range 18 East; thence run North 89° 16' 13" West, along the South line of said Northwest 1/4 of Northeast 1/4 863.44 feet for POINT OF BEGINNING; thence continue North 89° 16' 03" West 400.00 feet; thence North 0° 45' 57" East 280.00 feet; thence South 89° 16' 03" East 315 feet; thence South 33° 29' 00" East 151.16 feet; thence South 0° 43' 57" West 155.00 feet to the POINT OF BEGINNING; being a portion of the Northwest 1/4 of Northeast 1/4 of Section 21, Township 37 South, Range 18 East, recorded in the Public Records of Sarasota County, Florida.

Folio No. 0111-07-0018

PARCEL 3b: LIFT STATION

The Northerly 30 feet of the Easterly 15 feet of Lot 10, Block "K", COLONIAL TERRACE UNIT NO. 2, recorded in Plat Book 7, Page 49, of the Public Records of Sarasota County, Florida.

Folio No. 0101-12-0052

APPENDIX B

EASEMENT INTERESTS TO BE CONVEYED TO THE GUA

LEGAL DESCRIPTION CONTINUED

PARCEL 3c: LAND FOR WATER MAIN

The Southerly 13 feet of the Westerly 11.5 feet of Lot 338, Unit #5, PHILLIPPI GARDENS SUBDIVISION, as recorded in Plat Book 11, Page 26, of the Public Records of Sarasota County, Florida.

Folio No. 0086-15-0071

(END OF LEGAL DESCRIPTION)

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers	Lee	Stardial Investments Company	2424	3331
		Beachwalk Village, Ltd	2430	1488
		Golfview Golf & Racquet Club Comm. Assn.	2029	1400
		Lake Lawn Condominium Assn.	2437	1811
		Healthpark Medical Plaza One Assoc., Ltd.	2448	3223
		Healthpark Medical Plaza One Assoc., Ltd.	2448	3232
		Lee Health Ventures, Inc.	2448	3241
		Florida Coca-Cola Bottling Company	2500	0371
		Alico Forty-One Associates, Ltd.	2374	3170
		Candler Eastwyck Corp.	2450	0071
		Alico Forty-One Associates, Ltd.	2450	0082
		Alico Forty-One Associates, Ltd.	2463	2481
		San Carlos-Alico, Ltd.	2564	2551
		Polos at Fort Myers	2214	3524
		Polos at Fort Myers	2214	3518
		NCR of North Fort Myers Inc.	2380	0550
		SumCarlos Limited Partnership	2551	0212
		Hibiscus Pointe Condominium Assn, Inc.	2522	1252
		Stardial Investments Company	2522	1264
		SCTBOP, Inc.	2566	0550
		Albertson's, Inc. and The Sumcarlos	2566	0761
		Myerlee Development Company	2497	0185
		Myerlee Development Company	2497	0178
		Myerlee Development Company	2497	0171
		Temple Beth-El	2520	1846
		Hibiscus Pointe Condominium	2579	2473
		Stardial Investments, Company	2522	1270
		Lee County School Board	2497	3541
		Lee County School Board	2497	3548
		Golfview Development Company of Lee Co.,Inc.	2600	3907
		County of Lee	2316	4546
		County of Lee	2316	0204
		Summerlin Pointe Partnership	2634	0235
		Captain's Bay, Inc.	2618	2099
		Cypress Lake Presbyterian Church	2636	2457
		Summerlin Pointe Development Properties Ptnrship	2629	2170
		Summerlin Pointe Development Properties Ptnrship	2629	2163
		Iona Venture Corporation	2611	0788
		Cypress Lake Country Club	2577	0909
		Cypress Lake Country Club	2577	0918
		Airportels, Inc.	2629	1736

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Summerlin Pointe Development Properties Ptnrship	2587	4129
		DOH Services, Inc.	2584	3592
		DOH Services, Inc.	2584	3571
		Terry W. Stiles	2585	2942
		DOH Services, Inc.	2584	3576
		DOH Services, Inc.	2584	3583
		Worthington Communities, Inc.	2659	2909
		&	2661	0423
		Worthington Communities, Inc.	2659	2917
		&	2661	0440
		Worthington Communities, Inc.	2659	2884
		&	2661	0348
		Worthington Communities, Inc.	2659	2894
		&	2661	0378
		Worthington Communities, Inc.	2659	2899
		&	2661	0393
		Worthington Communities, Inc.	2659	2904
		&	2661	0408
		Worthington Communities, Inc.	2659	2884
		&	2661	0348
		Worthington Communities, Inc.	2659	2899
		&	2661	0393
		Worthington Communities, Inc.	2659	2904
		&	2661	0408
		Worthington Communities, Inc.	2659	2889
		&	2661	0363
		Richard G. Couch, Trustee	2668	0428
		McGregor Boulevard Center, Ltd.	2669	3647
		Ping Lee & Jock Lee	2672	1677
		John J.Nevins As Bishop of Diocese of Venice	2611	0434
		Gerald F. Sleeter, Trustee	2641	2279
		Sam Galloway, Jr.	2682	3590
		Lee Healthcare Resources	2709	2843
		Florida Design Communities	2659	2499
		HHGGPX, Inc.	2716	4089
		James Figuerado	2721	0709
		USA Asset Holding, Inc.	2705	3927
		Parker Fort Myers, Inc.	2688	2949
		Parker Fort Myers, Inc.	2688	2962
		Summerlin Pointe Development Properties Ptnrship	2763	2017
		William D. Whitaker	2755	2834
		Iona Venture Corporation	2611	0788
		Pocahontas Corporation	2773	2929

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Victoria Cove Development Corp.	2727	2499
		Victoria Cove Development Corp.	2727	2492
		Victoria Cove Development Corp.	2727	2513
		Victoria Cove Developmetn Corp.	2727	2506
		Parker Lakeside, Inc.	2765	2929
		&	2771	2822
		Parker Lakeside, Inc.	2765	2920
		&	2771	2831
		T-N-T Development, Inc.	2754	3650
		T-N-T Development, Inc.	2751	3571
		Edisto Group, Ltd.	2738	0069
		&	2754	2088
		Cypress Lake Country Club Villas, Inc.	2825	3933
		Cypress Lake Country Club Villas, Inc.	2825	3943
		Lee County School Board	2753	3817
		&	2799	0152
		Lee County School Board	2747	1088
		Lee County School Board	2791	0081
		&	2799	0160
		Lee County School Board	2747	1088
		Chevron USA Inc.	2772	1545
		Chevron USA Inc.	2772	1554
		Chevron USA Inc.	2772	1536
		Chevron USA Inc.	2805	3186
		Florida Design Communities	2769	2583
		Casa Bay Marina Development	2776	0554
		Lee County School Board	2753	3817
		Caloosa Bayview Condominium Phase B Assn	2796	3199
		Manuel U. Cox Sr & Brenda G. Cox	2793	3583
		CNL Retail Development, Inc.	2842	0568
		CNL Retail Development, Inc.	2842	0575
		Bert L. Jenks	2859	1260
		Larry W. Noughton	2844	3017
		Majik West, Inc.	2849	2837
		Jackson Downs, L.P.d/b/a Jackson Downs, Ltd.	2849	2855
		&	2852	1581
		Majik West, Inc.	2849	2828
		Jackson Downs, L.P. d/b/a Jackson Downs, Ltd.	2849	2846
		&	2852	1593
		Pulte Home Corporation	2991	3024
		Florida Design Communities, Inc.	2565	3737
		Sterling House Corporation	2885	3280
		Q.J.R. Partnership	2865	0308
		Sterling House Corporation	2885	3275
		Lee Memorial Hospital d/b/a Lee Healthcare	3053	2077

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Admiral's Bay, Inc.	2258	4272
		Michael A. & Fay A. Allen	1983	3742
		Jack W. Hassall	1737	4374
		Jaime S. Carrion	1460	1667
		Bradley Associates	2389	2232
		St. George Packing Co., Inc. et al	2278	1146
		JJT Development Corp	2205	2770
		The Boardwalk Caper	2205	??78
		A&W Development Corp.	No recordation shown (1/23/89)	
		(J.Carl McDonald, Jr.to A&W Development,Inc.) (Warranty Deed; Easement defined therein)	1857	3092
		Ben C. Collier	1278	0149
		William E.Whitley & James R.Chitwood	1097	1535
		W. K. Smith	1400	1240
		Anen, Inc. et al	1416	0596
		Caloosa Bayview Corporation	1056	0698
		Edison Community College	1605	0589
		Canterbury School Corporation	2236	1602
		Canterbury School Corporation	2416	0346
		Robert G. O'Connor	1963	2923
		F.M. 15 Ltd.	2272	3818
		Sunset Lakes, Ltd.	2272	3808
		Sunset Lakes, Ltd.	2272	3812
		F.M. 60 Ltd.	2272	3824
		Cassilly Realty	1413	1875
		Central Park South, Inc.	1665	2822
		Central Park South, Inc.	1689	3678
		Central Park South, Inc.	1689	3683
		Diocese of Venice	2228	4335
		U.S. Home Corporation	1755	1480
		U.S. Home Corporation	1641	0383
		U.S. Home Corporation	1889	3977
		The Club at Crystal Lake (Condominium Docs)	1725	2310
		Barnett Bank of Fort Myers, N.A.	1112	1759
		Daniel W. Dodrill	2204	2783
		Florida/Ft. Myers, Ltd.	1703	2664
		Fort Myers Hotel Partnership	1880	4727
		Bunche Beach Road Group	1880	4746
		Bunche Beach and 869 Partnership I	1880	4762
		U.S. Home Corporation	1683	3013
		U.S. Home Corporation	1683	3018
		U.S. Home Corporation	1755	1492
		U.S. Home Corporation	1755	1486
		Marvin J. Nelson	1710	1460

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Povia-Ballantine Corp.	1644	1800
		Sound Builders of Lee County, Inc.	1760	2078
		Schlageter-Naumann Company	1738	4227
		Schlageter-Naumann Company (Condo Declaration)	1585	0338
		Schlageter-Naumann Company	1738	4227
		N&G Investments, Inc.	1589	2271
		Chiquita Development Corporation	1920	0240
		Cypress Enclave Corp. et al	2184	4519
		Cypress Lakes Associates, et al	1919	2859
		Cypress Lakes Associates, et al	1919	2867
		Cypress Lake United Methodist Church, Inc.	2215	3068
		Mariner Properties, Inc.	1841	1849
		Cypress Corner, Ltd.	1261	1820
		The Board of Public Instruction of Lee County	0402	0682
		Outer Island Dev. of FLA., Inc.	No recordation shown (11/18/85)	
		Outer Island Development of Florida, Inc.	1688	4582
		Outer Island Dev. of FLA., Inc.	1585	0156
		McGregor Boulevard Center, Ltd.	2024	0815
		McGregor Boulevard Center, Ltd.	2024	0809
		Richmond Hidden Gardens Condo Assn	1841	1073
		The District Board of Trustees of Edison Comm	1776	2962
		Rutenberg/Gnagey, Ltd.	No recordation shown (8/5/86)	
		First Independence Bank of Florida, Inc.	No recordation shown (2/13/91)	
		The Forest Country Club, Inc.	2263	1833
		Cathy C. Warren & Walter L. Johnson	1852	3972
		Forest Joint Venture	1887	3823
		Forest Villas Development, Inc.	1971	0098
		Forest Village Condo/Legal description only	1608	2337
		Full Service Storage Corp.	No recordation shown (9/18/87)	
		Full Service Storage Corp.	2024	0831
		The Forest Joint Venture	1661	2559
		Joseph & Ida M. Baum	0344	0015
		YANA Foundation, Inc.	2393	0826
		Fish Tale Marina, Inc.	2145	2745
		RZD, Inc.	1859	0999
		Florida Coastal Developers, Inc.	2201	3389
		The Alfes Corporation	1759	1552
		Gulf Coastal Joint Venture	1820	4682
		The School District of Lee County	2421	2874

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	The School District of Lee County	2421	2900
		The School District of Lee County	2421	2887
		Caloosahatchee Hotel Associates	1759	1558
		Caloosahatchee Hotel Associates	1759	1571
		Lee Health Ventures, Inc.	2294	1384
		Lee Health Ventures, Inc.	2294	1376
		Richmond Hidden Gardens Condominium Assn.	1841	1073
		Richard J. Winkel, Jr., Trustee	1882	4534
		John Fowler Resorts	1701	0835
		Gerald J. Fleisher	2158	2417
		Iona Lakes, Ltd.	2075	2125
		Iona Pointe Shopping Center, Ltd.	1752	0746
		Florida Resort Properties	1833	2486
		John Scanlon	2346	0679
		Legal Description only	2183	2601
		Kelly Green Development Corporation	2014	3711
		Kelly Green Development Corporation	2014	3707
		Kelly Green Development Corporation	2014	3703
		Kelly Green Development Corporation	1972	3935
		Kenwood Inc.	1269	0759
		William E. Whitley & James R. Chitwood	1097	1535
		Legal Description only	1675	2677
		Lakewood at Cypress Lake, Inc.	1841	1077
		Lakewood at Cypress Lake, Inc.	1841	1080
		Lakewood at Cypress Lake, Inc.	1746	2958
		College Parkway Trust	1414	2177
		Lee County Industrial Park	1829	0687
		Condominium Docs - Linden Place	1792	1909
		Marshwood Subdivision Survey Plat	1413	1890
		Pulte-Strang of Florida, Inc.	0307	0858
		Pulte-Strang of Florida, Inc.	0307	0861
		Pulte-Strang of Florida, Inc.	0388	0559
		Martinique Partnership	1483	2068
		Gene Bartholomew	1483	2073
		LeRoy Miner	1261	1818
		L & M Development Corp.	1686	1953
		Lee County School Board	1678	1131
		L & M Development Corp.	1641	1142
		L & M Development Corp.	1071	1969
		Guy Memoli	1402	0852
		Mariner Properties, Inc.	2024	0840
		First Commercial Bank	1743	1554
		Central Park South, Inc.	1665	2822
		Lee County School Board	1655	3612
		The Landings, Ltd.	1743	1548

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers (cont'd)	Lee	The Landings, Ltd.	1766	4342
		John D. & Jane Johnson	1728	3411
		Parkway North Apartments, Ltd.	1778	1361
		Parkway North Apartments	1778	1378
		James M. Kraemer, Trustee	1467	0530
		James M. Kraemer, Trustee	1467	0535
		Orestes N. & Alexandra Karousatos	2176	0891
		Peppertree Joint Venture, James M. Kraemer	1859	3448
		Lakewood at Cypress Lake, Inc.	1489	1193
		U.S. Home of Florida, Inc.	1035	0442
		L & N Consultants, Inc.	1843	2396
		L & N Consultants, Inc.	1843	2401
		Publix Super Markets, Inc.	1261	1824
		Regal Property Development Corp.	1854	2042
		Regal Property Development Corp.	1848	0831
		North American Mortgage Investors	1529	1471
		John D. & Jane Johnson	1728	3411
		Leisure Technology of Florida, Inc.	1780	3899
		Eastern Federal Corporation	1653	1670
		B & B Cash Grocery Stores	1710	1454
		Robert Johnson & Seymour Epstein	2128	3735
		David Dickerman	2024	0821
		David Dickerman	2924	0826
		Kleist Enterprises, Inc.	1310	0692
		Kleist Enterprises, Inc.	1310	0697
		Suburban Corporation	0404	0747
		U.S. Home of Florida, Inc.	1249	0485
		James J. Himschoot	1249	0478
		Windrush Apartments, Ltd.	1640	0245
		Kelly Carlos Corporation	2212	3155
		Lee County	2438	0804
		Meister Development Group, Inc.	1733	2858
		The North Fort Myers Motel, Ltd.	1825	4407
		Norris B. Fox & Stephan D. Ellis, Co-Trustee	2061	1169
		Bradley Associates	1713	0443
		Bradley Associates	1714	1836
		Bradley Associates	1714	1826
		Bradley Associates	1714	1818
		Orange Grove Ventures	1595	0969
		AM CAN Enterprises, Inc.	1707	3774
		Martinique Partnership	1483	2068
		Edward F. Streit, Trustee	2474	1929
		Cross River, Inc.	2273	4521
		Cross River, Inc.	2056	1775
		James M. Kraemer, Trustee	1746	0042

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers (cont'd)	Lee	Guy Memoli	1904	4676
		Guy Memoli	1904	4683
		Bernard Schoninger	1350	1938
		Ocean Harbor of Fort Myers Beach, Inc.	2215	1566
		W. M. Landers, Dorado L.C.	2762	1160
		Ostego Bay Associates, Ltd.	2385	1373
		Paddle Creek Joint Venture	2268	2509
		Paddle Creek Joint Venture	2268	2498
		F&H Enterprises	1769	4557
		F&H Enterprises	1769	4553
		Peppertree Joint Venture	1859	3448
		Pine Meadows Apartments II, Ltd.	2021	3400
		Pine Meadows Apartments, Ltd.	1763	2226
		Pine Meadows Apartments, Ltd.	1763	2241
		Pine Meadows Apartments, Ltd.	1763	2256
		Pine Meadows Apartments, Ltd.	1763	2271
		Florida Health Facilities Corp.	1833	2878
		Port Iona Development Corporation	1706	0926
		Grace & Robert Conidaris	2314	0242
		Donald L. Albion	1718	3048
		New South Province Condominium Condo Docs	0949	0715
		Timberlakes Limited Partnership	1608	0746
		Royal Hawaiian Club	1614	0206
		Leisure Technology of Florida Inc.	1721	1393
		Leisure Technology Corp.	1707	3783
		Leisure Technology Corp.	1707	3779
		John Armenia, Trustee	1783	2906
		John Armenia Sanibel Harbour Spa & Racquet Club	1759	4126
		Ed Cassavell Sanibel Harbour Spa & Racquet Club	1824	3628
		James M. Kraemer, Trustee	1993	0861
		R. R. Sanibel, Inc.	2387	2256
		St. Charles Harbour Corporation	2057	3714
		Cynthia H. Lewis	2217	1353
		Eastern Federal Corporation	1653	1670
		Southside Christian Church	2234	4740
		Southside Christian Church	2234	4765
		J.E.M. Properties of Naples	2028	4221
		Summerlin Partnership	1817	3783
		Iona Point Shopping Center	1752	0746
		William W. & Aviva L. Schoo	1984	0646
		Hussey & Loveless Development Company	2002	0950
		William W. & Aviva L. Schoo	1984	0650
		Sunbanks, Inc.	2290	2217
		Westwood Associates, Inc.	2257	0235
		Westwood Associates, Inc.	2257	0242

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Ft. Myers (cont'd)	Lee	Windrush Apartments, Ltd.	1640	0245
		Forest Waters Edge	2093	1867
		Twin Lakes Limited Partnership	1952	0241
		Twin Lakes Limited Partnership	1952	0268
		Twin Lakes Limited Partnership	1952	0250
		Twin Lakes Limited Partnership	1952	0259
		R.H.V., Inc.	2013	0642
		Villages of Ascot, Ltd.	2195	3131
		Villages of Ascot, Ltd.	2084	1372
		Villages of Ascot, Ltd.	2195	3148
		Villages of Ascot, Ltd.	2195	3165
		University Park, Ltd.	1727	1557
		United Plaza Associates	1891	3463
		United Plaza Associates	1891	3468
		Benaja Properties, Inc.	1065	1032
		City of Cape Coral	1033	1413
		Cypress Lakes Lands, Ltd.	1010	0347
		Cypress Lakes Lands, Ltd.	1057	1859
		Cypress Lake Realty, Inc.	0478	0765
		Florida Power & Light Company (Construction Time Agreement/Easement)	No recordation shown (3/8/85)	
		Florida Power & Light Company (Permanent Agreement/Easement)	No recordation shown (3/8/85)	
		Bd of Trustees,Internal ImprovementTrust Fund (FL Dept Natural Resources #25836(2753-36)	No recordation shown (11/9/77)	
		Frank C. Gala	0233	0587
		Cypress Corner, Ltd.	1261	1820
		GAC Properties Inc.	0933	0667
		Alico, Inc.	1052	1292
		Alico, Inc.	1091	0001
		GAC Utilities Inc.	1172	1186
		GAC Utilities Inc.	1091	2159
		Alico, Inc.	1532	1016
		Alico, Inc.	1532	1020
		GAC Utilities Inc.(assignment of rights in easement)	No recordation shown (12/8/76)	
		L & M Development Corp.	1144	0224
		Ping Lee	2241	3809
		Marshwood, Inc. II	No recordation shown (7/26/78)	
		Wallace E. & Beatrice Naylor	1439	1425
		Tri-Chim Marina, Inc. of Ft. Myers, Florida	1193	1277
		Vergil A. & Thelma E. Firebaugh	1193	1272
		Louise F. Stiles & Earl James, Trustees	1193	1266
		Povia-Ballantine Corporation	1054	0026

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Ft. Myers (cont'd)	Lee	Joseph & Muriel Povia	0494	0057
		San Carlos Marina, Inc.	0399	0435
		USA Asset Holding	2703	3303
		NCNB National Bank of Florida	1714	4007
		Frank & Hazel Geffs	0498	0568
		Ralph E. Miller	0498	0569
		Summit Corporation	0498	0677
		Frank & Hazel Geffs	0500	0479
		Ralph E. Miller	0500	0481
		James S. Fortiner & Jean K. Fortiner, et al	0534	0382
		Colin M. Craig, et al	No recordation shown (4/29/74)	
		Harry L. & E. Wilma Sander, et al	No recordation shown (4/28/69)	
		SunTrust Bank, Southwest Florida	2697	1542
		SunTrust Bank, Southwest Florida	2697	1547
		HHGGPX, Inc.	2702	1498
		HHGGPX, Inc.	2702	1503
		Florida Cities Water Company	1953	2208
		Legal Description Only (Royal Pelican Development, Inc.)	1841	3587
		Legal Description Only (St. Charles Club Phase I)	2057	3721
		Sketch (Sea Breeze/Stella Del Mar)	1975	3783
		Cassilly Realty	1413	1878
		Exchange National Bank of Lee County (appears to be opinion on abstract)	1237	1372
		W. Ken Smith	1197	1081
		Grafton Development Corporation	0399	0437
		Florida Power & Light Co.	no recordation shown 10/6/81	
		Legal Description Only	1097	1537
		Donald Hussey, Trustee	1471	0416

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Golden Gate	Collier	Barnett Bank of Naples	1577	0534
		Avatar Properties Inc.	1102	0252
		The School Board of Collier County, Florida	1452	1430
		The School Board of Collier County, Florida	1452	1435
		Avatar Properties Inc.	1251	0790
		Avatar Properties Inc	2096	2196
		Robert & Mario Vocisano	2228	1331
		Domenic D'Agostino, et al	1131	1230
		Frank J. Callahan, et al	No recordation shown (12/20/82)	
		Golden Gate Golf & Country Club, Inc.	0530	0922
		GAC Properties Inc.	0530	0916
		Northgate Place Apartments, Ltd.	No recordation shown (12/10/87)	
		Naples-Green Blvd. Joint Venture	1491	1351
		Naples-Green Blvd. Joint Venture	1491	1368
		Golden Gate Plaza, Ltd.	0994	1743
		Avatar Utilities of Florida, Inc.	1078	1187
		Ron De Flavis & Harry C. Good	1078	1190
		Golden Gate Shopping Center Company	1561	0417
		Golden Gate Shopping Center Company	1561	0421
		Meadowood Apartments, Ltd.	1199	0172
		Meadowood Apartments, Ltd.	1202	1084
		Meadowood Apartments, Ltd.	1199	0177
		Meadowood Apartments, Ltd.	1202	1087
		Meadowood Apartments, Ltd.	1199	0182
		Meadowood Apartments, Ltd.	1202	1081
		Meadowood Apartments, Ltd.	1199	0187
		Meadowood Apartments, Ltd.	1202	1078
		American Cablevision Services, Inc.	No recordation shown (3/30/84)	
		The David Lawrence Foundation for Mental Health, Inc.	2500	0401
		The David Lawrence Foundation for Mental Health, Inc.	2500	0411
		The David Lawrence Foundation for Mental Health, Inc.	2500	0421
		Meadowood Club Apartments	1199	0168
		Meadowood Club Apartments	1202	1076
		Robert & Mario Vosisano	no recordation shown 9/5/96	
		Easement Vacation	no recordation shown 7/9/80	

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Poinciana	Osceola	Jerry and Buster Brown	0763	2435
		Jeld-Wen, inc.	No recordation shown (6/2/98)	
		Avatar Properties Inc.	1086	2500
	Polk	Avatar Properties Inc.	2465	0265
		Diane R. Hicks & Ruth F. Hicks	4073	0566
		Avatar Properties Inc.	2206	1862
		Avatar Utilities Inc.	2218	1632

EASEMENTS

System	County	Grantor	Recordation Book #	Page #
Sarasota	Sarasota	Patricia L. Gergen & Daniel L. Hopkins	3009	720
		Beneva-Clark Corporation	1948	655
		Village Green Section 14 Association, Inc.	2247	2550
		Cohenour's Inc.	1187	2092
		Cedar Cove Corporation	766	677
		Cedar Cove Corporation - Bill of Sale	734	111
		Clark Lakes Company Inc.	710	194
		Charles H. Ball, Trustee	3005	548
		Clark Road Condominium Development Inc. et al	1708	1196
		Cohenour's Inc.	1186	2215
		Redman Development Corporation	1149	1202
		Washovea Realty Investments	1149	1210
		First Development Corporation	No recordation shown (12/11/72)	
		Palmer First Natl Bank & Trust Co, Trustee	666	53
		Palmer First Natl Bank & Trust Co, Trustee	No recordation shown (1/19/71)	
		Palmer First Natl Bank & Trust Co, Trustee	786	675
		Palmer First Natl Bank & Trust Co, Trustee	769	871
		Glenna S. Dodson	2989	1174
		General Telephone Company of Florida	898	416
		Sarasota Plaza, Inc.	827	904
		Sarasota Plaza, Inc.	768	751
		Sarasota Plaza, Inc.	410	149
		Sarasota Plaza, Inc.	410	152
		Logan & Gertrude Smith, et al (Warranty deed;Easement defined therein)	985	1817
		Wm F. & Genevieve S. Sell	827	910
		John T. & Margaret M. Cox	827	908
		Lakehouse West	3036	220
		Landings Associates Ltd Partnership	2457	1362
		First Development Corporation of America	803	653
		Raymond & Evelyn M. Everts et al	1047	100
		Manor Care of Sarasota, Inc.	2087	1070
		Manor Care of Sarasota, Inc.	2087	1076
		Phillipi Gardens Utilities, Inc.	581	431
		Fred G. & Francis R. Behrends et al	827	906
		First Federal Savings & Loan Assn of Sebring et al	809	571
		LaVerne & Linda Hostetler	2808	2012
		Geraldine Rasmussen et al	3028	770
		Rex Chainbelt Inc.	898	418
		Sarasota Bank & Trust Company	869	707
		Sarasota Beneva Place Associates Ltd	1892	434

EASEMENTS

System	County	Grantor	Recordation Book #	Recordation Page #
Sarasota (cont'd)	Sarasota	Clark Road Apartments Inc.	No recordation shown (3/11/74)	
		Brownell Associates, Inc.	No recordation shown (6/22/81)	
		Edward A. & Ruth M. Sessa	878	759
		Barry & Glorida D. Trainor	803	650
		South Winds Enterprises Incorporated	No recordation shown (2/12/70)	
		South Winds Enterprises Incorporated	No recordation shown (2/16/70)	
		Strathmore Realty Corporation	898	404
		Strathmore Realty Corporation	863	120
		United States Postal Service	No recordation shown (7/11/90)	
		A. Walter & Miriam C. Kurtz	869	709
		Sarasota Shopping Guide	869	705
		Dean M. Wilson	869	703
		Bd of County Commissioners of Sarasota FL	2999	2113
		Joseph R.Cleary/Joseph F.Dziemianzuk	1184	1136
		Sarasota Beneva Place Associates, Ltd.	1892	0438
		Cedar Cove Corporation	0588	0185
		Carlos Zalduendo	1708	1205
		Carlos Zalduendo	1708	1208
		Wachovia Realty Investments	1149	1205
		Glenna S. Dodson	2989	1179
		Glenna S. Dodson	2989	1183
		Wachovia Realty Investments	1149	1215
		Phillippi Creek Homes, Inc.	0581	0432

APPENDIX C

SCHEDULE OF PLANS AND SPECIFICATIONS

Plans for the Utility Facility in Brevard County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Barefoot Bay Division
(Brevard County)

931 Barefoot Boulevard, Suite 2
Barefoot Bay, Florida 32976
Phone: 561-664-5916
Fax: 561-664-5941

Plans for the Utility Facility in Hillsborough County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Carrollwood Division
(Hillsborough County)

10033-A North Dale Mabry
Tampa, Florida 33618
Phone:813-961-8760
Fax: 813-961-0322

Plans for the Utility Facility in Lee County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Ft. Myers Division
(Lee County)

7401 College Parkway
Ft. Myers, Florida 33907
Phone: 941-936-3931
Fax: 941-936-0549

Plans for the Utility Facility in Collier County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Golden Gate Division
(Collier County)

1805 CR 951, Suite C
Naples, Florida 34116
Phone: 941-455-1583
Fax: 941-455-5626

Plans for the Utility Facilities in Polk and Osceola Counties have been provided to GUA by copy of electronic media. Plans for the Utility Facilities are located at the following address:

Poinciana Utilities Inc.
(Polk & Osceola Counties)

871 Town Center Drive
Kissimmee, Florida 34759
Phone: 407-933-5514
Fax: 407-933-0706

Plans for the Utility Facility in Sarasota County have been provided to GUA by copy of electronic media. Plans for the Utility Facility are located at the following address:

Sarasota Division
(Sarasota County)

2112 Gulf Gate Drive
Sarasota, Florida 34231
Phone: 941-924-1128
Fax: 941-924-1129

APPENDIX D

SCHEDULE OF THIRD PARTY WARRANTIES RELATED TO COMPLETED OR IN PROGRESS CONSTRUCTION

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Barefoot Bay	PLC and computer control at WWTP	Automation Specialties Enterprises Bradenton 941-748-6376	8/4/98
Barefoot Bay	Install two equalization pumps	McMahan Construction Deland 904-734-1071	12/31/98
Barefoot Bay	Seal joints/cracked wastewater pipe	Griner's Pipeline Services, Inc. Mount Dora 352-383-1222	12/31/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Carrollwood	There are none applicable to Carrollwood.		

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Fort Myers	Utility relocations along U.S. 41	Cabana Construction Co., Inc. Fort Myers 941-332-1665	Payment no. 15 on 1/19/99
Fort Myers	Replace existing 4" piping from sludge loading pumps to loading arm with 6" steel overhead piping	U.S. Filter / DAVCO Lakeland 941-646-7694	Project not yet completed.
Fort Myers	Utility relocations along McGregor Blvd.	Stevens & Layton, Inc. Fort Myers 941-693-1400	Payment no. 5 on 1/19/99
Fort Myers	Remove and replace methanol tanks and pumps at Fiesta Village WWTP	Apollo Construction Sun City Center 813-645-4926	Payment no. 2 on 10/20/98
Fort Myers	Sidewalk replacement and hydrant and meter relocation on Estero	Strickler Brothers, Inc. Fort Myers 941-267-2050	Payment no. 1 on 1/29/99
Fort Myers	Install VFD high service pumps at Green Meadows WTP	Edwards Electric West Palm Beach 561-683-7066	6/9/98
Fort Myers	Repair wastewater manholes	Protective Liner Systems, Inc. Oldsmar 813-855-6550	6/30/98
Fort Myers	Reclaim pond cleaning at Waterway Estates WTP	J & J Baker Enterprises, Inc. Punta Gorda 941-575-0606	6/30/98
Fort Myers	Modicon upgrade at Fiesta Village WWTP	Automation Specialties Enterprises Bradenton 941-748-6376	6/18/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Fort Myers	Install water main number 7 and 8014 at Alico Road pump station	Strickler Brothers, Inc. Fort Myers 941-267-2050	8/31/98
Fort Myers	Instrumentation shop at division office	Bowen Construction, Inc. Cape Coral 941-574-8636	7/31/98
Fort Myers	Water and wastewater valve replacements	Sun Coast Underground Utility Construction Corporation Fort Myers 941-463-6632	1/7/99
Fort Myers	Pump station renovations	Strickler Brothers, Inc. Fort Myers 941-267-2050	2/17/99
Fort Myers	Clarifier reinforcement / hydrostatic support	U.S. Filter / DAVCO Lakeland 941-646-7694	Final payment to Accounting 2/5/99
Fort Myers	Paint structures at College Parkway WTP	Eagle Tank Corporation Jacksonville 904-757-0528	11/6/98
Fort Myers	Install sludge thickener and pump	U.S. Filter / DAVCO Lakeland 941-646-7694	12/8/98
Fort Myers	Water main relocation along John Morris Road	Cabana Construction Co., Inc. Fort Myers 941-332-1665	11/17/98
Fort Myers	Filter replacement at Waterway Estates WTP	Mitchell & Stark Construction, Inc. Naples 941-597-2165	5/19/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Fort Myers	Sectional liners	Ridin Pipeline Services, Inc. Clearwater 727-524-8609	7/9/98
Fort Myers	Seal joints and cracked wastewater pipe	Griner's Pipeline Services, Inc. Mount Dora 352-383-1222	1/19/99

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Golden Gate	Drill and equip well #9	Stevens & Layton, Inc. Fort Myers 941-693-1400	Payment no. 5 paid 12/31/98
Golden Gate	Water and wastewater valve replacements	Sun Coast Underground Utility Construction Corporation 941-463-6632	1/7/99
Golden Gate	Pump station renovations	Strickler Brothers, Inc. Fort Myers 941-267-2050	2/17/99
Golden Gate	Phase out lift station float balls and replace with telemetry system	Sterling Industrial Controls Fort Myers 941-731-6167	11/17/98
Golden Gate	Install gravity sewer main in Block 65	Strickler Brothers, Inc. Fort Myers 941-267-2050	12/8/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Poinciana	Design and construct one new clarifier, sludge pump pit and yard piping at WWTP #1	Universal Construction Services Orlando 407-273-1788	8/31/98
Poinciana	Design and construction 0.29 mgd expansion to WWTP #5	U.S. Filter / DAVCO Lakeland 941-646-7694 McMahan Construction Deland 904-734-1071	U.S. Filter - 9/30/98; McMahan - February 1999 Kissimmee CC - 4/30/98
Poinciana	Stand pipe replacement at elevated water tower	Frank Shelton, Inc. Perry, GA 800-223-3695	Project not yet completed.
Poinciana	Renovate and activate pump stations	McMahan Construction Deland 904-734-1071	Payment no. 3&4 to Accounting 2/5/99
Poinciana	Paint exterior and inspect interior of elevated storage tank	Eagle Tank Corporation Jacksonville 904-757-0528	6/30/98

FCWC/PUI projects with warranties in effect as of March 31,1999

APPENDIX D

Division	Project Description	Contractor and telephone	Final payment date
Sarasota	Paint outside of elevated storage tank and miscellaneous metal replacements	Frank Shelton, Inc. Perry, GA 800-223-3695	9/10/98
Sarasota	Ashton Road water main installation	JC Pipeline, Inc. Bradenton 941-758-2228	
Sarasota	Pump station renovations	Stevens & Layton, Inc. Fort Myers 941-693-1400	4/21/98

APPENDIX E

SCHEDULE OF PERMITS

SCHEDULE OF PERMITS
BAREFOOT BAY SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
DISTRIBU	Construction	FDEP	12/02/1997	12/01/1999		WD05-0080414-001-DS	Install 6" main along Brown Rd. (permit # WD05-0080414-001-DS)	N	CO
Sod Farm	CUP	SJRWMD	09/08/1998	09/08/2018		1708	Permit requirenments for the 280 acre sod farm	N	BS
WTP	WUP	SJRWMD	02/10/1998	02/10/2008		2-009-0045NM2FR		N	
WWTP	ERP (SWMS)	FDEP	09/07/1994	09/07/1999		MS05-251388	Surface Water Managements System	N	
WWTP	Wastewater	FDEP	09/05/1997	09/03/2002		FL0042293-01	Combined Federal and State operating permit.	N	JK
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB

TANKS

BAREFOOT BAY WTP - 734 W. EGRET CIR, BAREFOOT BAY, FL 32976, BREVARD COUNTY	2,000 GAL ALUMINUM SULFATE	059601905
BAREFOOT BAY WWTP - 7773 DOTTIE LANE, BAREFOOT BAY, FL 32976, BREVARD COUNT	4,000 GAL ALUMINUM SULFATE	059401200
	2,000 GAL DIESEL	059401200
	7,000 GAL METHANOL	059401200

SCHEDULE OF PERMITS
CARROLLWOOD SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
WTP	Drin Wat System	Hillsborough County	01/15/1999	09/30/1999		6290259	Annual drinking water system permit must be renewed thru County HRS ($75).	N	MB
WTP	WUP	SWFWMD	07/30/1991	07/30/2001	01/30/2001	205886.02	Permit requires extensive reporting, consumption reduction, and conservation rate structure, expires in 2001	N	

TANKS

THERE ARE NO TANKS IN THE CARROLLWOOD SYSTEM.

SCHEDULE OF PERMITS
FT. MYERS SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
	MG Relo (SR865)	FDOT	07/01/1998			98H1920057		S	
	MG Relo (SR867)	FDOT	07/01/1998			98H1920056		S	
	McGr. Relocate	FDOH	06/18/1998	06/18/2003		0125769-028DS		S	
	US41 Util Adjus	FDOT	05/30/1997			97H1920039		S	
DISTRIBU	Construction	FDOH	10/09/1997	10/09/2002		0125769-011-DS	Install 24" main along Alico Rd.	S	GK
WTP-CP	Air Pollution	FDEP	05/19/1994	05/19/1999	03/19/1999	AO36-250717		S	GK/KB
WTP-CP	WUP	SFWMD	11/10/1993	11/10/1998	05/10/1998	36-00150-W	Timely renewal app filed.	S	RD/JK
WTP-GM	Air Pollution	FDEP	05/19/1994	05/19/1999	03/19/1999	AO36-250723		S	GK/KB
WTP-GM	Raw Line Const	Lee Health	02/06/1996	05/31/1999		DS36-251382	Install raw water line in Green Meadows well field. Seeking extension in 1998 for 1 year. SFWMD permit no. 36-00015-D expires 10/14/98.	S	
WTP-GM	US41 Util Adjus	FDOH	12/06/1996	12/06/2001		D536-297957		S	
WTP-GM	WUP	SFWMD	11/10/1993	11/10/1998	05/10/1998	36-00150-W	Timely renewal app filed.	S	RD/JK
WTP-WWE	Air Pollution	FDEP	05/19/1994	05/19/1999	03/19/1999	AO36-250718		S	GK/KB
WTP-WWE	WUP	SFWMD	06/13/1996	06/13/2001		36-00152-W		S	GK
WWE-WWTP	Consent Order	FDEP	12/31/1997			97-1469-11-DW	Order for sludge spill incident (reporting & fine imposed). With renewal of operating permit the Order will expire.	S	

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
WWTP-FV	Admin Order	FDEP	03/31/1998	03/29/2003		AO-006-SD	Requires monitoring of several contaminants detected in GWM samples to determine course of action.	S	JK/KB
WWTP-FV	McGr. Relocate	FDEP	07/24/1998	07/23/2003		47756-013-DWC		S	
WWTP-FV	NPDES Stormwate	EPA	12/31/1992	12/31/1998		FLR00A008	Multi-Sector General Permit coverage. NOI filed 2/18/99. Requires pollution prevention plan compliance.	S	GK/JK
WWTP-FV	Surf Wat Discha	Lee County	01/08/1993	12/19/1999		P3010801	Requires several reports and timetables to be met. Renewed annually by letter.	S	RY
WWTP-FV	US41 Util Adjus	FDEP	12/06/1996			C536-298075		S	
WWTP-FV	Wastewater	FDEP	03/30/1998	03/29/2003	09/29/2002	FL0039829-001-DW1P	Permit to operate and modify plant. Combines EPA with DEP permit.	S	JK/KB
WWTP-WWE	NPDES Stormwate	EPA	12/31/1992	12/31/1998		FLR00A007	Multi-Sector General Permit coverage. NOI filed 2/18/99. Requires pollution prevention plan compliance.	S	GK/JK
WWTP-WWE	Silo- Operation	FDEP	01/24/1996	01/24/2001		0710127-001-AC	Installation / operation permit for lime silo	S	GK
WWTP-WWE	Surf Wat Discha	Lee County	01/08/1993	12/19/1999		P3010802	Requires several reports and timetables to be met. Renewed annually by letter.	S	RY
WWTP-WWE	Wastewater	FDEP	05/17/1995	08/25/1998	05/25/1998	FL0030325	Combines EPA and FDEP (DO36-228850) permits. Must comply with all conditions of both permits. Renewal app filed in a timely manner.	S	JK/KB

TANKS

GREEN MEADOWS WTP - AIRPORT HAUL & REEVES RD., FT. MYERS, FL 33912, LEE COUNTY	5,000 GAL DIESEL	369064006
	5,000 GAL ALUMINUM SULFATE	369064006
	5,000 GAL ALUMINUM SULFATE	369064006
WATERWAY ESTATES WTP - 4271 ST. CLAIR AVE., NORTH FT. MYERS, FL 33903, LEE COUNTY	2,000 GAL DIESEL	369064005
	1,100 GAL SODIUM HYDROXIDE (empty)	369064005
	4,000 GAL ALUMINUM SULFATE	369064005
SOUTH BEACH BOOSTER STATION - 815 LENELL RD., FT. MYERS BEACH, FL 33931, LEE COUNTY	2,000 GAL DIESEL	368945132
COLLEGE PARKWAY WTP - 7401 COLLEGE PARKWAY, FORT MYERS, FL 33907	1500 GAL ALUMINUM SULFATE	
WATERWAY EST WWTP - 1667 INLET DR., NORTH FT. MYERS, FL 33903, LEE COUNTY	2,500 GAL DIESEL	369102629
	7,000 GAL ALUMINUM SULFATE	369102629
	7,000 GAL SODIUM HYDROXIDE	WATER FILLED
	2,000 GAL METHANOL	369102629
	3,000 GAL METHANOL	WATER FILLED
FIESTA VILLAGE WASTEWATER TREATMENT FACILITY - 1366 SAN SOUCI DR., FT. MYERS, FL. 33919, LEE COUNTY	3,000 GAL DIESEL	368945131
	6,000 GAL METHANOL	368945131
	7,500 GAL ALUMINUM SULFATE	368945131
	7,500 GAL ALUMINUM SULFATE	368945131
	5,600 GAL FERROUS SULFATE	368945131
	300 GAL SODIUM HYDROXIDE	368945131

SCHEDULE OF PERMITS
GOLDEN GATE SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
WTP	Air Pollution	FDEP	08/15/1995	08/15/2000	06/15/2000	AO11-272304	Requires annual visual inspection of emmisions and reporting	S	GK/KB
WTP	Const, CO2	FDEP	11/01/1995	11/01/2000		WC11-275406	Installation of CO2 feed system to replace H2SO4, also relocate NH3 feed points.	S	
WTP	Instal raw line	FDEP	09/24/1996	09/24/2001		DS11-293045	Raw water line for well #9	S	RS
WTP	WUP	SFWMD	01/14/1993	01/14/2003	07/14/2002	11-00148-W		S	RS/JK
WTP	Well #9, Pump	FDEP	12/21/1997	12/21/2002		128009-001-DS		S	
WWTP	Wastewater	FDEP	12/15/1998	12/14/2003	06/30/1998	FLA142140	Combines EPA and FDEP (DO11-254455) permits. Must comply with all conditions of both permits. App submitted in a timely manner.	S	

TANKS

GOLDEN GATE WTP - 4300 GOLDEN GATE PARKWAY, GOLDEN GATE, FL 33999, COLLIER COUNTY	2,000 GAL DIESEL	119064001
	3,000 GAL SULFURIC ACID	119064001
GOLDEN GATE WWTP - 4931 32ND AVE. SW, GOLDEN GATE, FL 33999, COLLIER COUNTY	2,000 GAL DIESEL	119064002
	275 GALLON SODIUM HYPOCHLORITE	119064002
	275 GALLON SODIUM HYDROXIDE	119064002
GOLDEN GATE BOOSTER STATION, 4781 GREEN BLVD., GOLDEN GATE, FL 33999, COLLIER COUNT	1,000 GAL DIESEL	119502077

SCHEDULE OF PERMITS
POINCIANA SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
DIVISION	Radio License	FCC	03/26/1997	03/26/2002	12/26/2001	WPLF667	Telemetry license for PUI	N	
WTP-5	Construction	FDEP	08/16/1995	08/16/2000		WC53-274958	Modification to plant - addtiona of bypass piping for ground storage and relocate Cl feed line	N	DY
WTP-ALL	WUP	SFWMD	10/12/1989	10/12/1999	04/12/1999	49-00069-W		N	
WWTP-1	Wastewater	FDEP	01/06/1999	01/01/2004	08/28/1998	FLA010968-001		N	
WWTP-2	Construction	FDEP	05/12/1997	04/24/2002		CS49-303772	Constuct collection system in V2N1 for 25 homes. Supersedes permit number CS49-209362.	N	CO
WWTP-2	Operation	FDEP	09/14/1993	09/08/1998	07/08/1998	DO49-225879	Renewal app filed in a timely manner.	N	
WWTP-3	Wastewater	FDEP	05/31/1995	06/15/1994		FL0036862	Combines NPDES and State TOP (DT49-173647) into one permit. Renewal app for AWT filed in early 1998.	N	
WWTP-5	MSSW	FDEP	06/17/1997	06/16/2002		MS53-301293	Surface water management system.	N	CO
WWTP-5	Wastewater	FDEP	12/23/1998	07/20/2002		FLA010979-002	Construction & operation of reuse and treatment facilities.	N	JK

TANKS

PUI WTP #2 -1010 PEABODY RD., POINCIANA, FL 34758, OSCEOLA COUNTY	1,500 GAL DIESEL	498838502
PUI WTP #3 - 300 S. COUNTRY CLUB ROAD, POINCIANA, FL 34759, POLK COUNTY	1,500 GAL DIESEL	539102693
PUI WWTP #5 - LAKE MARION CREEK RD., POINCIANA, FL 34759, POLK COUNTY	1,500 GAL DIESEL	539102691
PUI WWTP #2 - 1000 N. RHODODENDRON, POINCIANA, FL 34758, OSCEOLA COUNTY	3,000 GAL DIESEL	498838503

SCHEDULE OF PERMITS
SARASOTA SYSTEM

FACILITY	PERMIT NAME	AGENCY	PERMIT DATE	EXPIRATION	PERMIT_ APP	PERMIT NUMBER	COMMENTS	REGION	ASSIGNED
	Radio License (FCWC)	FCC	03/27/1997	06/15/1999	01/15/1999	WPFC430	System telemetry license - Lee, Golden Gate	S	KB
WWTP-GG	Biosolids	EPA	03/16/1998	02/28/2003	08/28/2002	FLL032816	Sludge application permit.	N	
WWTP-GG	Wastewater	FDEP	05/19/1998	05/18/2003	11/18/2002	FL0032816-01	Permit to operate and modify plant. Combines EPA with DEP permit.	N	JK/KB
WWTP-SG	Biosolids	EPA	03/16/1998	02/28/2003	08/28/2002	FLL032808	Sludge application permit.	N	
WWTP-SG	Wastewater	FDEP	04/15/1998	04/14/2003	10/14/2002	FL0032808-01	Permit to operate and modify plant. Combines EPA with DEP permit.	N	JK/KB

TANKS

GULF GATE WASTEWATER TREATMENT PLANT - 7302 BOUNTY DR., SARASOTA, FL 34231, SARASOTA COUNTY	3,000 GAL METHANOL	589045995
	2,800 GAL FERRIC SULFATE	589045995
	275 GAL SODIUM HYPOCHLORITE	589045995
	275 GAL SODIUM HYDROXIDE	589045995
AVENUE A LIFT STATION - SARASOTA, FL	1,025 GAL FERROUS SULFATE (EMPTY)	589012282
WESTLAKES LIFT STATION - SARASOTA, FL	1,550 GAL FERROUS SULFATE	589012281
SOUTH GATE WASTEWATER TREATMENT PLANT - 3209 PINE VALLEY DR., SARASOTA, FL 34239, SARASOTA COUNTY	3,000 GAL METHANOL	589045614
	2,800 GAL FERROUS SULFATE	589045614
	2,800 GAL FERRIC SULFATE	589045614
	275 GAL SODIUM HYPOCHLORITE	589045614
	275 GAL SODIUM HYPOCHLORITE	589045614
	275 GAL SODIUM HYDROXIDE	589045614
	275 GAL SODIUM HYDROXIDE	589045614
SAVAGE ROAD LIFT STATION - SARASOTA, FL	1,750 GAL FERROUS SULFATE	589401201

APPENDIX N

EXCLUDED ASSETS

APPENDIX N - EXCLUDED ASSETS

The following are deemed Excluded Assets and shall not be and are not to be sold, conveyed, transferred to or assumed by the Florida Governmental Utility Authority pursuant to the Utility System Asset Acquisition Agreement:

(A) All cash, bank or escrow accounts; all notes receivable; all accounts receivable and unbilled revenues to the extent not specifically addressed in the Acquisition Agreement; all corporate financial records, financial statements, tax returns, audits, accountant letters or correspondence; all letters of credit; all deposits with vendors; all deposits with utility companies; all insurance policies; the corporate names Florida Cities Water Company and Poinciana Utilities Inc.;

(B) Any off-site leasehold interest used by Florida Cities Water Company, Poinciana Utilities Inc. or Avatar Utilities Services, Inc. to house customer service operations.

(C) Unless otherwise expressly assumed by the Florida Governmental Utility Authority, all of the liabilities of Florida Cities Water Company and Poinciana Utilities Inc., including all accounts payable and all other payables of Florida Cities Water Company and Poinciana Utilities incurred or accruing prior to closing;

(D) All construction claims liability for work completed prior to closing or work in progress performed prior to closing. All construction claims liability for work undertaken by Florida Cities Water Company, Poinciana Utilities Inc. or Avatar Utilities Services, Inc. whether performed prior to or after closing; and

(E) All other obligations, liabilities or responsibilities of Florida Cities Water Company and Poinciana Utilities Inc. not expressly assumed by the Florida Governmental Utility Acquisition at closing or not otherwise expressly addressed in the Utility System Asset Acquisition.

The following real and personal property:

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Barefoot Bay Division.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Carrollwood Division.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
FT. MYERS BEACH ELEVATED WATER TANK SITE #2 (VACANT LOT)	SFM W	EUCALYPTUS PARK SUBDIVISION BLOCK C, PB 4 PG 34 LOTS 20, 21 & 22- INT IN W Voorhis St.	29-46-24-W1-0020C.0200 29-46-24-02-00000.0200	
TROPIC ISLES WATER PLANT SITE (VACANT LOTS)	NFM W	TROPIC ISLES SECTION 4 UNIT 1 PB 11 PG 67 LOTS 20 & 21	09-44-24-02-00000.0200	

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Golden Gate Division.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Poinciana Utilities, Inc.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
WATER PLANT (OFF GOODWATER)	SAR W	TRACT A, BLOCK 36 GULF GATE UNIT 9	0102-07-0048	
GULF GATE WTP	SAR W	THE N 145 FT OF THE W 201.67 FT OF THE SW 1/4 OF THE NW 1/4 OF THE SE 1/4 OF SECTION 16, TOWNSHIP 37 S, RANGE 18 E	0102-07-0047	
WATER- EASEMENT	SAR W	LOT 1 BLOCK 36 GULF GATE UNIT 9	0102-07-0049	

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Barefoot Bay Division.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Carrollwood Division.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
FT. MYERS BEACH ELEVATED WATER TANK SITE #2 (VACANT LOT)	SFM W	EUCALYPTUS PARK SUBDIVISION BLOCK C, PB 4 PG 34 LOTS 20, 21 & 22- INT IN W Voorhis St.	29-46-24-W1-0020C.0200 29-46-24-02-00000.0200	
TROPIC ISLES WATER PLANT SITE (VACANT LOTS)	NFM W	TROPIC ISLES SECTION 4 UNIT 1 PB 11 PG 67 LOTS 20 & 21	09-44-24-02-00000.0200	

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Golden Gate Division.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
Not applicable to Poinciana Utilities, Inc.				

FLORIDA CITIES / PUI - EXCLUDED LAND				
As of 12/31/98				
DESCRIPTION	DIVISION	LEGAL DESCRIPTION	TAX PARCEL #	
WATER PLANT (OFF GOODWATER)	SAR W	TRACT A, BLOCK 36 GULF GATE UNIT 9	0102-07-0048	
GULF GATE WTP	SAR W	THE N 145 FT OF THE W 201.67 FT OF THE SW 1/4 OF THE NW 1/4 OF THE SE 1/4 OF SECTION 16, TOWNSHIP 37 S, RANGE 18 E	0102-07-0047	
WATER- EASEMENT	SAR W	LOT 1 BLOCK 36 GULF GATE UNIT 9	0102-07-0049	

C. CWC

1 DIV. Sarasota (Div Offc)

Initial Date 11/19/98 Non-Fixed

Updated Date 03/01/99 Assets

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
NON-FIXED ASSETS EXCLUDED:							
1	5	CSC/D.M office	12x36x72 Bookcase	N/A	N/A	1	
1	6	CSC/D.M office	18x29x64 wood credenza	N/A	N/A	1	
1	7	CSC/D.M office	two drawer lateral file cabinet	N/A	N/A	1	
1	8	CSC/D.M office	20x36 adjustable table	N/A	N/A	2	
1	9	CSC/D.M office	24x24x23 end table	N/A	N/A	1	
1	10	CSC/D.M office	Motorola Base Radio	N/A	N/A	1	
1	12	Plan Room	6 ft folding table	N/A	N/A	1	
1	13	Plan Room	4 dr. safe cabinet	N/A	N/A	1	
1	14	Plant Supr. Office	12x36x72 Bookcase	N/A	N/A	1	
1	15	Plant Supr. Office	4 dr. File Cabinet	N/A	N/A	2	
1	16	Plant Supr. Office	6 ft Desk	N/A	N/A	1	
1	17	Plant Supr. Office	6 ft matching Credenza	N/A	N/A	1	
2	9	Conference Room	18" x 29" x 80" Credensa	N/A	N/A	1	
2	11	Conference Room	24" x 24" Modem Table	N/A	N/A	1	
2	12	Conference Room	swival chair	N/A	N/A	1	
2	13	Conference Room	side chairs	N/A	N/A	10	
2	15	CSC/Break Room	Metal File Cabinets	4Drawer-18x36x50"	N/A	3	
2	16	CSC/Break Room	octagon table, 4 chairs	44"	N/A	1	
2	17	CSC/Break Room	Refrigerator	GE No Frost 16.5 cu. ft.	TBF16A	1	
2	18	CSC/Break Room	Microwave	Panasonic NN6485A	AW631002302	1	
2	19	CSC/Break Room	Toaster Oven	Black & Decker 6 slice	N/A	1	
2	3	Field Supt. Office	6 ft Desk	N/A	N/A	1	
2	6	Field Supt. Office	18" x 28" end table	N/A	N/A	1	
2	7	Field Supt. Office	13" x 31" x 48" Bookcase	N/A	N/A	1	
2	8	Field Supt. Office	Wall mounted Bookcase	N/A	N/A	1	
2	1	Plant Supt. Office	Desk Chair	N/A	N/A	1	
2	2	Plant Supt. Office	Side Chair	N/A	N/A	1	
3	1	CSC/Front Office	Credenzas	19x16x30"-8 drawer	N/A	2	
3	2	CSC/Front Office	Storage Cabinet	26x21x27,2 door,2 drawer	N/A	1	
3	3	CSC/Front Office	Computer Cart	19.5x36x29.5"	N/A	1	
3	4	CSC/Front Office	File Cabinet	28x15x27, 2 drawer	N/A	1	
3	5	CSC/Front Office	Corner Table	19x19x29.5:	N/A	1	
3	6	CSC/Front Office	Side Chairs	N/A	N/A	5	
3	7	CSC/Front Office	Table in Lobby	18x18x20"	N/A	1	
3	8	CSC/Front Office	Desk Chairs for Customer Svc.	N/A	N/A	2	

2 CO. FCWC
DIV. Sarasota (Div Offc)

Initial Date 11/19/98
Updated Date 03/01/99

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	Non-Fixed Assets (Incl/Excl)
3	10	CSC/Front Office	Copier	Ricoh FT3213	A3616922349	1	
4	4	GG Operator Office	Weather Radio	Radio Shack	104265	1	
4	5	GG Operator Office	Handheld Radio	Motorola	N/A	2	
5	5	GG Tool Room	Hammer Drill	Milwaukee	556A393360077	1	
5	6	GG Tool Room	Hammer Drill	Bosch/1194VSR	768201675	1	
5	7	GG Tool Room	Grinder, Portable	DeWalt/DW402	319955	1	
5	11	GG Tool Room	Battery Charger	Nopper Ultramatic 10	N/A	1	
5	13	GG Tool Room	6' Stepladder	Davidson 592-61	N/A	1	
6	11	GG Filter Room	Propane Torch Bottle	ACE 22027	N/A	1	
8	13	SG Office	Radio	Motorola 5M50	N/A	1	
8	20	SG Office	Microwave	Sharp RM150B	N/A	1	
9	11	SG Plant	Radio	Motorola HT600		1	
10	1	SG Tools	Leaf Blower	Weedeater 2540	N/A	1	
10	2	SG Tools	Reciprocating Saw	B/D 3105	N/A	1	
10	3	SG Tools	Portable Drill	B/D 2765	N/A	1	
10	4	SG Tools	Hammer Drill	milwaukee 5374-1	N/A	1	
10	5	SG Tools	Jig/Scroll Saw	Skil 4395	N/A	1	
10	6	SG Tools	Circular Saw	Skil 5250	N/A	1	
10	7	SG Tools	Angle Grinder	Ryobi C-1801	N/A	1	
10	8	SG Tools	Weed Trimmer	Ryobi 990R	N/A	1	
10	9	SG Tools	Gas Pressure Washer	MHSS 2500	N/A	1	
10	10	SG Tools	Wheelbarrow	True Temper C6	N/A	1	
10	11	SG Tools	Hand Truck	MECO	N/A	1	
10	12	SG Tools	Drum Truck	Escort	N/A	1	
10	16	SG Tools	Chainsaw	McCulloch 3214	N/A	1	
10	17	SG Tools	Wrench Set	Craftsman	N/A	1	
10	18	SG Tools	Socket Wrench	Ace 1/2" drive	N/A	2	
10	19	SG Tools	Socket Wrench	Ace 3/8" drive	N/A	1	
10	20	SG Tools	Socket Wrench	Ace 3/4" drive	N/A	1	
11	18	SG Plant	20' Extention Ladder	Werner	N/A	1	
11	19	SG Plant	8' Step Ladder	All American	N/A	1	
11	20	SG Plant	30' Extention Ladder	Werner	N/A	1	
11	1	SG Tools	Tap N Die Set	TrueValue	N/A	1	
12	19	Field Office	Radio Charger	Motorola	NTN4668A	1	
12	20	Field Office	Radio Charger	Motorola	NTN4633B	2	
12	1	SG Plant	6' Step Ladder	Werner	N/A	1	
12	13	SG Plant	Layflat 6"x25'	MHSS	N/A	1	
13	1	Field Office	Radios	Motorola HT900	N/A	7	

3 CC CWC
DIV. Sarasota (Div Offc)

Initial Date 11/19/98
Updated Date 03/01/99

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	Non-Fixed Assets (Incl/Excl)
13	8	Field Office	Batteries/Charger	Panasonic BQ-8C	N/A	1	
14	1	Warehouse	Air Powered Street Saw	Partner K40	N/A	1	
14	2	Warehouse	Compactor 3.5HP	Wacker	N/A	1	
14	4	Warehouse	Blower & Hose	Air Systems Intl. SUB-E8	N/A	1	
14	5	Warehouse	Portable Air Tanks	NAPA 821-5156	N/A	2	
14	6	Warehouse	Measuring Wheels	Rolatape	N/A	2	
14	10	Warehouse	Rubber Tire Dolly	N/A	N/A	1	
14	11	Warehouse	Wheelbarrow 2 cu'	Scottys	N/A	1	
14	12	Warehouse	40 cu' map gas tank	N/A	90121197	1	
14	13	Warehouse	Acetylene Torch	N/A	N/A	1	
15	10	On Pad	Tripod Safety Wrench	DBI/Sala L3402	004239	1	
15	11	On Pad	Utility Trailer 4'x10'	Barry's	N/A	1	
15	15	Warehouse	Chainsaw	Homelite 23300	N/A	2	
15	16	Warehouse	Weedeater	Ryobi 700R	N/A	1	
15	17	Warehouse	Gas Cans	Eagle UI505	N/A	5	
16	3	Warehouse	16' Extention Ladder	N/A	N/A	1	

CO. FCWC
DIV. Tampa

Print Button

Initial Date 12/10/98
Updated Date 03/01/99

Non-Fixed Assets (Incl/Excl)

NON-FIXED ASSETS EXCLUDED:

ht.	#	Location	Description	Mfg. / Mod. #	Serial #	Quantity	
1	12	Div Office	fax machine	Packard 03530a	1P475K10BK	1	
1	13	Div Office	copier	sf-7370	26217502	1	
1	15	Div Office	phone	g2605-20f		1	
1	16	Div Office	phone	kxtc280b	7ACKA042843	1	
1	17	Div Office	phone	G.E.29438a	60034914	1	
1	18	Div Office	refrigerator	G.E.	1604286P006	1	
1	19	Div Office	television	sig 1fa12491	0290516542B	1	
1	21	Div Office	rca camcorder	cc540	404530067	1	
2	5	Well 3	weed eater	Ryobi trimmer	807122536	1	
2	12	Well 3	pipe wrench	Iron 48"		1	
2	13	Well 3	clay pipe cutter			1	
3	11	Well 3	storage locker			1	
3	12	Well 3	fire storage locker			1	
3	14	Well 3	tool box	mis hand tools		1	
3	17	Well 3	lawn mower	Paulan 4hp	110797M	1	
3	20	Well 3	chain saw	Mccullogh 38cc	DO48	1	

CO. FCWC
DIV. GG

Print Button :

Initial Date 12-01-98
Updated Date 03/01/99

Non-Fixed Assets (Incl/Excl)

NON-FIXED ASSETS EXCLUDED:

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	
1	4	Conf. Room	Copy Machine	Sharp SF 7855		1	
1	5	Conf. Room	Copy Machine Table	XXX		1	
1	6	Conf. Room	UPS/Mail Table	XXX		1	
1	7	Conf. Room	Metal Print Drawers	XXX		1	
1	8	Conf. Room	Wood Chart Holder	XXX		1	
1	9	Conf. Room	Fax Machine	HP Officejet		1	
1	10	Conf. Room	File Cabinets	XXX		4	
1	11	Conf. Room	Refrigerator	'18 cu. ft. Sears		1	
1	12	Conf. Room	Fax Stand	XXX		1	
1	13	Conf. Room	Coffee Maker	Bunn Pour-O Matic		1	
1	14	Conf. Room	Microwave	Sharp		1	
1	15	Conf. Room	Vacuum Cleaner	Hoover Elite		1	
1	2	csc/DM	Credenza	XXX		1	
1	7	csc/DM	Book Cases	XXX		2	
1	4	CSC/Field Off.	Typewriter Stand	XXX		1	
1	5	CSC/Field Off.	Metal Storage Cabinet	XXX		1	
1	1	CSC/Office.	Desk	XXX		2	
1	2	CSC/Office.	Table	XXX		1	
1	3	CSC/Office.	Stand	XXX		2	
1	8	CSC/Office.	Desk Chairs	XXX		3	
1	9	CSC/Office.	Meter Reader Hand held	itron		1	
1	4	WTP	hand held radio	visar	720sxw2280z	1	
1	5	WTP	hand held radio	ht600	649apl1054	1	
1	6	WTP	hand held radio	ht600	649aoe2196	1	
1	5	wtp/gen rm	two wheel dolley			1	
1	1	WTP/Shed	circular saw	makita	413433	1	
1	2	WTP/Shed	cordless drill	makita	6095d	1	
1	3	WTP/Shed	saws all	milwaukee	1631a39402103	1	
1	4	WTP/Shed	socket set	easco		1	
1	5	WTP/Shed	grinder	black & decker	033662	1	
1	6	WTP/Shed	sander	ace		1	
1	7	WTP/Shed	tool box	husky		2	
1	8	WTP/Shed	jack	olympia		1	
1	10	WTP/Shed	fire cabinet	securall	im2000	1	
1	11	WTP/Shed	fire cabinet	just rire	25400	1	
1	12	WTP/Shed	hammer drill	milwaukee	897a798331233	1	
1	13	WTP/Shed	sander	skil 7313		1	
1	14	WTP/Shed	air tank	acp 220	97050h376	1	
1	15	WTP/Shed	6ft. ladder	werner	6006	1	
1	16	WTP/Shed	12ft ladder			1	
1	17	WTP/Shed	16ft ladder	werner	d716-2	1	
2	1	WTP/SHED	float switch	cemco	785-c	1	
2	2	WTP/SHED	paddle shaft	baldor	m3538	2	
2	3	WTP/SHED	grit chain	reliance	p56h3003p-xt	1	
2	5	WTP/SHED	fan	certainteed		1	
2	6	WTP/SHED	weed eater	robin nb252	200430	1	
2	11	WTP/SHED	barricades			6	
2	12	WTP/SHED	wheel barrow	true temp		1	
2	14	WTP/SHED	chain saw	poutan 2450	96161d3000683	1	

C\	FCWC
DIV.	Lee County

Initial Date	12/07/98	Non-Fixed
Updated Date	03/01/99	Assets

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
NON-FIXED ASSETS EXCLUDED:							
1	3	back room	blue print machine	sl4220 f roto lite	903905	1	
1	7	Butler Bldg.	Control Reel Trac.	XXX	XXX	1	
1	8	Butler Bldg.	Push Reel	XXX	XXX	1	
1	11	Butler Bldg.	Torch Set	XXX	XXX	1	
1	12	Butler Bldg.	Confined Space Blower	Allegro 9514	9513-1555	1	
1	13	Butler Bldg.	Tri-Pod & Hoist	DBI/SALA L1850	XXX	1	
1	14	Butler Bldg.	Ladder	30'	XXX	1	
1	10	CAD	radio 2 way	CPI	XXX	1	
1	1	conf. room	conf table	XXX	XXX	1	
1	2	conf. room	chairs	XXX	XXX	8	
1	5	conf. room	magnavox t.v.	RR19-33 W 422	31866803	1	
1	6	conf. room	t.v.c. v.c.r.	HRD 400 U	093L1838	1	
1	9	conf. room	video rec/player	RCA	404530328	1	
1	9	cs manager/sup	radio 2 way	CPI	XXX	1	
1	7	cust service	radio 2 way	CPI	XXX	2	
1	10	div mgrs office	radio 2 way	CPI	XXX	1	
1	1	eng closet	controller	IBM on-line to AUSI	XXX	1	
1	1	F-150 Collections	Diamond Plate Tk Boxes	XXX	XXX	3	
1	2	F-350 Ford	Amprobe	XXX	XXX	1	
1	3	F-350 Ford	Megger	XXX	XXX	1	
1	7	F-350 Ford	Electric Meter	Fluke	XXX		
1	18	F-350 Ford	Pipe Wrench	14"	XXX	1	
1	19	F-350 Ford	Electric Drill	Milwaukee	XXX	1	
1	20	F-350 Ford	Ridged Pipe Cutter	XXX	XXX	1	
1	14	F-350 Ford '99	Clay Pipe Cutter	XXX	XXX	1	
1	5	Fiesta Garage	C Tool Chest	Craftsman 65419	XXX	1	
1	6	Fiesta Garage	C Tool Chest	Craftsman 65429	XXX	1	
1	7	Fiesta Garage	Screw Gun	Makita 680108	XXX	1	
1	8	Fiesta Garage	EIE Inpation Gun	6204	XXX	1	
1	10	Fiesta Garage	Vice	Grip 65325	XXX	1	
1	16	Fiesta Garage	Ladder 8'	Louis UI11E	XXX	1	
1	18	Fiesta Garage	Pipe Vice	Ridgid RC610	XXX	1	
1	19	Fiesta Garage	Torch Set	Victor	XXX	1	
1	20	Fiesta Garage	PSI Washer	Handa 6X390	XXX	1	
1	7	Fiesta MCC #2	Ladder	Werner 4'	XXX	1	
1	1	FV/Butler Bldg	Ladder	Werner 20'	XXX	3	
1	2	FV/Butler Bldg	Ladder	Werner 10"	XXX	1	
1	8	FV/Butler Bldg	Spill Container	55 Gal.	XXX	1	
1	9	FV/Butler Bldg	Spill Container	210 Gal.	XXX	1	
1	10	FV/Butler Bldg	Pole Saw	16' ea	XXX	2	
1	16	FV/Butler Bldg	55 gal HAS MAT Drum	XXX	XXX	1	
1	5	Grit Blower Room	Pipe Wrench Alum	Ridgid	XXX	4pc set	

2 CO. FCWC
DIV. Lee County

Initial Date 12/07/98
Updated Date 03/01/99

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	Non-Fixed Assets (Incl/Excl)
1	6	Grit Blower Room	Wrench Hand	Huskey Standard	XXX	8 pc set	
1	7	Grit Blower Room	Wrench Hand	Huskey Metric	XXX	8 pc set	
1	8	Grit Blower Room	Vice Grip	ViceGrip	XXX	3 pc set	
1	9	Grit Blower Room	Drill Bit	B and D	XXX	6 pc set	
1	10	Grit Blower Room	Nut Driver	Huskey	XXX	6 pc set	
1	11	Grit Blower Room	Ciri Saw	Porter Cable 347	XXX	1	
1	12	Grit Blower Room	Tool Box 3 Level	Huskey	XXX	1	
1	13	Grit Blower Room	Chain Saw	McCullough 4900	XXX	1	
1	14	Grit Blower Room	Hand Grinder	Dewalt DW471	XXX	1	
1	16	Grit Blower Room	EIE Motor 10 hp	Reliance	XXX	1	
1	17	Grit Blower Room	Battery Gun	Dewalt DW 945	XXX	1	
1	18	Grit Blower Room	Spare Battery Charger	XXX	XXX	1	
1	19	Grit Blower Room	Saws-ALL	Porter Cable 767	XXX	1	
1	20	Grit Blower Room	Drill	Roybt D28USR	XXX	1	
1	12	Lab	Alkaline Charger	Rayovac	XXX	1	
1	14	Lab	High Water Alarm	TCCL 1D002	XXX	1	
1	20	Lab	Weather Radio	Realistic 12-240	XXX	1	
1	7	Lime Room	21 pc 3/8" Dr Socket Set	Huskey Pro 40004	XXX	1	
1	8	Lime Room	22 pc 1/4" dr Socket Set	Husky Pro 40002	XXX	1	
1	1	mail room	steel shelving	6 feet high	XXX	4	
1	2	mail room	steel shelving	3 feet high	XXX	2	
1	5	mail room	postage mach	ascom haler	220	1	
1	6	mail room	postage scale dig	pelouze 4010	9745	1	
1	9	mail room	battery analizer	jabro t63506q	XXX	1	
1	10	mail room	radio 2 way	rd11 amr	7180694	1	
1	15	Maint. Bldg.	Sand Blaster	XXX	XXX	1	
1	2	Maint. Shop	Cordless Drill	Makita	680451	1	
1	4	Maint. Shop	Hand Held Grinder	Makita	N951473	1	
1	5	Maint. Shop	Skill Saw	Makita	446102	1	
1	6	Maint. Shop	1/2" Electric Impact	DeWalt	7027A	1	
1	7	Maint. Shop	Electric Hammer Drill	Black & Decker	2420	1	
1	8	Maint. Shop	3/8" Electric Drill	Black &n Decker	1166	1	
1	9	Maint. Shop	Electric Hand Held Sander	Black & Decker	9719C	1	
1	10	Maint. Shop	Electric Jig Saw	Black & Decker	7575	1	
1	11	Maint. Shop	Electric Chop Saw	Jepson	1694	2	
1	13	Maint. Shop	Electric Jig Saw	Ryobi	7246479340	4	
1	14	Maint. Shop	Electric Dia Grinder	Milwaukee	68985255	1	
1	15	Maint. Shop	Gear Box	Morse	XXX	1	
1	16	Maint. Shop	Electric Skill Saw	Black & Decker	XXX	1	
1	17	Maint. Shop	Gas Weed Eater	Home Lite	HD2141940	1	
1	18	Maint. Shop	Gas Weed Eater	Home Lite	HD2141930	1	
1	19	Maint. Shop	Gas Weed Eater	Echo	511259	1	
1	20	Maint. Shop	Gas Weed Eater	Shinchwa	2223302	1	
1	1	Maint. Tks	Ratchets	Socket Wrench	XXX	4	
1	2	Maint. Tks	Sockets (Asst.)	XXX	XXX	45	

CO.	FCWC
3 DIV.	Lee County

Initial Date	12/07/98	Non-Fixed
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Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
1	3	Maint. Tks	Offset Wrenches	XXX	XXX	10	
1	4	Maint. Tks	Spud Wrenches Lg	XXX	XXX	6	
1	5	Maint. Tks	Spud Wrenches SM	XXX	XXX	4	
1	6	Maint. Tks	Vise Grips	XXX	XXX	4	
1	7	Maint. Tks	Crescent Wrenches	XXX	XXX	4	
1	8	Maint. Tks	Wrenches Comb.	XXX	XXX	44	
1	9	Maint. Tks	Hydrant Wrenches	XXX	XXX	5	
1	10	Maint. Tks	Chain Wrench	XXX	XXX	1	
1	11	Maint. Tks	Screw Drivers Fl/Ph	XXX	XXX	26	
1	12	Maint. Tks	Pliers	XXX	XXX	2	
1	13	Maint. Tks	PVC Pipe Cutters LG	XXX	XXX	2	
1	14	Maint. Tks	PVC Pipe Cutters SM	XXX	XXX	4	
1	15	Maint. Tks	Hammers	XXX	XXX	9	
1	16	Maint. Tks	Hand Saws	XXX	XXX	11	
1	17	Maint. Tks	Power Saw 16"	Partnec K1200-16	7012182	1	
1	18	Maint. Tks	Power Saw 14"	Partnec K1200-14	6190216	1	
1	19	Maint. Tks	Pipe cutters	4 wheel	XXX	2	
1	20	Maint. Tks	Tubing Grinders	XXX	XXX	4	
1	1	MCC	Tri Pod/Winch Conf Space	DB-Sala L18500/1850-177	XXX	1	
1	4	meter room	3 shelf unit	XXX	XXX	1	
1	5	meter room	4 shelf unit	XXX	XXX	1	
1	9	meter room	5 station ltron hh	ltron	XXX	1	
1	14	meter room	key lock up	n/a	XXX	1	
1	15	meter room	radio 2 way	cpi	XXX	1	
1	8	mgr/lobby	radio 2-way	CPI	XXX	1	
1	4	miscellanous	sony digital camera	XXX	XXX	1	
1	15	Outside/In Tk	2 Wheel Trailer/Green	Steel	XXX	1	
1	14	Outside/In TK	Diamond Plate Steel Tk Bx	XXX	XXX	1	
1	1	Pump Room	Hearing Protection Muffs	Eastern Safety 315	XXX	1	
1	3	Pump Room	10' Wooden Ladder	Blue Ribbon 10110	XXX	1	
1	4	reg. eng	radio 2 way	CPI	XXX	1	
1	11	secretary	radio 2 way	CPI	XXX	1	
1	12	Shed	Hole Saw Set	XXX	XXX	1	
1	13	Shed	Air Chisel Guns	XXX	XXX	2	
1	14	Shed	Battery Powered Drill	Makita	XXX	2	
1	15	Shed	Ratchel/Socket Set	XXX	XXX	2	
1	19	Shed	Chop Saw	Black & Decker	XXX	1	
1	20	Shed	Oxygen/Acetalene Torch	Firepower	XXX	1	
1	1	WWWW Office	Motorola Radio/MaxTrac 50	D34MJA7304BK	428FNY0174	1	
1	4	WWWW Office	Radio	Motorola HT600	XXX	3	
1	5	WWWW Office	Radio Battery Charger	Motorola NTN4633A	XXX	3	
1	6	WWWW Office	Radio	Motorola GP300	XXX	1	
1	7	WWWW Office	Battery Charger	Motorola HTN9167A	XXX	1	
1	1	WWW/Tool Shed	Tool Box	Husky	XXX	1	
1	2	WWW/Tool Shed	Circular Saw	Skill 5150	XXX	1	

CO.	FCWC
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						Initial Date	12/07/98	Non-Fixed
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Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #		Quantity	(Incl/Excl)
1	3	WWW/Tool Shed	Grinder/Sander	Milwaukee 6065	75285423		1	
1	4	WWW/Tool Shed	Reoprocatih Saw	Dewalt DW304	380677		1	
1	5	WWW/Tool Shed	Hammer Drill	Black & Decker	XXX		1	
1	6	WWW/Tool Shed	Gas Trimmer	Homelite	HTo540015		1	
1	7	WWW/Tool Shed	Lawnmower	Murray 548	XXX		1	
1	8	WWW/Tool Shed	Gas Hedger	Weed Eater	XXX		1	
1	9	WWW/Tool Shed	Gas Blower	Homelite	XXX		1	
1	10	WWW/Tool Shed	Oxy-Acety Torch Set & Cart	XXX	XXX		1	
1	11	WWW/Tool Shed	AC Welder	Lincoln Elect AI225	9422-1006		1	
2	5	Control Room	2 Door Locker/6' Metal	XXX	XXX		5	
2	6	Control Room	Hand held Calculator	Texas Inst 1795+	XXX		1	
2	1	F-350 Ford	Open End Wrench Set	XXX	XXX		1	
2	2	F-350 Ford	Dead Impact Hammer	XXX	XXX		1	
2	1	Fiesta Garage	Battery Charger	Schaver FC40	XXX		1	
2	3	Fiesta Garage	Strap Wrench	RIDGID No 5	XXX		1	
2	7	Fiesta Garage	Power Puller	MAASDAM 1445B-6	XXX		1	
2	8	Fiesta Garage	Gas Blower	McCullough	XXX		1	
2	9	Fiesta Garage	Gas Trimmer	Tanaka 24" bar	XXX		1	
2	12	Fiesta Garage	Pipe Wrench	Ridgid 36"	XXX		1	
2	13	Fiesta Garage	Pipe Wrench	Ridgid 18"	XXX		2	
2	14	Fiesta Garage	Pipe Wrench	Ridgid 12"	XXX		1	
2	16	Fiesta Garage	Speed Rooter	General	XXX		1	
2	1	Grit Blower Room	Hammer	Estwing	XXX		3 pc set	
2	2	Grit Blower Room	Pliers	Channel Lock	XXX		4 pc set	
2	3	Grit Blower Room	Ratchet Wrench	Huskey Standard	XXX		5 pc set	
2	4	Grit Blower Room	Adj. Wrench	Craftsman	XXX		4 pc set	
2	5	Grit Blower Room	Drill Bit - Wood	Black & Decker	XXX		6 pc set	
2	6	Grit Blower Room	Drill Bit - Metal	Black & Decker	XXX		14 pc set	
2	7	Grit Blower Room	Pole Saw	XXX	XXX		1	
2	8	Grit Blower Room	Valve Key	36 "	XXX		1	
2	1	Instrument. Maint.	1-1/2"Rotary Hammer Drill	Milwaukee	na		1	
2	2	Lab	Var Auto Transformer	Staco 3PN1010	XXX		1	
2	3	Lab	Piezometer	Earth Science Inst	XXX		1	
2	7	Lab	Asst. Hand Tools	XXX	XXX			
2	10	Lab	2' Heavy Duty Power Cord	Woods Cat #824	XXX		1	
2	11	Lab	12' Extension Cord	XXX	XXX		1	
2	1	Maint. Bldg.	Butting Torches	Victor	XXX		2	
2	2	Maint. Bldg.	Weed Wacker	Taneka TRC 220	004380		1	
2	3	Maint. Bldg.	Chain Saw	XXX	XXX		1	
2	4	Maint. Bldg.	Battery Charger	XXX	XXX		1	
2	5	Maint. Bldg.	Circular Saw	Bosch	XXX		1	
2	6	Maint. Bldg.	Hand Grinder SM	Black & Decker	XXX		1	
2	7	Maint. Bldg.	Blower	Mac2605	C184		1	
2	9	Maint. Bldg.	Wheel Barrow	XXX	XXX		1	
2	10	Maint. Bldg.	Sprayer (Weed)	XXX	XXX		1	

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	Lee County

	Initial Date	12/07/98	Non-Fixed
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Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
2	11	Maint. Bldg.	Screw Driver Set	Omega	XXX	1	
2	16	Maint. Bldg.	Power Valve Oper.	Wschs	XXX	1	
2	18	Maint. Bldg.	Gas Cans	XXX	XXX	5	
2	19	Maint. Bldg.	Ladder	Keller 8"	XXX	1	
2	1	Maint. Shop	Airless Paint Sprayer	Titan	440-E	1	
2	2	Maint. Shop	Propane Insect Sprayer	Burgess	1443	2	
2	5	Maint. Shop	Battery Charger	Dayton	XXX	1	
2	12	Maint. Shop	Rivet Kit	Marson	XXX	1	
2	13	Maint. Shop	Drill Bit Set	Allied	XXX	1	
2	14	Maint. Shop	Drill Bit Set	Triumph	XXX	1	
2	15	Maint. Shop	Drill Bit Set	Jobber	XXX	1	
2	16	Maint. Shop	Impact Socket Set	Taiwan	XXX	1	
2	17	Maint. Shop	Thread Set	Marson	XXX	1	
2	18	Maint. Shop	Screwing Extractor	Magna	XXX	1	
2	19	Maint. Shop	Drill Bit Set	XXX	XXX	5	
2	1	Maint. Tks	Channel Lock Pliers	XXX	XXX	2	
2	2	Maint. Tks	Tapping Tools	PL-2	XXX	1	
2	13	Maint. Tks	Pick Axes	XXX	XXX	2	
2	12	PD/Lab	Fish Pumps	XXX	255134	1	
2	17	PD/Lab	Distillation Unit	Labcodco	XXX	4	
2	18	PD/Lab	DI Tank	Weltec	XXX	1	
2	19	PD/Lab	Tracs 800	Brantvebbe	XXX	1	
2	13	Pump Room	Weed Wacker	RY0B1	XXX	1	
2	14	Pump Room	Weed Wacker	ECHO	XXX	1	
2	4	Shed	3/8" Var. Speed Drill	Dewalt	XXX	1	
2	5	Shed	Electric Staple Gun	Arrow	XXX	1	
2	6	Shed	Circular Saw	Skilsaw	XXX	1	
2	7	Shed	Comb. Wrench Set	XXX	XXX	1	
2	8	Shed	Punch & Chisel Set	XXX	XXX	1	
2	9	Shed	Deep Impact Socket Set	XXX	XXX	1	
2	10	Shed	Knock out Punch Set	XXX	XXX	1	
2	11	Shed	Pop Rivet Set	XXX	XXX	4	
2	15	Shed	Spare Staker Gear Box	Hub City	NA	1	
3	11	Instrument. Maint.	Cellular Telephone	Tecnaphone	57444 & 57398	2	
3	12	Instrument. Maint.	Alpha Numeric Pager	Motorola/ AO3QW	A8345	1	
3	20	Instrument. Maint.	Scroller Saw	Craftsman/ 315.172110	XXX	4	
3	6	Maint. Bldg.	Ratchet	Socket Wrench	XXX	1	
3	7	Maint. Bldg.	Tapping Tool	D-5	XXX	3	
3	8	Maint. Bldg.	Pipe Wrenches Lg	XXX	BG-75	1	
3	16	Maint. Shop	Gas Blower	Sill	XXX	1	
3	17	Maint. Shop	Bug Sprayer	Champion	XXX	3	
3	18	Maint. Shop	Air Chisel	XXX	XXX	1	
3	19	Maint. Shop	Paint Sprayer	XXX	XXX	1	
4	10	Maint. Shop	Torch Set	Smith	10530	1	
4	11	Maint. Shop	ATV	Recreative			

Co.	FCWC
DIV.	Lee County

	Initial Date	12/07/98	Non-Fixed
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Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
5	20	Maint. Shop	Wrenches	Tool Master	XXX	1	
6	1	Instrument. Office	Drawer with assorted Fuses	various	N/A	48 drawers	
6	2	Instrument. Office	File cabinet	5 drawers	N/A	1	
6	6	Instrument. Office	Cart	Rubbermaid	N/A	1	
6	7	Instrument. Office	Drawer with assorted screws	N/A	N/A	4	
6	8	Instrument. Office	Drawer with assorted computer terminals	Durham	N/A	1	
6	9	Instrument. Office	Computer desk with 2 drawer filing cabinet	N/A	N/A	1	
6	12	Instrument. Office	Fax Machine	HP/ Fax 310	N/A	1	
6	14	Instrument. Office	File Cabinet	N/A	N/A	1	
6	15	Instrument. Office	Drawer with assorted tools	N/A	N/A	2	
6	16	Instrument. Office	Mini Van Shelves	Adrian Steel	N/A	2	
6	17	Instrument. Office	Instrumentation Van	Ford /Aerostar	N/A	1	
6	2	Maint. Shop	Screwdriver Set	Bench Top	XXX	2	
6	5	Maint. Shop	Electric Pencil Engraver	Wen	XXX	1	
6	6	Maint. Shop	Nut Driving Set	Vermont American	XXX	1	
6	7	Maint. Shop	Measure Mike	Mitutoyo	XXX	1	
6	8	Maint. Shop	Tape Measure	Stanley	XXX	1	
6	9	Maint. Shop	Pipe Wrenches	Rigid	XXX	10	
6	10	Maint. Shop	Socket Sets	Craftsman	XXX	3	
6	11	Maint. Shop	Socket Sets	Huskey	SSS	3	
6	12	Maint. Shop	Hammer Set	XXX	XXX	4	
6	13	Maint. Shop	Pliers Set	XXX	XXX	2	
6	14	Maint. Shop	Hole Saw Kit	Lenox	XXX	1	
6	15	Maint. Shop	Tap & Die Set	Magna	XXX	1	
6	16	Maint. Shop	Tap & Die Set	Black & Decker	XXX	1	
6	17	Maint. Shop	Grease Gun	XXX	XXX	5	
6	18	Maint. Shop	Caulk Guns	XXX	XXX	4	
6	19	Maint. Shop	Electric Connector	Flambeau	XXX	1	
7	6	Instrument. Office	Instrumentation cable spools	Various	N/A	4	
7	7	Instrument. Office	File cabinet	4 drawers	N/A	1	
7	8	Instrument. Office	10 Ft Ladder	Werner	N/A	1	
7	9	Instrument. Office	RTU	Modpac	N/A	1	
7	11	Instrument. Office	2 Drawer cabinet	Electrical relays etc.	N/A	1	
7	1	Maint. Shop	Tool Box Set	Husky	34G797X269	1	
7	5	Maint. Shop	Big Sprocket	XXX	XXX	1	
7	7	Maint. Shop	100' Screen Rubber	XXX	XXX	1	
7	8	Maint. Shop	Jeep Jack	XXX	XXX	1	
7	10	Maint. Shop	Electrical Boxes	XXX	XXX	4	
8	2	L54 Truck	Socket Set	Husky/	na	1	
8	3	L54 Truck	Vehicle Shelving & Pull out drawer units	Weather Guard	na	1	
8	4	L54 Truck	Parts Drawers	Various Electrical / Electronic Parts Ect.	na	1	
8	5	L54 Truck	Parts Drawers	Various Fittings/ Fastners Ect.	na	1	
8	6	L54 Truck	Toll Box of Hand Tools	na	na	1	
8	7	L54 Truck	Portable Voice Radio	Motorola/ HT1000	402AWC8416Z	1	
8	8	L54 Truck	Vehicle Port. Radio Power Booster	Motorola/N16718	na	1	

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Non-Fixed Assets (Incl/Excl)

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
8	9	L54 Truck	Tool Pouch with Hand Tools	na	na	1	
8	10	L54 Truck	Safety Equipment	Various	na	na	
9	1	Truck L4	Cordless Drill	Dewalt / 12V	187344	1	
9	2	Truck L4	Ladder	fiberglass / 6Ft	N/A	1	
9	3	Truck L4	Fish tape	ideal / 31-067	N/A	1	
9	4	Truck L4	151 socket set	Husky	N/A	1	
9	5	Truck L4	Knockout Punch Set	Greenlee / 735BB	N/A	1	
9	6	Truck L4	Vacuum Cleaner	3M	223117	1	
9	7	Truck L4	Hand Pouch w/assorted hand tools	various	N/A	1	
9	8	Truck L4	Parts Cabinet	Drawer of assorted PVC Fittings	N/A	3	
9	9	Truck L4	Parts Cabinet	Drawer of assorted Electrical Fittings	N/A	3	
9	10	Truck L4	Parts Cabinet	Drawer of assorted Instruments Fittings	N/A	1	
9	11	Truck L4	Parts Cabinet	Drawer of assorted screws	N/A	3	
9	12	Truck L4	Parts Cabinet	Drawer of electronics parts	N/A	2	
9	13	Truck L4	Parts Cabinet	Drawer of wire connectors	N/A	1	
9	14	Truck L4	Rotary tool	Dremmel	N/A	1	
9	15	Truck L4	Portable voice radio	motorola/ HT1000	402AWY6883Z	1	
9	16	Truck L4	Vehicle portable radio booster	Motorola/ N1671B	9648	1	

1 CO. PUI
DIV. Poinciana

Initial Date 12/04/98
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Non-Fixed Assets (Incl/Excl)

NON-FIXED ASSETS EXCLUDED:

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	
1	1	Cad Office	L-Shape Desk	Steelcase		1	
1	2	Cad Office	Chair	Steelcase		1	
1	3	Cad Office	Computer CPU	IBM M-Pro Intellistation	23XH862	1	
1	4	Cad Office	17" Monitor	IBM 17-P	2368815	1	
1	5	Cad Office	24 X 36 digitizer Board	Calcomp 33360	Z000037	1	
1	6	Cad Office	Plotter	HP Designjet 250 C	ESA5808487	1	
1	7	Cad Office	2 Drawer Security file safe	ShawWalker CWS028		1	
1	1	Cust. Service	U Shape desk 6 drawer	Steelcase		1	
1	2	Cust. Service	Overhead Storage	Steelcase		2	
1	6	Cust. Service	L Shape desk	Steelcase		1	
1	7	Cust. Service	Overhead Storage	Steelcase		2	
1	10	Cust. Service	Bookcases	Steelcase		2	
1	11	Cust. Service	6 drawer desk	Steelcase		1	
1	18	Cust. Service	Meter Read Handheld	Itron		1	
1	19	Cust. Service	Controller	Perle		1	
1	20	Cust. Service	Vanguard Modem	Motorola		1	
1	8	Engin. Library	Dbl draft board cabinet	Wood/metal		1	
1	9	Engin. Library	Verticle Blueprint file			1	
1	10	Engin. Library	12 Rack Blueprint File			1	
1	11	Engin. Library	Verticle rack file	52 X 16		1	
1	12	Engin. Library	Flat file 5 draser	D-Size prints Hamilton		1	
1	13	Engin. Library	Flat file 10 drawer	E-Size		1	
1	14	Engin. Library	Book case 6 shelf			1	
1	15	Engin. Library	Drafting Stool	Canadian Atlas		1	
1	16	Engin. Library	5 drawer file cabinet	Steelcase		1	
1	7	Eng. Library	Std. Surveying rod	Mound City		1	
1	8	Eng. Library	Metric surveying rod	Topcon		1	
1	1	Inspection Office	Desk w/overhead storage	Steelcase		1	
1	2	Inspection Office	Chair	Steelcase		1	
1	3	Inspection Office	Drafting table 38 X 36	Hamilton		1	
1	4	Inspection Office	Surveyor's wheel	Rolatape		1	
1	5	Inspection Office	Surveryor's level	Topcon		1	
1	6	Inspection Office	Tripod for surveyor level	Spectra-physics		1	
1	1	Oper. Rm	Desk	Steelcase		1	
1	2	Oper. Rm	Credenza	Steelcase		1	
1	3	Oper. Rm	Overhead storage	Steelcase		2	
1	4	Oper. Rm	Floor cabinet	Steelcase		1	
1	5	Oper. Rm	Computer Table	Steelcase		1	
1	6	Oper. Rm	Desk (VW)	Steelcase		1	
1	7	Oper. Rm	Sidetable	Steelcase		1	
1	8	Oper. Rm	Overhead Storage	Steelcase		2	
1	9	Oper. Rm	2 ft Partition	Steelcase		1	
1	10	Oper. Rm	4 ft Partition	Steelcase		1	
1	2	Reg. Eng. Office	Desk Chair	Steelcase		1	
1	3	Reg. Eng. Office	Computer Table	Steelcase		1	
1	4	Reg. Eng. Office	Cherry Credenza	Steelcase		1	
1	5	Reg. Eng. Office	Cabinet	Steelcase		1	
1	6	Reg. Eng. Office	File Cabinet	Hon		1	

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DIV. Poinciana

Initial Date 12/04/98 | Non-Fixed Assets
Updated Date 03/01/99

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
1	7	Reg. Eng. Office	Side Chairs	Steelcase		2	
1	8	Reg. Eng. Office	Computer	IBM 750-P90	23BW120	1	
1	9	Reg. Eng. Office	Monitor	IBM G40	883467	1	
1	10	Reg. Eng. Office	Printer	HP 722C	US8915211	1	
1	1	Reg. Mgr. Office	Cherry Desk	Steelcase		1	
1	2	Reg. Mgr. Office	Cherry Credenza	Steelcase		1	
1	3	Reg. Mgr. Office	Overhead Storage	Steelcase		1	
1	4	Reg. Mgr. Office	Free Standing Cabinet	Steelcase		1	
1	5	Reg. Mgr. Office	Chair (Executive)	Steelcase		1	
1	6	Reg. Mgr. Office	Table	Steelcase		1	
1	7	Reg. Mgr. Office	Computer	IBM 350 P-75	23VXTD2	1	
1	8	Reg. Mgr. Office	Monitor	Compaq 14 V		1	
1	9	Reg. Mgr. Office	Printer	HP Deskjet 722 C	US7A91Q052	1	
1	10	Reg. Mgr. Office	Chairs	Steelcase		2	
1	8	WWTP #3 Outside	Compactor			4	
1	15	WWTP #3 Outside	Lawn mower trailer			2	
2	11	Breakroom	Microwave	Magic Chef		1	
2	12	Breakroom	C-D Player	Phillips 900		1	
2	13	Breakroom	Refrigerator	Sears		1	
2	14	Breakroom	Postage Machine(lease)	Pitney Bowes		1	
2	15	Breakroom	Elec Letter Opener (Com)	Martin Yale		1	
2	2	Cust. Service	Overhead Storage	Steelcase		2	
2	3	Cust. Service	4 drawer file cabinet	Steelcase		4	
2	4	Cust. Service	Chairs	Steelcase		5	
2	5	Cust. Service	Overhead storage	Steelcase		4	
2	6	Cust. Service	3 ft partitiaion	Steelcase		1	
2	7	Cust. Service	2 -1/2 ft partition	Steelcase		2	
2	8	Cust. Service	2 ft partition	Steelcase		3	
2	9	Cust. Service	3 ft partition	Steelcase		1	

C	FCWC
DIV.	BFB

Print Button

Initial Date	12/1/98
Updated Date	03/01/99

Non-Fixed Assets (Incl/Excl)

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	
NON-FIXED ASSETS EXCLUDED:							
1	1	CSC/Office	Glass top round table 18"			1	
1	2	CSC/Office	Decorator chairs			2	
1	3	CSC/Office	Non tack panel bearer wall with door		steel case	1	
1	4	CSC/Office	3' x 4' picture			1	
1	1	Warehouse	Color TV 19"	Magnavox p601-00AA	52669215	1	
1	2	Warehouse	Panasonic VCR	PV4503	35SA20360	1	
1	6	Warehouse	Chain saw	STIHL 011AVT	911200210810	1	
1	7	Warehouse	Quick cut saw	STIHL TS360		2	
1	8	Warehouse	Hand grinder	Makita 9607BL	116349	1	
1	9	Warehouse	Gas blower with 50' hose	Briggs & Straton 80302	H878247	1	
1	14	Warehouse	Celphone	Motorolla		1	
1	15	Warehouse	Camcorder with tripod	RCA		1	
2	4	CSC/Office	Calculator	Texas Inst. TI5155		1	
2	5	CSC/Office	Four drawer file cabinet	steel case		1	
2	6	CSC/Office	Non tack panel/w 2 cabinets	steel case		1	
2	7	CSC/Office	Workstation w/ 2 drawers	steel case		1	
2	8	CSC/Office	Secretarial chair	steel case		1	
2	10	CSC/Office	3' x 4' picture			1	
2	5	WTP Pump Rm	Shop vac			1	
3	4	CSC/Office	Calculator	CASCIO DL270a		1	
3	5	CSC/Office	Two drawer file cabinet	steel case		1	
3	6	CSC/Office	Non tack panel/w 2 cabinets	steel case		1	
3	7	CSC/Office	Workstation w/ 2 drawers	steel case		1	
3	8	CSC/Office	Secretarial chair	steel case		1	
3	10	CSC/Office	Printer table	steel case		1	
3	11	CSC/Office	Side table	steel case		1	
3	12	CSC/Office	Battery back up	Fortress		1	
3	13	CSC/Office	Fax machine	HP Fax 310	3207J01679	1	
3	14	CSC/Office	3' x 4' picute			1	

	FCWC
DIV.	BFB

Print Button

Initial Date	12/1/98	Non-Fixed Assets
Updated Date	03/01/99	(Incl/Excl)

Sheet	Item	Location	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
3	15	CSC/Office	Radio Base station	Motorolla M120		1	
4	3	CSC/Conf	Decorator chairs			2	
4	4	CSC/Conf	Two drawer lateral file cab	steel case		3	
4	5	CSC/Conf	Phone	Lucent MLS-12		1	
4	10	CSC/Conf	Safe	Mellink		1	
5	1	CSC/Kitchen	36" dia. tabl			1	
5	2	CSC/Kitchen	kitchen chairs			4	
5	3	CSC/Kitchen	Refrigerator 3.5 cube	564-8996LLL	901100327	1	
5	4	CSC/Kitchen	Microwave	Kenmore		1	
6	3	CSC/Field Fore	Desk Top Book Case	Steel Case		1	
6	4	CSC/Field Fore	Vertical Wall File Unit	Steel Case		1	
6	5	CSC/Field Fore	Desk Top Telephone	AT & T MLS-12		1	
6	7	CSC/Field Fore	Copy machine	Panisonic FP 1780	KDU57315294	1	
6	8	CSC/Field Fore	Cork board			1	
7	7	DM Office	3 Shelf Book Case	Steel Case		1	
7	8	DM Office	L Shape Work Station	Steel Case		1	
7	9	DM Office	Scanner	HP Scan Jet 3P	3416J75698	1	
7	10	DM Office	Desk Telephone	AT & T MLS 12-D		1	
7	11	DM Office	Calculator	TI 5045 SV	396716	1	
7	12	DM Office	4 ' x 5' Bulletin Board			1	
7	13	DM Office	4' x 5' Marker Board			1	
7	14	DM Office	3 ' x 4' picture			1	
7	15	DM Office	Celphone	Motorolla		1	
8	2	CCS/ storage	Comm Controller	PERLE	3100 - 13713	1	
8	3	CCS/ storage	System Modem	Desk Porte ES 14.4		1	
8	4	CCS/ storage	Vacum cleaner	Eureka II		1	

Non-Fixed Assets Excluded Inventory - General Office 1

Initial Date 01/15/99
Updated Date 03/01/99

Sheet	Item	Description	Mfg. / Mod. #	Serial #	Quantity	Non-Fixed Assets (Incl/Excl)
1	1	Desk,Cradenz,Shelf_	Steelcase		1	
1	2	Swivel Chair	Steelcase		1	
1	3	Arm Chairs	Steelcase		2	
1	4	Book Shelves (3 Shelves)	Steelcase		2	
1	5	File Cabinet (4 Drawer)	Steelcase		1	
1	6	Monitor	NEC JC-1734VMA-1	6307637RA	1	
1	7	Computer	IBM PC 350-P133	23LTFKT	1	
1	8	Printer	HP LaserJet III 33449A	3022AD4696	1	
2	1	Desk & Side Return			1	
2	2	Overhead Cabinets			4	
2	3	Swivel Chair			1	
2	4	Lateral File Cabinet			1	
2	5	Computer	IBM 300GL		1	
2	6	Monitor	NEC - MultiSync 17"		1	
2	7	Printer	H-P LaserJet II		1	
3	1	Desk/Return/Credenza	Steelcase		1	
3	2	w/Overhead Bookcase	Steelcase		1	
3	3	3 Tier Bookcase	Steelcase		1	
3	4	3 Tier File Cabinet	Steelcase		1	
3	5	Desk Swivel Chair	Steelcase		1	
3	6	Arm Chair	Steelcase		2	
4	1	Four section metal desk	Steelcase		1	
4	2	Swivel chair	Steelcase		1	
4	3	Overhead bins	Steelcase		2	
4	4	Filing cabinets	Steelcase		2	
4	5	Partition sections	Steelcase		6	
4	6	Monitor	IBM G40	88922212	1	
4	7	Computer	IBM 350-P75	23-XVM24	1	
4	9	Typewriter/impact printer	IBM Wheelwriter 15		1	
4	8	Printer	HP LaserJet III	3031J26739	1	
5	2	72" File Drawer Credenza	Steelcase		1	
5	3	60" File Drawer Cred w/OH	Steelcase		1	
5	4	Desk Chair	Steelcase		1	
5	5	Arm Chair	Steelcase		1	
5	6	Partition	Steelcase		1	
5	7	Computer	IBM	23-LTFHD	1	
5	8	Monitor	IBM	23-1752C	1	
5	9	Printer	HP LJ Series II	2805A93702	1	
5	10	Typewriter	IBM		1	
5	1	Desk, Return, Corner Unit	Steelcase		1	
6	1	Desk, Caradz., Shelf	Steelcase		1	
6	2	Swivel Chair	Steelcase		1	
6	3	Arm Chairs	Steelcase		2	
6	4	Bookshelf	Steelcase		2	
6	5	Monitor	IBM		1	

Non-Fixed Assets Excluded Inventory - General Office 2

Initial Date 01/15/99 | Non-Fixed Assets
Updated Date 03/01/99

Sheet	Item	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
6	6	Computer	HyTech		1	
6	7	Printer	HP Desk Jet 690C		1	
7	1	Conference Table	Steelcase		1	
7	2	Conference Chairs	Steelcase		12	
7	3	Wall Unit			1	
7	4	Overhead Projector	3M		1	
7	5	Slide Projector	Kodak Carousel		1	
7	6	Monitor-VCR	Quasar		1	
8	1	Desk	Steelcase		2	
8	2	Side Return	Steelcase		2	
8	3	Credenza	Steelcase		2	
8	4	Corner Typewriter Stand	Steelcase		1	
8	5	Stand	Steelcase		1	
8	6	Overhead Bookcase	Steelcase		3	
8	7	5 Drawer File Cabinet	Steelcase		4	
8	8	2 Shelf Bookcase	Steelcase		3	
8	9	Shelf Bookcase	Steelcase		1	
8	10	Shredder	Dahle		1	
8	11	Typewriter	IBM Wheelwriter 3		1	
8	12	Swivel Chair	Steelcase		3	
8	13	Printer	HP LaserJet III		2	
8	14	Monitor	NEC		2	
8	15	Computer	Clone		1	
8	16	Computer	IBM		1	
8	17	Adding Machine	Monroe 2125		2	
9	1	Workstation	Steelcase		1	
9	2	Secretarial Chair	Steelcase		1	
9	3	266 MHZ PC	CLONE	23-LTHRN	1	
9	4	PC Monitor	IBM	23-1715P	1	
9	5	Typewriter	IBM		1	
9	6	Laser Printer	HP	USBB058050	1	
9	7	Scanner	HP	US00143234/1601	1	
9	8	Thickpad PC	IBM		1	
10	1	Desk w/ Return	Steelcase		1	
10	2	Credenza	Steelcase		1	
10	3	Bookcase	Steelcase		2	
10	4	Swivel Chair	Steelcase		1	
10	5	Arm Chair	Steelcase		2	
10	6	Laptop Computer	IBM	78-AF592	1	
10	7	Monitor	IBM	23-41074	1	
11	1	Desk	Formica		1	
11	2	Desk Chair	Cloth/Chrome		1	
11	3	PC Table	Wood		1	
11	4	Printer Table	Formica		1	
11	5	Guest Chairs (2)	Cloth/Wood		2	
11	6	Lateral File Cabinets	Metal		3	

Non-Fixed Assets Excluded Inventory - General Office 3

Initial Date 01/15/99
Updated Date 03/01/99

Sheet	Item	Description	Mfg. / Mod. #	Serial #	Quantity	Non-Fixed Assets (Incl/Excl)
11	7	Credenza	Formica		1	
11	8	Lateral File Cabinets	Formica		2	
11	9	4 Shelf Bookcase	Formica		1	
11	10	2 Shelf Bookcase	Formica		2	
11	11	Computer			1	
11	12	Printer			1	
11	13	Moinitor/Keyboard			1	
12	1	Desk, Return	Steelcase		1	
12	2	Credenza	Steelcase		1	
12	3	Bookshelf Units	Steelcase		3	
12	4	Round Table	Steelcase		1	
12	5	Arm Chairs	Stow & Davis		4	
12	6	Desk Chair	Steelcase		1	
12	7	Computer	IBM	23-XVM27	1	
12	8	Monitor	IBM	23-C8615	1	
12	9	Printer	HP LJ4		1	
13	1	Desk	Steelcase		1	
13	2	Shelf	Steelcase		1	
13	3	Credenza	Steelcase		1	
13	4	Arm Chairs	Steelcase		2	
13	5	Bookshelves	Steelcase		3	
13	6	Swivel Chair	Steelcase		1	
13	7	Monitor	IBM 14P		1	
13	8	Computer	IBM 300 GL		1	
14	1	Desk			1	
14	2	Caradz			2	
14	3	Book Shelf			1	
14	4	Swivel Chair			2	
14	5	Arm Chair			1	
14	6	Computer			1	
14	7	Monitor			1	
14	8	Printer	LaserJet III		1	
14	9	Shreader	Fellowes PS 50		1	
14	10	4 Dr.-Fire Proof File Cabinet	FireKing		1	
14	11	4 Draw File Cabinet			2	
14	12	1 Draw Roll File			1	
14	13	Typewriter	IBM - Wheelwriter 5		1	
15	1	Desk/Return	Steelcase		1	
15	2	Credenza	Steelcase		1	
15	3	3 Tier Bookshelf	Steelcase		3	
15	4	Desk Chair	Steelcase		1	
15	5	Arm Chair	Stow & Davis		2	
15	6	Computer	IBM		1	
15	7	Monitor	Optiquest/View Sonic		1	
16	1	Desk with return	Steelcase		1	
16	2	Credenza	Steelcase		1	

Non-Fixed Assets Excluded Inventory - General Office 4

Initial Date 01/15/99
Updated Date 03/01/99

Sheet	Item	Description	Mfg. / Mod. #	Serial #	Quantity	Non-Fixed Assets (Incl/Excl)
16	3	Arm Chair	Steelcase		2	
16	4	Swivel Chair	Steelcase		1	
16	5	Bookshelf	Steelcase		2	
16	6	Computer	IBM 350-P75	23-XVT49	1	
16	7	Printer	HP IIP	3011JH2LS1	1	
16	8	Monitor	IBM 14P	23-1715W	1	
17	1	Desk, Credenza, shelf	Steelcase		1	
17	2	Swivel chair	Steelcase		1	
17	3	Arm chair	Steelcase		2	
17	4	Bookshelf	Steelcase		1	
17	5	Monitor	NEC MultiSync XV17+	6304640RA	1	
17	6	Computer	IBM 350 - P75	23XVL88	1	
18	1	PC SERVER1	IBM		1	
18	2	PC SERVER2	IBM		1	
18	3	Line Printer	OTC		1	
18	4	MAU			2	
18	5	UPS			1	
18	6	Monitor	IBM		1	
18	7	Switching Device			1	
18	8	Modems	US Robitics		3	
18	9	CDROM Juke Box			1	
19	1	Wood Desk			1	
19	2	Wood Credenza			1	
19	3	Wood Counter			1	
19	4	Sofa			1	
19	5	Easy Chairs			2	
19	8	Monitor	IBM	23-1717G	1	
19	10	Check Signer	Standard Register	B2831	1	
19	6	Wood End Table			1	
19	7	Computer	IBM	23DPT58	1	
19	9	Electronic Typewriter	IBM		1	
19	11	Amount Encoder	Standard Register	318012334	1	
19	12	Swivel Chair	Steelcase		1	
20	1	File Cabinets, 5-drawer	Steelcase		2	
20	2	Fireproof File Cabinets	FireKing		6	
20	3	Metal Shelf Units			4	
20	4	Conference Tables	Steelcase		2	
20	5	Printer Table	Steelcase		1	
20	6	Arm Chairs	Steelcase		4	
20	7	Paper Shredder	GBC		1	
21	1	Desk	Steelcase		1	
21	2	Credenza	Steelcase		1	
21	3	Swivel Chair	Steelcase		1	
21	4	Arm Chairs	Steelcase		2	
21	5	Bookshelf	Steelcase		3	
21	6	Monitor	IBM	23-23649	1	

Non-Fixed Assets Excluded Inventory - General Office 5

Initial Date 01/15/99 | Non-Fixed Assets
Updated Date 03/01/99

Sheet	Item	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
21	7	Laptop Computer	IBM	78-AG348	1	
21	8	Printer	HP IIP	3011JF2LWB	1	
22	1	Desk,Caradz.,Shelf	Steelcase		1	
22	2	Swivel Chair	Steelcase		1	
22	3	Arm Chairs	Steelcase		2	
22	4	Bookshelf	Steelcase		2	
22	5	Monitor	NEC	6307638RA	1	
22	6	Computer	HyTech	23WCBY5	1	
22	7	Printer	LJ6L	JPHF022111	1	
22	8	IBM Think Pad	365X	78-PYR82	1	
23	1	Desk, Credenza, shelf	Steelcase		1	
23	2	Swivel chair	Steelcase		2	
23	3	Bookshelf	Steelcase		1	
23	4	Monitor	View Sonic 773		1	
23	5	Computer	IBM-350 P 133	23LTHRN	1	
23	6				1	
24	14	Blueprint Machine	Dart		1	
24	15	Blueprint Machine	Diazit		1	
24	16	Flat Files	?		3	
24	17	Portable Drafting Table	Alvin		1	
24	11	Desk, Corner Unit, Return	Steelcase		1	
24	12	Computer	IBM		1	
24	13	Monitor	Optiquest		1	
24	1	Desk, Corner Unit, Return	Steelcase		1	
24	2	Desk with overhead	Steelcase		1	
24	3	File Cabinet (5 drawer)	Steelcase		1	
24	4	Bookshelf	Steelcase		1	
24	5	Swivel Chairs	Steelcase		3	
24	6	Plotter	HP	ESA5707219	1	
24	7	Printer	HP	USKC272006	1	
24	8	Flat File with base	?		1	
24	9	Computer	IBM	23XH223	1	
24	10	Monitor	IBM	23-F5837	1	
25	1	desk with return	steelcase		1	
25	2	swivel chair	steelcase		1	
25	3	arm chair	steelcase		2	
25	4	bookshelf	steelcase		2	
25	5	computer	IBM 350-P75		1	
25	6	monitor	IBM 14P		1	
25	7	printer	HP LaserJet IIP		1	
25	8	credenza	steelcase		1	
25	9	printer stand	steelcase		1	
26	1	Desk, comp. shelf, file dwr	Oak "U" shape		1	
26	2	Swivel chair-aqua color	Steelcase		1	
26	3	Arm Chairs-plum color	Steelcase		2	
26	4	File -Oak 2 drwr lateral			1	

Non-Fixed Assets Excluded Inventory - General Office 6

Initial Date 01/15/99 | Non-Fixed Assets
Updated Date 03/01/99

Sheet	Item	Description	Mfg. / Mod. #	Serial #	Quantity	(Incl/Excl)
26	5	Bookcase, Oak, 3 shelves			2	
26	6	calculator	Sharp El2630GII	5B120922	1	
26	7	Phone	ATT Spirit		1	
26	8	Computer	IBM 350-P75	23XV687	1	
26	9	monitor	NEC 17+		1	
27	10	Printer	HP Laserjet 4		1	
27	11	5 Drawer File Cabinet	Steelcase		2	
27	12	6 Drawer Mini File Cabinet	Russ Bassett		1	
27	1	Desk, Return, Credenza	Steelcase		1	
27	2	w/overhead bookcase	Steelcase		1	
27	3	2 Drawer File Cabinet	Steelcase		1	
27	4	Desk Swivel Chair	Steelcase		1	
27	5	Partition	Steelcase		7	
27	6	Computer	IBM		1	
27	7	Monitor	IBM		1	
27	8	Typewriter	IBM Wheelwriter 5		1	
27	9	Adding Machine	Monroe 122PD	AR 004389	1	
28	1	Desk, Credenza, Return	HON		1	
28	2	Swivel/tilt arm chair			1	
28	3	Guest chair w/ arms			2	
28	4	3-shelf Bookcase			2	
28	5	5-drawer file cabinet	Steelcase		1	
28	6	Computer	IBM (350 - P75)		1	
28	7	Monitor	IBM (14 P)		1	
28	8	Printer	HP Laserjet II P		1	
29	3	Fridge			1	
29	7	Microwave			1	
29	1	Desk, Shelf & Credenza	Steelcase		1	
29	2	Swivel Chair	Steelcase		1	
29	3	Arm Chairs	Steelcase		2	
29	4	Bookshelf	Steelcase		2	
29	5	Monitor	NEC	6307642RA	1	
29	6	Computer	IBM	23LTMPK	1	
29	7	Digitizing Tablet			1	
30	1	grey chairs			18	
31	2	round tables			2	

APPENDIX O

PERMITTED EXCEPTIONS

APPENDIX O - PERMITTED EXCEPTIONS

FOR ALL DIVISIONS:

(A) Any parcel or interest not the subject of a survey dated 30 days or less prior to closing, may be subject to standard exceptions of title insurance coverage concerning easements or claims of easements not shown by the public records, encroachments, overlays, boundary line disputes, or any other adverse matter which would be disclosed by an accurate survey.

(B) Any adverse ownership claim by the State of Florida by right of sovereignty to any portion of the property, including submerged, filled and artificially exposed lands and lands accreted to such lands.

(C) Any law, ordinance or governmental regulation, including, without limitation, building restrictions and zoning regulations heretofore or hereafter adopted by any municipal or other public authority.

(D) Any and all assessments becoming liens subsequent to the date of closing, and in addition, if at the date of closing the property or any part thereof shall be or shall have been affected by any assessment or assessments which are payable in installments or may be paid in installments without penalty, the GUA shall pay all such installments which shall become due and payable and which may be paid without penalty after the date of closing, except any installment relating to the 1998 calendar year.

(E) Taxes for 1999 and subsequent years.

(F) The following exceptions set forth for each Division as applicable to each separate Parcel identified:

SARASOTA DIVISION
COMMITMENT FOR TITLE INSURANCE CASE NO. 9802080

AS TO ALL PARCELS:

~~1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires for value of record the estate or interest or mortgage covered by this Commitment.~~ (Not a Permitted Exception)

2. Items (A) through (E) above.

~~3.*** Bill of Sale recorded in O.R. Book 2900, Page 1752.~~(Not a Permitted Exception)

4. Easement recorded in O.R. Book 827, Page 906.

AS TO PARCEL 1:

~~5. UCC Financing Statement from Florida Cities Water Company, a Florida corporation to Marine Bank & Trust Co. of Tampa, as Trustee recorded in Official Records Book 753, Page 1028, as amended in Official Records Book 2312, Page 37.~~ (Not a Permitted Exception)

6. Matters as shown on the Plat of SHADOW LAKES, recorded in Plat Book 10, Page 57.

7.* Covenants, Restrictions, Easements and other limitations in instrument recorded in Official Records Book 82, Page 519; together with Amendments recorded in Official Records Book 94, Page 485, Official Records Book 200, Page 405 and Official Records Book 1170, Page 503.

8.* Waive of Option in Building Restrictions recorded in Official Records Book 357, Page 366.

9. Resolution of The Board of County Commissioners of Sarasota County, Florida. Re: Lot Mowing recorded in Official Records Book 837, Page 765.

~~10.***Settlement Stipulation and Agreement recorded in Official Records Book 1238, Page 324~~ (Not a Permitted Exception)

(AS TO PARCELS 1, 2 AND 3a)

11. Riparian and littoral rights are not insured.

~~12. Shown for Information:~~
~~a) Memorandum recorded in Official Records Book 1027, Page 980;~~
~~b) Final Judgment recorded in Official Records Book 1194, Page 1639.~~ (Not a Permitted Exception)

(AS TO PARCELS 1, 2 AND 3a)

AS TO PARCEL 2:

13. Matters as shown on the Plat of RESUBDIVISION OF PART OF HYDE PARK CITRUS SUBDIVISION, recorded in Plat Book 3, Page 86.

14. Easement to First Development Corporation of America recorded March 6, 1968 in Official Records Book 726, Page 180.

15. Lease recorded in Official Records Book 558, Page 582.

AS TO PARCEL 3b:

16.* Declaration of Restrictions recorded in Official Records Book 811, Page 353.

17. Matters per Plat recorded in Plat Book 7, Page 49.

AS TO PARCEL 3c:

~~18.***Non-Exclusive Easement Deed as recorded in Official Records Book 581, Page 432.~~ (Not a Permitted Exception)

19. Matters as shown on the Plat of PHILLIPPI GARDENS SUBDIVISION UNIT 5, recorded in Plat Book 11, Page 26.

BAREFOOT BAY DIVISION
COMMITMENT FOR TITLE INSURANCE CASE NO. 9802079

~~1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires for value of record the estate or interest or mortgage covered by this Commitment.~~ (Not a Permitted Exception)

2. Items (A) through (E) above.

3.* Restrictions, Dedications and Easements as shown on the Plat of BAREFOOT BAY UNIT TWO PART ELEVEN, recorded in Plat Book 22, Page 16. (AS TO PARCEL 1)

4.* Restrictions, Dedications and Easements as shown on the Plat of BAREFOOT BAY UNIT TWO PART TEN, recorded in Plat Book 22, Page 105, as affected by instrument recorded in Official Records Book 3267, Page 3275. (AS TO PARCELS 2, 3, 5 AND 6a)

5.* Restrictions, Dedications and Easements as shown on the Plat of BAREFOOT BAY UNIT TWO PART THIRTEEN, recorded in Plat Book 23, Page 29. (AS TO PARCEL 6b)

6.* Restrictions, covenants, conditions as set forth in that instrument recorded in Official Records Book 1101, Page 480; Official Records Book 1110, Page 925; Official Records Book 1129, Page 587; Official Records Book 1151, Page 118; Official Records Book 1248, Page 559; Official Records Book 2247, Page 1359; Official Records Book 2391, Page 2461; Official Records Book 2678, Page 2606, and Affidavits recorded in Official Records Book 2540, Page 2168 and Official Records Book 2890, Page 16. AS TO PARCELS 1, 2, 3, 5, 6a AND 6b) NOTE: This exception omits any restriction, covenant, or condition based on race, color, religion, sex, handicap, familial status or national origin, if any, unless and only to the extent that the restriction is not in violation of state or federal law, or relates to a handicap, but does not discriminate against handicapped people.

7. Easement(s) in favor of Florida Power and Light Company, set forth in instrument(s) recorded in Deed Book 179, Page 592. (AS TO PARCEL 1)

8. Easement(s) in favor of County of Brevard set forth in instrument(s) recorded in Official Records Book 1916, Page 518. (AS TO PARCEL 6a)

9. Easement(s) in favor of County of Brevard set forth in instrument(s) recorded in Official Records Book 2037, Page 845. (AS TO PARCEL 6b)

10. Terms, conditions, and provisions of Easement Agreement, recorded in O.R. Book 2736, Page 1144 and Corrective Easement recorded in Official Records Book 3197, Page 1678. (AS TO PARCEL 6a)

11. Terms, conditions, and provisions of Non-Exclusive Easement, recorded in O.R. Book 3631, Page 4269. (AS TO PARCEL 6a)

12. Notwithstanding the legal description in Schedule A, this policy does not insure against rights of the State of Florida based on the doctrine of the state's sovereign ownership of lands lying below the mean high water line of any navigable or tidally influenced waters.

13. Notwithstanding the legal description in Schedule A, this policy does nor insure against rights of the State of Florida based on the doctrine of the state's sovereign ownership of lands lying below the ordinary high water line of any navigable waters.

~~14. Possible construction lien(s) arising out of Florida Statutes Chapter 713, Part T due to the filing of that certain Notice of Commencement recorded in O.R. Book 3856, Page 504. (AS TO PARCEL 6a)~~ (Not a Permitted Exception)

~~15. UCC Financing Statement to Sun Bank., as Trustee, recorded in Official Records Book 2804, Page 2015 and Official Records Book 3241, Page 225.~~ (Not a Permitted Exception)

~~16.*** Terms, conditions, and provisions of Cooperative Perpetual Maintenance Agreement, recorded in O.R. Book 1130, Page 943. (AS TO PARCELS 1, 2, 3, AND 6a)~~ (Not a Permitted Exception)

~~17.*** Terms, conditions, and provisions of Resolution, recorded in Official Records Book 3625, Page 1769 and Official Records Book 3267, Page 3275. (AS TO PARCELS 2, 3, 5 AND 6a)~~ (Not a Permitted Exception)

CARROLLWOOD DIVISION
COMMITMENT FOR TITLE INSURANCE CASE NO. 9802078

~~1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires for value of record the estate or interest or mortgage covered by this Commitment.~~ (Not a Permitted Exception)

2. Items (A) through (E) above.

~~3. Mortgage executed by Florida Cities Water Company, a Florida corporation, in favor of Marine Bank & Trust Company of Tampa, Florida, as Trustee, dated February 1, 1966 and recorded May 3, 1966 in Official Records Book 1609, Page 382; together with Supplemental Indentures recorded in Official Records Book 1932, Page 618, Official Records Book 2007, Page 868, Official Records Book 2276, Page 828, Official Records Book 3005, Page 576, Official Records Book 3870, Page 751 and Official Records Book 4700, Page 1728. (See Partial Release in Official Records Book 2606, Page 968 and Official Records Book 3332, Page 1893).~~ (Not a Permitted Exception)

~~4. UCC-Financing Statement executed by Florida Cities Water Company in favor of Marine Bank & Trust Company, recorded August 11, 1968 in Official Records Book 1929, Page 716, Official Records Book 2007, Page 878 and Official Records Book 2276, Page 827, together with Amendments and Continuations recorded in Official Records Book 2704, Page 184, Official Records Book 3226, Page 939, Official Records Book 3411, Page 382, Official Records Book 3870, Page 750, Official Records Book 3871, Page 980, Official Records Book 4585, Page 73, Official Records Book 4699, Page 535, Official Records Book 4700, Page 1727, Official Records Book 5127, Page 1742, Official Records Book 6320, Page 380 and Official Records Book 6777, Page 356.~~ (Not a Permitted Exception)

5.* Covenants, Restrictions, Easements and other limitations in instrument recorded September 6, 1978 if Official Records Book 5778, Page 1453.

6. Water and Wastewater Utilities Franchise recorded April 20, 1990 in Official Records Book 5958, Page 327.

7. Agreement recorded July 3, 1991 in Official Records Book 6315, Page 1345.

8. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION UNIT NO. 1, recorded in Plat Book 35, Page 40.
(AS TO PARCEL 1)

9. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION UNIT NO. 2, recorded in Plat Book 35, Page 54. (AS TO PARCEL 2)

10. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION UNIT NO. 14, recorded in Plat Book 39, Page 86.
(AS TO PARCEL 3)

11. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION UNIT 5, recorded in Plat Book 37, Page 62.
(AS TO PARCEL 4)

12. Matters as shown on the Plat of W E HAMNER'S HORSESHOE ACRES, recorded in Plat Book 26, Page 39.
(AS TO PARCEL 5)

13. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION UNIT NO. 16, recorded in Plat Book 39, Page 97.
(AS TO PARCEL 6)

14. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION UNIT NO. 20, recorded in Plat Book 41, Page 8.
(AS TO PARCEL 7)

15. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION UNIT NO. 22B, recorded in Plat Book 43, Page 72.
(AS TO PARCELS 8a, 8b and 8c)

16.* Restrictive covenants and restrictive conditions as incorporated in that certain Declaration of Restrictions recorded July 26, 1971 in Official Records Book 2341, Page 463, of the Public Records of Hillsborough County, Florida, which do not embody and are not accompanied by a right of reverter.
(AS TO PARCELS 8a, 8b and 8c)

17. Matters as shown on the Plat of CARROLLWOOD SUBDIVISION NO. 21, recorded in Plat Book 42, Page 39.
(AS TO PARCEL 8d)

18.* Restrictive covenants and restrictive conditions, incorporated in instrument recorded January 10, 1969 in Official Records Book 1987, Page 974, which do not embody and are not accompanied by a right of reverter.
(AS TO PARCEL 8d).

POINCIANA DIVISION
COMMITMENT FOR TITLE CASE NO. 9802081

FOR ALL PARCELS:

~~1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires for value of record the estate or interest or mortgage covered by this Commitment.~~ (Not a Permitted Exception)

2. Items (A) through (E) above.

~~3. Assignment and Pledge of Leases, Rents and Profits recorded in Official Records Book 1074, Page 2641, Public Records of Osceola County, Florida, and in Official Records Book 3118, Page 1368, Public Records of Polk County, Florida.~~ (Not a Permitted Exception)

~~4. UCC Financing Statement recorded in Official Records Book 1074, Page 2646, Public Records of Osceola County, Florida, and in Official Records Book 3118, Page 1373, Public Records of Polk County, Florida; together with Continuation recorded in Official Records Book 1410, Page 1421 and UCC-3 Financing Statement recorded in Official Records Book 1422, Page 507, both of the Public Records of Osceola County, Florida, and UCC-3 Continuation recorded in Official Records Book 3863, Page 2014 and UCC-1 Financing Statement recorded in Official Records Book 3884, Page 1407, both of the Public Records of Polk County, Florida.~~ (Not a Permitted Exception)

AS TO PARCEL 1:

5. Right of Way Easement recorded in Official Records Book 763, Page 2435, Public Records of Osceola County, Florida.

59.** There is no improved access over public or private right-of-way to permit ingress and egress to Parcel 1. The policy excludes the coverage for damages arising because of this fact.

7. Easement Deed recorded in Official Records Book 1137, Page 1973, Public Records of Osceola County, Florida.

8. Right-of-Way Easement recorded September 19, 1989 in Official Records Book 937, Page 2465, Public Records of Osceola County, Florida.

20. Covenants, Restrictions and Easements recorded in Official Records Book 221, Page 425, as amended in Official Records Book 228, Page 736, Official Records Book 241, Page 238, Official Records Book 258, Page 177, Official Records Book 610, Page 251, Official Records Book 610, Page 258, Official Records Book 610, Page 261, Official Records Book 654, Page 392, Official Records Book 761, Page 2405, Official Records Book 763, Page 895, Official Records Book 859, Page 467, Official Records Book 868, Page 2783 and Official Records Book 910, Page 976, Public Records of Osceola County, Florida.

21. Matters shown on the Plat of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, recorded in Plat Book 3, Pages 239 to 242, inclusive, Public Records of Osceola County, Florida, including drainage and utility easements which are coexistent with access easement.

22. Resolution recorded July 15, 1986 in Official Records Book 809, Page 2616, Public Records of Osceola County, Florida.

AS TO PARCEL 2:

23. Easement Deed recorded in Official Records Book 1137, Page 1976, Public Records of Osceola County, Florida.

AS TO PARCELS 2 AND 5:

24.* Covenants, Restrictions and Easements recorded in Official Records Book 221, Page 425, as amended in Official Records Book 228, Page 736, Official Records Book 241, Page 238, Official Records Book 258, Page 177, Official Records Book 610, Page 251, Official Records Book 610, Page 258, Official Records Book 610, Page 261, Official Records Book 654, Page 392, Official Records Book 761, Page 2405, Official Records Book 763, Page 895, Official Records Book 859, Page 467, Official

Records Book 868, Page 2783 and Official Records Book 910, Page 976, Public Records of Osceola County, Florida.

25. Matters reflected on Plat of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION A, recorded in Plat Book 3, Page 208 through 210, Public Records of Osceola County, Florida.

26. Resolution recorded in Official Records Book 809, Page 2616, Public Records of Osceola County, Florida.

AS TO PARCELS 3 AND 4:

27.* Covenants, Restrictions and Easements recorded in Official Records Book 221, Page425, as amended in Official Records Book 228, Page 736, Official Records Book 241, Page 238, Official Records Book 258, Page 177, Official Records Book 610, Page 251, Official Records Book 610, Page 258, Official Records Book 610, Page 261, Official Records Book 654, Page 392, Official Records Book 761, Page 2405, Official Records Book 763, Page 895, Official Records Book 859, Page 467, Official Records Book 868, Page 2783 and Official Records Book 910, Page 976, Public Records of Osceola County, Florida.

28. Matters reflected on Plat of POINCIANA OFFICE AND INDUSTRIAL PARK I, SECTION C, recorded in Plat Book 3, Pages 239 to 242, inclusive, public Records of Osceola County, Florida.

29. Resolution recorded in Official Records Book 809, Page 2616, Public Records of Osceola County, Florida.

30.** There is no improved access over public or private rights of way to permit ingress and egress to Parcel 4.

31.** The unpaved path providing access to the improvement on Parcel 5 is not located entirely within Parcel 5 and encroaches onto adjoining lands.

32. Matters reflected on Plat of POINCIANA NEIGHBORHOOD 1, VILLAGE 2, recorded in Plat Book 3, Pages 69 through 87, Public Records of Osceola County, Florida.

33.* Covenants, Restrictions and Easements recorded in Official Records Book 221, Page 425, as amended in Official Records Book 228, Page 736, Official Records Book 241, Page 238, Official Records Book 258, Page 177, Official Records Book 610, Page 251, Official Records Book 610, Page 258, Official Records Book 610, Page 261, Official Records Book 654, Page 392, Official Records Book 761, Page 2405, Official Records Book 763, Page 895, Official Records Book 859, Page 467, Official Records Book 868, Page 2783 and Official Records Book 910, Page 976, of the Public Records of Osceola County, Florida.

34. Certificate of Incorporation recorded in Official Records Book 243, Page 343, Public Records of Osceola County, Florida.

AS TO PARCELS 7, 8, 9 AND 10:

35. Easements for drainage and utilities shown on Plat of POINCIANA NEIGHBORHOOD 1, VILLAGE 3, recorded in Plat Book 52, Page 8, Replat of a portion of POINCIANA NEIGHBORHOOD 1, VILLAGE 3, recorded in Plat Book 58, Page 31, POINCIANA NEIGHBORHOOD 5, VILLAGE 7, recorded in Plat Book 53, Page 19, and POINCIANA NEIGHBORHOOD 2, VILLAGE 8, recorded in Plat Book 53, Page 29, Public Records of Polk County, Florida.

36.* Covenants, Restrictions and Easements recorded in Official Records Book 1384, Page 58, amended in Official Records Book 1401, Page 50, Official Records Book 1457, Page 799, Official Records Book 1552, Page 490, Official Records Book 2115, Pages 1023 and 1030, Official Records Book 2292, Page 1485, Official Records Book 2595, Page 536, Official Records Book 2604, Page 986, Official Records Book 2668, Page 1038 and Corrective recorded in Official Records Book 2672, Page 618, Official Records Book 2703, Page 1281 and Official Records Book 2737, Page 509, Public Records of Polk County, Florida.

37. Certificate of Incorporation of Poinciana Village Eight Association, Inc., recorded in Official Records Book 1450, Page 261, and Certificate of Amendment recorded in Official Records Book 2218, Page 900, Public Records of Polk County, Florida.

38. Certificate of Incorporation of Poinciana Village Three Association, Inc., recorded in Official Records Book 1450, Page 205 and Certificate of Amendment recorded in Official Records Book 2218, Page 875, Public Records of Polk County, Florida.

39. Certificate of Incorporation of Poinciana Village Seven Association, Inc., recorded in Official Records Book 1450, Page 247, and Certificate of Amendment recorded in Official Records Book 2218, Page 895, Public Records of Polk County, Florida.

40. Certificate of Incorporation of Poinciana Villages, Inc., recorded in Official Records Book 1450, Page 194, and Amendment recorded in Official Records Book 2218, Pages 861 and 905, and Official Records Book 3833, Page 50, Public Records of Polk County, Florida; and Official Records Book 2379, Page 1362, Public Records of Osceola County, Florida.

41. Subordination Agreements recorded in Official Records Book 1642, Page 1613, Official Records Book 1753, Page 457, Official Records Book 1780, Page 1592 and Official Records Book 2111, Page 1175, Public Records of Polk County, Florida.

AS TO PARCEL 11:

42. Riparian rights are not insured hereunder. Any adverse claim by the State of Florida to any portion of said land which has been created by artificial means or has accreted to any such portion so created.

43.* Covenants, Restrictions and Easements recorded in Official Records Book 221, Page 425, as amended in Official Records Book 228, Page 736, Official Records Book 241, Page 238, Official Records Book 258, Page 177, Official Records Book 610, Page 251, Official Records Book 610, Page 258, Official Records Book 610, Page 261, Official Records Book 654, Page 392, Official Records Book 761, Page 2405, Official Records Book 763, Page 895, Official Records Book 859, Page 467, Official Records Book 868, gage 2783 and Official Records Book 910, Page 976.

AS TO PARCEL 12:

44.* Restrictions, Dedications and Easements as shown on the Plat recorded in Plat Book 4, Page 144 and Plat Book 4, Page 153 of the Public Records of Osceola County, Florida.

45. Joinder and Consent to Dedication recorded in O.R. Book 802, Page 304 and in O.R. Book 802, Page 303.

GOLDEN GATE DIVISION
COMMITMENT FOR TITLE INSURANCE CASE NO. 9802077

AS TO ALL PARCELS:

~~1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires for value of record the estate or interest or mortgage covered by this Commitment.~~ (Not a Permitted Exception)

2. Items (A) through (E) above.

3. Ordinances No. 75-20, 75-21 and 75-24 recorded in Official Records Book 619, Page 1177, Official Records Book 619, Page 1182 and Official Records Book 619, Page 1191.

4. Subject property lies within the boundaries of the Collier County Water Management District No. 1 and the Golden Gate Water/Sewer MST District and is subject to any acts and/or assessments thereof.

~~5. UCC amendment and Tenth supplemental indenture between Florida Cities Water Company and Sun Bank N.A., as trustee recorded in O.R. Book 1766, Page 80.~~(Not a Permitted Exception)

~~6. Notice of Commencement recorded in O.R. Book 2436, Page 1390.~~ (Not a Permitted Exception)

~~7.*** Bill of Sale recorded in O.R. Book 2296, Page 932.~~ (Not a Permitted Exception)

~~8.*** Agreements recorded in O.R. Book 2296, Page 930; O.R. Book 2205, Page 273; O.R. Book 2205, Page 270; O.R. Book 2205, Page 267 and C.R. Book 2205, Page 264.~~ (Not a Permitted Exception)

AS **TO PARCEL I:**

9.* Restrictive Covenants recorded in Official Records Book 97, page __ Official Records Book 105, Page 73, which restrictions were purportedly released per instrument recorded in Official Records Book 1177, Page 1623

10.* Restrictive Covenants recorded in Official Records Book 251, Page 390.

~~11.*** Right-of-Way Easement recorded in Official Records Book 244, Page 948, which easement was purportedly released per instruments recorded in Official Records Book 1013, Page 231 and Official Records Book 1082, Page 326.~~ (Not a Permitted Exception)

12. Matters as shown on the Plat of GOLDEN GATE ESTATES. UNIT 26, recorded in Plat Book 7, Pages 15 and 16.

~~13. UCC Amendment and Ninth Supplemental Indenture by and between Florida Cities Water Company and Sun Bank National Association, as Trustee, recorded in Official Records Book 1631, Page 663.~~ (Not a Permitted Exception)

AS TO PARCEL 2:

14. Matters as shown on the Plat of GOLDEN GATE, UNIT 7, recorded in Plat Book 5, Pages 135 thru 146.

15.* Covenants, Restrictions, Easements and other limitations in instrument recorded in Official Records Book 154, Page 554 and Amendments in Official Records Book

160, Page 503, Official Records Book 163, Page 88, Official Records Book 182, Page 762, Official Records Book 979, Page 1512, Official Records Book 1057, Page 1116, Official Records Book 1072, Page 992, Official Records Book 1102, Page 830, Official Records Book 1159, Page 2155 and Official Records Book 1462, Page 2223.

16. Riparian and littoral rights should not be insured under the terms and conditions of the final policy.

17. This policy excludes from coverage adverse ownership claims by the State of Florida to those portions of the property described in Schedule A herein that comprise sovereignty lands (including, without limitation, submerged, filled, and artificially exposed lands) that: (1) have not been previously conveyed or transferred by the state, or (2) are legally excluded from prior state conveyances of other types of lands.

18. Subject to any and all residual royalty rights of Coastal Petroleum Company, or its assigns, resulting from any agreements with the Trustees of the Internal Improvement Trust Fund of Florida, which does not include the right of entry for the purpose of exploration, mining, or drilling.

19.* Covenants, Restrictions, Easements and other limitations in instrument recorded n Official Records Book 338, Page 680 and Amendment in Official Records Book 979, Page 1512.

20. Easement in favor of Florida Power and Light Company filed September 2, 1988 in Official Records Book 1377, Page 2120.

21. Resolution creating the Golden Gate Water/Sewer MST District, filed April 12, 1976 in Official Records Book 646, Page 1838.

22. Resolution establishing the Immokalee Area Planning District and the Coastal Area Planning District, etc., filed May 6, 1976 in Official Records Book 649, Page 1239.

AS TO PARCEL 3:

23. Matters as shown on the Plat of GOLDEN GATE UNIT 8, PART 2, recorded in Plat Book 9, Pages 107A thru 112.

24.* Covenants, Restrictions, Easements and other limitations in instrument recorded in Official Records Book 316, Page 593 and amended in Official Records Book 499, Page 370 and Official Records Book 979, Page 1512.

~~25. Any unpaid municipal taxes and other assessments, including, but not limited to, solid waste assessments, or unrecorded liens arising by virtue of ordinances, unrecorded agreements as to impact or other development fees, unpaid waste fees~~

~~payable to the county or municipality, or unpaid services charges under Chapter 159 F.S., or county ordinance, are not reported herein. It is the responsibility of the user to determine the status of any municipal tax or other special assessment~~ (Not a Permitted Exception)

26. Easement to GAC Properties, Inc., recorded April 2, 1974 in Official Records Book 585, Page 85, together with Reservation of Easements recorded April 2, 1974 in Official Records Book 585, Page 92.

27. Licensed Agreement with Florida Cablevision Management Corporation recorded April 17, 1984 in Official Records Book 1077, Page 774.

28. Covenants, Restrictions, Easements and other limitations in instrument recorded in Official Records Book 154, Page 554 and Amendments in Official Records Book 160, Page 503, Official Records Book 163, Page 88, Official Records Book 182, Page 762, Official Records Book 979, Page 1512, Official Records Book 1057, Page 1116, Official Records Book 1072, Page 992, Official Records Book 1102, Page 830, Official Records Book 1159, Page 2155 and Official Records Book 1462, Page 2223.

29. Resolution creating the Golden Gate Water/Sewer MST District, filed April 12, 1976 in Official Records Book 646, Page 1838.

30. Resolution establishing the Immokalee Area Planning District and the Coastal Area Planning District, etc., filed May 6, 1976 in Official Records Book 649, Page 1239.

PARCEL 4:

31. **Matters** as shown on the Plat of GOLDEN GATE UNIT 2, recorded in Plat Book 5, Pages 65 thru 77.

~~32. UCC Amendment and Eight Supplemental Indenture by and between Florida Cities Water Company and Sun Bank National Association, as Trustee, recorded in Official Records Book 1270, Page 745.~~

33.* Covenants, Restrictions, Easements and other limitations in instrument recorded in Official Records Book 154, Page 554 and Amendments in Official Records Book 160, Page 503, Official Records Book 163, Page 88, Official Records Book 182, Page 762. Official Records Book 979, Page 1512, Official Records Book 1057, Page 1116, Official Records Book 1072, Page 992, Official Records Book 1102, Page 830, Official Records Book 1159, Page 2155 and Official Records Book 1462, Page 2223.

34. Resolution creating the Golden Gate Water/Sewer MST District, filed April 12, 1976 in Official Records Book 646, Page 1838.

35. Riparian and littoral rights should not be insured under the terms and conditions of the final policy.

FT. MYERS DIVISION
COMMITMENT FOR TITLE INSURANCE CASE NO. 9802076

AS TO ALL PARCELS:

~~1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires for value of record the estate or interest or mortgage covered by this Commitment.~~ (Not a Permitted Exception)

2. Items (A) through (E) above.

3. Lee County Ordinance No. 86-14 recorded November 30, :990 in Official Records Book 2189, Page 3281 and amended by Ordinance No. 86-38 recorded in Official Records Book 2189, Page 3334.

4. Easement Agreement recorded in O.R. Book 1413, Page 1892.

5. Easement Agreement recorded in O.R. Book 1193, Page 1277.

6. Agreement recorded in O.R. Book 1193, Page 1277.

AS TO PARCELS la and 1b:

~~7. Final Judgment recorded in Official Records Book 1673, Page 1000.~~ (Not a Permitted Exception)

8. Resolution No. ZB-84-121 recorded in Official Records Book 1757, Page 815. (AS TO PARCELS la and lb)

9. Matters as shown on the Plat of FIESTA VILLAGE, recorded in Plat Book 10, Page 65 (AS TO PARCELS la and lb)

10.* Easement reservations, contained in those certain Restrictions recorded in Official Records Book 35, Page 688, as re-recorded in Official Records Book 54, Page 675 and Official Records Book 35, Page 692 as re-recorded in Official Records Book 51, Page 111. (AS TO PARCELS la and lb)

11. Matters as shown on the Plat of FIESTA VILLAGE 1ST ADDITION, recorded in Plat Bock 12, Page 135. (AS TO PARCEL la)

~~12.* Easement reservation contained in those certain Restrictions, recorded in Official Records Book 35, Page 688 and re-recorded in Official Records Book 54, Page 675. (AS TO PARCELS la and lb)~~

13. Easement to Florida Power and Light Company recorded January 30, 1967 in Official Records Book 393, Page 145. (AS TO PARCELS la and lb)

14. Easement recorded in Official Records Book 1107, Page 1985. (AS TO PARCELS la and lb)

15. Easement recorded In Official Records Book 1612, Page 1712. (AS TO PARCELS la and lb)

16. Easement to Florida Power and Light Company recorded October 22, 1985 in Official Records Book 1810, Page 845. (AS TO PARCELS la and lb)

17. Easement to Florida Power and Light Company recorded October 22, 1985 in Official Records Book 1810, Page 846. (AS TO PARCELS la and 1b)

AS TO PARCEL 2:

18. Easement to Florida Power and Light Company recorded in Official records Book 24, Page 276.

19. Grant of Easement to Mitchell Homes, an Alabama General Partnership, as recorded in Official Records Book 1445, Page 1402 and Official Records Book 1445, Page 1389.

20.* Declaration of Covenants, Conditions and Restrictions recorded in Official Records Book 1479, Page 697 and amended in Official Records Book 1704, Page 523.

21. Easement to Florida and Light Company recorded in Official Records Book 1561, Page 1696.

22. Grant of Easement recorded in Official Records Book 1445, Page 1413.

23. Exclusive and perpetual water pipeline grant of easement.

AS TO PARCEL 3:

24. Matters as shown on the Plat of WATERWAY ESTATES, recorded in Plat Book 12, Page 63. (AS TO PARCELS 3, 4 AND 5)

25. Agreement recorded in Official Records Book 456, Page 461.

26. Resolution known as Lee County Lot Mowing Act recorded in Official Records Book 615, Page 158.

27. Easement to Lee County Electric Co-Operative, Inc., recorded in Official Records Book 1150, Page 887.

28. Easement to Lee County Electric Co-Operative, Inc., recorded in Official Records Book 2269, Page 3746.

PARCEL 4:

29. Right-of-Way Easement to Lee County Electric Co-Operative, Inc., recorded in Official Records Book 1342, Page 204.

30. Resolution pertaining to Chapter 69.1241, Laws of Florida Known as Lee County Lot Mowing Act, recorded in Official Records Book 615, Page 158.

~~31.*** Agreement by and between Aqua Utilities Corporation, Pulte-Strang of Florida, Inc., and Florida Cities Water Company, recorded in Official Records Book 456, Page 461.~~ (Not a Permitted Exception)

AS TO PARCEL 5:

32. Right-of-Way Easement to Lee County Electric Co-Op, as recorded in Official Records Book 1561, Page 1696.

33. Matters as shown on the Plat of WATERWAY ESTATES OF FORT MYERS, UNIT 2, recorded in Plat Book 17, Page 165.

34. Conservation Easement recorded in Official Records Book 1575, Page 1478

35. Covenant of Unified Control recorded in Official Records Book 2088, Page 4688.

~~36. Any lien or claim of lien for services, labor or material which may take priority over the estate or interest insured by reason of the Notice of Commencement recorder in Official Records Book 2305, Page 4588.~~ (Not a Permitted Exception)

37. Resolution known as Lee County Lot Mowing Act recorded in Official Records Book 615, Page 158.

~~38.*** Agreement recorded in Official Records Book 456, Page 461.~~ (Not a Permitted Exception)

AS TO PARCEL 6:

39. Oil, Gas and Mineral rights are reserved by predecessors in title.

40. The subject land lies within the boundaries of the East Mulloch Drainage District and is subject to all acts, restrictions and limitations of said District.

AS TO PARCEL 7:

41. Oil, Gas and Mineral Lease by and between Adrian R. Chapman, etal, and Tribal Oil Corporation, recorded January 21, 1975 in Official Records Book 1071, Page 521.

42.* Covenants, Conditions, Reservations, Restrictions and Easements set forth in that certain Warranty Deed recorded August 2, 1965 in Official Records Book 311, Page 873.

43. Oil, gas and mineral reservations set forth in Deeds recorded in Deed Book 272, Page 515 and Deed Book 272, Page 79. NOTE: Said Reservation assigned in instrument recorded in Official Records Book 553, Page 114 and as set forth in instrument recorded in Official Records Book 1093, Page 491.

44. Easement in favor of GAC Utilities, Inc., recorded April 24, 1973 and in Official Records Book 933, Page 667. Said easement being assigned in Official Records Book 1091, Page 2159 and Official Records Book 1172, Page 1186.

45. Assessments and expenses that may become due to the Green Meadows Drainage District as established in instrument recorded March 13, 1972 in Official Records Book 789, Page 320.

46. Resolution by the Lee County Board of County Commissioners as to mowing expenses in all unincorporated areas of Lee County, Florida, as recorded in Official Records Book 1481, Page 147.

47. Development Order set forth in instrument recorded in Official Records Book 1049, Page 4722 and Official Records Book 1849, Page 4754.

48. Resolution No. ZB-85-23 as set forth in instrument recorded in Official Records Book 1790, Page 3618.

AS TO PARCEL 8:

49.* Declaration of Covenants, Restrictions and Reservations set forth in instrument recorded in Official Records Book 1134, Page 1445.

AS TO PARCEL 9:

50. Oil, Gas and Mineral rights, if any.

ADDITIONAL PARCELS FOR BAREFOOT BAY AND FT. MYERS DIVISIONS COMMITMENT FOR TITLE INSURANCE CASE NO. 9802082

AS TO ALL PARCELS:

~~1. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires for value of record the estate or interest or mortgage covered by this Commitment.~~ (Not a Permitted Exception)

2. Items (A) through (E) above.

AS TO PARCEL A - BAREFOOT BAY DIVISION:

3. Rights of the Central and Southern Flood Control District as set forth in Official Records Book 2664, Page 2941.

4. Easement to Brevard County, recorded in Official Records Book 2725, Page 771.

5. Agreement recorded in Official Records Book 1138, Page 309.

6. Agreement recorded in Official Records Book 1202, Page 143 and re-recorded in Official Records Book 1295, Page 620.

7. Agreement recorded in Official Records Book 1202, Page 149 and re-recorded in Official Records Book 1295, Page 624.

~~8. UCC Financing Statement executed by Florida Cities Water Company in favor of Sun Bank, Trust, recorded May 22, 1987 in Official Records Book 2804, Page 2015.~~ (Not a Permitted Exception)

9. Subject property abuts a drainage right -of -way and by reason thereof , exception is taken to the following: a) Rights of owners of land abutting upon the waters of canal and retention area. b) Title to beds or bottoms of lakes, rivers, or other bodies of water located on or within the property described herein. c) Riparian and littoral rights are neither guaranteed nor insured and title to any filled and accreted lands are not insured. (AS T0 PARCELS A, B, C1, C2 AND C3)

10.** Lack of ingress and egress for the reason that the above-described property does not abut and there is no private easement to a dedicated road, street or highway. (AS TO PARCELS A, B, C1, C2 AND C3)

AS TO PARCEL B - BAREFOOT BAY DIVISION:

11. Subject to the matters as set out in Agreement to Deed Drainage Right-of-Way recorded July 19, 1976 in Official Records Book 1642, Page 1.

12. .The actual physical location of easement, recorded December 31, 1969, in Official Records Book 1109, Page 504.

13. Reservations as contained in Easement recorded in Official Record Book 1109, Page 504.

14. Subject to the matters as set out in Corrective Warranty Deed recorded April 8, 1988 in Official Records Book 2895, Page 2956.
(AS TO PARCELS B, C1, C2 AND C3)

15. Subject to Canals and Canal Rights of Way and rights of others to use such canals.
(AS TO PARCELS B, C1, C2 AND C3)

16. Easement as set out and reserved in Permanent Easement dated July 6, 1976, recorded July 18, 1976, in Official Records Book 1642, Page 7. (AS TO PARCELS B, C1, C2, and C3)

17. Easement as set out and reserved in Permanent Easement dated July 6, 1976, recorded July 19, 1976 in Official Records Book 1642, Page 13.

18. Subject to the drainage rights and easements of the landowners within the San Sebastian Drainage District as preserved in Chapter 76-331, Laws of Florida.
(AS TO PARCELS B, C1 C2 AND C3)

AS TO PARCELS C1, C2 AND C3 - BAREFOOT BAY DIVISION:

19. Reservations in favor of Trustees of the Internal Improvement Fund, as contained in Deed No. 625, dated August 27, 1943, recorded September 15, 1943 in Deed Book 262, Page 118, of the Public Records of Brevard County, Florida.
(AS TO PARCELS B, C1 C2 AND C3)

20. Subject to the matters as set out in Warranty Deed recorded August 11, 1986 in Official Records Book 2721, Page 648.

21. Resolution to vacate San Sebastian Drainage Rights-of-Way recorded in Official Records Book 2592, Pages 920 through 922, inclusive.

AS TO PARCEL "F1" - FT. MYERS DIVISION

22. Resolution No. 79-7-13 recorded in Official Records Book 1380, Page 719.

23. Lee County Ordinance No. 86-14 recorded November 30, 1990 in Official Records Book 2189, Page 3281, and amended by Ordinance No. 85-38 in Official Records Book 2189, Page 3334.
(AS TO PARCELS B, C1 C2 AND C3)

24. Fort Myers Beach Sewer District Assessment.

25. Matters as shown on the Plat of BUSINESS CENTER, recorded in Plat Book 9, Page 9.

26. Easement recorded in Official Records Book 1465, Page 1917.

AS TO PARCEL "G" - FT. MYERS DIVISION

~~27. UCC-1 Financing Statement executed by Florida Cities Water Co., to Marine Bank and Trust Co., recorded August 15, 1968 in Official Records Book 477, Page 45. Said UCC-1 being continued from time to time, the most recent being recorded on July 10, 1991 in Official Records Book 2233, Page 125.~~ (Not a Permitted Exception)

28. Easements along each boundary of each homesite for drainage and public utilities, said easement not to exceed six feet (6') each side of said boundary as stated on recorded Plat of the Subdivision.

29. Resolutions filed by the City of Cape Coral as recorded in Official Records Book 1961, Page 2871, Official Records Book 2117, Page 4666, Official Records Book 2136, Page 2629 and Official Records Book 2139, Page 4744.

AS TO PARCEL "I" - FT. MYERS DIVISION

30.* Terms and conditions of Restrictions set forth in Miscellaneous Book 28, Page 393.

Footnotes:

Note: Black lined items reflect matters that are not Permitted Exceptions.

* See Ryan v Town of Manalapan, 414 So. 2d 193, 196 (Fla. 1982).

** Lack of access is a title defect; title insurer has bee notified that access appears to be available.

*** Title insurer has been notified that such matters should not appear on commitments.

APPENDIX P

FORM OF DOCUMENTS FOR CLOSING

CERTIFICATE REAFFIRMING REPRESENTATION

WHEREAS, Florida Cities Water Company ("FCWC") and Poinciana Utilities Inc. ("PUI"), and the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), entered into that certain Utility System Asset Acquisition Agreement on the ___ day of March, 1999 (the "Purchase and Sale Agreement"); and

WHEREAS, Section 5.02 of the Purchase and Sale Agreement provides that the GUA deliver a certificate to FCWC and PUI reaffirming the representations and warranties therein.

NOW, THEREFORE, to comply with Section 5.02 of the Purchase and Sale Agreement, the GUA does hereby certify to FCWC and PUI the following:

1. That the representations and warranties of the GUA in the Purchase and Sale Agreement are true and correct in all material respects as of the date hereof with the same effect as if such representations and warranties were made or given on the date hereof; and

2. That the GUA has performed in all material respects all of its obligations and has complied with all of the covenants and agreements required by the Purchase and Sale Agreement to be performed or complied with by the GUA prior to or on the date hereof, unless waived in writing by FCWC or PUI.

IN WITNESS WHEREOF, the GUA has executed this certificate as of this ___ day of _____, 1999.

[EXECUTIONS TO COME]

NONFOREIGN AFFIDAVIT

In Re: Estate or interest described in the Utility System Asset Acquisition Agreement (hereinafter the "Property"); sale to the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statues, (the "GUA").

The undersigned affiant (the "Affiant"), being first duly sworn, deposes and says that Affiant makes these representations, based on Affiant's knowledge and belief, to the GUA, Lawyers' Title Insurance Company, and Greenberg, Traurig, P.A. to induce the closing, disbursement of funds, and issuance of title insurance relative to the captioned transaction, and says that:

1. Affiant is the duly elected President of Florida Cities Water Company and Poinciana Utilities Inc., both Florida corporations (the "Corporations"); and

2. The Corporations' taxpayer identification numbers (federal employer identification number) are _____ and _____; and

3. Neither, the Corporations, nor any of their subsidiaries, is a "foreign person" as that phrase is used in Section 1445(b)(2) of the Internal Revenue Code of 1986, as amended; and

4. The principal place of business of the Corporations is [address]; and

5. Affiant has personal knowledge of the matters herein set forth and is fully authorized and qualified to make this Affidavit on behalf of the Corporation. This Affidavit may be disclosed to the Internal Revenue Service. This Affidavit is given with the knowledge that it is an inducement to and will be relied upon by the GUA, Lawyers' Title Insurance Company and Greenberg, Traurig, P.A.

Affiant warrants that all these statements shall be true and correct at settlement, and Affiant shall notify each of the parties mentioned above of any changes in these representations before closing. Affiant intends for each of the parties mentioned above to rely on these representations.

[EXECUTIONS TO COME]

NO LIEN AFFIDAVIT

In Re: Estate or interest described in the Utility System Asset Acquisition Agreement (hereinafter the "Property"); sale to the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statues, (the "GUA").

The undersigned affiant (the "Affiant"), being first duly sworn, deposes and says, to the best of my knowledge, that:

1. FCWC and PUI (the "Owner") own the above Property now being sold by it and its possession thereof has been peaceable and undisturbed and title to said Property has never been disputed or questioned to my knowledge, nor do I know of any facts by reason of which the title to, or possession of, said Property might be disputed or questioned, or by reason of which any claim to any of said Property might be asserted adversely to said Owner.

2. Except for **[cite]**, no proceedings in bankruptcy or receivership have ever been instituted by, or against said Owner and it has never made an assignment for the benefit of creditors.

3. I know of no action or proceeding whatever which is now pending in any State or Federal Court in the United States to which said Owner is a party, nor do I know of any Federal Court Judgment, Federal Tax Lien, or any other Federal Lien of any kind or nature whatever which now constitutes a lien or charge upon the above described real Property.

4. The Owner has received no notice from any public authority, requiring any improvement, alteration or change to be made in or about said Property.

5. There are no tenancies or leases affecting said Property.

6. There are no unrecorded special assessment liens or unrecorded liens arising by virtue of ordinances, unrecorded agreements as to impact or other development fees, unpaid waste fees payable to a county or other service provider or any other unpaid service charges due a municipality or county.

7. There are no unpaid bills or claims for labor, services performed or material furnished or delivered during the last 90 days for alterations, repair work or new construction on the Property, except as follows (if none, state "none"): _____.

8. I know of no contract for the making of repairs or improvements on the Property except as follows (if none, state "none"):_____.

9. There are no chattel mortgages, conditional bills of sale, retention of title agreements, security agreements, financing statements, or personal property leases affecting any fixtures, appliances, or equipment which are now installed in or upon said real property or the improvement thereon and all pumping, telemetry, water and wastewater, collection, distribution, treatment or transmission facilities, and other equipment is fully paid for, including all bills for the repair thereof.

This Affidavit is intended to be relied upon by the GUA Lawyers' Title Insurance Company, and its agent, Greenberg, Traurig, P.A. in insuring title to the Property. The Affiant has been duly authorized to execute, and executes, this affidavit in the capacity of a corporate officer.

[EXECUTIONS TO COME]

OWNER'S "GAP" AFFIDAVIT

In Re: Estate or interest described in the Utility System Asset Acquisition Agreement (hereinafter the "Property"); sale to the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statues, (the "GUA").

The undersigned affiant (the "Affiant"), being first duly sworn, deposes and says that Affiant makes these representations, based on Affiant's knowledge and belief, to the GUA, Lawyers' Title Insurance Company, and Greenberg, Traurig, P.A. to induce the closing, disbursement of funds, and issuance of title insurance relative to the captioned transaction, and says, to the best of my knowledge, that:

1. Florida Cities Water Company/Poinciana Utilities Inc. (the "Owner") is the only owner of the real property described above, subject only to easements, restrictions, reservations of record, taxes for the current year and subsequent years as of the last title insurance commitment effective date for the subject property which was dated **[last update before closing]**.

2. There are no matters pending against the Owner that could give rise to a lien that would attach to the Property or cause a loss of title or impair the title between the last title insurance commitment effective date and the recording of the interest to be insured, and to my knowledge the Owner has not and will not execute any instrument that would adversely affect the title or interest to be insured.

3. Other than reflected in the last title insurance commitment for the subject property which was dated **[last update before closing]**, the Owner has undisputed possession of the Property and there is no other person or entity in possession, or who has any possessory right in the Property. The Owner does not possess any knowledge of defects in the title to the Property.

4. No "Notice of Commencement" has been recorded which pertains to the Property since the last title insurance commitment effective date, there are no unrecorded labor, mechanics, or materialmen liens against the Property, and all material has been paid for in full.

5. There are no due, or to come due, unpaid bills, liens or assessments for mowing, water, sanitary sewers, paving, solid waste management or other public services, utilities, or improvements made by any governmental instrumentality. Should any bill be found which relates to the period of Owner's possession, Owner will pay

such bill upon demand, subject to the terms of the purchase and sale agreement between the Owner and the GUA. No notice has been received of any public hearing regarding future or pending zoning changes, or assessments for improvements by any governmental instrumentality.

6. To the knowledge of the Affiant there are no unrecorded deeds, judgments, liens, mortgages, easements or rights of way for users, or adverse interests with respect to the aforesaid Property.

7. The Owner is the owner of, and there are no claims, liens or security interests whatsoever of any kind or description against the furniture, fixtures, equipment and personal property located in the improvements on the aforesaid Property and sold as part of this transaction, except as follows (if none, state "none"): .

8. There are no existing contracts for sale or mortgage commitments (other than those being now closed) affecting the Property.

9. There is no civil, criminal, administrative or other action pending which involves the Property in any way. There is no action for bankruptcy pending against the Owner.

10. The Affiant has been duly authorized to execute, and executes, this affidavit in the capacity as a corporate officer.

Affiant warrants that all these statements shall be true and correct at settlement, and Affiant shall notify each of the parties mentioned above of any changes in these representations before closing. Affiant intends for each of the parties mentioned above to rely on these representations.

[EXECUTIONS TO COME]

This Instrument prepared by:

[Name and address of preparer]

SPECIAL WARRANTY DEED

THIS SPECIAL WARRANTY DEED made and executed this ___ day of March, 1999 by **[TO COME]** whose address is **[address]**,hereinafter called the grantor, to the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes (the "GUA"), whose address is **[address]**, hereinafter called the grantee;

WITNESSETH: That the grantor, for and in consideration of the sum of $10.00 and other valuable considerations, receipt whereof is hereby acknowledged, by these presents do grant, bargain, sell, alien, remise, release, convey and confirm unto the grantee, all that certain land situated in **[as applicable for each system Brevard County, Florida; Collier County, Florida; Hillsborough County, Florida; Lee County, Florida; Osceola County, Florida; Polk County, Florida; and Sarasota County, Florida]** as shown and more particularly on Exhibit A attached hereto and incorporated herein.

TOGETHER with all the tenements, hereditaments and appurtenances thereto belonging or in anyway appertaining, including but not limited to, all wastewater facilities of every kind and nature lying within said land and all appurtenant easement rights for the operation, installation and maintenance of said facilities.

TO HAVE AND TO HOLD, the same in fee simple forever.

AND the grantor, for itself and its successors, hereby covenants with said grantee and the grantee's successors and assigns that grantor is lawfully seized of said land in fee simple; that grantor has good, right and lawful authority to sell and convey said land; that grantor hereby warrants the title to said land and will defend the same against the lawful claims of all persons claiming by, through or under the grantor, but against none others; and that said land is free of all encumbrances except as set forth in **[Exhibit B - which shall be only the specific exceptions to appear in schedule B of the title policy]**.

IN WITNESS WHEREOF the grantors have caused this Special Warranty Deed in favor of the GUA to be executed in its name, and its corporate seal to be hereunto

affixed, by its proper officers hereunto duly authorized, the day and year first above written.

[EXECUTIONS TO COME]

This Instrument prepared by:

[Name and address of preparer]

BILL OF SALE

THIS BILL OF SALE evidencing the sale and conveyance of the Purchased Assets, as described in that certain Utility System Asset Acquisition Agreement dated ___ day of March, 1999, is made and executed this ___ day of March, 1999, by **[TO COME]**, a Florida corporation, whose address is **[address]**, hereinafter called the seller, to the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, whose address is **[address]**, hereinafter called the buyer;

WITNESSETH: That the seller, for and in consideration of the sum of $10.00 and other valuable considerations, receipt whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto the buyer, all those certain Purchased Assets as shown and more particularly described on Exhibit A attached hereto and incorporated herein.

SAID Purchased Assets also include all the tenements, hereditaments and appurtenances thereto belonging or in anyway appertaining, including but not limited to, all wastewater facilities of every kind and nature lying within the lands described on Exhibit B attached hereto and incorporated herein for the operation, installation and maintenance of said facilities.

TO HAVE AND TO HOLD, the same in fee simple forever.

AND the seller, for itself and its successors, hereby covenants with said buyer and the buyer's successors and assigns that it is the lawful owner of said Purchased Assets in fee simple; that it has good, right and lawful authority to sell and convey said Purchased Assets; that it hereby fully warrants the title to said Purchased Assets and will defend the same against the lawful claims of all persons claiming by, through or unto the Seller, but against none other; and that said Purchased Assets are free of all encumbrances.

Provided, however that the seller shall not be deemed to, and does not, warrant any Easements (as the term is defined in the Utility System Asset Acquisition Agreement).

IN WITNESS WHEREOF the seller has caused these presents to be executed in its name, and its corporate seal to be hereunto affixed, by its proper officers hereunto duly authorized, the day and year first above written.

[EXECUTIONS TO COME]

CERTIFICATE REAFFIRMING REPRESENTATION

WHEREAS, Florida Cities Water Company ("FCWC") and Poinciana Utilities Inc. ("PUI"), and the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), entered into that certain Utility System Asset Acquisition Agreement on the ___ day of March, 1999 (the "Purchase and Sale Agreement"); and

WHEREAS, Section 5.02 of the Purchase and Sale Agreement provides that the FCWC and PUI deliver a certificate to the GUA reaffirming the representations and warranties therein.

NOW, THEREFORE, to comply with Section 5.02 of the Purchase and Sale Agreement, **[FCWC and PUI]** do hereby certify to the GUA the following:

1. That the representations and warranties of FCWC and PUI in the Purchase and Sale Agreement are true and correct in all material respects as of the date hereof with the same effect as if such representations and warranties were made or given on the date hereof; and

2. That FCWC and PUI have performed in all material respects all of its obligations and has complied with all of the covenants and agreements required by the Purchase and Sale Agreement to be performed or complied with by FCWC and PUI prior to or on the date hereof, unless waived in writing by the GUA.

IN WITNESS WHEREOF, FCWC and PUI executed this certificate as of this ___day of _____, 1999.

[EXECUTIONS TO COME]

POINCIANA REVENUE GUARANTEE ESCROW AGREEMENT

This **POINCIANA REVENUE GUARANTEE ESCROW AGREEMENT** (this "Agreement") is entered into on April _, 1999 by and among **FLORIDA GOVERNMENTAL UTILITY AUTHORITY** (the "Authority"), **POINCIANA UTILITIES, INC.** ("PUI") (the Authority and PUI are sometimes collectively referred to herein as the "Escrow Principals"), and **SUNTRUST BANK, CENTRAL FLORIDA, NATIONAL ASSOCIATION**, as escrow agent (the "Escrow Agent").

RECITALS:

WHEREAS, the Authority was created pursuant to Part I of Chapter 163, Florida Statutes (the "Interlocal Act") and pursuant to the provisions of that certain Interlocal Agreement, dated as of February 1, 1999 (the "Interlocal Agreement"), initially among Brevard County, Florida, Lee County, Florida, Polk County, Florida and Sarasota County, Florida; and

WHEREAS, the Authority is a legal entity created for the purpose of acquiring, owning, improving, operating and maintaining certain water and wastewater facilities, initially consisting of certain utility facilities owned and/or controlled by PUI pursuant to that certain Utility Asset Acquisition Agreement dated as of April 1, 1999 (the "Asset Acquisition Agreement"); and

WHEREAS, the Authority is issuing its Florida Governmental Utility Authority Utility Revenue Bonds (Poinciana Utility System), Series 1999 (the "Series 1999 Bonds"), for the principal purpose of acquiring the water and wastewater utility facilities owned by PUI and located in Polk County, Florida, and Osceola County, Florida (the "Poinciana Utility System") pursuant to that certain Indenture of Trust dated as of April 1, 1999 (the "Indenture") between the Authority and SunTrust Bank, Central Florida, National Association, in its capacity as trustee (the "Trustee"); and

WHEREAS, pursuant to the Asset Acquisition Agreement, PUI has agreed to guarantee that the billed revenue of the Poinciana Utility System (the "Revenue Guarantee") from the application of monthly rates for water and wastewater service as set forth in the current Poinciana Utility System Florida Public Service Commission Water and Wastewater Tariffs (excluding meter installation revenue, interest income and impact fees) for the twelve month period commencing on April 16, 1999 (the "Billed Revenue Guarantee Period") will be at least equal to $3,992,280 (the "Billed Revenue Guarantee Amount"); and

WHEREAS, in addition to the Billed Revenue Guarantee Amount, PUI has agreed to guarantee the Authority receipt of revenues from the line maintenance charges in effect as of December 18, 1998 (the "Line Maintenance Guarantee") for each of the following line maintenance guarantee periods (collectively, the "Line Maintenance Guarantee Periods"): (a) an amount at least equal to $316,000 for the twelve month period commencing on the date hereof; (b) an amount at least equal to $300,000 for the next successive twelve month period; (c) an amount at least equal to $284,000 for the next successive twelve month period; (d) an amount at least equal to $268,000 for the next successive twelve month period; (e) an amount at least equal to $252,000 for the next successive twelve month period, for a total amount of $1,420,000 over a period of sixty months from the date of closing of the Poinciana Utility System (collectively, the "Line Maintenance Guarantee Amounts" or, individually, a "Line Maintenance Guarantee Amount"); and

WHEREAS, the parties hereto have requested and the Escrow Agent has agreed upon receipt of the Escrowed Funds (herein defined) in accordance with Section 1 below, to hold, invest and disburse the Escrowed Funds in accordance with the terms of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties to this Agreement do hereby agree as follows:

1. **Deposit of Escrowed Funds with the Escrow Agent.** PUI hereby agrees to deliver to or arrange for the delivery to the Escrow Agent on the date hereof the amount of $800,000 in immediately available funds to secure the Revenue Guarantee (the "Revenue Guarantee Escrowed Funds") and the amount of $1,420,000 in immediately available funds to secure the Line Maintenance Guarantee (the "Line Maintenance Guarantee Escrowed Funds"). The Revenue Guarantee Escrowed Funds and the Line Maintenance Guarantee Escrowed Funds are hereinafter collectively referred to as the "Escrowed Funds." The Escrow Agent shall deposit the Revenue Guarantee Escrowed Funds in an escrow account entitled "Poinciana Revenue Guarantee Fund" in accordance with the terms and provisions of this Agreement and shall invest the same in Permitted Investments (as such term is defined in the Indenture) as further provided in Section 4 hereof. The Escrow Agent shall deposit the Line Maintenance Guarantee Escrowed Funds in an escrow account entitled "Poinciana Line Maintenance Guarantee Fund" in accordance with the terms and provisions of this Agreement and shall invest the same in Permitted Investments as further provided in Section 4 hereof. The Escrow Agent shall provide to

the Escrow Principals periodic reports (in accordance with standard reporting procedures of the Escrow Agent) regarding balances and interest or earnings on the Escrowed Funds.

2. **Disbursement of Escrowed Funds.**

(a) Withdrawal by Authority. In the event the Authority provides written notice to the Escrow Agent and PUI that the billed revenues of the Poinciana Utility System for the Billed Revenue Guarantee Period did not equal the Billed Revenue Guarantee Amount, or that the line maintenance charge revenues of the Poinciana Utility System for any one of the Line Maintenance Guarantee Periods did not equal the respective Line Maintenance Guarantee Amount, then the Escrow Agent shall withdraw and disburse to the Trustee, on behalf of the Authority, from the Poinciana Revenue Guarantee Fund or the Poinciana Line Maintenance Guarantee Fund, as is applicable (i) an amount equal to the difference between the Billed Revenue Guarantee Amount and an amount set forth in such notice from the Authority as the actual amount of billed revenues of the Poinciana Utility System for the Billed Revenue Guarantee Period or (ii) an amount equal to the difference between the applicable Line Maintenance Guarantee Amount and an amount set forth in such notice from the Authority as the actual amount of the line maintenance charge revenues of the Poinciana Utility System for the applicable Line Maintenance Guarantee Period. The Escrow Agent shall have no duty to determine whether the amounts set forth in any such notices from the Authority correspond in fact to the actual amount of billed revenues or the actual amount of the line maintenance charge revenues, as applicable, and the Escrow Agent may rely conclusively upon the amounts set forth in such notices from the Authority, without any obligation whatsoever to conduct any inquiry or investigation.

(b) Deposits by Authority to Poinciana Line Maintenance Guarantee Fund. In the event that the line maintenance charge revenues exceed the applicable Line Maintenance Guarantee Amount for the applicable Line Maintenance Guarantee Period, PUI may provide written notice to the Authority (with a copy to the Escrow Agent) requesting that the Authority deposit with the Escrow Agent in the Poinciana Line Maintenance Guarantee Fund an amount equal to the lesser of (i) the amount of such surplus line maintenance charge revenues or (ii) the net amount previously withdrawn from the Poinciana Line Maintenance Guarantee Fund as a result of the failure of the Poinciana Utility System to meet the applicable Line Maintenance Guarantee Amount during preceding Line Maintenance Guarantee Periods.

(c) General. Within 120 days after the end of the Billed Revenue Guarantee Period, the Escrow Agent shall remit to PUI any balance remaining in the Poinciana Revenue Guarantee Fund, including any interest earnings. Within 120 days after the end

of the last of the Line Maintenance Guarantee Periods, the Escrow Agent shall remit to PUI any balance remaining in the Line Maintenance Guarantee Fund, including any interest earnings.

All funds drawn by the Escrow Agent on behalf of the Authority from the Poinciana Revenue Guarantee Fund or from the Poinciana Line Maintenance Guarantee Fund pursuant to this Agreement shall be delivered to the Trustee for deposit to the Revenue Fund and shall be applied by the Trustee in accordance with the terms of the Indenture.

3. **The Escrow Agent.**

A. The duties and responsibilities of the Escrow Agent shall be limited to those expressly set forth in this Agreement. No implied duties of the Escrow Agent shall be read into this Agreement. The Escrow Agent shall have no duties or responsibilities under the Asset Acquisition Agreement and shall not be subject to or obliged to recognize the Asset Acquisition Agreement or any other agreement between the Escrow Principals, even though reference thereto may be made herein; provided, however, that with the Escrow Agent's written consent, this Escrow Agreement may be amended at any time or times by an instrument in writing signed by or on behalf of all of the parties hereto. The Escrow Agent, in its capacity as such, shall not be bound by any provisions of any agreement between either or both of the Escrow Principals and any third party (other than the Escrow Agent) and shall have no duty to inquire into or to take into account its knowledge of, or the terms and conditions of, any such agreement, whether or not made or entered into in connection with this Agreement.

B. The Escrow Agent may rely, and shall be protected in acting or refraining from acting, upon any instrument furnished to it hereunder and believed by it to be genuine and believed by it to have been signed or presented by the appropriate party or parties (including without limitation, with respect to any party which is a corporation, any instrument purporting to have been signed on its behalf by an authorized officer).

C. The Escrow Agent is authorized, in its sole discretion, to disregard any and all notices or instructions given by any other party hereto or by any other person, firm or corporation, except (i) only such notices or instructions as are herein specifically provided for, and (ii) orders or process of any court entered or issued with or without jurisdiction. If (i) any property subject hereto is at any time attached, garnished, or levied upon under any court order, or (ii) the payment assignment, transfer, conveyance or delivery of any such property shall be stayed or enjoined by any court order, or (iii) any order, judgement or decree shall be made or entered by any court affecting such property or any part hereof,

then the Escrow Agent is authorized, in its sole discretion, to rely upon and comply with any such order, writ, judgement or decree with which it is advised by legal counsel of its own choosing is binding upon it, and if it complies with any such order, writ, judgment or decree it shall not be liable to any other party hereto or to any other person, firm or corporation by reason of such compliance even though such order, writ, judgement or decree may be subsequently reversed, modified, annulled, set aside or vacated.

D. The Escrow Agent shall not be liable for any damage, loss, liability or delay caused by accidents, strikes, fire, flood, war, riot, equipment breakdown, electrical or mechanical failure, acts of God or any cause which is reasonably unavoidable or beyond its reasonable control.

E. If the Escrow Agent determines in its sole discretion that it is necessary to do so, the Escrow Agent may at the expense of the Escrow Principals consult with legal counsel of its own choosing and shall be fully protected in acting or refraining from acting in good faith and in accordance with the opinion of such counsel.

F. The Escrow Agent shall not be required to give any bond or surety in respect of the execution of its responsibilities and powers or otherwise in respect of the Escrowed Funds.

G. The Escrow Agent shall have no duty to ascertain whether the Escrow Principals or third parties are in compliance with any applicable statute, regulation or law, or agreement between the Escrow Principals and such third parties. To the extent the Escrow Principals and any such third parties have deemed necessary, they have consulted with their own legal, tax and investment advisers regarding their decisions with respect to any transactions to which this Agreement may directly or indirectly pertain. Neither the Escrow Agent nor any of its directors, officers, employees, agents or affiliates shall be liable or responsible for any such transactions.

H. The Escrow Agent shall not be responsible for assuring the sufficiency, validity, perfection or priority of any security interest sought by the Escrow Principals or any third party in the Escrowed Funds or any other property, nor shall the Escrow Agent be responsible for the authorization, validity of the execution, or enforceability of this Agreement by or against any party thereto other than the Escrow Agent.

I. The Escrow Agent shall not be responsible in any manner whatsoever for any failure or inability of any other party to comply with any of the provisions of this Agreement.

J. The foregoing provisions of this Section enumerate certain duties not undertaken by the Escrow Agent. The failure to disclaim specifically other duties not undertaken by the Escrow Agent shall not be construed to imply that any such duties exist, and the Escrow Agent shall have no duties whatsoever apart from those expressly set forth in this Agreement.

4. **Investment of Escrowed Funds.**

During the period of time that the Escrowed Funds are held by the Escrow Agent hereunder, they shall be invested by the Escrow Agent as directed in writing by the Escrow Principals in Permitted Investments. In the absence of such direction, the Escrow Agent may invest the Escrowed Funds pursuant to a money market fund constituting a Permitted Investment. The Escrow Agent is not a trustee or fiduciary for the Escrow Principals under this Agreement. The Escrow Principals acknowledge and agree that all investments made pursuant to this section shall be for the account and risk of the Escrow Principals and any losses associated with investments shall be borne solely by the Escrow Principals. The Escrow Agent shall have no liability for any loss resulting from any such investment.

5. **Interpleader.**

In the event of a dispute between the Authority and PUI as to the proper disposition of the Escrowed Funds which continues for more than 30 days or if any circumstances arise which are not addressed in this Agreement and are not resolved by the Authority and PUI (as evidenced by written notice to the Escrow Agent signed by the Authority and PUI) within 30 days of the date that the unaddressed circumstance comes to the attention of the Escrow Agent, the Escrow Agent shall be entitled to deduct any expenses and any indemnification payment owing to it from the Escrowed Funds and file an action in interpleader or a declaratory judgment action in the Circuit Court of Orange County, Florida to resolve the said disagreement.

6. **Resignation of Escrow Agent.**

The Escrow Agent may resign and be discharged from its duties or obligations hereunder, at any time, by giving notice in writing to the Escrow Principals of such resignation specifying a date when such resignation shall take effect, provided, the effective date of such resignation shall not be earlier than ten (10) days after the date of such notice. In the event that the Escrow Agent fails to receive written instructions as to the disposition of the Escrowed Funds signed by the Escrow Principals prior to the

effective date of resignation (as to a successor escrow agent or otherwise), the Escrow Agent shall be relieved of its duties and liabilities hereunder, upon delivery of all items held by it pursuant to this Agreement to the Clerk of the Circuit Court of Orange County, Florida accompanied by a bill of interpleader.

7. **Designated Officers and Notices.**

In conjunction with the execution of this Agreement, the Escrow Principals shall provide the Escrow Agent with a certificate which shall be signed by an authorized officer and which shall contain the names of designee(s) who are authorized to execute any written notice, instruction or certificate to the Escrow Agent required or permitted by the terms of this Escrow Agreement ("Certificate of Designation"). In the event one of the Escrow Principals desire to change its authorized designee(s), a new Certificate of Designation setting forth such successor designee must be delivered to the Escrow Agent.

Each notice, instruction or other certificate required or permitted by the terms hereof shall be in writing and shall be communicated to the Escrow Agent by facsimile, the receipt of which by the Escrow Agent shall be confirmed by telephone call from the sending party, and a confirmation copy of which shall be sent by first class mail the same day. All notices, instructions or other certificates from the Escrow Agent to the Escrow Principals shall be sent by first class mail or overnight/next day delivery. The Escrow Agent may conclusively rely without any inquiry or investigation on each notice, instruction or other certificate received by it in the manner set forth above which is signed by those persons designated in each Certificate of Designation. The addresses of the parties as set forth below may be changed by notice to all other parties.

if to the Authority:

Florida Governmental Utility Authority
c/o Government Services Group, Inc.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Mr. Robert E. Sheets

with a copy to:

Nabors, Giblin & Nickerson, P.A.
315 South Calhoun Street, Suite 800
Tallahassee, Florida 32301
Attention: Mark G. Lawson, Esquire

If to PUI:	Poinciana Utilities, Inc. c/o Avatar Utilities, Inc. 4837 Swift Road, Suite 100 Sarasota, Florida 34231 Attention: Gerald S. Allen, P.E.
with a copy to:	Avatar Utilities, Inc. 201 Alhambra Circle Miami, Florida 33134 Attention: General Counsel
with a copy to:	Greenberg Traurig, et. al., P.A. 777 South Flagler Drive, Suite 300 East West Palm Beach, Florida 33401 Attention: Phillip C. Gildan, Esquire
if to Escrow Agent:	SunTrust Bank, Central Florida, National Association 225 East Robinson Street, Suite 250 Orlando, Florida 32801 Attention: Ms. Lisa Derryberry
with a copy to:	Holland & Knight LLP 200 South Orange Avenue, Suite 2600 Orlando, Florida 32801 Attention: Jonathan D. Rich, Esquire

All notices given hereunder by the parties hereto shall be effective and deemed received two (2) calendar days after mailing if sent via first class mail or one (1) day after mailing if sent via a reputable national overnight/next day carrier (e.g. Federal Express, Airborne, United Parcel Service, or U.S. Post Service). The Escrow Agent is not obligated to take any action with respect to any request or demand of the Escrow Principals unless properly authenticated and delivered in the form required hereunder. Whenever under the terms hereof the time of giving a notice or performing an act falls upon a day that is not a Business Day (as such term is defined in the Indenture), such time shall be extended to the next Business Day.

8. **Compensation of Escrow Agent.**

The Escrow Agent shall not be entitled to any compensation for its services rendered hereunder other than the fees being paid to the Trustee pursuant to the Indenture. Notwithstanding the foregoing, the Escrow Agent shall be entitled to payment and/or reimbursement for any and all advances and other reasonable expenses incurred by the Escrow Agent in connection with such services. The Escrow Agent shall have no obligation whatsoever to expend its own funds hereunder.

9. **Miscellaneous.**

A. No Third Party Beneficiaries. The parties hereto intend that this Agreement is solely for their benefit and no person (i.e., individual, corporation, entity, governmental body or any department or agency thereof) not a party hereto shall have any rights or privileges under this Agreement whatsoever either as a third party beneficiary or otherwise.

B. Governing Law. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of Florida without regard to principles of conflict of laws otherwise applicable to such determination. Any dispute arising in connection with or related to this Agreement shall be brought only in the State or Federal Courts located in Orange County, Florida and by execution and delivery of this Agreement, each of the parties to this Agreement accepts the jurisdiction of each such court and irrevocably agrees to be bound by any judgment (as finally adjudicated) rendered thereby in connection with this Agreement. To the fullest extent permitted by applicable law, each party hereto hereby (i) irrevocably consents to the service of process outside the territorial jurisdiction of said courts in any such proceeding, (ii) agrees that any trial in connection with any such proceeding shall be before the court in said venue, and (iii) waives any right it may otherwise have to a trial by jury in connection with any such proceeding.

C. Amendment. No oral explanation or oral information by any of the parties hereto shall alter the meaning or interpretation of this Agreement. None of the terms or conditions of this Agreement may be changed, waived, modified or varied in any manner whatsoever unless in writing duly signed by each party hereto.

D. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, and be enforceable by and against the respective successors and assigns of the parties to this Agreement; provided, however, that no assignment of any rights or

delegation of any obligations may be made by any party hereto without the express written consent of the other parties. No person, firm or corporation will be recognized by the Escrow Agent as a successor, heir or personal representative of the Escrow Principals until there shall be presented to the Escrow Agent evidence satisfactory to it of such succession.

E. Headings. The headings of the several sections of this Agreement are inserted for convenience only and shall not in any way affect the meaning or construction of any provisions of this Agreement.

F. Entire Agreement. This Agreement represents the entire understanding and agreement between the Escrow Principals with respect to the subject matter hereof, and supersedes all of the negotiations, understandings and representations (if any) made by and between such Escrow Principals.

G. Substitution of Letter of Credit. PUI may, at any time, substitute one or more letter(s) of credit for the Escrowed Funds, which letter(s) of credit shall be in form, substance and amount, and issued by a banking institution, all of which shall be acceptable to the Authority. Upon receipt by the Escrow Agent of any such letter of credit which has been approved by the Authority, the Escrow Agent shall deposit the same in the Poinciana Revenue Guarantee Fund or the Poinciana Line Maintenance Guarantee Fund, as applicable, and release the Escrowed Funds, or the applicable portion thereof to PUI.

H. Counterparts. This Agreement may be executed in counterparts, each of which shall be considered an original, but all of which together shall constitute the same instrument.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the undersigned have executed this Poinciana Revenue Guarantee Escrow Agreement to be effective as of the date first written above.

AUTHORITY:
FLORIDA GOVERNMENTAL UTILITY AUTHORITY

(SEAL)

By: _____
Chairman

ATTEST:

By:_____
Secretary-Treasurer

PUI:
POINCIANA UTILITIES, INC.

By:_____
Name: _____
Its: _____

ESCROW AGENT:
SUNTRUST BANK, CENTRAL FLORIDA, NATIONAL ASSOCIATION, as Escrow Agent

By:_____
Name:_____
Its:_____

GOLDEN GATE REVENUE GUARANTEE ESCROW AGREEMENT

This **GOLDEN GATE REVENUE GUARANTEE ESCROW AGREEMENT** (this "Agreement") is entered into to be effective as of April ___, 1999 by and among **FLORIDA GOVERNMENTAL UTILITY AUTHORITY** (the "Authority"), **FLORIDA CITIES WATER COMPANY** ("FCWC") (the Authority and FCWC are sometimes collectively referred to herein as the "Escrow Principals"), and **SUNTRUST BANK, CENTRAL FLORIDA, NATIONAL ASSOCIATION**, as escrow agent (the "Escrow Agent").

RECITALS:

WHEREAS, the Authority was created pursuant to Part I of Chapter 163, Florida Statutes (the "Interlocal Act") and pursuant to the provisions of that certain Interlocal Agreement, dated as of February 1, 1999 (the "Interlocal Agreement"), initially among Brevard County, Florida, Lee County, Florida, Polk County, Florida and Sarasota County, Florida; and

WHEREAS, the Authority is a legal entity created for the purpose of acquiring, owning, improving, operating and maintaining certain water and wastewater facilities, initially consisting of certain utility facilities owned and/or controlled by FCWC pursuant to that certain Utility Asset Acquisition Agreement dated as of April 1, 1999 (the "Asset Acquisition Agreement"); and

WHEREAS, the Authority is issuing its Florida Governmental Utility Authority Utility Revenue Bonds (Golden Gate Utility System), Series 1999 (the "Series 1999 Bonds"), for the principal purpose of acquiring the water and wastewater utility facilities owned by FCWC and located in Collier County, Florida (the "Golden Gate Utility System") pursuant to that certain Indenture of Trust dated as of April 1, 1999 (the "Indenture") between the Authority and SunTrust Bank, Central Florida, National Association, in its capacity as trustee (the "Trustee"); and

WHEREAS, pursuant to the Asset Acquisition Agreement, FCWC has agreed to guarantee that the billed revenue of the Golden Gate Utility System (the "Revenue Guarantee") from the application of monthly rates for water and wastewater service and other miscellaneous revenue as set forth in the current Florida Cities Water Company Golden Gate Division Water and Wastewater Tariffs approved by the Collier County Utility and Franchise Regulation Department (excluding meter installation revenue, interest income and impact fees) for the twelve month period commencing April 16, 1999 (the "Guarantee Period") will be at least equal to $3,396,350 (the "Guarantee Amount"); and

WHEREAS, the parties hereto have requested and the Escrow Agent has agreed upon receipt of the Escrowed Funds (herein defined) in accordance with Section 1 below, to hold, invest and disburse the Escrowed Funds (herein defined) in accordance with the terms of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties to this Agreement do hereby agree as follows:

1. **Deposit of Escrowed Funds with the Escrow Agent.** FCWC hereby agrees to deliver to or arrange for the delivery to the Escrow Agent on the date hereof the amount of $680,000 in immediately available funds (the "Escrowed Funds"). The Escrow Agent shall deposit the Escrowed Funds in an escrow account entitled "Golden Gate Revenue Guarantee Fund" in accordance with the terms and provisions of this Agreement and shall invest the Escrowed Funds in Permitted Investments (as such term is defined in the Indenture) as further provided in Section 4 hereof. The Escrow Agent shall provide to the Escrow Principals periodic reports (in accordance with standard reporting procedures of the Escrow Agent) regarding balances and interest or earnings on the Escrowed Funds.

2. **Disbursement of Escrowed Funds.** In the event the Authority provides written notice to the Escrow Agent and FCWC that the billed revenues of the Golden Gate Utility System for the Guarantee Period did not equal the Guarantee Amount, then the Escrow Agent shall withdraw and disburse to the Trustee, on behalf of the Authority, from the Golden Gate Revenue Guarantee Fund an amount equal to the difference between the Guarantee Amount and an amount set forth in such notice from the Authority as the actual amount of billed revenues of the Golden Gate Utility System for the Guarantee Period. Within 120 days after the end of the Guarantee Period, the Escrow Agent shall remit to FCWC any balance remaining in the Golden Gate Revenue Guarantee Fund, including any interest earnings. The Escrow Agent shall have no duty to determine whether the amounts set forth in any such notices from the Authority correspond in fact to the actual amount of billed revenues or the actual amount of the line maintenance charge revenues, as applicable, and the Escrow Agent may rely conclusively upon the amounts set forth in such notices from the Authority, without any obligation whatsoever to conduct any inquiry or investigation.

All funds drawn by the Escrow Agent from the Golden Gate Revenue Guarantee Fund pursuant to this Agreement shall be delivered to the Trustee for deposit to the Revenue Fund and shall be applied by the Trustee in accordance with the terms of the Indenture.

3. **The Escrow Agent.**

A. The duties and responsibilities of the Escrow Agent shall be limited to those expressly set forth in this Agreement. No implied duties of the Escrow Agent shall be read into this Agreement. The Escrow Agent shall have no duties or responsibilities under the Asset Acquisition Agreement and shall not be subject to or obliged to recognize the Asset Acquisition Agreement or any other agreement between the Escrow Principals, even though reference thereto may be made herein; provided, however, that with the Escrow Agent's written consent, this Escrow Agreement may be amended at any time or times by an instrument in writing signed by or on behalf of all of the parties hereto. The Escrow Agent, in its capacity as such, shall not be bound by any provisions of any agreement between either or both of the Escrow Principals and any third party (other than the Escrow Agent) and shall have no duty to inquire into or to take into account its knowledge of, or the terms and conditions of, any such agreement, whether or not made or entered into in connection with this Agreement.

B. The Escrow Agent may rely, and shall be protected in acting or refraining from acting, upon any instrument furnished to it hereunder and believed by it to be genuine and believed by it to have been signed or presented by the appropriate party or parties (including without limitation, with respect to any party which is a corporation, any instrument purporting to have been signed on its behalf by an authorized officer).

C. The Escrow Agent is authorized, in its sole discretion, to disregard any and all notices or instructions given by any other party hereto or by any other person, firm or corporation, except (i) only such notices or instructions as are herein specifically provided for, and (ii) orders or process of any court entered or issued with or without jurisdiction. If (i) any property subject hereto is at any time attached, garnished, or levied upon under any court order, or (ii) the payment assignment, transfer, conveyance or delivery of any such property shall be stayed or enjoined by any court order, or (iii) any order, judgement or decree shall be made or entered by any court affecting such property or any part hereof, then the Escrow Agent is authorized, in its sole discretion, to rely upon and comply with any such order, writ, judgement or decree with which it is advised by legal counsel of its own choosing is binding upon it, and if it complies with any such order, writ, judgment or decree it shall not be liable to any other party hereto or to any other person, firm or corporation by reason of such compliance even though such order, writ, judgement or decree may be subsequently reversed, modified, annulled, set aside or vacated.

D. The Escrow Agent shall not be liable for any damage, loss, liability or delay caused by accidents, strikes, fire, flood, war, riot, equipment breakdown, electrical or

mechanical failure, acts of God or any cause which is reasonably unavoidable or beyond its reasonable control.

E. If the Escrow Agent determines in its sole discretion that it is necessary to do so, the Escrow Agent may at the expense of the Escrow Principals consult with legal counsel of its own choosing and shall be fully protected in acting or refraining from acting in good faith and in accordance with the opinion of such counsel.

F. The Escrow Agent shall not be required to give any bond or surety in respect of the execution of its responsibilities and powers or otherwise in respect of the Escrowed Funds.

G. The Escrow Agent shall have no duty to ascertain whether the Escrow Principals or third parties are in compliance with any applicable statute, regulation or law, or agreement between the Escrow Principals and such third parties. To the extent the Escrow Principals and any such third parties have deemed necessary, they have consulted with their own legal, tax and investment advisers regarding their decisions with respect to any transactions to which this Agreement may directly or indirectly pertain. Neither the Escrow Agent nor any of its directors, officers, employees, agents or affiliates shall be liable or responsible for any such transactions.

H. The Escrow Agent shall not be responsible for assuring the sufficiency, validity, perfection or priority of any security interest sought by the Escrow Principals or any third party in the Escrowed Funds or any other property, nor shall the Escrow Agent be responsible for the authorization, validity of the execution, or enforceability of this Agreement by or against any party thereto other than the Escrow Agent.

I. The Escrow Agent shall not be responsible in any manner whatsoever for any failure or inability of any other party to comply with any of the provisions of this Agreement.

J. The foregoing provisions of this Section enumerate certain duties not undertaken by the Escrow Agent. The failure to disclaim specifically other duties not undertaken by the Escrow Agent shall not be construed to imply that any such duties exist, and the Escrow Agent shall have no duties whatsoever apart from those expressly set forth in this Agreement.

4. **Investment of Escrowed Funds.**

During the period of time that the Escrowed Funds are held by the Escrow Agent hereunder, they shall be invested by the Escrow Agent as directed in writing by the Escrow Principals in Permitted Investments. In the absence of such direction, the Escrow Agent may invest the Escrowed Funds pursuant to a money market fund constituting a Permitted Investment. The Escrow Agent is not a trustee or fiduciary for the Escrow Principals under this Agreement. The Escrow Principals acknowledge and agree that all investments made pursuant to this section shall be for the account and risk of the Escrow Principals and any losses associated with investments shall be borne solely by the Escrow Principals. The Escrow Agent shall have no liability for any loss resulting from any such investment.

5. **Interpleader.**

In the event of a dispute between the Authority and FCWC as to the proper disposition of the Escrowed Funds which continues for more than 30 days or if any circumstances arise which are not addressed in this Agreement and are not resolved by the Authority and FCWC (as evidenced by written notice to the Escrow Agent signed by the Authority and FCWC) within 30 days of the date that the unaddressed circumstance comes to the attention of the Escrow Agent, the Escrow Agent shall be entitled to deduct any expenses and any indemnification payment owing to it from the Escrowed Funds and file an action in interpleader or a declaratory judgment action in the Circuit Court of Orange County, Florida to resolve the said disagreement.

6. **Resignation of Escrow Agent.**

The Escrow Agent may resign and be discharged from its duties or obligations hereunder, at any time, by giving notice in writing to the Escrow Principals of such resignation specifying a date when such resignation shall take effect, provided, the effective date of such resignation shall not be earlier than ten (10) days after the date of such notice. In the event that the Escrow Agent fails to receive written instructions as to the disposition of the Escrowed Funds signed by the Escrow Principals prior to the effective date of resignation (as to a successor escrow agent or otherwise), the Escrow Agent shall be relieved of its duties and liabilities hereunder, upon delivery of all items held by it pursuant to this Agreement to the Clerk of the Circuit Court of Orange County, Florida accompanied by a bill of interpleader.

7. **Designated Officers and Notices.**

In conjunction with the execution of this Agreement, the Escrow Principals shall provide the Escrow Agent with a certificate which shall be signed by an authorized officer and which shall contain the names of designee(s) who are authorized to execute any written notice, instruction or certificate to the Escrow Agent required or permitted by the terms of this Escrow Agreement ("Certificate of Designation"). In the event one of the Escrow Principals desire to change its authorized designee(s), a new Certificate of Designation setting forth such successor designee must be delivered to the Escrow Agent.

Each notice, instruction or other certificate required or permitted by the terms hereof shall be in writing and shall be communicated to the Escrow Agent by facsimile, the receipt of which by the Escrow Agent shall be confirmed by telephone call from the sending party, and a confirmation copy of which shall be sent by first class mail the same day. All notices, instructions or other certificates from the Escrow Agent to the Escrow Principals shall be sent by first class mail or overnight/next day delivery. The Escrow Agent may conclusively rely without any inquiry or investigation on each notice, instruction or other certificate received by it in the manner set forth above which is signed by those persons designated in each Certificate of Designation. The addresses of the parties as set forth below may be changed by notice to all other parties.

if to the Authority:	Florida Governmental Utility Authority c/o Government Services Group, Inc. 315 South Calhoun Street, Suite 860 Tallahassee, Florida 32301 Attention: Mr. Robert E. Sheets
with a copy to:	Nabors, Giblin & Nickerson, P.A. 315 South Calhoun Street, Suite 800 Tallahassee, Florida 32301 Attention: Mark G. Lawson, Esquire

If to FCWC:	Florida Cities Water Company c/o Avatar Utilities, Inc. 4837 Swift Road, Suite 100 Sarasota, Florida 34231 Attention: Gerald S. Allen, P.E.
with a copy to:	Avatar Utilities, Inc. 201 Alhambra Circle Miami, Florida 33134 Attention: General Counsel
with a copy to:	Greenberg Traurig, et. al., P.A. 777 South Flagler Drive, Suite 300 East West Palm Beach, Florida 33401 Attention: Phillip C. Gildan, Esquire
if to Escrow Agent:	SunTrust Bank, Central Florida, National Association 225 East Robinson Street, Suite 250 Orlando, Florida 32801 Attention: Ms. Lisa Derryberry
with a copy to:	Holland & Knight LLP 200 South Orange Avenue, Suite 2600 Orlando, Florida 32801 Attention: Jonathan D. Rich, Esquire

All notices given hereunder by the parties hereto shall be effective and deemed received two (2) calendar days after mailing if sent via first class mail or one (1) day after mailing if sent via a reputable national overnight/next day carrier (e.g. Federal Express, Airborne, United Parcel Service, or U.S. Post Service). The Escrow Agent is not obligated to take any action with respect to any request or demand of the Escrow Principals unless properly authenticated and delivered in the form required hereunder. Whenever under the terms hereof the time of giving a notice or performing an act falls upon a day that is not a Business Day (as such term is defined in the Indenture), such time shall be extended to the next Business Day.

8. **Compensation of Escrow Agent.**

The Escrow Agent shall not be entitled to any compensation for its services rendered hereunder other than the fees being paid to the Trustee pursuant to the Indenture. Notwithstanding the foregoing, the Escrow Agent shall be entitled to payment and/or reimbursement for any and all advances and other reasonable expenses incurred by the Escrow Agent in connection with such services. The Escrow Agent shall have no obligation whatsoever to expend its own funds hereunder.

9. **Miscellaneous.**

A. No Third Party Beneficiaries. The parties hereto intend that this Agreement is solely for their benefit and no person (i.e., individual, corporation, entity, governmental body or any department or agency thereof) not a party hereto shall have any rights or privileges under this Agreement whatsoever either as a third party beneficiary or otherwise.

B. Governing Law. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of Florida without regard to principles of conflict of laws otherwise applicable to such determination. Any dispute arising in connection with or related to this Agreement shall be brought only in the State or Federal Courts located in Orange County, Florida and by execution and delivery of this Agreement, each of the parties to this Agreement accepts the jurisdiction of each such court and irrevocably agrees to be bound by any judgment (as finally adjudicated) rendered thereby in connection with this Agreement. To the fullest extent permitted by applicable law, each party hereto hereby (i) irrevocably consents to the service of process outside the territorial jurisdiction of said courts in any such proceeding, (ii) agrees that any trial in connection with any such proceeding shall be before the court in said venue, and (iii) waives any right it may otherwise have to a trial by jury in connection with any such proceeding.

C. Amendment. No oral explanation or oral information by any of the parties hereto shall alter the meaning or interpretation of this Agreement. None of the terms or conditions of this Agreement may be changed, waived, modified or varied in any manner whatsoever unless in writing duly signed by each party hereto.

D. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, and be enforceable by and against the respective successors and assigns of the parties to this Agreement; provided, however, that no assignment of any rights or

delegation of any obligations may be made by any party hereto without the express written consent of the other parties. No person, firm or corporation will be recognized by the Escrow Agent as a successor, heir or personal representative of the Escrow Principals until there shall be presented to the Escrow Agent evidence satisfactory to it of such succession.

E. Headings. The headings of the several sections of this Agreement are inserted for convenience only and shall not in any way affect the meaning or construction of any provisions of this Agreement.

F. Entire Agreement. This Agreement represents the entire understanding and agreement between the Escrow Principals with respect to the subject matter hereof, and supersedes all of the negotiations, understandings and representations (if any) made by and between such Escrow Principals.

G. Substitution of Letter of Credit. FCWC may, at any time, substitute one or more letter(s) of credit for the Escrowed Funds, which letter(s) of credit shall be in form, substance and amount, and issued by a banking institution, all of which shall be acceptable to the Authority. Upon receipt by the Escrow Agent of any such letter(s) of credit which has been approved by the Authority, the Escrow Agent shall deposit the same in the Golden Gate Revenue Guarantee Fund, and release the Escrowed Funds, or the applicable portion thereof to FCWC.

H. Counterparts. This Agreement may be executed in counterparts, each of which shall be considered an original, but all of which together shall constitute the same instrument.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the undersigned have executed this Golden Gate Revenue Guarantee Escrow Agreement to be effective as of the date first written above.

AUTHORITY:
FLORIDA GOVERNMENTAL UTILITY AUTHORITY

(SEAL)

By: _____
Chairman

ATTEST:

By:_____
Secretary-Treasurer

FCWC:
FLORIDA CITIES WATER COMPANY

By:_____
Name: _____
Its: _____

ESCROW AGENT:
SUNTRUST BANK, CENTRAL FLORIDA, NATIONAL ASSOCIATION, as Escrow Agent

By:_____
Name:_____
Its:_____

APPENDIX Q

FORM OF TRANSFER, ASSIGNMENT AND ASSUMPTION AGREEMENT

TRANSFER, ASSIGNMENT AND ASSUMPTION AGREEMENT

THIS AGREEMENT, is made and entered into this ____ day of March, 1999, by and between the Florida Governmental Utility Authority, a legal entity and public body created by Interlocal Agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), and **[Florida Cities Water Company ("FCWC")/ Poinciana Utilities, Inc. ("PUI")]**.

W I T N E S S E T H:

WHEREAS, Florida Cities Water Company and Poinciana Utilities, Inc. have as of this date conveyed to the GUA, pursuant to that certain Utility System Asset Acquisition Agreement (the "Purchase and Sale Agreement") between Florida Cities Water Company and Poinciana Utilities, Inc. and the GUA, all of the real and personal property, both tangible and intangible, which comprises the Purchased Assets as described therein.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, together with $10 and other good and valuable consideration exchanged between the parties, the parties do undertake, promise and agree for themselves, their permitted successors and assigns as follows:

SECTION 1. PURPOSES AND DEFINITIONS. This Agreement is intended to (A) supplementally transfer and assign **[FCWC/PUI]**'s rights, remedies, powers, title and interest in the Purchased Assets, any permits or other authorizations relating to the Utility System, or arising by virtue of the GUA assuming the operation and control over the Utility System, (B) establish certain post closing relationships of the parties, (C) provide for the assumption by the GUA for the obligations and responsibility of operation of the Utility System, and (D) identify specific contractual obligations of **[FCWC/PUI]** that the GUA agrees to assume. This Agreement is supplemental to the Purchase and Sale Agreement. All capitalized words and terms not otherwise defined herein shall have the meanings set forth in the Purchase and Sale Agreement.

SECTION 2. TRANSFER AND ASSIGNMENT. [FCWC/PUI] shall, and does hereby, transfer, assign, convey, and grant, bargain and sell unto the GUA (1) all rights, remedies, powers, title or interest in the Purchased Assets which comprise the **[TO COME]** System, including any rights, remedies, powers, title or interest arising by virtue of any franchise or certificate of authorization granted to **[FCWC/PUI]** by any county in the state of Florida, or arising by virtue of the GUA assuming the ownership, operation and control of the **[TO COME]** System of the Utility System; (2) all rights, privileges, easements, licenses, prescriptive rights, rights of way, rights to use public and private roads, highways, streets, railroads, or other areas owned or used by **[FCWC/PUI]** in connection with the

construction, reconstruction, installation, expansion, maintenance and operation of the **[TO COME]** System or the Purchased Assets; which shall include, but not be limited to the easements in Appendix B to the Utility System Asset Acquisition Agreement; and (3) all fee simple real property interests owned by **[FCWC/PUI]** in **[TO COME]** County, Florida, which are used or specifically available for use in the operation of the **[TO COME]** System; such interests, however, shall not include any excluded property or assets described in Appendix N of the Utility System Asset Acquisition Agreement. The foregoing transfer and assignment is supplemental to all other instruments and actions necessary to close pursuant to the Purchase and Sale Agreement.

SECTION 3. ASSUMPTION. The GUA hereby accepts the transfer and assignment set forth in Section 2 above, and assumes the ownership, operation and control of the **[TO COME]** System and the performance and satisfaction of those obligations, duties and liabilities (1) accruing thereto at Closing, (2) expressly assumed by the GUA in the Purchase and Sale Agreement, and (3) expressly assumed as follows:

(a) the obligation to return customer deposits in due course;
(b) the obligations and responsibilities of **[FCWC/PUI]** set forth in or arising out of Appendices A, B, E, H, I, J, K and L to the Purchase and Sale Agreement.

(B) Upon Closing pursuant to the Purchase and Sale agreement and the transfer of possession of the Purchased Assets to the GUA thereunder, **[FCWC/PUI]**'s obligation or responsibility to act or serve as a provider of water or wastewater services as the owner of the **[TO COME]** System of the Utility system shall cease and terminate. **[FCWC/PUI]** shall have no liability or obligation with respect to the Purchased Assets or the Utility System after Closing. Accordingly, in such an event, the GUA acknowledges and accepts the responsibility and obligation to provide water and wastewater services, as a governmentally owned and controlled service provider within the area previously served by **[FCWC/PUI]**.

SECTION 4. BINDING EFFECT. This Agreement shall inure to the benefit of and be binding upon **[FCWC/PUI]** and the GUA and their successors and assigns.

IN WITNESS WHEREOF, [FCWC/PUI] and the GUA have caused this Agreement to be duly executed and entered into on the date first above written.

[EXECUTIONS TO COME]

APPENDIX R

FORM OF DOCUMENT ESCROW AGREEMENT

ESCROW AGREEMENT

THIS ESCROW AGREEMENT, is made and entered into as of March ___, 1999, by and among the Florida Governmental Utility Authority, a legal entity and public body created by Interlocal Agreement pursuant to section 163.01(7), Florida Statutes,(the "GUA"), Lee County, a political subdivision of the State of Florida, and Florida Cities Water Company and Poinciana Utilities, Inc., (collectively "FCWC and PUI"), and Greenberg Traurig, P.A. (the "Agent").

W I T N E S S E T H:

WHEREAS, the GUA and FCWC and PUI are parties to that certain Utility System Asset Acquisition Agreement (the "Purchase and Sale Agreement"), and Lee County is the assignee of the GUA with respect to the Ft. Myers System under the Purchase and Sale Agreement; and

WHEREAS, under the Purchase and Sale Agreement, the GUA, Lee County, FCWC and PUI have agreed to enter into this Escrow Agreement to provide for the escrow of all documents necessary to close in advance of the GUA's and Lee County's authorization to sell bonds to fund the purchase price (the "Bonds"); and

WHEREAS, Agent has also been selected by the parties as the agent for the Lawyer's Title Insurance Company (the "Title Insurer"), which will issue owners' title insurance policies covering the real property identified in the title commitments previously issued; and

WHEREAS, the Purchase and Sale Agreement provides that disbursement of proceeds shall be at the direction of the title insurer, or its agent, in order to secure coverage against adverse matters or defects in title which are recorded during the period of time between the effective date of the title insurance commitment and the date of recording of instruments creating the estate or interest to be insured ("Gap Coverage").

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, together with $10.00 and other good and valuable consideration exchanged amongst the parties, the parties to this Escrow Agreement do undertake, promise and agree for themselves or their permitted successors and assigns as follows:

NOTE: Draft assumes assignment of Ft. Myers System assets to Lee County.

SECTION 1. CREATION OF ESCROW, RECEIPT OF ESCROW DOCUMENTS.

(A) Subject to the terms and conditions set forth herein, the GUA, Lee County, FCWC and PUI appoint Agent to perform the duties set forth in this Escrow Agreement, and Agent agrees to perform such duties.

(B) The GUA, Lee County, FCWC and PUI hereby deliver to Agent the documents identified in Exhibit A hereto necessary to deliver and convey the purchased assets to the GUA (the "Escrow Documents") and Lee County.

(C) FCWC and PUI shall timely provide written wire instructions to the GUA, Lee County and Agent relating to the net proceeds due FCWC and PUI under the Purchase and Sale Agreement (the "Net Proceeds").

(D) Agent hereby acknowledges its receipt of the Escrow Documents from each party and agrees to hold the Escrow Documents in escrow pending disbursement and disposition as provided for herein.

(E) In order to secure Gap Coverage, the Agent, which is also serving as agent for the Title Insurer, is required to direct disbursement of the funds. The Agent is hereby directed and authorized to direct disbursement in accordance with a closing memorandum prepared by the underwriters selected by the GUA and Lee County relating to the Bonds, so long as such memoranda provides for the immediate wire transfer to FCWC and PUI of the Net Proceeds due FCWC and PUI.

SECTION 2. DISTRIBUTION OF ESCROW DOCUMENTS. Upon notification from the GUA and Lee County to Agent and FCWC and PUI that the GUA and Lee County have authorized the sale and delivery of the Bonds or otherwise has available all funds necessary to close and upon Agent's confirmation that FCWC and PUI have received by wire transfer the Net Proceeds, Agent shall cause the delivery of the Escrow Documents and cause their recordation in the public records of those of the Escrow Documents identified in Exhibit A as "Recordable Documents". If Agent has not been notified on or before 6:00 p.m. [TO COME] 1999 to disburse and deliver the Escrow Documents, Agent shall thereafter promptly return each document held to the party respectively providing such document to Agent.

SECTION 3. DUTIES AND RESPONSIBILITIES OF AGENT.

(A) Agent's actions under this Escrow Agreement shall be deemed ministerial and so long as Agent reasonably performs as provided herein, the GUA, ,Lee County and FCWC and PUI hereby agree to hold harmless and indemnify the Agent with respect to any loss or damage experienced by the Agent, including reasonable attorneys fees, as a result of its good faith performance hereunder.

(B) Upon disbursement of proceeds to FCWC and PUI and Agent at the direction of Agent as provided herein and the delivery of the Escrow Documents as provided herein, or alternatively, upon the return of the Escrow Documents to the GUA, Lee County, FCWC and PUI respectively as provided herein, this Escrow Agreement shall terminate.

(C) The GUA and Lee County acknowledge that Agent is the law firm which is representing FCWC and PUI in connection with the transaction described in the Purchase and Sale Agreement and that Agent's service under this Escrow Agreement shall not disqualify Agent from representing FCWC and PUI in any matter.

SECTION 4. ENTIRE AGREEMENT. This Escrow Agreement is irrevocable and shall not be amended or modified unless executed in writing by all parties hereto. This Escrow Agreement shall be governed by the applicable laws of the State of Florida and is the entire agreement between the parties pertaining to the subject escrow.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY:

By:

Its:

Attest:

LEE COUNTY, FLORIDA:

By:

Its:

Attest:

FLORIDA CITIES WATER COMPANY

By:

Its:

Attest:

POINCIANA UTILITIES, INC.

By:

Its:

Attest:

GREENBERG TRAURIG, P.A.

the Contractor shall have the right to assign this Agreement to the following entities without the consent of the GUA: ST Environmental Services, Enron, OMI, United Water and AquaSource or their affiliates. Such assumption shall be effective upon giving twenty (20) days notice to the GUA and upon execution with such entity of a written assignment in a form satisfactory to the GUA's attorney by which such entity assumes all the obligations of the Contractor under this Agreement.

(C) Any assignment of this Agreement consented to by the County shall be an assignment of the Agreement in its entirety and the Basic Operation and Maintenance Service and the Basic Billing and Customer Service cannot be severed or assigned separately unless specifically consented to by the County; provided, however, this prohibition shall not apply to an affiliate of the Contractor if such separate assignment shall not, in the judgment of the County, interfere with the performance of the duties and the provision of the services provided in this Agreement.

(D) A transfer of a majority of the outstanding stock of the Contractor to another corporate entity or business enterprise shall be deemed an assignment of the Agreement requiring the consent of the County under this Section 6.13.

(E) Notwithstanding the provisions of subsection (C) of this Section 6.13, a transfer of the outstanding stock of the Contractor to an affiliated company within Avatar Holdings, Inc. shall not require the consent of the County under this Section 6.13.

SECTION 6.14. AMENDMENTS AND WAIVERS. No amendment, supplement, modification or waiver of this Agreement shall be binding upon any party hereto unless executed in writing by such party. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision of this Agreement, whether or not similar, unless otherwise expressly provided.

SECTION 6.15. ENTIRE AGREEMENT. This Agreement, including the referenced Appendices hereto, is the entire agreement between the parties and supersedes all prior and contemporaneous agreements, understandings, negotiations, and discussions of the agreements, understandings, negotiations, and discussions of the parties, whether oral or written,

To Contractor:

Avatar Utility Services, Inc.
201 Alhambra Circle, 12th Floor
Coral Gables, Florida 33134
Attention: General Counsel

with a copy to:

Avatar Utility Services, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with another copy to:

Greenberg Traurig, P.A.
777 South Flagler Drive, Suite 300E
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan, Esq.

(B) Any written notice given to one person in subsection (A) of this section shall also be provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or five (5) days after the date mailed.

SECTION 6.13. ASSIGNMENT.

(A) The Contractor shall not have the right to assign any of its rights, duties or obligations under this Agreement without the consent of the County Board upon a demonstration by the proposed assignee of its general ability to perform the obligations of the Contractor under this Agreement which consent shall not be unreasonably withheld. A consented to assignee shall be required to assume the obligations of the assigning party by written assignment in a form reasonably satisfactory to the County's attorney.

(B) Nothwithstanding the provisions of subsections (A) and (C) of this Section 6.13,

(B) The County shall respond to the Contractor in writing within thirty (30) days of receipt of the notice by the Contractor of an actual or potential conflict of interest. If the County determines the prospective business association, interest or circumstance does not appear to constitute a conflict of interest by the Contractor, the County shall so state in the response and the Contractor may, at its option, enter into said association, interest or circumstance and it shall be deemed not in conflict of interest with respect to Utility Services provided by the Contractor.

SECTION 6.10. RIGHT TO ENTER AND INSPECT. At all times the County and the County Representative or its representatives or agents shall have the right, but not the duty, to enter upon the Utility Facilities to inspect and observe the performance or provision of the Utility Services.

SECTION 6.11. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Agreement shall be governed by and construed in accordance with the laws of the State.

(B) The parties to this Agreement expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State, whether state, local or federal, and further agree that venue shall lie in Lee County, Florida.

SECTION 6.12. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, to the parties at the following addresses:

To the County:

Public Works Director
1500 Monroe Street
Ft. Myers, Florida 33901

with a copy to:

Lee County Attorney
2115 Second Street
Ft. Myers, Florida 33901

SECTION 6.08. MODIFICATION OF SCOPE OF SERVICES.

(A) The County shall at all times during the term of this Agreement have the right to request unilateral changes in the scope of services, including alterations, reductions therein or additions thereto. Upon receipt by the Contractor of the County's notification of the contemplated change, the Contractor, shall in writing: (1) timely provide a detailed estimate for the increase or decrease in cost due to the contemplated change, (2) notify the County of any changes in work schedules, (3) advise the County if the contemplated change shall affect the Contractor's ability to perform or provide the Utility Services in a manner consistent with the requirements and performance standards incorporated into this Agreement, and (4) advise the County if the contemplated change is within the capabilities of the Contractor.

(B) If the County so instructs in writing, the Contractor shall suspend work on that portion of the Utility Services affected by the contemplated change, pending the County's decision to proceed with the change.

(C) If the County elects to make a change in this Agreement, the County shall initiate an amendment to this Agreement, and the Contractor shall not commence work on any such change until such written amendment is agreed to and signed by the Contractor and the County Representative.

SECTION 6.09. CONFLICTS.

(A) The Contractor represents that it has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance or provision of the Utility Services. The Contractor shall promptly notify the County Representative of all potential conflicts of interest for any prospective business association, interest or other circumstance which may influence or appear to influence the Contractor's judgment or quality of the Utility Services to be provided under this Agreement. Such notification shall be in writing and identify the prospective business association, interest or circumstance, the nature of the work the Contractor may undertake and request a determination from the County, as to whether the association, interest or circumstance would, in the opinion of the County, constitute a conflict of interest if entered into by the Contractor.

employees from all suits and actions, including attorney's fees, and all costs of litigation and judgments of any name and description arising out of or incidental to the performance of the construction contract or work performed for the Utility Facilities.

(C) The Contractor shall be liable for any fines or civil penalties which may be imposed by any governmental or quasi-governmental agencies or bodies for violations of the effluent guarantees specified herein arising out of, or resulting from the negligent performance of its duties and obligations under this Agreement, including without limitation, negligent acts and omissions of the Contractor, its employees, agents, officers and subcontractors. The County will assist the Contractor in any contest of any such fines or civil penalties in administrative or court proceedings. The Contractor shall pay such fines or civil penalties prior to such protest if such payment is required prior to making such protest. The Contractor shall be solely responsible for all costs, including attorney's and accountants' fees, of protesting any such fines or civil penalties. The Contractor shall not be responsible for any fines or civil penalties due to proceedings concluded prior to execution of this Agreement unless such fines or civil penalties are the direct result of an act or omission of the Contractor pursuant to the terms hereof. Notwithstanding the above, the Contractor shall not be liable for fines, civil penalties and judgments or for defending against same, arising from structural and design defects and deficiencies in the Utility Facilities or the capacity limitations of the Utility Facilities for which the Contractor is not responsible for correcting or remedying under this Agreement.

for the Utility Facilities.

SECTION 6.06. NOTICE OF CLAIMS. The Contractor shall notify in writing the County Representative of all incidents, events or injuries which the Contractor reasonably believes may result in a claim of fifty thousand dollars ($50,000.00) or more, arising out of the Contractor's performance under this Agreement, including, but not limited to claims relating to, workplace injuries. The Contractor shall notify the County of any claim established and accepted as a liability under its commercial insurance or self insurance which is paid in an amount equal to or greater than fifty thousand dollars ($50,000.00). The Contractor shall notify the County of any death arising out of the Contractor's performance under this Agreement. The Contractor shall notify the County of any and all events, accidents, injuries, incidents, suits or claims which name or otherwise may involve or create a liability for the County or result from the provision by the Contractor of the Utility Services, including by way of example and not limitation, any events involving pollution at, on, or near the Utility Facilities. The obligation of the Contractor to report under this Section 6.06 is subject to any confidentiality agreement relating to any claim. All notices required under this Section 6.06 shall be provided promptly and within forty eight (48) hours of the Contractor learning of same.

SECTION 6.07. INDEMNIFICATION AND PENALTIES.

(A) Each party shall protect, defend, indemnify and hold the other party and its officers, employees and agents harmless from and against any and all liabilities, claims, losses, and expenses, including attorney's fees and all costs of litigation and judgments arising out of any willful misconduct or negligent act, error or omission of that party, its subcontractors, agents or employees, arising out of or incidental to the performance of this Agreement. This indemnification shall also pertain to any claims brought against a party by the other party, its officers, employees or agents, or any subcontractor, or anyone directly or indirectly employed by any of them.

(B) Each party acknowledges that the general conditions of any construction or subcontractor contract shall include language, satisfactory to the other party's attorney, in which the contracting party agrees to hold harmless and to defend the other party, its agents and

do business in the State of Florida. Carriers shall be "A" rated and have a financial rating size of "IX" or better, according to the A.M. Best Key Rating Guide. All certificates of insurance shall reflect thirty (30) days' notice of any cancellation, change or reduction in insurance coverage. All properly executed certificates of insurance shall be received and approved by the County prior to the Commencement Date. On renewal at the end of each policy term, properly executed certificates of insurance must be delivered to the County at least thirty (30) days before expiration of the insurance policies for review and approval so that there will be no interruption in the Contractor's provision of Utility Services under this Agreement due to the lack of proof of insurance.

(C) To the extent not otherwise stated herein, and in addition to any other requirements set forth herein, the Contractor shall operate and maintain the Utility Facilities in accordance with the following laws and regulations, as applicable:

(1) Chapter 440, Florida Statutes, Workers' Compensation Law, as amended;

(2) Florida Administrative Code Chapters 38F and 38I, as amended, relating to Workers' Compensation;

(3) 29 Code of Federal Regulations 1910 and 29 Code of Federal Regulations 1926, Occupational Safety and Health Act, General Industrial Standards and Construction Industrial Standards, respectively; and

(4) the Florida Toxic Substances Act.

(D) Should the Contractor at any time fail to maintain the insurance coverages required in this Section 6.05, the County, at its discretion, shall be authorized to purchase such coverages and charge the Contractor for such coverages purchased or deduct such cost from the monthly payment due for the Basic Operation and Maintenance Service Fee. The County shall be under no obligation to purchase such insurance or to be responsible for the coverages purchased or the financial stability of the insurance companies used and failure of the County to purchase such insurance shall not lessen or release the Contractor of its obligations as provided in this Section 6.05.

(E) The County shall secure and maintain at its expense property damage insurance

SECTION 6.03. AUTHORITY TO PERFORM. The Contractor shall continuously maintain at all material times all Permits, licenses and approvals required under the Applicable Law to provide the Utility Services. Proof of all such Permits, licenses and approvals shall be submitted to the County Representative at least annually and upon request.

SECTION 6.04. ACCESS AND AUDITS. The Contractor shall maintain adequate records to justify all charges, expenses and costs incurred in estimating and performing the Utility Services for at least two (2) years after the termination of this Agreement. The County or its contracted representatives shall have access to such books, records and documents as required for the purpose of inspection or audit, during Normal Business Hours, at the place of business of the Contractor within the State. The Contractor shall be subject to an annual independent financial and performance audit on its performance and provision of the Utility Services under this Agreement. Any such audit shall be undertaken by an auditor or auditors selected and paid for by the County.

SECTION 6.05. GENERAL INSURANCE REQUIREMENTS.

(A) The Contractor shall purchase at its cost and maintain at all times the insurance coverages listed in Appendix I with insurance companies acceptable to the County for limits of liability not less than the amount stated for each coverage in Appendix I.

(B) The County is to be an additional insured under the Commercial General Liability and Contractor's Pollution Liability Insurance policies with the Severability of Interest Provision applicable to each policy. If requested by the County, the Contractor shall promptly revise the insurance policies to include other local governments using or acquiring the Utility Facilities as additional insureds. All liability insurance shall be on an "occurrence form," except Miscellaneous Errors and Omissions policies and Contractor's Pollution Liability policies, which shall be on a "claims made" form. Each policy shall provide that the Contractor's coverage is primary to any insurance or self-insurance program of the County and that the County shall not be directly responsible for the payment of any insurance premium due the insurance companies. The insurance coverages and limits required must be evidenced by properly executed certificates of insurance supplied by the Contractor. Policies of insurance shall be with carriers admitted to

(3) the amount of compensation the County is obligated or committed to pay the Contractor under this Agreement.

SECTION 6.02. MANNER OF PERFORMANCE.

(A) The Contractor is, and shall be, in the performance of all Utility Services, an independent contractor, and not an employee or agent of the County. All persons engaged in the performance or provision of Utility Services shall at all times, and in all places, be subject to the Contractor's sole direction, supervision, and control. The Contractor shall exercise control over all the means and manner in which it and its employees perform or provide the Utility Services.

(B) The Contractor represents that it has, or will secure at its own expense, all necessary personnel required to perform the Utility Services under this Agreement. Personnel of the Contractor shall not be employees of or have any contractual relationship with the County, nor shall such personnel or employee of the Contractor be entitled to any benefits of the County including, by way of example and not limitation, pension, health and worker's compensation benefits.

(C) All of the services required hereunder shall be performed by the Contractor or under its supervision, and all personnel, employees and subcontractors engaged in performing the Utility Services shall be fully qualified and, if required, authorized or permitted under State and local law to perform the Utility Services undertaken.

(D) The County shall at all times comply with the provisions of the Public Records Law, Chapter 119, Florida Statutes.

(E) The Contractor, at its sole expense, shall correct or replace any defective or faulty work.

(F) All non-supervisory employees of the Contractor assigned to the field will shall be required to wear at all times a uniform and identification badge.

(G) The Contractor is responsible for checking its employees for proof of a valid Florida driver's license and insurance a minimum of twice annually in those cases where personal vehicles are used for County purposes.

ARTICLE VI

GENERAL PROVISIONS

SECTION 6.01. DESIGNATION OF COUNTY REPRESENTATIVE.

(A) The County shall designate in writing a County Representative to act on its behalf with respect to the Utility Services to be rendered under this Agreement. The County Representative may be a designated employee of the County. The Contractor shall be entitled to rely upon any written notice of change of the designated County Representative.

(B) The County Representative shall have the following responsibilities:

(1) Review and make appropriate recommendations on all requests submitted by the Contractor for payment for services and work provided and performed in accordance with this Agreement.

(2) Provide all criteria and information requested by the Contractor as to the requirements of the County for the Utility Services.

(3) Upon request from the Contractor, assist the Contractor by placing at its disposal all available information in the possession of the County pertinent to the Utility Services, including by way of example and not limitation, existing drawings, specifications, shop drawings, public literature, previous reports and any other data relative to the provision of the Utility Services of the maintenance, construction, acquisition or improvement of the Utility Facilities.

(4) Provide notice to the Contractor of any deficiencies or defects discovered by the County with respect to the services to be rendered by the Contractor under this Agreement.

(C) The County Representative is not authorized to issue any verbal or written orders or instructions to the Contractor that would have the effect, or be interpreted to have the effect, of modifying or changing in any way:

(1) the scope of the Utility Services to be provided and performed by the Contractor under this Agreement;

(2) the time the Contractor is obligated to commence and complete all Utility Services;

shall be paid as follows:

(1) If the arbitrators determine that the disputed issues raised or objected to by the Contractor are justified and appropriate, the County shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of Contractor's counsel and any witnesses called by the Contractor.

(2) If the arbitrators determine that the disputed issues raised or objected to by the County are justified and appropriate, the Contractor shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of the County's counsel and any witnesses called by the County.

(3) If the determination of the arbitrators does not fall within the parameters of (H)(1) or (H)(2) above, the arbitrators shall order each party to pay their own fees, charges and expenses and, in the sound discretion of the arbitrators, assess the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators between the parties.

(I) The provisions of the Florida Arbitration Code, Chapter 682, Florida Statutes, and the Florida Evidence Code, Chapter 90, Florida Statutes, except to the extent inconsistent with the provisions of this Agreement, shall specifically be deemed to apply to any arbitration proceeding conducted hereunder. Unless the venue is mutually agreed upon otherwise by the parties, the venue for any arbitration commenced pursuant to this Section shall be in Lee County, Florida.

SECTION 5.07. VACATING THE PREMISES. Upon vacating the Utility Facilities, the Contractor shall leave all sites, structures, equipment, and improvements in good condition. The Contractor shall properly dispose of any accumulations of waste materials, rubbish, and other debris resulting from the Contractor's activities. The Contractor shall restore to original condition (ordinary wear and tear excepted) any portions of the Utility Facilities that were altered or changed by the Contractor without the County's approval.

party failing to timely appoint and the two so appointed shall appoint a third arbitrator to chair the panel. The party on whose behalf an arbitrator is appointed shall have the right to veto up to two of the arbitrators appointed by the American Arbitration Association.

(3) Nothing in this Section 5.06 shall preclude the parties from mutually agreeing to a single arbitrator to resolve the dispute.

(4) No arbitrator shall have a business or other pecuniary relationship with either party, except for payment of arbitrator's fees and expenses without the written consent of both parties.

(E) Arbitrators shall be sworn to perform their duties with impartiality and fidelity. In rendering any decision, the arbitrator shall proceed to consider the Agreement, the dispute identified in the notice and any response and the actions taken and the documentation thereof, conduct, and relative position, knowledge, and the ability of the parties in relation to the dispute.

(F) The arbitration hearing shall convene not earlier than sixty (60) days and not later than one hundred eighty (180) days of the acceptance of appointment of all of the arbitrators chosen by the parties unless the County and the Contractor mutually agree to an earlier date. The arbitrators shall render a decision within ten (10) business days of the date on which the arbitration hearing concludes, and such decisions shall be in writing and in duplicate, one counterpart thereof to be delivered simultaneously to each of the parties. The decision shall contain findings of fact and conclusions of law and shall be final and binding upon the County and the Contractor.

(G) The arbitrators may at their discretion, and shall upon written request of the Contractor or the County, engage experts to provide peer review of any technical, engineering, or scientific issues introduced by the parties. The parties shall be entitled to discovery pursuant to the Florida Rules of Civil Procedure. All discovery requests by a party shall be enforced by the arbitrators. The arbitration hearing shall not proceed until all outstanding discovery requests have been fulfilled.

(H) The fees, charges and expenses of the arbitrators, any experts engaged by the arbitrators, the respective counsel engaged by the parties, and any witnesses called by the parties

if any, on the party's obligations under this Agreement; and (c) its estimated impact (other than cost), if any, on the party's obligations under this Agreement.

SECTION 5.06. DISPUTE RESOLUTION.

(A) Notwithstanding any other provision in this Agreement, any dispute among the parties which arises from the Agreement shall be resolved by binding arbitration conducted in accordance with this Section 5.06. Either party may initiate the dispute resolution process by providing written notice to the other party.

(B) After transmittal and receipt of a written notice specifying the area or areas of disagreement or dispute, the parties agree to meet at reasonable times and places, as mutually agreed upon, to discuss the issues.

(C) If discussions between the parties fail to resolve the dispute within fifteen (15) business days of the receipt by each party of the notice described in subsection (A) of this Section 5.06, a binding arbitration may then be initiated by either party by written notification to the other party of the existence of a dispute. Any and all issues related to the matter addressed by the written notice provided in subsection (A) of Section 5.06 or any response by the other party shall be raised and resolved in a single proceeding.

(D) The arbitrators shall be appointed and act as follows:

(1) The County and the Contractor shall each appoint a person as arbitrator within thirty (30) days of the date one of the parties has notified the other of the existence of a dispute.

(2) Each appointment shall be signified in writing to the counter party and the arbitrators so appointed, within ten (10) days of their acceptance of appointment, shall appoint a third arbitrator, who shall chair the panel. If the arbitrators appointed by the parties are unable to agree upon a third arbitrator, the same shall be appointed by the American Arbitration Association from its qualified panel of arbitrators. Each party shall have the right to veto up to two appointments proposed by the American Arbitration Association. If either the County or the Contractor fails to appoint an arbitrator within forty (40) days from the date one of the parties has notified the other of the existence of a dispute, then an arbitrator shall be appointed by the American Arbitration Association from its qualified panel of arbitrators as the appointment of the

modification of the compensation or scope of services is required because of the action taken in response to an emergency, an amendment shall be issued to document the consequences of the changes or variations. If the Contractor fails to provide such written notice to the County Representative within the forty eight (48) hour period, the Contractor shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the compensation or scope of service provided under this Agreement.

SECTION 5.04. EMERGENCY REPLACEMENT OF CONTRACTOR. In the event of any emergency condition involving the Utility Facilities which is found by the County to present a significant, immediate danger to public health, whether the cause of the Contractor or otherwise, and the Contractor is either unable or unwilling to correct such condition, the County may replace the Contractor without notice during the emergency condition, provided that at the conclusion of any such condition, the Contractor shall be reinstated by the County. Provided further, however, the County shall not be obligated to reinstate the Contractor at the conclusion of the emergency condition and may terminate this Agreement if the Contractor's inability or unwillingness to correct such condition itself constitutes grounds for termination of this Agreement or the Contractor is otherwise in default as provided in Section 5.02. The Contractor shall not be entitled to any compensation after the date upon which the County replaces the Contractor under this Section 5.04.

SECTION 5.05. OBLIGATIONS EXCUSED.

(A) Notwithstanding any other provision in this Agreement, neither the County nor the Contractor shall be liable to the other for any failure or delay in performance of any obligation under this Agreement due to the occurrence of an Uncontrollable Circumstance.

(B) As a condition precedent to the right to claim excuse of performance, the party experiencing an Uncontrollable Circumstance shall:

(1) promptly notify the other party verbally; and

(2) as soon as practical, but in no event more than five (5) business days thereafter, prepare and deliver to the other party a notice with a written description of (a) the commencement of the Uncontrollable Circumstance; (b) its estimated duration and cost impact,

(1) failing to begin an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(2) discontinuing prosecution of an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(3) failing to comply with any Applicable Law, whether willfully or negligently;

(4) breaching any material warranty or making any representation in this Agreement that is materially untrue;

(5) failing to pay, when due, any sums owed to a subcontractor for services or materials in a manner approved by the County; or

(6) failing to perform the Basic Operation and Maintenance Service or the Basic Billing and Customer Service in a manner consistent with the performance standards or other requirements established or incorporated in this Agreement.

(C) Each of the following also shall be deemed an event of default: (1) written admission by a party that it is bankrupt; (2) filing by a party of a voluntary petition for bankruptcy; (3) consent by a party to the court appointment of a receiver or trustee for all or a substantial portion of its property or business; (4) the making of any arrangement by a party with, or for the benefit of, its creditors or assigning to a trustee, receiver, or similar functionary (regardless of how designated) of all or a substantial portion of a party's property or business; (5) becoming insolvent; or (6) final adjudication of a party as bankrupt under the Federal Bankruptcy Act.

SECTION 5.03. EMERGENCIES. In the event of an emergency affecting the safety or protection of persons, the Utility Facilities, or property adjacent thereto, or to avoid imminent environmental contamination, the Contractor, without special instruction or authorization from the County Representative is obligated to act to prevent such threatened damage, injury or loss. The Contractor shall give the County Representative oral notice within forty eight (48) hours followed by written notice within five (5) business days after the occurrence of the emergency, if the Contractor believes that any significant changes in the scope of services provided in this Agreement is required and merited. If the County determines that a

(3) From the first payments received on accounts receivable during the third 30 day period subsequent to the Commencement Date, the Contractor will be authorized to transfer $39,825.00 to FCWC which is equal to 4.5% of the estimated unbilled accounts receivable.

(B) At closing FCWC shall assign to the County all interest in any accounts receivable after the date of closing.

(C) The estimated billed accounts receivable and estimated unbilled accounts receivable are subject to reconciliation as provided in the Asset Acquisition Agreement.

ARTICLE V

TERMS AND TERMINATION

SECTION 5.01. TERM OF AGREEMENT. The initial term of this Agreement shall commence on the Commencement Date and shall expire on May 31, 2000. The initial term of this Agreement may be extended for an additional term of 5 years upon the mutual agreement of the parties.

SECTION 5.02. DEFAULT.

(A) An event of default occurs if the persistent, repeated, or substantial failure or refusal by either the County or the Contractor to substantially fulfill any of its material obligations in accordance with this Agreement, provided, however, that no such event shall constitute a default unless and until:

(1) the non-defaulting party has given written notice to the defaulting party that a default or defaults exist which will, unless corrected, constitute an event of default on the part of the defaulting party; and

(2) the defaulting party either has not corrected such default, or has not initiated reasonable steps expeditiously to correct such default within five (5) days from the date of such written notice.

(B) The events by which the Contractor shall be deemed to have failed to fulfill a material obligation of this Agreement shall include, by way of example and not limitation, the following:

the month during which said services were performed. For the first month in which the Commencement Date occurs, the Basic Billing and Customer Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 4.12. PAYMENT FOR ADDITIONAL SERVICES. The County shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's itemized invoice consistent with the authorizations received from the County. The Contractor shall document all such fees for Additional Services.

SECTION 4.13. ACCOUNTS RECEIVABLE.

(A) With respect to the Ft. Myers System, the accounts receivable, whether billed or unbilled, due Florida Cities Water Company ("FCWC"), including those amounts guaranteed under prior agreement with certain developers, for which services were provided prior to the Commencement Date shall remain FCWC's sole and separate property with no claim of the County therefore and FCWC shall be solely responsible for collecting and retaining all such accounts receivable. The following estimates will be utilized for the purposes of this section: billed accounts receivable of $900,000.00 and unbilled accounts receivable of $885,000.00. The County will assist the FCWC in collecting such accounts receivable by authorizing the Contractor under this Agreement to assume collection of FCWC accounts receivable payments according to the following schedule:

(1) From the first payments received on accounts receivable during the first thirty (30) day period subsequent to the Commencement Date, the Contractor will be authorized to transfer $855,000.00 to FCWC, which is equal to 95% of the estimated billed accounts receivable.

(2) From the first payments received on accounts receivable during the second thirty (30) day period subsequent to the Commencement Date, the Contractor will be authorized to transfer $881,250.00 to FCWC which is equal to 4.5% of the estimated billed accounts receivable plus 95% of the estimated unbilled accounts receivable.

Services not included in the Basic Billing and Customer Service Fee, the Contractor shall be compensated as follows:

(A) Customer service activation (turn-on) occurring other than Normal Business Hours – thirty five dollars ($35.00) per activation.

(B) Make changes in the customer service record format and other changes to customer records, billing and remittance format requested by the County - eighty five dollars ($85.00) per hour of programmer time.

(C) Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor for implementation – eighty five dollars ($85.00) per hour of programmer time.

(D) Insert single-page "bill stuffers" (not larger than 8.5" x 11") with customer bill form - $0.035 per bill plus any additional postage required.

(E) Print mailing labels from the County's master customer records - $0.069 per label.

(F) Change customer bill form format – eighty five dollars ($85.00) per hour of programmer time plus the Contractor's cost of unused bill forms on hand.

(G) Prepare rate analysis reports using historical usage information to analyze past periods of one to twenty four (1-24) months and consolidate totals by rate class and meter size - $0.08 per customer account ($150.00 minimum).

(H) Produce billing registers with proposed rates for comparison with current rates - $0.18 per customer account plus a set-up charge of $170.00.

(I) Change customer rates and charges – eighty five dollars ($85.00) per hour of programmer time.

(J) Special computer programming – eighty five dollars ($85.00) per hour of programmer time.

(K) Mail single-page (8.5" x 11") special customer notices in envelopes to customers separate from bill - $0.447 per notice plus postage.

SECTION 4.11. PAYMENT OF BASIC BILLING AND CUSTOMER SERVICE FEE. The Basic Billing and Customer Service Fee shall be paid in twelve (12) equal monthly installments to the Contractor not later than the fifth (5th) day of the month following

SECTION 4.07. FIELD CUSTOMER SERVICE. The Contractor shall provide field customer service by qualified personnel consistent with the Basic Billing and Customer Service Performance Standards. Customer service provided in the field shall include, by way of example and not limitation, activation and termination of service during the hours on the days when the customer service center is open and the investigation of customer problem reports. Customer service activation (turn-on) occurring other than Normal Business Hours will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.08. REMITTANCE OF FUNDS TO COUNTY.

(A) All receipts will be combined daily for deposit to the County's designated bank account. These moneys will be deposited within twenty four (24) hours of receipt except for legal holidays, weekends, and disasters beyond the control of the Contractor.

(B) A report by facility of daily receipts will be provided by FAX or electronically to the County and the Trustee for verification of deposits made to the County account. Such report shall identify receipts by water connection fees, wastewater connection fees, customer deposits, such other receipts or revenues required to be segregated by the County and all other receipts. Any discrepancies shall be reported and responded to within forty eight (48) hours.

(C) Mail-in payments must be addressed and be in an acceptable format to the County's lock box provider. A computer file containing details of the lock box receipts shall be provided via modem or tape to the Contractor to be used to update customers' accounts.

(D) Any mail-in receipts not provided in accordance with or acceptable to the County's lock box provider's specifications shall be considered rejected and must be processed by the Contractor's cashiers in a manner similar to any mail-in receipts that do not go directly to the County's lock box provider.

SECTION 4.09. BASIC BILLING AND CUSTOMER SERVICE FEE. For the provision of the Basic Billing and Customer Service, the Contractor shall be paid a fixed annual price of seven hundred five thousand one hundred dollars ($705,100.00).

SECTION 4.10. PAYMENT FOR ADDITIONAL SERVICES. For Additional

Basic Billing and Customer Service Fee. The customer service center shall be:

(1) open to the public during Normal Business Hours;

(2) during periods when the customer service center is not open, the center shall be equipped with an answering service to take incoming calls or otherwise direct incoming calls to a staffed location; and

(3) staffed with sufficient personnel to take customer and emergency calls, process and dispatch customer service and other work orders, accept customer payments, and process changes to customer accounts.

(B) The Contractor shall respond in a timely manner to all customer inquiries including, by way of example and not limitation, bill inquiries and inquiries pertaining to service initiation and termination, and reports of water breaks, low water pressure, water quality concerns, odors and wastewater discharge. The Contractor's customer service personnel shall also be prepared to answer commonly asked questions without referral to other personnel. Commonly asked questions include, by way of example and not limitation, typical annual usage, account balance, how a bill was calculated, last payment and date, when the last bill was issued, detailed and summary information concerning the customer's account for the current year or within a two (2) year history, the due dates, and mailing and service address.

(C) The Contractor shall be responsible for answering questions regarding delinquent account information. It shall be the responsibility of the Contractor's customer service personnel to respond to these questions and respond how to rectify the delinquent situation.

(D) The Contractor shall be responsible for setting up new accounts, computing necessary deposits in accordance with County tariffs, closing accounts, and relaying this information to the County Representative. The Contractor shall immediately enter this information into the Contractor's computer system and verify it for quality assurance.

(E) The Contractor shall provide for walk-in customer service, for setting up temporary meters, or for the collection of fees charged for tapping and connection based on County tariffs. In addition to the receipt of payment at the customer service center, the Contractor shall process payments transmitted by mail.

maximum of five (5) business days for the delinquency situation to be corrected by the customer before the Contractor proceeds with discontinuance of service.

(3) If a customer disputes the billed amount and provides the Contractor written notice of the dispute, the Contractor shall hold in abeyance for a maximum of thirty (30) days any discontinuance of service until the dispute has been investigated and resolved. If the dispute has not been resolved and the account remains delinquent for more than thirty (30) days after the customer provides written notice to the Contractor of the dispute, a work order will be issued to discontinue service.

(E) The Contractor shall make reasonable efforts to collect all utility revenues, in an efficient manner, with due consideration to customers, without jeopardizing revenue collections and consistent with the applicable covenants under the indenture applicable to any outstanding bonds.

(F) Whenever customers raise questions, point out billing errors, express concerns, or otherwise dispute any bill, the Contractor shall attempt to resolve them in an expeditious manner. If a resolution requires additional research to respond to a customer's dispute, the Contractor will document each stage of the dispute process and prepare a written record of all customer reports indicating the reporting party, address, nature of the problem, action taken by the Contractor and the final resolution shall be maintained by the Contractor and a copy provided to the County Representative. If customer service personnel are working with a customer they must report that fact to field service personnel so that customers will not experience discontinuance of service before dispute resolution.

SECTION 4.06. TELEPHONE AND WALK-IN CUSTOMER SERVICE; REMITTANCE PROCESSING.

(A) The Contractor shall maintain a customer service center at 7401 College Parkway, Ft. Myers, Florida 33907. The location of the customer service center can be moved only with the consent of the County, which consent shall not be unreasonably withheld. Should the location of the customer service center be relocated at the request of the County, the Contractor shall be compensated the full cost of such relocation as an additional fee not included in the

approved by the County. All revenue reports should list year-to-date totals and compare revenue to the prior year.

SECTION 4.04. BASIC BILLING AND CUSTOMER SERVICE REPORTS. The Contractor shall timely prepare and provide the reports listed in Appendix G. Such reports and all other required reports and information provided to the County Representative and the Trustee shall be available in ASCII format and by electronic means capable of remote access by the County Representative and the Trustee.

SECTION 4.05. GENERAL CUSTOMER SERVICE RESPONSIBILITY OF THE CONTRACTOR. To satisfy the customer service objectives of the County as stated in the preamble to this Agreement, the following general customer services shall be required of and timely provided by the Contractor.

(A) The Contractor shall be responsible for the accuracy of all customer information such as deposits, new accounts, file information, and changes to accounts and charges.

(B) Customer accounts shall be closed and finaled upon the request of the customer. No customer account shall be deleted until a new account with a deposit is opened. A work order to discontinue service may be issued to eliminate delinquent customer usage charges.

(C) If at any time a customer account is opened or a meter set without a deposit, the Contractor will notify a field service representative to issue notice to the property that service will be terminated within five (5) business days unless a deposit is provided.

(D) The Contractor shall be responsible for the initial enforcement of delinquent customer accounts including the following:

(1) The Contractor shall be responsible for delivering delinquent notices to each individual customer via the U. S. Postal Service and, if necessary, to issue any work orders for discontinuance of service.

(2) The Contractor shall be responsible for contacting those customers whose accounts contain information relative to special health or guardianship circumstances. The Contractor will determine if there is a valid reason why a bill is unpaid, including by way of example and not limitation, a dispute, a lost bill, vacancy, or change of accounts, and allow a

daily basis to the computer systems of the County Representative and the Trustee to the extent that said computer systems are compatible with the Contractor's computer system. The County may bill water and wastewater charges and other fees and assessments as separate items on the bills. The Contractor must provide an itemized bill in the same manner currently used. The addition of other fees or assessments, changes in the bill format and bill printing programs in the Contractor's utility billing system are not included in the Basic Billing and Customer Service Fee.

(B) All date-related data shall be formatted as required by the County Representative and shall contain no ambiguous references with respect to century.

(C) The Contractor shall provide the ability within software, to provide the following services:

(1) deposit report - a report that shows all customer deposits including options providing a range of deposit dates and status of refundable accounts;

(2) rate changes - changes to rates and charges applicable to customer billing approved by the County will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee;

(3) customer message - adding or changing a special "customer message" on the customer bill form as requested by the County Representative. Such messages shall be limited to four (4) lines of text; and

(4) mailing labels - the Contractor will provide mailing labels from the County's master customer records upon request for selected zip codes or class of customer for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall develop necessary special programming and controls that show customer accounts on a billed versus collected basis and provide a percentage of collection on each of the items. Such special programming and controls which will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee, by way of example and not limitation, shall include water revenues, wastewater revenues, special assessment revenues, connection fee revenues, reuse revenues, and revenues from any other fees

example and not limitation, the following:

(1) create a working file of prepared meter readings formatted for the billing system;

(2) review notes or trouble codes from meter readers and issue appropriate work orders to rectify problems;

(3) follow up on notices (e.g., apparent leaks, reasons for high usage, inaccessible meters, broken register, vacant houses, stuck meters) left by meter readers to the customers or owners;

(4) produce consumption reports for the billing process and analyze unusual usage or stuck meters; issue work orders and contact customers as appropriate;

(5) produce a billing from consumption reports, and review the billing for appropriateness of charges and suspected errors;

(6) develop quality assurance procedures to insure, by sample testing and review, the accuracy of bills on a periodic basis;

(7) work with the operation and maintenance field service personnel in verifying any unusual situations found in the billing process that are related to meter or meter reading problems;

(8) issue work orders designed to clarify questions raised during the billing process and categorize and analyze work orders and make recommendations as to how to minimize work orders and gain efficiencies;

(9) mail single page (8.5" x 11") special notices in envelopes to customers separate from the County bill for an additional fee not included in the Basic Billing and Customer Service Fee; and

(10) insert single page "bill stuffers" (not larger than 8.5" x 11") with the County bill for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.03. COMPUTER PROCESSING AND RELATED SERVICES.

(A) The Contractor shall maintain, on its own computer system, the master customer records of the Ft. Myers System. This information shall be made available to the County Representative and the Trustee via modem. In addition, the Contractor shall transfer data on a

(3) provide multiple-line transaction history showing a running account balance;

(4) ability to extract information as requested by the County Representative, including date-specific information;

(5) ability to regularly generate user-specifiable reports including, by way of example and not limitation, billing summary, trial balance, aged trial balance (by date), and transaction audit controls;

(6) ability to review customer charges and payments by account;

(7) ability to review billing history by account;

(8) ability to review usage history by customer account or meter number;

(9) ability to review utility billing system work order status;

(10) ability to review turn on and off history by account;

(11) ability to review customer information by account; and

(12) search by customer number, customer name, meter number and street address.

(F) The Contractor shall provide a business recovery functions plan to the County which shall include, by way of example and not limitation, daily off-site storage of all transactions.

SECTION 4.02. PROCESSING UTILITY BILLS; PROBLEM RESOLUTION.

(A) The Contractor shall compose, prepare, print (laser) customer bills, on a single (8.5" x 11") one-colored page bill form prescribed by the County, and mail customer bills monthly. Customer bills shall be prepared in such cycles as mutually agreed by the Contractor and the County. The cost of first class postage for customer bills shall be at the expense of the Contractor. Any billing error or omission, whether human or mechanical, on the part of the Contractor shall be corrected at no cost to the County. Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor by the County will be provided for an additional fee not included in the Basic Billing and Customer Service Fee.

(B) The Contractor shall undertake and perform all billing services required to timely and regularly process customer utility bills. Such billing services shall include, by way of

each meter;

(4) update the rate schedule by date and have the ability to use two different rate schedules within a single billing period;

(5) apply rates as a flat amount or based on usage;

(6) generate delinquent notices prior to a turn-off;

(7) accept a County-specified dollar threshold for delinquent mailers;

(8) track turnoffs and delinquency by account;

(9) make adjustments or error corrections;

(10) post messages on bills as requested by the County;

(11) provide aging information to the County to assist with the County's determination of when a lien should be applied to an account; and

(12) make County-requested changes to the customer service record format or changes to the billing and remittance processing procedures or programs for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall have the capability to provide the requested data to the County in ASCII format. Said interface shall include, but not be limited to:

(1) automated extraction of ledger entry information from monthly billings, final billings and adjustments based on transaction codes in the rate schedule; and

(2) automated extraction of customer information for refunds of deposits or after final billings.

(E) The billing system employed and used by the Contractor shall contain the capacity to allow read only access to customer accounts by the County Representative via on-line access. The County shall be responsible for all costs associated with its on-line access including communications link, special hardware and software. Such on-line access shall include, by way of example and not limitation, the following:

(1) interface for on-line hookup by the County Representative;

(2) read only access by the County Representative to all functions of the billing system as determined by security clearance;

month following the month during which said services were performed. The Contractor shall submit a separate itemized invoice and supporting documentation for the Contractor's Material, Supply and Plant Equipment Costs and Contractor's Outsource Costs for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event. The County shall pay the Contractor within twenty (20) days of receipt of the Contractor's invoice for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00). For the first month in which the Commencement Date occurs, the Basic Operation and Maintenance Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 3.09. PAYMENT FOR ADDITIONAL SERVICES. The County shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's invoice and supporting documentation.

ARTICLE IV

UTILITY BILLING AND CUSTOMER SERVICE

SECTION 4.01. GENERAL BILLING RESPONSIBILITY OF THE CONTRACTOR.

(A) It is contemplated by the parties that the Basic Billing and Customer Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The general billing, meter reading and customer service shall be required of and timely provided by the Contractor.

(B) The Contractor shall have full responsibility to provide all billing and customer services in a manner consistent with the Basic Billing and Customer Service Performance Standards.

(C) The billing system employed and used by the Contractor shall be organized in a manner that will:

(1) process billing on a monthly basis;

(2) process billing dollar amounts up to $999,999.99;

(3) process multiple meters for each service address with different rate schedules for

(B) In addition to the recommended Annual Maintenance Plan, the recommended annual list of Capital Improvements, the recommended annual list of Repairs and Basic Renewals and Replacements estimated to cost more than twenty five hundred dollars ($2,500.00) and the recommended annual list of Extra Renewals and Replacements, the Contractor shall timely prepare and deliver to the County Representative the Basic Operation and Maintenance Service Reports listed in Appendix G.

(C) The Contractor shall provide all reports required under this Article III in an electronic data format and by electronic means capable of remote access by the County Representative and the Trustee to the extent of the Contractor's capability on December 18, 1998.

SECTION 3.06. BASIC OPERATION AND MAINTENANCE SERVICE FEE.

(A) For the provision of the Basic Operation and Maintenance Service, the Contractor shall be paid a fixed annual price of four million one hundred ninety five thousand three hundred fifty three dollars ($4,195,353.00). Included in the Basic Operation and Maintenance Service Fee is the first twenty five hundred dollars ($2,500.00) of the Contractor's Material, Supply and Plant Equipment Cost, Contractor's Labor Cost, and the Contractor's Outsource Cost for any Repair or any Basic Renewals and Replacements.

(B) The County shall reimburse the Contractor for Contractor's Material, Supply and Plant Equipment Costs, and Contractor's Outsource Costs associated with Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event.

SECTION 3.07 FEES FOR ADDITIONAL SERVICES. Fees for Additional Services shall be paid by one of the following:

(A) fixed fees as set forth in Appendix H, if applicable; or

(B) the Contractor's Cost Plus; or

(C) as otherwise mutually agreed by the parties.

SECTION 3.08. PAYMENT OF BASIC OPERATION AND MAINTENANCE SERVICE FEE. The Basic Operation and Maintenance Service Fee shall be paid by the County in twelve equal monthly installments to the Contractor not later than the fifth (5th) day of the

Replacements in an approved Capital Improvement Plan shall not be commenced by the Contractor until approval by the County Representative of a work order documenting the Contractor's Cost, including specifically any Contractor's Outsource Cost. Inclusion of a special project in an approved Capital Improvement Plan shall not waive said requirement for prior approval.

SECTION 3.03. STANDARDS FOR CAPITAL IMPROVEMENTS, REPAIRS AND RENEWALS AND REPLACEMENTS. The Contractor shall use the "FCWC/PUI *Specification Listings*" (Revised 5/97) and the Specification Details and Drawings (January 1999 edition) as the minimum standards for use of materials and methods for Capital Improvements, Repairs, and Renewals and Replacements, except as part of the Basic Operation and Maintenance Service, the Contractor shall not be required to replace components of water and wastewater pumping stations to the above-referenced standards unless said pumping stations have components that conform to the referenced standards. Notwithstanding, the replaced components shall be of quality equal to the original.

SECTION 3.04. USE OF FACILITIES; FIELDWORK. The Contractor shall confine all operation, maintenance and construction equipment, shall confine the storage of all materials and equipment, and shall limit the operations and work of all employees and subcontractors to the Utility Facilities and other areas permitted by law, rights-of-way, Permits and easements, and shall not unreasonably encumber the Utility Facilities or such other land areas with materials, equipment, or vehicles of the Contractor. At all times the Contractor shall use and administer the Utility Facilities in a professional, neat and orderly fashion. The Contractor shall assume full responsibility for any damage to the Utility Facilities or real or personal property within areas contiguous to the Utility Facilities resulting from the provision of Basic Operation and Maintenance Service.

SECTION 3.05. GENERAL REPORTING RESPONSIBILITIES.

(A) The Contractor shall prepare and file all reports required by Applicable Law. If requested to do so by the County Representative, the Contractor shall timely provide copies to the County for review and comment prior to filing.

this Agreement, the Capital Improvement list prepared by the Contractor shall be submitted to the County for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(2) The initial Capital Improvement list submitted by the Contractor for the initial Fiscal Year commencing on October 1, 1998, shall contain all Fiscal Year 1998/1999 Capital Improvements to be completed or initiated during Fiscal Year 1998/1999 and shall identify those portions of the Contractor's Costs of Capital Improvements in progress on the Commencement Date required to be funded by the County pursuant to this Agreement.

(F) The Contractor shall prepare a recommended Extra Renewals and Replacements list with cost estimates and an estimate of Repairs and Basic Renewals and Replacements costing over twenty five hundred dollars ($2,500.00) for the ensuing Fiscal Year on the same schedule as Capital Improvements as provided in subsection (E)(1) of this Section 3.01.

(G) The Contractor shall submit to the County a disaster recovery plan for the Utility Facilities within sixty (60) days subsequent to the Commencement Date. Such plan shall address the Contractor's plan for dealing with a major disaster, by way of example and not limitation, hurricane, flood, tornado, or sabotage.

(H) The Contractor shall cause the completion and replacement of the existing diesel fuel storage tank at the Fiesta Village Advanced Wastewater Treatment Plant in a manner consistent with the March 30, 1999 correspondence from Florida Cities Water Company attached hereto as Appendix J.

SECTION 3.02. ADDITIONAL SERVICES AUTHORIZATION.

(A) The Contractor shall perform the Basic Operation and Maintenance Service, Basic Renewals and Replacements and Repairs without prior authorization from the County.

(B) Additional Services and Extra Renewals and Replacements will not be initiated by the Contractor without prior approval by the County. The Contractor shall notify the County whenever it contemplates that the cost of a Repair or Basic Renewal and Replacement will exceed twenty five hundred dollars ($2,500.00).

(C) The construction or acquisition of a Capital Improvement or Extra Renewals and

Plan for the Utility Facilities.

(1) The Annual Maintenance Plan shall include a schedule incorporating the maintenance activities and services listed in the Basic Operation and Maintenance Service Performance Standards. The performance standards for the preventative maintenance and cleaning of all Utility Facilities shall be consistent with the Basic Operation and Maintenance Service Performance Standards.

(2) The Annual Maintenance Plan for the remainder of the Fiscal Year commencing on October 1, 1998 and for the Fiscal Year commencing on October 1, 1999 shall be submitted by the Contractor to the County for approval within sixty (60) days of the Commencement Date. For the remaining Fiscal Years during the term of this Agreement, the Annual Maintenance Plan shall be submitted to the County for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(3) To implement the Annual Maintenance Plan, the Contractor shall continue the use of a computerized maintenance management system.

(E) The Contractor shall prepare a recommended list of Capital Improvements for inclusion in the Capital Improvement Plan for the ensuing Fiscal Year. The Capital Improvement Plan prepared by the Contractor shall include an estimate of the cost to construct or acquire the recommended Capital Improvement and provide a recommendation whether the Capital Improvement should be acquired or constructed by the Contractor or by subcontract to a third party. In addition to the projected or recommended Capital Improvements for the ensuing Fiscal Year, the Capital Improvement list prepared by the Contractor shall contain recommended Capital Improvements for an additional four (4) Fiscal Years for use by the County in financial planning for the provision of future Capital Improvements to the Utility Facilities.

(1) The Capital Improvement Plan for the remainder of the initial Fiscal Year commencing on October 1, 1998, shall be the Capital Improvement Plan approved by the County prior to the Commencement Date. The Capital Improvement list prepared by the Contractor for the Fiscal Year commencing October 1, 1999, shall be submitted to the County within sixty (60) days subsequent to the Commencement Date. For all remaining Fiscal Years during the term of

Contractor. The Contractor shall respond within five (5) business days outlining the reason for the delay. If the County determines that the delay is within the control of the Contractor, the Contractor shall be so notified, and the Contractor agrees to complete the necessary work within ten (10) business days or by a date certain beyond ten (10) business days of notification if approved by the County. If the Contractor fails to complete the work, the County may take steps to have the specific items of work which have not been performed completed by a third party. The cost of completing this work by a third party shall be deducted from the monthly payment of the Basic Operation and Maintenance Service Fee otherwise due the Contractor.

(9) The Contractor shall regularly water, mow, fertilize, prune, remove weeds, maintain and repair permanent sprinkler systems and controls, and otherwise maintain landscaping of all buildings and plants.

(10) The Contractor shall maintain the appearance and cleanliness of all buildings and plants in a neat and orderly condition and provide those custodial services normally associated with maintenance of a business office or plant, as applicable, and provide periodic painting of the Utility Facilities as provided in the Annual Maintenance Plan.

(B) The County shall be responsible for all laboratory testing required by Applicable Law except those tests listed in Appendix F which shall be performed by the Contractor. The Contractor shall provide access and cooperate with the laboratory testing contractor engaged by the County. The Contractor shall collect all samples, except groundwater, surface water and sediment samples.

(C) The Contractor shall operate and maintain all Utility Facilities in such a manner that the water quality is maintained at a level equal to, or better than, the water quality limitations established by Applicable Law to the extent of the capability of the Utility Facilities. In the event the water quality achieved is not in compliance with the Permit, the Contractor shall immediately submit a report to the County outlining the proposed corrective action and a schedule to accomplish such corrective action. All such corrective action shall be taken as soon as practical.

(D) The Contractor shall prepare and submit to the County an Annual Maintenance

Utility Facilities:

(1) The Contractor shall have full responsibility for the daily operation and maintenance of the Utility Facilities in a manner consistent with the specific Basic Operation and Maintenance Service Performance Standards.

(2) The Contractor shall perform Repairs and Basic Renewals and Replacements. Specifically excluded are Extra Renewals and Replacements and Capital Improvements.

(3) The Contractor shall secure and maintain all permits required in the Contractor's name for the performance of the services described in this Agreement. The County shall be responsible for acquiring and renewing all Permits required by Applicable Law for the operation and maintenance of the Utility Facilities and for the acquisition and construction of Capital Improvements to be constructed by the Contractor.

(4) The Contractor shall cooperate and facilitate in the acquisition and completion of all approved Capital Improvements.

(5) The Contractor shall maintain responsive working relationships with: the County Representative, and other local governments within the Ft. Myers System service area, federal and State regulatory authorities, utility suppliers and vendors, and the public.

(6) The Contractor shall receive and check requests for water and wastewater pipeline locations from the One-Call Notification System and, if necessary, provide on-site location assistance.

(7) The Contractor shall provide prudent maintenance consistent with industry standards, equipment manufacturer's instructions, and standard operation and maintenance manuals so that upon termination of this Agreement, the Utility Facilities are returned to the County in the same or better condition than at the Commencement Date, normal wear and tear excepted. Work performed by the Contractor or subcontractors shall be of the quality normally associated with work of the kind in which the Contractor is engaged.

(8) The Contractor shall perform all preventive and corrective maintenance and Repairs in a timely manner. If, in the opinion of the County, preventive and corrective maintenance or Repairs have been unreasonably delayed, the County shall so inform the

last two digits of the year, and are unable to distinguish between the year 1900 and the year 2000. Because of the unprecedented nature of the year 2000 compliance issue, its effects and the success of related remediation efforts will not be fully determined until the year 2000 and thereafter. Although the Contractor is not aware of any material year 2000 compliance issues it has not addressed, the Contractor can provide no assurance the computer systems it owns and will utilize in connection with the services hereunder are or will be year 2000 ready, or that its remediation efforts were or will be successful in whole or in part. Furthermore, the Contractor can provide no assurance that vendors, government agencies, paying agents or other third parties providing services to the Contractor have or are effectively dealing with year 2000 compliance issues in a timely manner.

SECTION 2.08. SUBCONTRACTING.

(A) The Contractor shall not subcontract services or work included in the Basic Operation and Maintenance Service (exclusive of sludge disposal) and the Basic Billing and Customer Service to an extent materially beyond that work and services being subcontracted as of December 18, 1998, without the prior written approval of the County Representative, which approval shall not be unreasonably withheld. The Contractor shall have the duty to evaluate all subcontractors and to inspect all the work of subcontractors and make a determination as to the capability of any subcontractors to perform properly under the terms of this Agreement.

(B) The Contractor may subcontract any work or services which are not a part of the Basic Operation and Maintenance Service and Basic Billing and Customer Service without the consent of the County.

ARTICLE III

OPERATION AND MAINTENANCE SERVICE

SECTION 3.01. BASIC OPERATION AND MAINTENANCE SERVICE.

(A) It is contemplated by the parties that the Basic Operation and Maintenance Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The following general operation and maintenance services shall be required of and timely provided by the Contractor in the operation and maintenance of the

(C) The Contractor shall comply with Applicable Law relating to the safety of persons or property or protection thereof from damage, injury or loss. The Contractor shall at all times erect and maintain all necessary safeguards or barriers for safety and protection.

SECTION 2.05. USE OF COUNTY NON-FIXED ASSETS AND INVENTORY.

(A) The Contractor shall have the use and control in the provision of the services hereunder, including the use and control of the County Non-Fixed Assets and the Inventory. The Contractor shall be responsible for the maintenance or repair of all County Non-Fixed Assets used by the Contractor in the provision of services hereunder and shall replenish the Inventory as the Contractor deems appropriate.

(B) The County and the Contractor shall jointly determine the value of the Inventory on the Commencement Date and upon termination of this Agreement, based upon initial cost. Should said value at termination be greater than the value on the Commencement Date, the County shall pay the Contractor the difference and conversely, should the value upon termination be less than the value on the Commencement Date, the Contractor shall pay the County the difference. For purposes of determining the value of the Inventory, the prices paid by Florida Cities Water Company and the Contractor shall be used.

(C) The County shall be responsible for the replacement of equipment which is a part of the County Non-Fixed Assets that becomes non-usable through normal wear and tear. The Contractor shall be responsible for the replacement of all such equipment which becomes non-usable through damage or misuse.

SECTION 2.06. CONTRACTOR'S VEHICLES. The Contractor's vehicles shall be professionally and safely maintained in a mechanically sound manner. All vehicles must provide a clean and mechanically sound image. As vehicles are replaced or repainted, the Contractor shall provide uniform signage that is acceptable to the County Representative and which reflects the fact that the vehicles are used in the service of the Utility Facilities.

SECTION 2.07. YEAR 2000 COMPLIANCE. Year 2000 compliance relates to the fact that many existing computer programs and embedded computer chips recognize only the

the Contractor shall be entitled to an adjustment in the Basic Operation and Maintenance Service Fee and the Basic Billing and Customer Service Fee, as applicable. Should the Contractor invest in equipment that allows a reduction in staff, any cost reduction shall be for the Contractor's sole benefit. Should the Contractor and the County jointly invest in equipment that results in a staff reduction, then the labor savings shall be shared in amounts equal to the relative investment of each party.

SECTION 2.03. TRAINING PROGRAM. The Contractor shall provide a training program for employees of the Contractor performing the Basic Operation and Maintenance Service to insure they have a basic understanding of water and wastewater treatment processes and safety. The Contractor's training program shall place special emphasis on safety procedures and protocols and on those processes that employees will utilize in daily operation of the water and wastewater treatment plants and the water distribution and sewer collection and wastewater disposal systems. Documentation of the scope of the training program required by Applicable Law and participation by employees of the Contractor shall be provided to the County.

SECTION 2.04. SAFETY.

(A) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work and services to be provided under this Agreement. The Contractor shall take all necessary precautions for the safety of and to prevent injury to all employees, whether at the Utility Facilities or in the field, and other persons or entities who may be affected by the work and service to be provided under this Agreement. The Contractor shall also take all necessary precautions to provide the necessary protection to prevent damage or loss to materials or equipment to be provided under this Agreement, whether stored on or off of the property and to all property listed on the Inventory or incorporated into the Utility Facilities.

(B) The Contractor shall designate a representative whose duties shall include the prevention of accidents.

(B) The terms "herein," "hereunder," "hereby," "hereof," and any similar terms, shall refer to this Agreement; the term "heretofore" shall mean before the date of execution of this Agreement; and the term "hereafter" shall mean on or after the initial date of execution of this Agreement.

(C) Words that reference only one gender shall include all genders.

(D) This Agreement shall be construed as resulting from ongoing negotiation and authorship. No part of this Agreement shall be construed as the product of any one of the parties hereto.

SECTION 1.03. INCORPORATION. The Appendices hereto and each of the documents referred to therein are incorporated and made a part hereof in their entirety by reference.

SECTION 1.04. SECTION HEADINGS. Any headings preceding the texts of the several Articles, Sections, Appendices, or Exhibits in this Agreement and any table of contents or marginal notes appended to copies hereof, shall be solely for the convenience of reference and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

ARTICLE II

GENERAL

SECTION 2.01. CONTRACTOR'S RESPONSIBILITY. Except as otherwise specified elsewhere herein, the Contractor shall provide required personnel, and associated wages, salaries and benefits, services, materials (including chemicals, electricity and fuel), vehicles, utilities and other consumables necessary to perform the services specified herein. Furthermore, the Contractor shall provide required tools and equipment, except tools and equipment which are County Non-Fixed Assets.

SECTION 2.02. CONTRACTOR STAFFING. To fulfill its obligations under this Agreement, the Contractor contemplates implementing the personnel staffing plan shown in Appendix E. Material changes in the staffing plan for the position of division manager and subordinate operational personnel shall require the consent of the County, which consent shall not be unreasonably withheld. Should regulatory requirements dictate a change in staffing level,

Facilities directly resulting in a partial or total curtailment of operations at the Utility Facilities.

"Utility Facilities" shall mean all of the property and rights, both tangible and intangible, that the County owns or uses or subsequently acquires or uses in conjunction with the operation and maintenance of the Ft. Myers System, including by way of example and not limitation, the following:

(A) All real property and interests, whether recorded in the public records or not.

(B) All water and wastewater facilities, including reuse and reclaimed water, treatment plants, wells, collection, transmission, distribution, pumping, effluent and disposal facilities of every kind and description, including by way of example and not limitation, all trade fixtures, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities and property installations used in the operation of the Ft. Myers System.

(C) All equipment, tools, parts, laboratory equipment, and other personal property owned or used by the County in connection with the operation of the Ft. Myers System.

(D) All easements in favor of the County or its predecessors in interest.

(E) All customer records and supplier lists, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer models and studies, accounting, budget and business records and all other information controlled by or in the possession of the County that relates to the description and operation of the Ft. Myers System.

(F) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, use and maintain the Ft. Myers System.

"Utility Services" shall mean collectively, the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

SECTION 1.02. CONSTRUCTION AND INTERPRETATION.

(A) Words that indicate a singular number shall include the plural in each case and vice versa, and words that indicate a person shall include legal entities, firms and corporations.

the Contractor or the County from meeting or performing its obligations under this Agreement, if such act, event or condition is beyond the reasonable control of the party relying thereon as justification for not meeting or performing such obligations. Such acts, events or conditions may include, but shall not be limited to, the following:

(A) an act of God (except normal weather conditions for the geographic area of the County), hurricane, tornado, epidemic, landslide, lightning, earthquake, flood, fire or explosion, or similar occurrence, war, strikes, lockouts, blockade, acts of public enemies, insurrection, riot, general unrest, restraint of government and people, civil disturbance, sabotage or similar occurrence;

(B) the order, injunction or judgment of any federal, State or local court, administrative agency or governmental body or officer with jurisdiction of the County acting in its governmental capacity, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State and local tax laws; provided, however, that such order, injunction or judgment shall not arise in connection with or be related to the negligent or wrongful action or inaction of the party relying thereon and that neither the contesting in good faith of any such order, injunction, or judgment nor the reasonable failure to so contest shall constitute or be construed as a wrongful or negligent action or inaction of such party;

(C) the suspension, termination, interruption, denial, failure to issue, modification or failure of renewal of any permit, license, consent, authorization or approval necessary for the operation and maintenance of the Utility Facilities, if such act or event shall not arise in connection with or be related to the negligent or willful action or inaction of the party relying thereon, and that neither the contesting in good faith of any such order nor the reasonable failure to so contest shall be construed as a negligent or willful action or inaction of such party;

(D) a Change in Law; and

(E) the loss or inability to obtain for reasons other than the negligent, willful or wrongful action or inaction of the Contractor, utility services, including sewerage, sludge disposal and standby electric power, necessary for the operation and maintenance of the Utility

"Normal Business Hours" shall mean 8:00 a.m. until 5:00 p.m., Monday through Friday except holidays observed by the County.

"One-Call Notification System" shall mean the statewide toll-free telephone notification system established by Sunshine State One-Call of Florida, Inc., a not-for-profit corporation created pursuant to Chapter 556, Florida Statutes, for the purpose of notifying underground facility operators of potential excavation activities within the proximity of their facilities so that such facilities may be located and their location marked accordingly.

"Permits" shall mean federal, State and local permits and registrations governing the operation and maintenance of the Utility Facilities.

"Plant Equipment" shall mean machines and devices consisting of various components which by themselves provide a specific function which represents an end function or contributes to a broader function, including operating and processing equipment and special tools in use as of the Commencement Date or procured or provided pursuant to this Agreement for use at or associated with the Utility Facilities (exclusive of equipment owned or leased by the Contractor and used by the Contractor to perform its obligations under this Agreement).

"Renewal" shall mean rehabilitation, overhaul, restoration or improved function of a Utility Facilities component to the extent that it is at or near new condition and its useful life is extended.

"Repair" shall mean correction of a defect in a Utility Facilities component without complete overhaul, renewal or replacement.

"Replacement" shall mean the replacement of a Utility Facilities component with a component having similar characteristics and equal quality.

"State" shall mean the State of Florida.

"Trustee" shall mean SunTrust Bank, Central Florida, National Banking Association, and any successor banking corporation, banking association or trust company serving as trustee under the indenture providing for the bonds to be issued by the County to acquire the Utility Facilities.

"Uncontrollable Circumstance(s)" shall mean any act, event or condition that prevents

"County Non-Fixed Assets" shall mean the assets to be identified pursuant to the inventory procedure provided in Appendix D.

"County Representative" shall mean the person or persons designated by the County to represent the County in interpretations of the performance of the Contractor of its duties and responsibilities under this Agreement as provided in Section 6.01.

"Emergency Condition" shall mean a condition which threatens the public health and safety.

"Extra Renewals and Replacements" shall mean Renewals and Replacements of Utility Facilities other than Basic Renewals and Replacements which are undertaken to increase capacity, or as part of a modernization or upgrading program including any meter change-out programs.

"Ft. Myers System" shall mean Utility Facilities located in Lee County.

"FDEP" shall mean the Florida Department of Environmental Protection.

"Fiscal Year" shall mean the period commencing on October 1 of each year and continuing through the next September 30th.

"Full Tap and Meters" shall mean the tapping of a water main, installation of a service line and setting a new meter and appurtenances where no previous service was provided.

"Interlocal Agreement" shall mean the interlocal agreement entered into by participating counties pursuant to section 163.01(7)(g), Florida Statutes, creating the Florida Governmental Utility Authority (the "GUA").

"Inventory" shall mean the chemicals, diesel fuel used for power generation, spare parts, pipe, fittings, and valves listed in Appendix D or subsequently acquired by the Contractor during the term of this Agreement which the Contractor uses or is permitted to use in providing the services hereunder.

"Meter Replacement Program" shall mean the annual program of small meter replacements approved in the Capital Improvement Plan.

"Meter Setting" shall mean the installation of a new meter and appurtenances on an existing water service line where no prior service was provided.

said applications to comply with future laws, ordinances, codes, rules, regulations or similar legislation.

"Commencement Date" shall mean the day following the payment of the purchase price for the Utility Facilities pursuant to the terms of the Asset Acquisition Agreement.

"Contractor's Cost" shall mean the sum of the Contractor's Labor Cost, the Contractor's Material, Supply and Plant Equipment Cost, and the Contractor's Outsource Cost.

"Contractor's Cost Plus" shall mean the Contractor's Cost plus allowances for profit as follows:

(A) The Contractor's Labor Cost – fifteen percent (15%).

(B) The Contractor's Material, Supply and Plant Equipment Cost – ten percent (10%).

(C) The Contractor's Outsource Cost – five percent (5%).

"Contractor's Labor Cost " shall mean the sum of the following:

(A) The Contractor's direct cost of employee salaries and wages including overtime; and

(B) The Contractor's payroll taxes, the cost of employee benefits, including but not limited to, insurance, paid time off (holidays, vacation, sick and other paid leave), uniforms, employee training, and transportation, and which costs for purposes of this Agreement, shall be calculated and determined as fifty percent (50%) of direct labor cost.

"Contractor's Material, Supply and Plant Equipment Cost" shall mean the Contractor's direct cost of materials, parts, supplies and Plant Equipment, including applicable taxes.

"Contractor's Outsource Cost" shall mean the Contractor's direct cost of subcontracted and hired work, parts, materials, supplies, construction equipment, and fixture rental, including applicable taxes.

"Contractor Representative" shall mean the person or persons designated by the Contractor to represent the Contractor in interpretations of the performance of the Contractor's duties and responsibilities under this Agreement.

"County" shall mean Lee County, Florida.

"Basic Renewals and Replacements" shall mean the renewal or replacement of a Utility Facility component which is no longer capable of performing the function for which it is intended due to a defect or through examinations, measurements and observations it is apparent that the development of defects to the extent that said component will no longer be capable of performing the function for which it is intended is imminent.

"Board" shall mean the governing body of the County.

"Bullhead Meter Setting" shall mean a second complete meter installation connected to an existing service line.

"Capital Improvement" shall mean the planned acquisition or construction of improvements or additions to the Utility Facilities, the acquisition of equipment or other personal property not constituting a Basic Renewal and Replacement or the provision of improvements to increase capacity, modernize or otherwise upgrade Utility Facilities components.

"Capital Improvement Plan" shall mean the annual report of projected Capital Improvements submitted by the Contractor and approved by the County in Section 3.01.

"Change in Law" shall mean (a) the enactment, adoption, promulgation, modification or repeal after the Commencement Date of any federal, State, or local law, ordinance, code, rule, regulation or other similar legislation or the change in interpretation after the Commencement Date, of any federal, State, or local law, ordinance, code, rule, regulation, official permit, license or approval by any regulatory entity having jurisdiction with respect to the operation or maintenance of the Utility Facilities, or (b) the imposition, after the Commencement Date, of any material conditions on the issuance, modification or renewal of any official permit, license or approval necessary for the operation and maintenance of the Utility Facilities, which, in either case, necessitates or makes advisable a capital project, increases the Contractor's Costs by establishing requirements with respect to the operation or maintenance of the Utility Facilities which are more burdensome than the most stringent requirements:

(i) in effect on the Commencement Date, or

(ii) agreed to by the County in any applications for official permits, licenses or approvals for the water system or wastewater system, other than any requirements set forth in

"Basic Billing and Customer Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the County to compensate the Contractor for the provision of the Basic Billing and Customer Service as provided in Section 4.09.

"Basic Billing and Customer Service Performance Standards" shall mean those specific billing and customer service performance standards provided in Appendix C to guide and define the billing and customer service responsibility of the Contractor in providing the Basic Billing and Customer Service.

"Basic Billing and Customer Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Billing and Customer Service and as provided in Article IV.

"Basic Operation and Maintenance Service" shall generally mean the provision and performance by the Contractor of the operation and maintenance services described in Section 3.01. The term Basic Operation and Maintenance Service excludes: (1) Additional Services; (2) non-routine expenditures that are planned, budgeted, and approved by the County; (3) and the acquisition or construction of Capital Improvements and other capital outlays authorized by the County. To define its scope, the term "Basic Operation and Maintenance Service" shall specifically include, by way of example and not limitation, the Basic Operation and Maintenance Service Performance Standards.

"Basic Operation and Maintenance Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the County to compensate the Contractor for the provision of the Basic Operation and Maintenance Service as provided in Section 3.06.

"Basic Operation and Maintenance Service Performance Standards" shall mean those specific operations and maintenance performance standards provided in Appendix B to guide and define the operations and maintenance responsibility of the Contractor in providing the Basic Operation and Maintenance Service.

"Basic Operation and Maintenance Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Operation and Maintenance Service.

herein shall have the meanings set forth in the Asset Acquisition Agreement unless the context requires otherwise:

"Additional Services" shall mean the provision of the following:

(A) Extra Renewals and Replacements.

(B) Capital Improvements.

(C) Observation and inspection of new pipelines and lift stations.

(D) Installation of Full Tap and Meters and Meter Settings as provided in Appendix H.

(E) Infiltration and inflow investigations and correction programs.

(F) Services not contemplated as a part of the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

"Agreement" shall mean this Ft. Myers System Utility Operations, Billing and Customer Service Agreement, including any amendments and supplements hereto executed and delivered in accordance with its terms.

"Annual Maintenance Plan" shall mean the annual plan submitted by the Contractor and approved by the County documenting the schedule and performance standards to be used in the preventative and operational maintenance of the Utility Facilities as required in Section 3.01.

"Applicable Law" shall mean all of the permits required for the performance by the parties under this Agreement, any State or federal constitution restrictions, any State law, regulation or directive, any County ordinance, law or directive, any federal or State judicial judgment or order and any federal, State or County administrative order, which are in effect during the term of this Agreement, or subsequently enacted, adopted, promulgated, issued or enforced, in any manner relating to the operation and maintenance of the Ft. Myers System.

"Basic Billing and Customer Service" shall mean the provision and performance by the Contractor of the billing and customer services described in Article IV. To define its scope, the term shall specifically include, by way of example and not limitation, the Basic Billing and Customer Service Performance Standards.

(4) To treat and provide potable water that meets or exceeds the requirements of Applicable Law to the extent of the capability of the supply and treatment components of the Utility Facilities.

(5) To operate all treatment plants to their optimum capability and efficiency to the extent reasonably practical.

(6) To conserve the capital investment in Utility Facilities and to ensure long-term reliability and efficiency of the Utility Facilities by performing adequate preventative and corrective maintenance, upgrading and replacement consistent with prevailing industry standards.

(7) To provide responsive customer services on all issues relating to the provision of utility services within the control of the Contractor including issues pertaining to meter readings, customer billing and utility usage; and

WHEREAS, the Contractor represents that it currently has, and will have throughout the term of this Agreement, the experience and professional skill to provide the utility services required to operate and maintain the Utility Facilities, to timely and accurately bill for utility service provided and to maintain effective relationships with utility customers.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, the parties to this Ft. Myers System Utility Operations, Billing and Customer Service Agreement do agree for themselves, their permitted successors and assigns as follows:

ARTICLE I

DEFINITIONS AND CONSTRUCTION

SECTION 1.01. PURPOSE AND DEFINITIONS.

(A) This Agreement is entered into as a condition precedent to the transfer of the assets of the Ft. Myers System under the Utility System Asset Acquisition Agreement, dated April 1, 1999, between the Florida Governmental Utility Authority and Florida Cities Water Company and Poinciana Utilities Inc. (the "Asset Acquisition Agreement").

(B) As used in this Agreement all capitalized words and terms not otherwise defined

FT. MYERS SYSTEM
UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT

THIS UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT, is made and entered into as of this 1st day of April, 1999, by and between Lee County, a political subdivision of the State of Florida (the "County"), and Avatar Utility Services, Inc., a Florida corporation (the "Contractor").

WITNESSETH:

WHEREAS, the County owns a water and wastewater utility system located in Lee County, Florida, known as the Ft. Myers System and consisting of the facilities described at Appendix "A" hereto; and

WHEREAS, the County intends by the execution of this Agreement to contract for the operation and maintenance of the Utility Facilities and the billing and customer service provided within the Ft. Myers System by the Contractor at standards not less than those provided on December 18, 1998; and

WHEREAS, the scope of utility operation and maintenance services, and billing and customer services to be provided for the Ft. Myers System as incorporated in the provision of this Agreement is intended to meet the following operating objectives of the County:

(1) To provide water treatment, water distribution, wastewater treatment, and wastewater disposal services to the utility customers of the Ft. Myers System without unnecessary interruption.

(2) To mitigate bypass or overflow of sanitary sewage from the transmission system and treatment plant.

(3) To handle and treat sanitary sewage in a manner that meets or exceeds the requirements of Applicable Law to the extent of the capability of the Utility Facilities.

Contractor's Pollution Liability Insurance

At all times during the term of this Agreement, the Contractor shall keep contractor's pollution liability insurance in minimum amounts of $2,000,000.00.

Miscellaneous Errors and Omissions Insurance

At all times during the term of this Agreement, the Contractor shall keep miscellaneous errors and omissions insurance in minimum amounts of $2,000,000.00.

APPENDIX I

Schedule of Insurance

The following is an outline of the insurance coverages the Contractor shall obtain and maintain as provided herein, and in the type, amounts and in conformance with the following minimum requirements and is subject to the terms and conditions of each insurance policy:

Worker's Compensation
Statutory benefits as defined by Chapter 440, Florida Statutes, encompassing all operations contemplated by this Agreement to apply to all owners, officers, and employees regardless of number of employees. Individual employees may be exempted per State Law. Employers Liability will have minimum limits of $1,000,000.00 per accident.

Commercial General Liability
Coverage shall apply to premises and/or operations, products and/or completed operations, independent contractors, contractual liability, and broad form property damage exposures with minimum limits of $1,000,000.00 per occurrence. Said policy shall be insured by an insurance company, or companies, with a current minimum rating by the A.M. Best Agency of A.

Commercial Automobile Liability
Coverage shall apply to owned vehicles and/or hired and non-owned vehicles and employee non-ownership use with minimum limits of $1,000,000.00 CSL (combined single limit).

Umbrella/Excess Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep umbrella/excess liability insurance in minimum amount of $30,000,000.00.

Certificate of Insurance
The GUA shall be listed as a certificate holder and additional insured with respects to Commercial General Liability. An original hand signed certificate shall be on file with and approved by the GUA prior to the operation date. Said certificate shall evidence the required coverages and amounts as contained herein and provide a thirty (30) day notice of cancellation for non-renewal or material change in coverage.

Commercial Crime/Employee Dishonesty
Coverage shall apply to employees and include coverage for faithful performance of duty, depositors forgery, money-securities (in and out), and counterfeit papers with a minimum limit of $5,000,000.00 per occurrence.

Bullhead Service Installation Cost

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	225.12	100.00	325.12
1	274.12	100.00	374.12

Replacement Meter Costs (4)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	15.00	43.22
1	77.22	15.00	92.22
1½	196.02	30.00	226.02
2	267.30	30.00	297.30
3	815.66	50.00	865.66
4	1276.72	50.00	1326.72
6	2012.67	50.00	2062.67
8	1461.83	50.00	1511.83

(1) Does not include the meter box or backflow prevention device.

(2) Material costs include the meter or meter head assembly costs, service piping, corporation stops, stops, meter boxes, casing under the roadway for long services and appurtenances excluding the backflow prevention device.

(3) ⅝, 1, 1½ and 2" material prices based on Neptune T-10, bronze body, cast iron bottom, with polymer register housing and lid.

(4) ⅝, 1, 1½ and 2" meters will be replaced entirely; only the meter head assembly will be replaced on 3, 4, 6, and 8" meters, 3, 4, 6" meter cost are for Tru/Flo meter heads, the 8" price is for a turbine meter head.

(5) Short side means service to property on the same side of the road as the water main. Long side means service to property on the opposite side of the road as the water main. Long side costs include installation of casing under the roadway, casing length not greater than twenty four (24') feet.

APPENDIX H

Meter Setting Cost (3)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	20.00	48.22
1	77.22	20.00	97.22
1½	196.02	40.00	236.02
2	267.30	40.00	307.30
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Short Side) (5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	265.82	226.00	491.82
1	314.82	226.00	540.83
1½	683.32	226.00	909.32
2	754.60	226.00	980.60
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Long Side)(5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	499.02	226.00	725.02
1	548.02	226.00	774.02
1½	927.52	226.00	1153.52
2	998.80	226.00	1224.80
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

(F) Events and situations described in (B)(1), (B)(2), (C)(1), and (D)(2) by telephone within twenty four (24) hours after the Contractor becomes aware of the event or situation and makes an assessment of impacts thereof followed by a written report within five (5) business days thereafter.

(3) average-day, maximum-day, minimum-day and average of the maximum-month for the ended 12-month period.

(B) Description of any emergencies and incidents occurring during the month including, but not limited to:

(1) operational anomalies or other emergencies which had a material adverse impact on customer service or the public;

(2) environmental incidents;

(3) Utility Facilities stress situations;

(4) work order log detailing when work orders were received and completed, location of event, work performed, equipment and resources used; and

(5) quality assurance reports and resolutions.

(C) Description of regulatory matters including, but not limited to:

(1) regulatory notices and responses thereto;

(2) requirement for any public notices;

(3) inspections or visits to Utility Facilities by regulatory agencies; and

(4) implementation of new regulatory requirements.

(D) Progress report including, but not limited to:

(1) material operational changes;

(2) major maintenance and repair activities; and

(3) Replacement and Renewal activities.

(E) Summary of new customers connected.

Meter Aging Report	A report that lists every account that had a meter installed between a range of dates selected by the GUA	
Consumption History Report	A report listing meter usages for up to 24 months past by rate classification and meter size.	
Billing Register	A report indicating each customer account billed with all pertinent information contained on the customer bill	
Monthly Activity Report	A report indicating a summary of all billings, adjustments and payments recorded during a particular calendar month. Specifically, it indicates: (a) billing by rate class by service; (b) charges/adjustments by rate class; (c) total payments received; and (d) total bills printed.	
Other reports commonly available at the time of acquisition		as requested and available

SECTION G.02. BASIC OPERATION AND MAINTENANCE SERVICE REPORTS. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Operation and Maintenance Service, the Contractor shall submit to the GUA, not later than the fifteenth (15th) day of each month, a report consisting of the following:

(A) Reclaimed and potable water produced at each treatment facility:

(1) monthly operating reports for each facility;

(2) total and average-day for the month; and

APPENDIX G

REPORTS

SECTION G.01. BASIC BILLING AND CUSTOMER SERVICES. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Billing and Customer Services, the Contractor shall submit or make available to the GUA electronically, the following reports:

REPORT	CONTENT	REPORTING PERIOD
Daily Transaction Journal	A documentation of all monetary and non-monetary transactions that have been posted to a customer's account	available daily
Preliminary Meter Reading Report	A report indicating the meter readings entered for each account prior to billing. Error in readings and/or consumption will be indicated for correction	
Account Balance Report	A report indicating each customer's current and past due balance	
Alpha-Cross Reference	A report listed in alphabetic order by customer's last name with a cross index to the customer's account number	
Aged Trial Balance	A report listing each customer's account with total balance, current, 30, 60, 90, and 120 day balances	available once monthly
Delete Report	A report listing all accounts which should be deleted from GUA's file	available once monthly
Past Due Report	A report indicating all delinquent accounts that have a balance other than current	

APPENDIX F

LABORATORY TESTING

SECTION F.01. LABORATORY TESTING BY GUA. The GUA shall be responsible for employing a laboratory, certified by the FDEP or other regulatory agency, as applicable, to perform all laboratory testing required for regulatory reports. The Contractor shall coordinate with the GUA and the laboratory employed by the GUA for all such testing.

SECTION F.02. LABORATORY TESTING BY THE CONTRACTOR. The Contractor shall perform laboratory testing to the extent necessary for treatment process control.

As of 99

NORT. RATIONS
CLIE. GROUP I

North Operations Manager
Larry Good

Barefoot Bay Division

Division Manager
William M. Sansbury

- Field Foreman J. Steve Haver
  - 3 Utility Service Positions
- 2 Customer Service Positions
- Water Treatment Plant
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 12 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Mark S. Dowe
  - 2 Operator/ Operator Trainee Positions
- Wastewater Treatment Plant
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 8 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Glen Siler
  - 1 Operator/ Operator Trainee Position
  - 1 Maintenance Position

Poinciana Division

Division Manager
Larry Good

- Field Foreman Victor Winkler
  - 8 Utility Service Positions
- Cust. Svs. Supvr. Lorlee F. Miller
  - 2.5 Customer Service Positions
- Wastewater Treatment Plant
  - W.W.T.P. # 1 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 2 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
  - W.W.T.P. # 3 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 5 Staffing Req.
  - Category II, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
- Water Treatment Plant
  - W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 4 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
  - W.T.P. # 5 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit

Carrollwood Division

- W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- Lead Operator Brian Southwell
  - 1 Customer Service Position
  - 2 Utility Service Positions

- Field Foreman Chet VanHorn
  - 7 Utility Service Operator Positions
- 2 Customer Service Positions

Sarasota Division

- WW Supvr. Wm. Randy Musgrove
- South Gate A.W.T.P.
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
  - Lead Operator William (Bill) Dymek
  - 3 Operator Positions
- Gulf Gate A.W.T.P.
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
  - Lead Operator E. E. 'Charlie' Garrett
  - 3 Operator Positions
- 1 Lab. Technician Position
- 1 Maintenance Position

Chief Operator
Keith S. Keenan

- 5 Operator Positions
- 1 Maintenance / Truck Driver Position

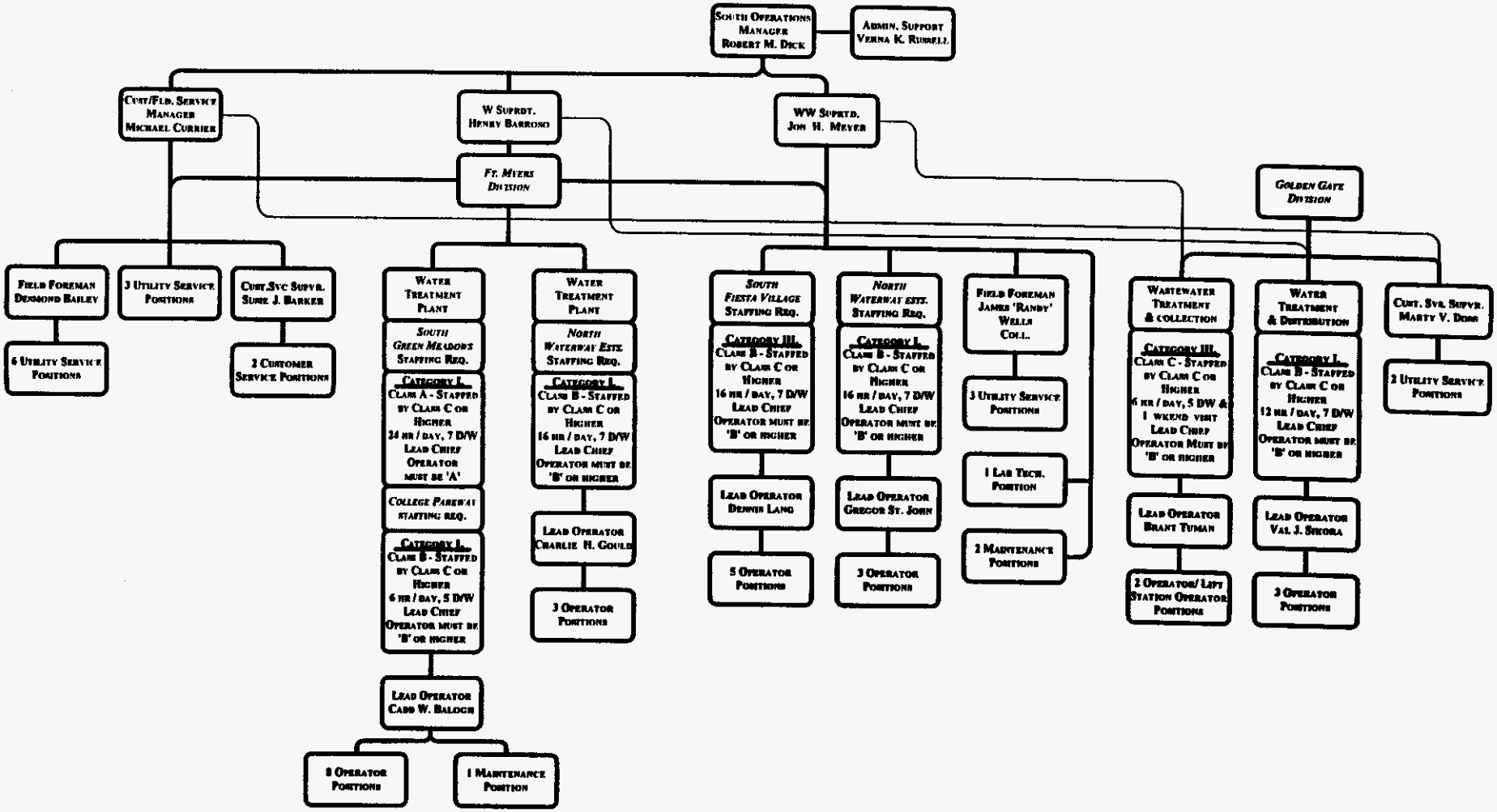
Solid Lines = Direct Supervision
Dotted Lines = Indirect Supervision

NOTES:
(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

As of /99

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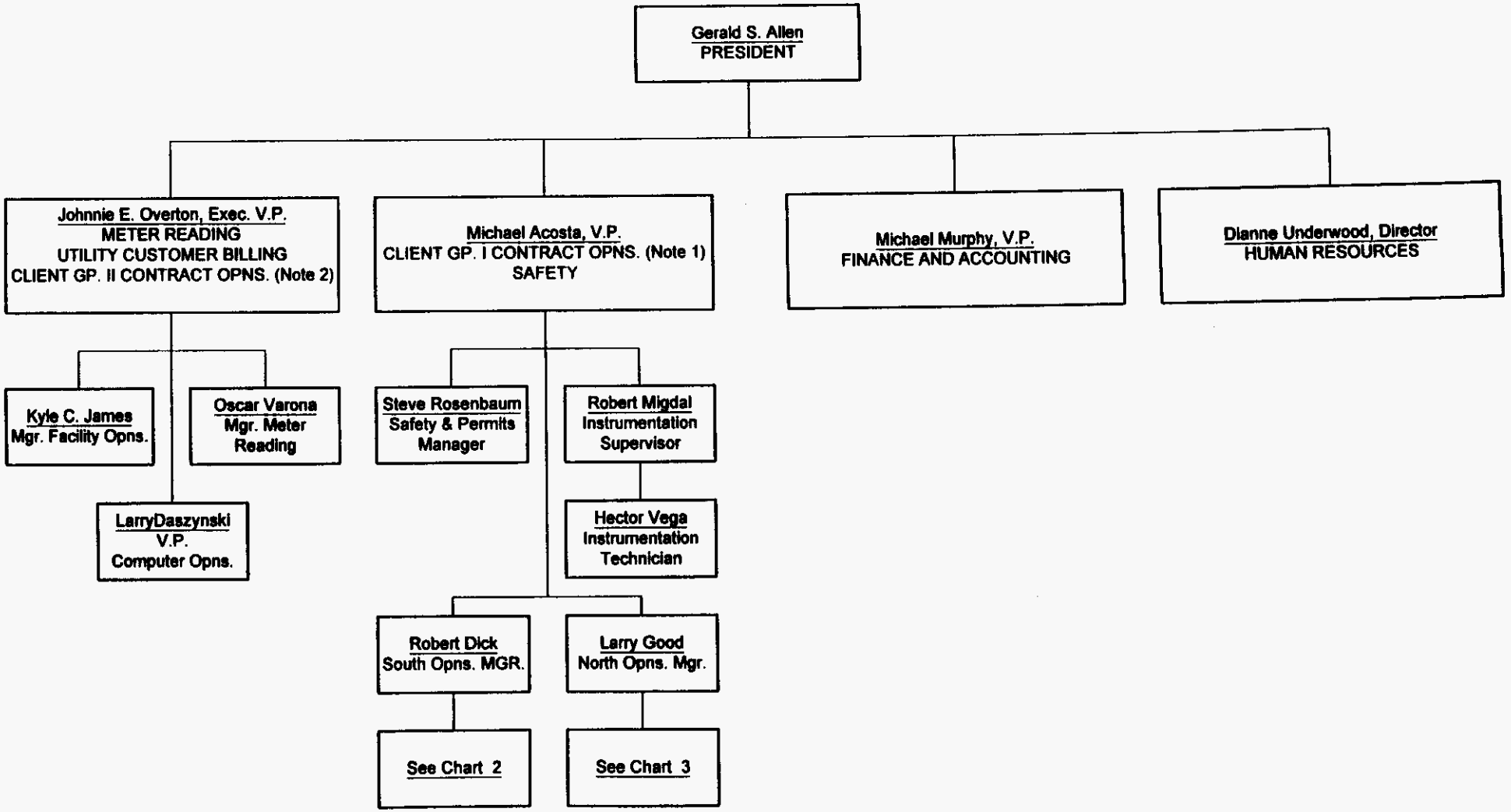
CLIENT GROUP I



NOTES:

(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

APPE)IX E
STAFFING PLAN
Chart 1
AVATAR UTILITY SERVICES, INC.
Provisional Organizational Chart
Effective 4/1/99



NOTES:

1. Client Group I consists of the GUA or a combination of the GUA and individual counties and pertain to the utility system formerly owned by Poinciana Utilities Inc., and the former Golden Gate, Ft. Myers, Sarasota, Carrollwood and Barefoot Bay Divisions of Florida Cities Water Company.

2. Client Group II consists of all other AUSI contract operations clients.

APPENDIX D

INVENTORY

Within five (5) days after the Commencement Date, the parties hereto shall establish the Inventory by a physical inventory of the items on hand or as otherwise mutually agreed.

- verify meter sizes;
- verify meter reading accuracy;
- meet with customer at property to discuss and evaluate disputes and make a report to customer service; and
- review with customers at property, how to read meter, typical usage of water, and conservation measures that customer can implement.

(B) All field service shall be made via work orders with prompt notification of the maintenance service provider when applicable. Information from these work orders shall be summarized on monthly order reports.

(C) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders relating to existing water services or distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order.

(G) Meter reading must be accurate with an error level of no greater than 1 per 1,000 reads. Errors are defined as misreads found by field audits, investigations, and readings the following month which are lower than reported the previous month as an accurate read or customer requested rechecks which, after investigation, a reading error is confirmed.

(H) All meter reading routes are to be accomplished within two (2) business days of the day scheduled. Weather conditions, excluding conditions associated with hurricanes and floods, must not prevent the accomplishment of meter reading unless otherwise agreed to by the GUA.

- Individual accounts on routes which are "no reads" (skips) will be reviewed daily by the Contractor. If upon further investigation, it is determined that a reading could have been obtained, the Contractor shall take immediate steps to obtain the reading.
- All meter boxes or meter conditions which impose an impediment to readers or citizens must be entered in the hand held devices by the meter readers when observed and promptly reported to the operation and maintenance provider. Other conditions of special interest that may explain high usage, as well as notification made of suspected leaks found, must also be entered.

SECTION C.02. FIELD SERVICES

(A) The Contractor shall provide field personnel to accomplish the following meter service functions:

- turn-on and turn-off of customer meters in response to account changes, delinquent accounts, customer requests, or emergencies;

APPENDIX C

BASIC BILLING AND CUSTOMER

SERVICE PERFORMANCE STANDARDS

SECTION C.01. METER READING.

(A) All water meters shall be read on a monthly basis.

(B) Malfunctioning meters, visible leaks or damage to the meter or box shall be reported to the operation and maintenance provider for repairs.

(C) The Contractor shall enter the appropriate codes in the hand held meter reading devices to notify customer service personnel to issue work orders for repairs where needed (e.g., broken or obscured glass, box too high/low, broken lid, cannot find meter).

(D) The Contractor shall reread "suspected" erroneously read meters at the Contractor's earliest convenience. The Contractor shall provide an exception (hi-low audit) report on each business day for a previous days' reading. The Contractor shall review reports and select meters to be rechecked before billing.

(E) Meter readers are required to read every meter in the route. Any instances where a meter reader suspects an illegal hook-up should be reported immediately to the Contractor's office. If a meter is present, the Contractor will have a meter reader note the serial number and reading. Illegal hook-ups will be reported to the GUA for action.

(F) Normal hours of meter reading shall be Monday through Saturday, except GUA holidays, between 7 a.m. and 6 p.m. each day (unless mutually agreed upon between the GUA and the Contractor).

SECTION B.08 FULL TAP AND METERS AND A METER SETTING. The Contractor shall complete installation of a Full Tap and Meters and a Meter Setting requested by the GUA in a timely manner and in no event later than as follows:

(A) For meter installations where service is already in place, five (5) business days from the date of the installation or meter setting request.

(B) For Full Taps and Meter Settings where a permit from an outside agency is not required, fifteen (15) business days from the date of the installation or meter setting request.

(C) For Full Taps and Meter Settings where a permit from an outside agency is required, twenty (20) business days after the receipt of the permit.

(C) The Contractor shall timely, and properly, maintain and repair the wastewater collection and transmission facilities. The Contractor shall take all necessary measures to remedy conditions in the wastewater collection system facilities resulting from a main pipeline blockage and consequential surcharging of such pipelines or manholes and shall be responsible for clean up and abatement resulting from such conditions which occur within the wastewater collection system facilities.

SECTION B.07. COMPUTERIZED MAINTENANCE RECORDS. The Contractor shall be responsible for performing routine, preventive, predictive, and corrective maintenance procedures of the Utility Facilities, all in a manner that assures the readiness and availability of equipment, processes, and systems on a consistent basis, and which ensures efficiency, long-term reliability, and conservation of the capital investment in the Utility Facilities. Such procedures shall include preventive maintenance and work order based corrective maintenance program components for the Utility Facilities and shall be capable of providing the following:

- maintain a record of repair and repair history for each piece of equipment or line section;
- schedule preventive and predictive maintenance;
- maintain records of routine transmission and distribution line repairs;
- maintain records of corrective maintenance;
- issue and monitor work orders;
- maintain a spare parts inventory; and
- issue equipment status and repair priority reports.

- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(8) Painting of all exposed equipment, and all exposed piping, on a five year rotation basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping on a three year rotating basis.

SECTION B.06. WASTEWATER COLLECTION SYSTEMS.

(A) The Contractor shall be responsible for procurement of all materials, supplies, chemicals and other consumables that may be necessary for proper operation, maintenance and repair of the system collection facilities (this requirement does not include a planned program of cleaning, television inspection and grouting) including the following:

- cleaning;
- flushing; and
- inspection of main pipelines and manholes.

(B) The Contractor shall respond to any wastewater collection system emergency including, but not limited to, pipeline blockage or potential thereof, or manhole surcharging as may reported by any source with the GUA's service area as soon as possible, but in any event, within two (2) hours of being notified or otherwise learning of such or related condition in the wastewater collection system.

- maintain the station's alarm lights, lights and replace bulbs as necessary;
- check the wet well levels for proper distance of pumping as necessary;
- check motor starter contacts twice annually;
- clean floats quarterly;
- remove debris from pumps and check valves as necessary;
- clean out pumps as required as necessary;
- exercise all station valves twice annually; and
- clean check valves as necessary as necessary.

(6) Supply all materials as needed for the preventative maintenance program in conformance with Section B.05(A)(5) herein.

(7) Repair and rehabilitate pump stations including, but not limited to, the following:

- repairing or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;
- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments.

(4) Monitor those wastewater pumping facilities which have the technology for such monitoring for the following parameters:

- pump running times;
- high water level in wet well;
- loss of electrical power; and
- thermal overload.

(5) The Contractor shall provide preventative maintenance service with respect to the wastewater pumping facilities including, but not limited to:

- regularly scheduled inspections;
- adjustment of electrical and mechanical equipment;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- change and maintain the oil level in pumps as specified by the Contractor;
- lubricate and clean air blowers weekly or as specified by the Contractor;
- poll the station on a scheduled basis by the telemetry system at five (5) minute increments;
- check pump running times twice weekly;
- clean "wet wells" quarterly or more often if needed;
- check remote telemetry units for proper operation daily;

- visual inspection of the hydrant;
- fire hydrant leak checks; and
- fire hydrant lubrication (outlet threads, cap threads and valve stem).

(B) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders such as line leaks, valve breads and damage to appurtenances relating to existing water services or the distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order, unless any delay beyond three (3) working days is due to unavailability of parts, in which case such work will be completed as soon as the parts are obtained.

(C) The Contractor shall respond to emergency conditions without a work order and within two (2) hours of being notified or otherwise learning of such emergency or any unforeseen combination of circumstances or the resulting state that reasonably call for immediate action.

SECTION B.04. STORAGE TANKS. The Contractor shall render preventative maintenance service to the GUA with respect to all the GUA storage tanks. Such preventative maintenance services, at a minimum shall consist of regularly scheduled inspections (inspections by the Contractor, not part of a planned, formal inspection program) and adjustment of electrical and mechanical equipment in each of the GUA's water storage tanks.

SECTION B.05. WASTEWATER PUMPING FACILITIES.

(A) Operate and maintain the wastewater pumping facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of lift or pumping stations for emergency conditions.

- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;
- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(5) The Contractor shall provide routine repairs to all equipment, including painting of all exposed equipment, and all exposed piping, on a five year rotating basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping.

SECTION B.03. WATER DISTRIBUTION SYSTEMS.

(A) The Contractor shall operate, maintain, and repair the water transmission, distribution piping, treated water storage, meters and other appurtenances including, but not limited to, the following:

- timely repair of any water main breaks, water main leaks;
- service line breaks;
- excavation, backfilling and compaction of such excavations in the course of performing work in the water distribution system;
- regular flushing of dead end system main lines;
- fire hydrant flow testing;

- check pump running times twice weekly;
- maintain the station's lights and replace bulbs as needed;
- check motor starter contacts twice annually;
- clean floats quarterly;
- maintain alarm lights and horns weekly;
- remove debris from pumps and check valves as required;
- lubricate pump and motor bearings as specified by the manufacturer;
- clean out pumps as required;
- exercise all station valves twice annually; and
- clean check valves as required.

(4) The Contractor shall repair pump stations and wells in order to maintain their integrity. Such activities to be performed or provided shall include, but not be limited to, the following Repairs, Replacements and Renewals:

- rebuilding or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;

- procure sludge removal services.

(B) Take immediate action to either prevent environmental incidents or dangerous situations, and endeavor to keep the number and duration of such incidents and situations to a minimum.

SECTION B.02. WATER PUMPING STATIONS AND WELLS.

(A) Operate and maintain the pumping stations and raw water supply well facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of pump stations and wells for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments. A list of activities to be performed at the following minimum intervals shall include, but not be limited to, the following:

- clean sump pumps as needed;
- check control panels for proper operation weekly
- check motor amperage twice yearly;
- check and clean filter elements for gas or diesel engines as specified by the Contractor;
- change and maintain the oil level in pumps as specified by the manufacturer;
- lubricate and clean air blowers weekly or as specified by the manufacturer;
- maintain proper belt tension weekly;
- poll the station on a scheduled basis by the telemetry system to the extent of the capability of said system at fifteen (15) minute increments;

APPENDIX B

OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

SECTION B.01. TREATMENT FACILITIES.

(A) Operate and maintain the water and wastewater treatment plant facilities, unit processes, and their respective appurtenances including, but not limited to, the following:

- control of treated water corrositivity within the limits of the existing treatment process;
- general housekeeping;
- grounds maintenance;
- maintain Supervisory Control And Data Acquisition (SCADA) system;
- issue public notices of non-compliance with drinking water standards resulting from acts or omissions of the Contractor. The GUA shall issue notices of non-compliance resulting from limitations of the treatment process or equipment failure;
- minimize the generation of noise and odors;
- assist the GUA's laboratory testing contractor with any sampling required by any regulatory agency, including well, soil and distribution system sampling;
- provide necessary coordination with the GUA's construction contractors, engineers, or other consultants or vendors for line tie-ins, process standards and connection of Capital Improvements to the Utility Facilities during Normal Business Hours;
- provide timely submittal of all monthly operating reports required by regulatory agencies;
- maintain equipment, pumps and motors similar to that required for pumping stations in sections B.02 and B.05; and

b. Collection system facilities:

(1) Collection and Interceptor Mains: Approximately 58,549 feet, 8"-12" in diameter, polyvinyl chloride and vitrified clay pipe, and appurtenances thereto.

(2) Force Mains: Approximately 15,780 feet, 4"-12" in diameter, ductile iron and cast iron pipe, and appurtenances thereto.

(3) Lift and Pumping Stations:
   (a) Master: 1
   (b) Other: 7

(4) Manholes: Approximately 256

**All statistics unless otherwise noted were taken from the 1997 Annual Report for the Hillsborough County Board of County Commissioners.

APPENDIX A

DESCRIPTION OF UTILITY FACILITIES

The Utility Facilities consist of the following facilities located in Hillsborough County:

1. Water system facilities:

   a. Water supply and treatment facilities:

      (1) Water Treatment Plant
         (a) Supply: 3 wells and pumps
         (b) Treatment: Disinfection, iron sequestering
         (c) Treatment Capacity: 2.182 MGD (sum of individual well capacities)
         (d) Storage:
            (i) 0.010 MG Steel Hydro-Pneumatic Tank
            (ii) 0.010 MG Steel Hydro-Pneumatic Tank
            (iii) 0.012 MG Steel Hydro-Pneumatic Tank
         (e) High service pumps: 0

   b. Distribution and transmission facilities:

      (1) Mains: Approximately 71,183 feet, 1"-8" in diameter, ductile iron, cast iron, and galvanized iron pipe, and appurtenances thereto.

      (2) Fire Hydrants: Approximately 53

      (3) Meters: Approximately 1,198 (End of year 1998)

      (4) Storage: None

2. Wastewater facilities:

   a. Treatment facilities:

      (1) Wastewater Treatment
         (a) Treatment: Provided by Hillsborough County

LIST OF APPENDICES
CARROLLWOOD SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

APP.

A. DESCRIPTION OF UTILITY FACILITIES

B. OPERATION AND MAINTENANCE PERFORMANCE STANDARDS

C. BILLING, METER READING AND FIELD CUSTOMER SERVICE STANDARDS

D. INVENTORY

E. STAFFING

F. LABORATORY TESTING

G. REPORTS

H. SCHEDULE OF FIXED-FEES FOR ADDITIONAL SERVICES

I. SCHEDULE OF INSURANCE

supplement, modification or waiver of this Agreement shall be binding upon any party hereto unless executed in writing by such party. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision of this Agreement, whether or not similar, unless otherwise expressly provided.

SECTION 6.15. ENTIRE AGREEMENT. This Agreement, including the referenced Appendices hereto, is the entire agreement between the parties and supersedes all prior and contemporaneous agreements, understandings, negotiations, and discussions of the agreements, understandings, negotiations, and discussions of the parties, whether oral or written, pertaining to the subject matter hereof. Upon execution by all parties, the GUA shall provide the Contractor three complete, certified copies of this Agreement, together with all appendices hereto. This Agreement shall be construed as solely for the benefit of the GUA and the Contractor, their successors and assigns, and no claim or cause of action shall accrue to or be for the benefit of any third party by reason of the execution of this Agreement.

IN WITNESS WHEREOF, the GUA and the Contractor have caused this Agreement to be duly executed and entered into on the date first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

EXHIBIT

By: Leonard Thomas
Its: Chairman

Attest: EXHIBIT

AVATAR UTILITY SERVICES, INC.

EXHIBIT

By: Michael O'Mealy
Its: Treasurer

Attest: EXHIBIT

SECTION 6.13. ASSIGNMENT.

(A) The Contractor shall not have the right to assign any of its rights, duties or obligations under this Agreement without the consent of the GUA Board upon a demonstration by the proposed assignee of its general ability to perform the obligations of the Contractor under this Agreement, which consent shall not be unreasonably withheld. A consented to assignee shall be required to assume the obligations of the assigning party by written assignment in a form reasonably satisfactory to the GUA's attorney.

(B) Nothwithstanding the provisions of subsections (A) and (C) of this Section 6.13, the Contractor shall have the right to assign this Agreement to the following entities without the consent of the GUA: ST Environmental Services, Enron, OMI, United Water and AquaSource or their affiliates. Such assumption shall be effective upon giving twenty (20) days notice to the GUA and upon execution with such entity of a written assignment in a form satisfactory to the GUA's attorney by which such entity assumes all the obligations of the Contractor under this Agreement.

(C) Any assignment of this Agreement consented to by the GUA shall be an assignment of the Agreement in its entirety and the Basic Operation and Maintenance Service and the Basic Billing and Customer Service cannot be severed or assigned separately unless specifically consented to by the GUA; provided, however, this prohibition shall not apply to an affiliate of the Contractor if such separate assignment shall not, in the judgment of the GUA, interfere with the performance of the duties and the provision of the services provided in this Agreement.

(D) A transfer of a majority of the outstanding stock of the Contractor to another corporate entity or business enterprise shall be deemed an assignment of the Agreement requiring the consent of the GUA under this Section 6.13.

(E) Notwithstanding the provisions of subsection (C) of this Section 6.13, a transfer of the outstanding stock of the Contractor to an affiliated company within Avatar Holdings, Inc. shall not require the consent of the GUA under this Section 6.13.

SECTION 6.14. AMENDMENTS AND WAIVERS. No amendment,

with a copy to:

Nabors, Giblin & Nickerson, P.A.
315 South Calhoun Street, Suite 800
Tallahassee, Florida 32301
Attention: Robert L. Nabors, Esq.

To Contractor:

Avatar Utility Services, Inc.
201 Alhambra Circle, 12th Floor
Coral Gables, Florida 33134
Attention: General Counsel

with a copy to:

Avatar Utility Services, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with another copy to:

Greenberg Traurig, P.A.
777 South Flagler Drive, Suite 300E
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan, Esq.

(B) Any written notice given to one person in subsection (A) of this section shall also be provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or five (5) days after the date mailed.

(B) The GUA shall respond to the Contractor in writing within thirty (30) days of receipt of the notice by the Contractor of an actual or potential conflict of interest. If the GUA determines the prospective business association, interest or circumstance does not appear to constitute a conflict of interest by the Contractor, the GUA shall so state in the response and the Contractor may, at its option, enter into said association, interest or circumstance and it shall be deemed not in conflict of interest with respect to Utility Services provided by the Contractor.

SECTION 6.10. RIGHT TO ENTER AND INSPECT. At all times the GUA and the General Manager or its representatives or agents shall have the right, but not the duty, to enter upon the Utility Facilities to inspect and observe the performance or provision of the Utility Services.

SECTION 6.11. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Agreement shall be governed by and construed in accordance with the laws of the State.

(B) The parties to this Agreement expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State, whether state, local or federal, and further agree that venue shall lie in Hillsborough County, Florida.

SECTION 6.12. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, to the parties at the following addresses:

To the GUA:

Government Services Group, Inc.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Robert Sheets

SECTION 6.08. MODIFICATION OF SCOPE OF SERVICES.

(A) The GUA shall at all times during the term of this Agreement have the right to request unilateral changes in the scope of services, including alterations, reductions therein or additions thereto. Upon receipt by the Contractor of the GUA's notification of the contemplated change, the Contractor, shall in writing: (1) timely provide a detailed estimate for the increase or decrease in cost due to the contemplated change, (2) notify the GUA of any changes in work schedules, (3) advise the GUA if the contemplated change shall affect the Contractor's ability to perform or provide the Utility Services in a manner consistent with the requirements and performance standards incorporated into this Agreement, and (4) advise the GUA if the contemplated change is within the capabilities of the Contractor.

(B) If the GUA so instructs in writing, the Contractor shall suspend work on that portion of the Utility Services affected by the contemplated change, pending the GUA's decision to proceed with the change.

(C) If the GUA elects to make a change in this Agreement, the GUA shall initiate an amendment to this Agreement and the Contractor shall not commence work on any such change until such written amendment is agreed to and signed by the Contractor and the GUA Representative.

SECTION 6.09. CONFLICTS.

(A) The Contractor represents that it has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance or provision of the Utility Services. The Contractor shall promptly notify the GUA Representative of all potential conflicts of interest for any prospective business association, interest or other circumstance which may influence or appear to influence the Contractor's judgment or quality of the Utility Services to be provided under this Agreement. Such notification shall be in writing and identify the prospective business association, interest or circumstance, the nature of the work the Contractor may undertake and request a determination from the GUA, as to whether the association, interest or circumstance would, in the opinion of the GUA, constitute a conflict of interest if entered into by the Contractor.

employees from all suits and actions, including attorney's fees, and all costs of litigation and judgments of any name and description arising out of or incidental to the performance of the construction contract or work performed for the Utility Facilities.

(C) The Contractor shall be liable for any fines or civil penalties which may be imposed by any governmental or quasi-governmental agencies or bodies for violations of the effluent guarantees specified herein arising out of, or resulting from the negligent performance of its duties and obligations under this Agreement, including without limitation, negligent acts and omissions of the Contractor, its employees, agents, officers and subcontractors. The GUA will assist the Contractor in any contest of any such fines or civil penalties in administrative or court proceedings. The Contractor shall pay such fines or civil penalties prior to such protest if such payment is required prior to making such protest. The Contractor shall be solely responsible for all costs, including attorney's and accountants' fees, of protesting any such fines or civil penalties. The Contractor shall not be responsible for any fines or civil penalties due to proceedings concluded prior to execution of this Agreement unless such fines or civil penalties are the direct result of an act or omission of the Contractor pursuant to the terms hereof. Notwithstanding the above, the Contractor shall not be liable for fines, civil penalties and judgments or for defending against same, arising from structural and design defects and deficiencies in the Utility Facilities or the capacity limitations of the Utility Facilities for which the Contractor is not responsible for correcting or remedying under this Agreement.

the Utility Facilities.

SECTION 6.06. NOTICE OF CLAIMS. The Contractor shall notify in writing the GUA Representative of all incidents, events or injuries which the Contractor reasonably believes may result in a claim of fifty thousand dollars ($50,000.00) or more, arising out of the Contractor's performance under this Agreement, including, but not limited to, claims relating to workplace injuries. The Contractor shall notify the GUA of any claim established and accepted as a liability under its commercial insurance or self insurance which is paid in an amount equal to or greater than fifty thousand dollars ($50,000.00). The Contractor shall notify the GUA of any death arising out of the Contractor's performance under this Agreement. The Contractor shall notify the GUA of any and all events, accidents, injuries, incidents, suits or claims which name or otherwise may involve or create a liability for the GUA or result from the provision by the Contractor of the Utility Services, including by way of example and not limitation, any events involving pollution at, on, or near the Utility Facilities. The obligation of the Contractor to report under this Section 6.06 is subject to any confidentiality agreement relating to any claim. All notices required under this Section 6.06 shall be provided promptly and within forty eight (48) hours of the Contractor learning of same.

SECTION 6.07. INDEMNIFICATION AND PENALTIES.

(A) Each party shall protect, defend, indemnify and hold the other party and its officers, employees and agents harmless from and against any and all liabilities, claims, losses, and expenses, including attorney's fees and all costs of litigation and judgments arising out of any willful misconduct or negligent act, error or omission of that party, its subcontractors, agents or employees, arising out of or incidental to the performance of this Agreement. This indemnification shall also pertain to any claims brought against a party by the other party, its officers, employees or agents, or any subcontractor, or anyone directly or indirectly employed by any of them.

(B) Each party acknowledges that the general conditions of any construction or subcontractor contract shall include language, satisfactory to the other party's attorney, in which the contracting party agrees to hold harmless and to defend the other party, its agents and

shall be with carriers admitted to do business in the State of Florida. Carriers shall be "A" rated and have a financial rating size of "IX" or better, according to the A.M. Best Key Rating Guide. All certificates of insurance shall reflect thirty (30) days' notice of any cancellation, change or reduction in insurance coverage. All properly executed certificates of insurance shall be received and approved by the GUA prior to the Commencement Date. On renewal at the end of each policy term, properly executed certificates of insurance must be delivered to the GUA at least thirty (30) days before expiration of the insurance policies for review and approval so that there will be no interruption in the Contractor's provision of Utility Services under this Agreement due to the lack of proof of insurance.

(C) To the extent not otherwise stated herein, and in addition to any other requirements set forth herein, the Contractor shall operate and maintain the Utility Facilities in accordance with the following laws and regulations, as applicable:

(1) Chapter 440, Florida Statutes, Workers' Compensation Law, as amended;

(2) Florida Administrative Code Chapters 38F and 38I, as amended, relating to Workers' Compensation;

(3) 29 Code of Federal Regulations 1910 and 29 Code of Federal Regulations 1926, Occupational Safety and Health Act, General Industrial Standards and Construction Industrial Standards, respectively; and

(4) the Florida Toxic Substances Act.

(D) Should the Contractor at any time fail to maintain the insurance coverages required in this Section 6.05, the GUA at its discretion, shall be authorized to purchase such coverages and charge the Contractor for such coverages purchased or deduct such cost from the monthly payment due for the Basic Operation and Maintenance Service Fee. The GUA shall be under no obligation to purchase such insurance or to be responsible for the coverages purchased or the financial stability of the insurance companies used and failure of the GUA to purchase such insurance shall not lessen or release the Contractor of its obligations as provided in this Section 6.05.

(E) The GUA shall secure and maintain at its expense property damage insurance for

SECTION 6.03. AUTHORITY TO PERFORM. The Contractor shall continuously maintain at all material times all Permits, licenses and approvals required under the Applicable Law to provide the Utility Services. Proof of all such Permits, licenses and approvals shall be submitted to the GUA Representative at least annually and upon request.

SECTION 6.04. ACCESS AND AUDITS. The Contractor shall maintain adequate records to justify all charges, expenses and costs incurred in estimating and performing the Utility Services for at least two (2) years after the termination of this Agreement. The GUA, the General Manager or their contracted representatives shall have access to such books, records and documents as required for the purpose of inspection or audit, during Normal Business Hours, at the place of business of the Contractor within the State. The Contractor shall be subject to an annual independent financial and performance audit on its performance and provision of the Utility Services under this Agreement. Any such audit shall be undertaken by an auditor or auditors selected and paid for by the GUA.

SECTION 6.05. GENERAL INSURANCE REQUIREMENTS.

(A) The Contractor shall purchase at its cost and maintain at all times the insurance coverages listed in Appendix I with insurance companies acceptable to the GUA for limits of liability not less than the amount stated for each coverage in Appendix I.

(B) The GUA and the General Manager are to be additional insureds under the Commercial General Liability and Contractor's Pollution Liability Insurance policies with the Severability of Interest Provision applicable to each policy. If requested by the GUA, the Contractor shall promptly revise the insurance policies to include other local governments using or acquiring the Utility Facilities as additional insureds. All liability insurance shall be on an "occurrence form," except Miscellaneous Errors and Omissions policies and Contractor's Pollution Liability policies, which shall be on a "claims made" form. Each policy shall provide that the Contractor's coverage is primary to any insurance or self-insurance program of the GUA and that the GUA shall not be directly responsible for the payment of any insurance premium due the insurance companies. The insurance coverages and limits required must be evidenced by properly executed certificates of insurance supplied by the Contractor. Policies of insurance

(3) the amount of compensation the GUA is obligated or committed to pay the Contractor under this Agreement.

SECTION 6.02. MANNER OF PERFORMANCE.

(A) The Contractor is, and shall be, in the performance of all Utility Services, an independent contractor, and not an employee or agent of the GUA or the General Manager. All persons engaged in the performance or provision of Utility Services shall at all times, and in all places, be subject to the Contractor's sole direction, supervision, and control. The Contractor shall exercise control over all the means and manner in which it and its employees perform or provide the Utility Services.

(B) The Contractor represents that it has, or will secure at its own expense, all necessary personnel required to perform the Utility Services under this Agreement. Personnel of the Contractor shall not be employees of or have any contractual relationship with the GUA or the General Manager, nor shall such personnel or employee of the Contractor be entitled to any benefits of the GUA or the General Manager including, by way of example and not limitation, pension, health and worker's compensation benefits.

(C) All of the services required hereunder shall be performed by the Contractor or under its supervision, and all personnel, employees and subcontractors engaged in performing the Utility Services shall be fully qualified and, if required, authorized or permitted under State and local law to perform the Utility Services undertaken.

(D) The GUA shall at all times comply with the provisions of the Public Records Law, Chapter 119, Florida Statutes.

(E) The Contractor, at its sole expense, shall correct or replace any defective or faulty work.

(F) All non-supervisory employees of the Contractor assigned to the field will shall be required to wear at all times a uniform and identification badge.

(G) The Contractor is responsible for checking its employees for proof of a valid Florida driver's license and insurance a minimum of twice annually in those cases where personal vehicles are used for GUA purposes.

ARTICLE VI

GENERAL PROVISIONS

SECTION 6.01. DESIGNATION OF GUA REPRESENTATIVE.

(A) The GUA shall designate in writing a GUA Representative to act on its behalf with respect to the Utility Services to be rendered under this Agreement. The GUA Representative may be a designated employee of the General Manager. The Contractor shall be entitled to rely upon any written notice of change of the designated GUA Representative.

(B) The GUA Representative shall have the following responsibilities:

(1) Review and make appropriate recommendations on all requests submitted by the Contractor for payment for services and work provided and performed in accordance with this Agreement.

(2) Provide all criteria and information requested by the Contractor as to the requirements of the GUA for the Utility Services.

(3) Upon request from the Contractor, assist the Contractor by placing at its disposal all available information in the possession of the GUA pertinent to the Utility Services, including by way of example and not limitation, existing drawings, specifications, shop drawings, public literature, previous reports and any other data relative to the provision of the Utility Services of the maintenance, construction, acquisition or improvement of the Utility Facilities.

(4) Provide notice to the Contractor of any deficiencies or defects discovered by the GUA with respect to the services to be rendered by the Contractor under this Agreement.

(C) The GUA Representative is not authorized to issue any verbal or written orders or instructions to the Contractor that would have the effect, or be interpreted to have the effect, of modifying or changing in any way:

(1) the scope of the Utility Services to be provided and performed by the Contractor under this Agreement;

(2) the time the Contractor is obligated to commence and complete all Utility Services; or

shall be paid as follows:

(1) If the arbitrators determine that the disputed issues raised or objected to by the Contractor are justified and appropriate, the GUA shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of Contractor's counsel and any witnesses called by the Contractor.

(2) If the arbitrators determine that the disputed issues raised or objected to by the GUA are justified and appropriate, the Contractor shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of the GUA's counsel and any witnesses called by the GUA.

(3) If the determination of the arbitrators does not fall within the parameters of (H)(1) or (H)(2) above, the arbitrators shall order each party to pay their own fees, charges and expenses and, in the sound discretion of the arbitrators, assess the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators between the parties.

(I) The provisions of the Florida Arbitration Code, Chapter 682, Florida Statutes, and the Florida Evidence Code, Chapter 90, Florida Statutes, except to the extent inconsistent with the provisions of this Agreement, shall specifically be deemed to apply to any arbitration proceeding conducted hereunder. Unless the venue is mutually agreed upon otherwise by the parties, the venue for any arbitration commenced pursuant to this Section shall be in Hillsborough County, Florida.

SECTION 5.07. VACATING THE PREMISES. Upon vacating the Utility Facilities, the Contractor shall leave all sites, structures, equipment, and improvements in good condition. The Contractor shall properly dispose of any accumulations of waste materials, rubbish, and other debris resulting from the Contractor's activities. The Contractor shall restore to original condition (ordinary wear and tear excepted) any portions of the Utility Facilities that were altered or changed by the Contractor without the GUA's approval.

party failing to timely appoint and the two so appointed shall appoint a third arbitrator to chair the panel. The party on whose behalf an arbitrator is appointed shall have the right to veto up to two of the arbitrators appointed by the American Arbitration Association.

(3) Nothing in this Section 5.06 shall preclude the parties from mutually agreeing to a single arbitrator to resolve the dispute.

(4) No arbitrator shall have a business or other pecuniary relationship with either party, except for payment of arbitrator's fees and expenses without the written consent of both parties.

(E) Arbitrators shall be sworn to perform their duties with impartiality and fidelity. In rendering any decision, the arbitrator shall proceed to consider the Agreement, the dispute identified in the notice and any response and the actions taken and the documentation thereof, conduct, and relative position, knowledge, and the ability of the parties in relation to the dispute.

(F) The arbitration hearing shall convene not earlier than sixty (60) days and not later than one hundred eighty (180) days of the acceptance of appointment of all of the arbitrators chosen by the parties unless the GUA and the Contractor mutually agree to an earlier date. The arbitrators shall render a decision within ten (10) business days of the date on which the arbitration hearing concludes, and such decisions shall be in writing and in duplicate, one counterpart thereof to be delivered simultaneously to each of the parties. The decision shall contain findings of fact and conclusions of law and shall be final and binding upon the GUA and the Contractor.

(G) The arbitrators may at their discretion, and shall upon written request of the Contractor or the GUA, engage experts to provide peer review of any technical, engineering, or scientific issues introduced by the parties. The parties shall be entitled to discovery pursuant to the Florida Rules of Civil Procedure. All discovery requests by a party shall be enforced by the arbitrators. The arbitration hearing shall not proceed until all outstanding discovery requests have been fulfilled.

(H) The fees, charges and expenses of the arbitrators, any experts engaged by the arbitrators, the respective counsel engaged by the parties, and any witnesses called by the parties

if any, on the party's obligations under this Agreement; and (c) its estimated impact (other than cost), if any, on the party's obligations under this Agreement.

SECTION 5.06. DISPUTE RESOLUTION.

(A) Notwithstanding any other provision in this Agreement, any dispute among the parties which arises from the Agreement shall be resolved by binding arbitration conducted in accordance with this Section 5.06. Either party may initiate the dispute resolution process by providing written notice to the other party.

(B) After transmittal and receipt of a written notice specifying the area or areas of disagreement or dispute, the parties agree to meet at reasonable times and places, as mutually agreed upon, to discuss the issues.

(C) If discussions between the parties fail to resolve the dispute within fifteen (15) business days of the receipt by each party of the notice described in subsection (A) of this Section 5.06, a binding arbitration may then be initiated by either party by written notification to the other party of the existence of a dispute. Any and all issues related to the matter addressed by the written notice provided in subsection (A) of Section 5.06 or any response by the other party shall be raised and resolved in a single proceeding.

(D) The arbitrators shall be appointed and act as follows:

(1) The GUA and the Contractor shall each appoint a person as arbitrator within thirty (30) days of the date one of the parties has notified the other of the existence of a dispute.

(2) Each appointment shall be signified in writing to the counter party and the arbitrators so appointed, within ten (10) days of their acceptance of appointment, shall appoint a third arbitrator, who shall chair the panel. If the arbitrators appointed by the parties are unable to agree upon a third arbitrator, the same shall be appointed by the American Arbitration Association from its qualified panel of arbitrators. Each party shall have the right to veto up to two appointments proposed by the American Arbitration Association. If either the GUA or the Contractor fails to appoint an arbitrator within forty (40) days from the date one of the parties has notified the other of the existence of a dispute, then an arbitrator shall be appointed by the American Arbitration Association from its qualified panel of arbitrators as the appointment of the

that a modification of the compensation or scope of services is required because of the action taken in response to an emergency, an amendment shall be issued to document the consequences of the changes or variations. If the Contractor fails to provide such written notice to the GUA Representative within the forty eight (48) hour period, the Contractor shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the compensation or scope of service provided under this Agreement.

SECTION 5.04. EMERGENCY REPLACEMENT OF CONTRACTOR. In the event of any emergency condition involving the Utility Facilities which is found by the GUA to present a significant, immediate danger to public health, whether the cause of the Contractor or otherwise, and the Contractor is either unable or unwilling to correct such condition, the GUA may replace the Contractor without notice during the emergency condition, provided that at the conclusion of any such condition, the Contractor shall be reinstated by the GUA. Provided further, however, the GUA shall not be obligated to reinstate the Contractor at the conclusion of the emergency condition and may terminate this Agreement if the Contractor's inability or unwillingness to correct such condition itself constitutes grounds for termination of this Agreement or the Contractor is otherwise in default as provided in Section 5.02. The Contractor shall not be entitled to any compensation after the date upon which the GUA replaces the Contractor under this Section 5.04.

SECTION 5.05. OBLIGATIONS EXCUSED.

(A) Notwithstanding any other provision in this Agreement, neither the GUA nor the Contractor shall be liable to the other for any failure or delay in performance of any obligation under this Agreement due to the occurrence of an Uncontrollable Circumstance.

(B) As a condition precedent to the right to claim excuse of performance, the party experiencing an Uncontrollable Circumstance shall:

(1) promptly notify the other party verbally; and

(2) as soon as practical, but in no event more than five (5) business days thereafter, prepare and deliver to the other party a notice with a written description of (a) the commencement of the Uncontrollable Circumstance; (b) its estimated duration and cost impact,

(1) failing to begin an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(2) discontinuing prosecution of an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(3) failing to comply with any Applicable Law, whether willfully or negligently;

(4) breaching any material warranty or making any representation in this Agreement that is materially untrue;

(5) failing to pay, when due, any sums owed to a subcontractor for services or materials in a manner approved by the GUA; or

(6) failing to perform the Basic Operation and Maintenance Service or the Basic Billing and Customer Service in a manner consistent with the performance standards or other requirements established or incorporated in this Agreement.

(C) Each of the following also shall be deemed an event of default: (1) written admission by a party that it is bankrupt; (2) filing by a party of a voluntary petition for bankruptcy; (3) consent by a party to the court appointment of a receiver or trustee for all or a substantial portion of its property or business; (4) the making of any arrangement by a party with, or for the benefit of, its creditors or assigning to a trustee, receiver, or similar functionary (regardless of how designated) of all or a substantial portion of a party's property or business; (5) becoming insolvent; or (6) final adjudication of a party as bankrupt under the Federal Bankruptcy Act.

SECTION 5.03. EMERGENCIES. In the event of an emergency affecting the safety or protection of persons, the Utility Facilities, or property adjacent thereto, or to avoid imminent environmental contamination, the Contractor, without special instruction or authorization from the GUA Representative or the General Manager is obligated to act to prevent such threatened damage, injury or loss. The Contractor shall give the GUA Representative oral notice within forty eight (48) hours followed by written notice within five (5) business days after the occurrence of the emergency, if the Contractor believes that any significant changes in the scope of services provided in this Agreement is required and merited. If the GUA determines

the month during which said services were performed. For the first month in which the Commencement Date occurs, the Basic Billing and Customer Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 4.12. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's itemized invoice consistent with the authorizations received from the GUA. The Contractor shall document all such fees for Additional Services.

ARTICLE V

TERMS AND TERMINATION

SECTION 5.01. TERM OF AGREEMENT. The initial term of this Agreement shall commence on the Commencement Date and shall expire on May 31, 2000. The initial term of this Agreement may be extended for an additional term of 5 years upon the mutual agreement of the parties.

SECTION 5.02. DEFAULT.

(A) An event of default occurs if the persistent, repeated, or substantial failure or refusal by either the GUA or the Contractor to substantially fulfill any of its material obligations in accordance with this Agreement, provided, however, that no such event shall constitute a default unless and until:

(1) the non-defaulting party has given written notice to the defaulting party that a default or defaults exist which will, unless corrected, constitute an event of default on the part of the defaulting party; and

(2) the defaulting party either has not corrected such default, or has not initiated reasonable steps expeditiously to correct such default within five (5) days from the date of such written notice.

(B) The events by which the Contractor shall be deemed to have failed to fulfill a material obligation of this Agreement shall include, by way of example and not limitation, the following:

Services not included in the Basic Billing and Customer Service Fee, the Contractor shall be compensated as follows:

(A) Customer service activation (turn-on) occurring other than Normal Business Hours – thirty five dollars ($35.00) per activation.

(B) Make changes in the customer service record format and other changes to customer records, billing and remittance format requested by the GUA – eighty five dollars ($85.00) per hour of programmer time.

(C) Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor for implementation – eighty five dollars ($85.00) per hour of programmer time.

(D) Insert single-page "bill stuffers" (not larger than 8.5" x 11") with customer bill form - $0.035 per bill plus any additional postage required.

(E) Print mailing labels from the GUA's master customer records - $0.069 per label.

(F) Change customer bill form format – eighty five dollars ($85.00) per hour of programmer time plus the Contractor's cost of unused bill forms on hand.

(G) Prepare rate analysis reports using historical usage information to analyze past periods of one to twenty four (1-24) months and consolidate totals by rate class and meter size - $0.08 per customer account ($150.00 minimum).

(H) Produce billing registers with proposed rates for comparison with current rates - $0.18 per customer account plus a set-up charge of $170.00.

(I) Change customer rates and charges – eighty five dollars ($85.00) per hour of programmer time.

(J) Special computer programming – eighty five dollars ($85.00) per hour of programmer time.

(K) Mail single-page (8.5" x 11") special customer notices in envelopes to customers separate from bill - $0.447 per notice plus postage.

SECTION 4.11. PAYMENT OF BASIC BILLING AND CUSTOMER SERVICE FEE. The Basic Billing and Customer Service Fee shall be paid in twelve (12) equal monthly installments to the Contractor not later than the fifth (5th) day of the month following

SECTION 4.07. FIELD CUSTOMER SERVICE. The Contractor shall provide field customer service by qualified personnel consistent with the Basic Billing and Customer Service Performance Standards. Customer service provided in the field shall include, by way of example and not limitation, activation and termination of service during the hours on the days when the customer service center is open and the investigation of customer problem reports. Customer service activation (turn-on) occurring other than Normal Business Hours will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.08. REMITTANCE OF FUNDS TO TRUSTEE.

(A) All receipts will be combined daily for deposit to the GUA's designated bank account. These moneys will be deposited within twenty four (24) hours of receipt except for legal holidays, weekends, and disasters beyond the control of the Contractor.

(B) A report by facility of daily receipts will be provided by FAX or electronically to the GUA and the Trustee for verification of deposits made to the GUA account. Such report shall identify receipts by water connection fees, wastewater connection fees, customer deposits, such other receipts or revenues required to be segregated by the GUA and all other receipts. Any discrepancies shall be reported and responded to within forty eight (48) hours.

(C) Mail in payments must be addressed and be in an acceptable format to the GUA's lock box provider. A computer file containing details of the lock box receipts shall be provided via modem or tape to the Contractor to be used to update customers' accounts.

(D) Any mail-in receipts not provided in accordance with or acceptable to the GUA's lock box provider's specifications shall be considered rejected and must be processed by the Contractor's cashiers in a manner similar to any mail-in receipts that do not go directly to the GUA's lock box provider.

SECTION 4.09. BASIC BILLING AND CUSTOMER SERVICE FEE. For the provision of the Basic Billing and Customer Service, the Contractor shall be paid a fixed annual price of ninety three thousand six hundred dollars ($93,600.00).

SECTION 4.10. PAYMENT FOR ADDITIONAL SERVICES. For Additional

Basic Billing and Customer Service Fee. The customer service center shall be:

(1) open to the public during Normal Business Hours;

(2) during periods when the customer service center is not open, the center shall be equipped with an answering service to take incoming calls or otherwise direct incoming calls to a staffed location; and

(3) staffed with sufficient personnel to take customer and emergency calls, process and dispatch customer service and other work orders, accept customer payments, and process changes to customer accounts.

(B) The Contractor shall respond in a timely manner to all customer inquiries including, by way of example and not limitation, bill inquiries and inquiries pertaining to service initiation and termination, and reports of water breaks, low water pressure, water quality concerns, odors and wastewater discharge. The Contractor's customer service personnel shall also be prepared to answer commonly asked questions without referral to other personnel. Commonly asked questions include, by way of example and not limitation, typical annual usage, account balance, how a bill was calculated, last payment and date, when the last bill was issued, detailed and summary information concerning the customer's account for the current year or within a two (2) year history, the due dates, and mailing and service address.

(C) The Contractor shall be responsible for answering questions regarding delinquent account information. It shall be the responsibility of the Contractor's customer service personnel to respond to these questions and respond how to rectify the delinquent situation.

(D) The Contractor shall be responsible for setting up new accounts, computing necessary deposits in accordance with GUA tariffs, closing accounts, and relaying this information to the General Manager. The Contractor shall immediately enter this information into the Contractor's computer system and verify it for quality assurance.

(E) The Contractor shall provide for walk-in customer service, for setting up temporary meters, or for the collection of fees charged for tapping and connection based on GUA tariffs. In addition to the receipt of payment at the customer service center, the Contractor shall process payments transmitted by mail.

maximum of five (5) business days for the delinquency situation to be corrected by the customer before the Contractor proceeds with discontinuance of service.

(3) If a customer disputes the billed amount and provides the Contractor written notice of the dispute, the Contractor shall hold in abeyance for a maximum of thirty (30) days any discontinuance of service until the dispute has been investigated and resolved. If the dispute has not been resolved and the account remains delinquent for more than thirty (30) days after the customer provides written notice to the Contractor of the dispute, a work order will be issued to discontinue service.

(E) The Contractor shall make reasonable efforts to collect all utility revenues, in an efficient manner, with due consideration to customers, without jeopardizing revenue collections and consistent with the applicable covenants under the indenture applicable to any outstanding bonds.

(F) Whenever customers raise questions, point out billing errors, express concerns, or otherwise dispute any bill, the Contractor shall attempt to resolve them in an expeditious manner. If a resolution requires additional research to respond to a customer's dispute, the Contractor will document each stage of the dispute process and prepare a written record of all customer reports indicating the reporting party, address, nature of the problem, action taken by the Contractor and the final resolution shall be maintained by the Contractor and a copy provided to the GUA Representative. If customer service personnel are working with a customer they must report that fact to field service personnel so that customers will not experience discontinuance of service before dispute resolution.

SECTION 4.06. TELEPHONE AND WALK-IN CUSTOMER SERVICE; REMITTANCE PROCESSING.

(A) The Contractor shall maintain a customer service center at 10033-A North Dale Mabry, Tampa, Florida 33618. The location of the customer service center can be moved only with the consent of the GUA, which consent shall not be unreasonably withheld. Should the location of the customer service center be relocated at the request of the GUA, the Contractor shall be compensated the full cost of such relocation as an additional fee not included in the

approved by the GUA. All revenue reports should list year-to-date totals and compare revenue to the prior year.

SECTION 4.04. BASIC BILLING AND CUSTOMER SERVICE REPORTS. The Contractor shall timely prepare and provide the reports listed in Appendix G. Such reports and all other required reports and information provided to the General Manager and the Trustee shall be available in ASCII format and by electronic means capable of remote access by the General Manager and the Trustee.

SECTION 4.05. GENERAL CUSTOMER SERVICE RESPONSIBILITY OF THE CONTRACTOR . To satisfy the customer service objectives of the GUA as stated in the preamble to this Agreement, the following general customer services shall be required of and timely provided by the Contractor.

(A) The Contractor shall be responsible for the accuracy of all customer information such as deposits, new accounts, file information, and changes to accounts and charges.

(B) Customer accounts shall be closed and finaled upon the request of the customer. No customer account shall be deleted until a new account with a deposit is opened. A work order to discontinue service may be issued to eliminate delinquent customer usage charges.

(C) If at any time a customer account is opened or a meter set without a deposit the Contractor will notify a field service representative to issue notice to the property that service will be terminated within five (5) business days unless a deposit is provided.

(D) The Contractor shall be responsible for the initial enforcement of delinquent customer accounts including the following:

(1) The Contractor shall be responsible for delivering delinquent notices to each individual customer via the U. S. Postal Service and, if necessary, to issue any work orders for discontinuance of service.

(2) The Contractor shall be responsible for contacting those customers whose accounts contain information relative to special health or guardianship circumstances. The Contractor will determine if there is a valid reason why a bill is unpaid, including by way of example and not limitation, a dispute, a lost bill, vacancy, or change of accounts, and allow a

computer systems are compatible with the Contractor's computer system. The GUA may bill water and wastewater charges and other fees and assessments as separate items on the bills. The Contractor must provide an itemized bill in the same manner currently used. The addition of other fees or assessments, changes in the bill format and bill printing programs in the Contractor's utility billing system are not included in the Basic Billing and Customer Service Fee.

(B) All date-related data shall be formatted as required by the General Manager and shall contain no ambiguous references with respect to century.

(C) The Contractor shall provide the ability within software, to provide the following services:

(1) deposit report - a report that shows all customer deposits including options providing a range of deposit dates and status of refundable accounts;

(2) rate changes - changes to rates and charges applicable to customer billing approved by the GUA will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee;

(3) customer message - adding or changing a special "customer message" on the customer bill form as requested by the General Manager. Such messages shall be limited to four (4) lines of text; and

(4) mailing labels - the Contractor will provide mailing labels from the GUA's master customer records upon request for selected zip codes or class of customer for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall develop necessary special programming and controls that show customer accounts on a billed versus collected basis and provide a percentage of collection on each of the items. Such special programming and controls which will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee, by way of example and not limitation, shall include water revenues, wastewater revenues, special assessment revenues, connection fee revenues, reuse revenues, and revenues from any other fees

(1) create a working file of prepared meter readings formatted for the billing system;

(2) review notes or trouble codes from meter readers and issue appropriate work orders to rectify problems;

(3) follow up on notices (e.g., apparent leaks, reasons for high usage, inaccessible meters, broken register, vacant houses, stuck meters) left by meter readers to the customers or owners;

(4) produce consumption reports for the billing process and analyze unusual usage or stuck meters; issue work orders and contact customers as appropriate;

(5) produce a billing from consumption reports, and review the billing for appropriateness of charges and suspected errors;

(6) develop quality assurance procedures to insure, by sample testing and review, the accuracy of bills on a periodic basis;

(7) work with the operation and maintenance field service personnel in verifying any unusual situations found in the billing process that are related to meter or meter reading problems;

(8) issue work orders designed to clarify questions raised during the billing process and categorize and analyze work orders and make recommendations as to how to minimize work orders and gain efficiencies;

(9) mail single page (8.5" x 11") special notices in envelopes to customers separate from the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee; and

(10) insert single page "bill stuffers" (not larger than 8.5" x 11") with the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.03. COMPUTER PROCESSING AND RELATED SERVICES.

(A) The Contractor shall maintain, on its own computer system, the master customer records of the Carrollwood System. This information shall be made available to the General Manager and the Trustee via modem. In addition, the Contractor shall transfer data on a daily basis to the computer systems of the General Manager and the Trustee to the extent that said

(4) ability to extract information as requested by the General Manager, including date-specific information;

(5) ability to regularly generate user-specifiable reports including, by way of example and not limitation, billing summary, trial balance, aged trial balance (by date), and transaction audit controls;

(6) ability to review customer charges and payments by account;

(7) ability to review billing history by account;

(8) ability to review usage history by customer account or meter number;

(9) ability to review utility billing system work order status;

(10) ability to review turn on and off history by account;

(11) ability to review customer information by account; and

(12) search by customer number, customer name, meter number and street address.

(F) The Contractor shall provide a business recovery functions plan to the GUA which shall include, by way of example and not limitation, daily off-site storage of all transactions.

SECTION 4.02. PROCESSING UTILITY BILLS; PROBLEM RESOLUTION.

(A) The Contractor shall compose, prepare, print (laser) customer bills, on a single (8.5" x 11") one-colored page bill form prescribed by the GUA, and mail customer bills monthly. Customer bills shall be prepared in such cycles as mutually agreed by the Contractor and the GUA. The cost of first class postage for customer bills shall be at the expense of the Contractor. Any billing error or omission, whether human or mechanical, on the part of the Contractor shall be corrected at no cost to the GUA. Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor by the GUA will be provided for an additional fee not included in the Basic Billing and Customer Service Fee.

(B) The Contractor shall undertake and perform all billing services required to timely and regularly process customer utility bills. Such billing services shall include, by way of example and not limitation, the following:

(4) update the rate schedule by date and have the ability to use two different rate schedules within a single billing period;

(5) apply rates as a flat amount or based on usage;

(6) generate delinquent notices prior to a turn-off;

(7) accept a GUA-specified dollar threshold for delinquent mailers;

(8) track turnoffs and delinquency by account;

(9) make adjustments or error corrections;

(10) post messages on bills as requested by the GUA;

(11) provide aging information to the GUA to assist with the GUA's determination of when a lien should be applied to an account; and

(12) make GUA-requested changes to the customer service record format or changes to the billing and remittance processing procedures or programs for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall have the capability to provide the requested data to the GUA in ASCII format. Said interface shall include, but not be limited to:

(1) automated extraction of ledger entry information from monthly billings, final billings and adjustments based on transaction codes in the rate schedule; and

(2) automated extraction of customer information for refunds of deposits or after final billings.

(E) The billing system employed and used by the Contractor shall contain the capacity to allow read only access to customer accounts by the General Manager via on-line access. The GUA shall be responsible for all costs associated with its on-line access including communications link, special hardware and software. Such on-line access shall include, by way of example and not limitation, the following:

(1) interface for on-line hookup by the General Manager;

(2) read only access by the General Manager to all functions of the billing system as determined by security clearance;

(3) provide multiple-line transaction history showing a running account balance;

submit a separate itemized invoice and supporting documentation for the Contractor's Material, Supply, and Plant Equipment Costs and Contractor's Outsource Costs for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event. The GUA shall pay the Contractor within twenty (20) days of receipt of the Contractor's invoice for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00). For the first month in which the Commencement Date occurs, the Basic Operation and Maintenance Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 3.09. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's invoice and supporting documentation.

ARTICLE IV

UTILITY BILLING AND CUSTOMER SERVICE

SECTION 4.01. GENERAL BILLING RESPONSIBILITY OF THE CONTRACTOR.

(A) It is contemplated by the parties that the Basic Billing and Customer Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The general billing, meter reading and customer service shall be required of and timely provided by the Contractor.

(B) The Contractor shall have full responsibility to provide all billing and customer services in a manner consistent with the Basic Billing and Customer Service Performance Standards.

(C) The billing system employed and used by the Contractor shall be organized in a manner that will:

(1) process billing on a monthly basis;

(2) process billing dollar amounts up to $999,999.99;

(3) process multiple meters for each service address with different rate schedules for each meter;

(B) In addition to the recommended Annual Maintenance Plan, the recommended annual list of Capital Improvements, the recommended annual list of Repairs and Basic Renewals and Replacements estimated to cost more than twenty five hundred dollars ($2,500.00) and the recommended annual list of Extra Renewals and Replacements, the Contractor shall timely prepare and deliver to the GUA Representative the Basic Operation and Maintenance Reports listed in Appendix G.

(C) The Contractor shall provide all reports required under this Article III in an electronic data format and by electronic means capable of remote access by the General Manager and the Trustee to the extent of the Contractor's capability on December 18, 1998.

SECTION 3.06. BASIC OPERATION AND MAINTENANCE SERVICE FEE.

(A) For the provision of the Basic Operation and Maintenance Service, the Contractor shall be paid a fixed annual price of seven hundred seven thousand ninety dollars ($707,090.00). Included in the Basic Operation and Maintenance Service Fee is the first twenty five hundred dollars ($2,500.00) of the Contractor's Material, Supply and Plant Equipment Cost, Contractor's Labor Cost, and the Contractor's Outsource Cost for any Repair or any Basic Renewals and Replacements.

(B) The GUA shall reimburse the Contractor for Contractor's Material, Supply and Plant Equipment Costs, and Contractor's Outsource Costs associated with Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event.

SECTION 3.07 FEES FOR ADDITIONAL SERVICES. Fees for Additional Services shall be paid by one of the following:

(A) fixed fees as set forth in Appendix H, if applicable; or

(B) the Contractor's Cost Plus; or

(C) as otherwise mutually agreed by the parties.

SECTION 3.08. PAYMENT OF BASIC OPERATION AND MAINTENANCE SERVICE FEE. The Basic Operation and Maintenance Service Fee shall be paid by the GUA in twelve equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. The Contractor shall

Contractor until approval by the GUA Representative of a work order documenting the Contractor's Cost, including specifically any Contractor's Outsource Cost. Inclusion of a special project in an approved Capital Improvement Plan shall not waive said requirement for prior approval.

SECTION 3.03. STANDARDS FOR CAPITAL IMPROVEMENTS, REPAIRS AND RENEWALS AND REPLACEMENTS. The Contractor shall use the "FCWC/PUI Specification Listings" (Revised 5/97) and the Specification Details and Drawings (January 1999 edition) as the minimum standards for use of materials and methods for Capital Improvements , Repairs, and Renewals and Replacements, except as part of the Basic Operation and Maintenance Service, the Contractor shall not be required to replace components of water and wastewater pumping stations to the above-referenced standards unless said pumping stations have components that conform to the referenced standards. Notwithstanding, the replaced components shall be of quality equal to the original.

SECTION 3.04. USE OF FACILITIES; FIELDWORK. The Contractor shall confine all operation, maintenance and construction equipment, shall confine the storage of all materials and equipment, and shall limit the operations and work of all employees and subcontractors to the Utility Facilities and other areas permitted by law, rights-of-way, Permits and easements, and shall not unreasonably encumber the Utility Facilities or such other land areas with materials, equipment, or vehicles of the Contractor. At all times the Contractor shall use and administer the Utility Facilities in a professional, neat and orderly fashion. The Contractor shall assume full responsibility for any damage to the Utility Facilities or real or personal property within areas contiguous to the Utility Facilities resulting from the provision of Basic Operation and Maintenance Service.

SECTION 3.05. GENERAL REPORTING RESPONSIBILITIES.

(A) The Contractor shall prepare and file all reports required by Applicable Law. If requested to do so by the GUA Representative, the Contractor shall timely provide copies to the GUA for review and comment prior to filing.

prior to the Commencement Date. The Capital Improvement list prepared by the Contractor for the Fiscal Year commencing October 1, 1999, shall be submitted to the GUA within sixty (60) days subsequent to the Commencement Date. For all remaining Fiscal Years during the term of this Agreement, the Capital Improvement list prepared by the Contractor shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(2) The initial Capital Improvement list submitted by the Contractor for the initial Fiscal Year commencing on October 1, 1998, shall contain all Fiscal Year 1998/1999 Capital Improvements to be completed or initiated during Fiscal Year 1998/1999 and shall identify those portions of the Contractor's Costs of Capital Improvements in progress on the Commencement Date required to be funded by the GUA pursuant to this Agreement.

(F) The Contractor shall prepare a recommended Extra Renewals and Replacements list with cost estimates and an estimate of Repairs and Basic Renewals and Replacements costing over twenty five hundred dollars ($2,500.00) for the ensuing Fiscal Year on the same schedule as Capital Improvements as provided in subsection (E)(1) of this Section 3.01.

(G) The Contractor shall submit to the GUA a disaster recovery plan for the Utility Facilities within sixty (60) days subsequent to the Commencement Date. Such plan shall address the Contractor's plan for dealing with a major disaster, by way of example and not limitation, hurricane, flood, tornado, or sabotage.

SECTION 3.02. ADDITIONAL SERVICES AUTHORIZATION.

(A) The Contractor shall perform the Basic Operation and Maintenance Service, Basic Renewals and Replacements and Repairs without prior authorization from the GUA.

(B) Additional Services and Extra Renewals and Replacements will not be initiated by the Contractor without prior approval by the GUA. The Contractor shall notify the GUA whenever it contemplates that the cost of a Repair or Basic Renewal and Replacement will exceed twenty five hundred dollars ($2,500.00).

(C) The construction or acquisition of a Capital Improvement or Extra Renewals and Replacements in an approved Capital Improvement Plan shall not be commenced by the

to accomplish such corrective action. All such corrective action shall be taken as soon as practical.

(D) The Contractor shall prepare and submit to the GUA an Annual Maintenance Plan for the Utility Facilities.

(1) The Annual Maintenance Plan shall include a schedule incorporating the maintenance activities and services listed in the Basic Operation and Maintenance Service Performance Standards. The performance standards for the preventative maintenance and cleaning of all Utility Facilities shall be consistent with the Basic Operation and Maintenance Service Performance Standards.

(2) The Annual Maintenance Plan for the remainder of the Fiscal Year commencing on October 1, 1998 and for the Fiscal Year commencing on October 1, 1999 shall be submitted by the Contractor to the GUA for approval within sixty (60) days of the Commencement Date. For the remaining Fiscal Years during the term of this Agreement, the Annual Maintenance Plan shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(3) To implement the Annual Maintenance Plan, the Contractor shall continue the use of a computerized maintenance management system.

(E) The Contractor shall prepare a recommended list of Capital Improvements for inclusion in the Capital Improvement Plan for the ensuing Fiscal Year. The Capital Improvement Plan prepared by the Contractor shall include an estimate of the cost to construct or acquire the recommended Capital Improvement and provide a recommendation whether the Capital Improvement should be acquired or constructed by the Contractor or by subcontract to a third party. In addition to the projected or recommended Capital Improvements for the ensuing Fiscal Year, the Capital Improvement list prepared by the Contractor shall contain recommended Capital Improvements for an additional four (4) Fiscal Years for use by the GUA in financial planning for the provision of future Capital Improvements to the Utility Facilities.

(1) The Capital Improvement Plan for the remainder of the initial Fiscal Year commencing on October 1, 1998, shall be the Capital Improvement Plan approved by the GUA

(8) The Contractor shall perform all preventive and corrective maintenance and Repairs in a timely manner. If, in the opinion of the GUA, preventive and corrective maintenance or Repairs have been unreasonably delayed, the GUA shall so inform the Contractor. The Contractor shall respond within five (5) business days outlining the reason for the delay. If the GUA determines that the delay is within the control of the Contractor, the Contractor shall be so notified, and the Contractor agrees to complete the necessary work within ten (10) business days or by a date certain beyond ten (10) business days of notification if approved by the GUA. If the Contractor fails to complete the work, the GUA may take steps to have the specific items of work which have not been performed completed by a third party. The cost of completing this work by a third party shall be deducted from the monthly payment of the Basic Operation and Maintenance Service Fee otherwise due the Contractor.

(9) The Contractor shall regularly water, mow, fertilize, prune, remove weeds, maintain and repair permanent sprinkler systems and controls, and otherwise maintain landscaping of all buildings and plants.

(10) The Contractor shall maintain the appearance and cleanliness of all buildings and plants in a neat and orderly condition and provide those custodial services normally associated with maintenance of a business office or plant, as applicable, and provide periodic painting of the Utility Facilities as provided in the Annual Maintenance Plan.

(B) The GUA shall be responsible for all laboratory testing required by Applicable Law except those tests listed in Appendix F which shall be performed by the Contractor. The Contractor shall provide access and cooperate with the laboratory testing contractor engaged by the GUA. The Contractor shall collect all samples, except groundwater, surface water and sediment samples.

(C) The Contractor shall operate and maintain all Utility Facilities in such a manner that the water quality is maintained at a level equal to, or better than, the water quality limitations established by Applicable Law to the extent of the capability of the Utility Facilities. In the event the water quality achieved is not in compliance with the Permit, the Contractor shall immediately submit a report to the GUA outlining the proposed corrective action and a schedule

Facilities on December 18, 1998. The following general operation and maintenance services shall be required of and timely provided by the Contractor in the operation and maintenance of the Utility Facilities:

(1) The Contractor shall have full responsibility for the daily operation and maintenance of the Utility Facilities in a manner consistent with the specific Basic Operation and Maintenance Service Performance Standards.

(2) The Contractor shall perform Repairs and Basic Renewals and Replacements. Specifically excluded are Extra Renewals and Replacements and Capital Improvements.

(3) The Contractor shall secure and maintain all permits required in the Contractor's name for the performance of the services described in this Agreement. The GUA shall be responsible for acquiring and renewing all Permits required by Applicable Law for the operation and maintenance of the Utility Facilities and for the acquisition and construction of Capital Improvements to be constructed by the Contractor.

(4) The Contractor shall cooperate and facilitate in the acquisition and completion of all approved Capital Improvements.

(5) The Contractor shall maintain responsive working relationships with: the GUA Representative, the General Manager, the County and other local governments within the Carrollwood System service area, federal and State regulatory authorities, utility suppliers and vendors, and the public.

(6) The Contractor shall receive and check requests for water and wastewater pipeline locations from the One-Call Notification System and, if necessary, provide on-site location assistance.

(7) The Contractor shall provide prudent maintenance consistent with industry standards, equipment manufacturer's instructions, and standard operation and maintenance manuals so that upon termination of this Agreement, the Utility Facilities are returned to the GUA in the same or better condition than at the Commencement Date, normal wear and tear excepted. Work performed by the Contractor or subcontractors shall be of the quality normally associated with work of the kind in which the Contractor is engaged.

SECTION 2.07. YEAR 2000 COMPLIANCE. Year 2000 compliance relates to the fact that many existing computer programs and embedded computer chips recognize only the last two digits of the year, and are unable to distinguish between the year 1900 and the year 2000. Because of the unprecedented nature of the year 2000 compliance issue, its effects and the success of related remediation efforts will not be fully determined until the year 2000 and thereafter. Although the Contractor is not aware of any material year 2000 compliance issues it has not addressed, the Contractor can provide no assurance the computer systems it owns and will utilize in connection with the services hereunder are or will be year 2000 ready, or that its remediation efforts were or will be successful in whole or in part. Furthermore, the Contractor can provide no assurance that vendors, government agencies, paying agents or other third parties providing services to the Contractor have or are effectively dealing with year 2000 compliance issues in a timely manner.

SECTION 2.08. SUBCONTRACTING.

(A) The Contractor shall not subcontract services or work included in the Basic Operation and Maintenance Service (exclusive of sludge disposal) and the Basic Billing and Customer Service to an extent materially beyond that work and services being subcontracted as of December 18, 1998, without the prior written approval of the GUA Representative, which approval shall not be unreasonably withheld. The Contractor shall have the duty to evaluate all subcontractors and to inspect all the work of subcontractors and make a determination as to the capability of any subcontractors to perform properly under the terms of this Agreement.

(B) The Contractor may subcontract any work or services which are not a part of the Basic Operation and Maintenance Service and Basic Billing and Customer Service without the consent of the GUA.

ARTICLE III

OPERATION AND MAINTENANCE SERVICE

SECTION 3.01. BASIC OPERATION AND MAINTENANCE SERVICE.

(A) It is contemplated by the parties that the Basic Operation and Maintenance Service shall be provided and performed at the same standards as provided for the Utility

Utility Facilities.

(B) The Contractor shall designate a representative whose duties shall include the prevention of accidents.

(C) The Contractor shall comply with Applicable Law relating to the safety of persons or property or protection thereof from damage, injury or loss. The Contractor shall at all times erect and maintain all necessary safeguards or barriers for safety and protection.

SECTION 2.05. USE OF GUA NON-FIXED ASSETS AND INVENTORY.

(A) The Contractor shall have the use and control in the provision of the services hereunder, including the use and control of the GUA Non-Fixed Assets and the Inventory. The Contractor shall be responsible for the maintenance or repair of all GUA Non-Fixed Assets used by the Contractor in the provision of services hereunder and shall replenish the Inventory as the Contractor deems appropriate.

(B) The GUA and the Contractor shall jointly determine the value of the Inventory on the Commencement Date and upon termination of this Agreement, based upon initial cost. Should said value at termination be greater than the value on the Commencement Date, the GUA shall pay the Contractor the difference and conversely, should the value upon termination be less than the value on the Commencement Date, the Contractor shall pay the GUA the difference. For purposes of determining the value of the Inventory, the prices paid by Florida Cities Water Company and the Contractor shall be used.

(C) The GUA shall be responsible for the replacement of equipment which is a part of the GUA Non-Fixed Assets that becomes non-usable through normal wear and tear. The Contractor shall be responsible for the replacement of all such equipment which becomes non-usable through damage or misuse.

SECTION 2.06. CONTRACTOR'S VEHICLES. The Contractor's vehicles shall be professionally and safely maintained in a mechanically sound manner. All vehicles must provide a clean and mechanically sound image. As vehicles are replaced or repainted, the Contractor shall provide uniform signage that is acceptable to the GUA Representative and which reflects the fact that the vehicles are used in the service of the Utility Facilities.

SECTION 2.02. CONTRACTOR STAFFING. To fulfill its obligations under this Agreement, the Contractor contemplates implementing the personnel staffing plan shown in Appendix E. Material changes in the staffing plan for the position of division manager and subordinate operational personnel shall require the consent of the GUA, which consent shall not be unreasonably withheld. Should regulatory requirements dictate a change in staffing level, the Contractor shall be entitled to an adjustment in the Basic Operation and **Maintenance Service** Fee and the Basic Billing and Customer Service Fee, as applicable. Should the Contractor invest in equipment that allows a reduction in staff, any cost reduction shall be for the Contractor's sole benefit. Should the Contractor and the GUA jointly invest in equipment that results in a staff reduction, then the labor savings shall be shared in amounts equal to the relative investment of each party.

SECTION 2.03. TRAINING PROGRAM. The Contractor shall provide a training program for employees of the Contractor performing the Basic Operation and **Maintenance Service** to insure they have a basic understanding of water and wastewater treatment processes and safety. The Contractor's training program shall place special emphasis on safety procedures and protocols and on those processes that employees will utilize in daily operation of the water and wastewater treatment plants and the water distribution and sewer collection and wastewater disposal systems. Documentation of the scope of the training program required by Applicable Law and participation by employees of the Contractor shall be provided to the GUA.

SECTION 2.04. SAFETY.

(A) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work and services to be provided under this Agreement. The Contractor shall take all necessary precautions for the safety of and to prevent injury to all employees, whether at the Utility Facilities or in the field, and other persons or entities who may be affected by the work and service to be provided under this Agreement. The Contractor shall also take all necessary precautions to provide the necessary protection to prevent damage or loss to materials or equipment to be provided under this Agreement, whether stored on or off of the property and to all property listed on the Inventory or incorporated into the

"Utility Services" shall mean collectively, the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

SECTION 1.02. CONSTRUCTION AND INTERPRETATION.

(A) Words that indicate a singular number shall include the plural in each case and vice versa, and words that indicate a person shall include legal entities, firms and corporations.

(B) The terms "herein," "hereunder," "hereby," "hereof," and any similar terms, shall refer to this Agreement; the term "heretofore" shall mean before the date of execution of this Agreement; and the term "hereafter" shall mean on or after the initial date of execution of this Agreement.

(C) Words that reference only one gender shall include all genders.

(D) This Agreement shall be construed as resulting from ongoing negotiation and authorship. No part of this Agreement shall be construed as the product of any one of the parties hereto.

SECTION 1.03. INCORPORATION. The Appendices hereto and each of the documents referred to therein are incorporated and made a part hereof in their entirety by reference.

SECTION 1.04. SECTION HEADINGS. Any headings preceding the texts of the several Articles, Sections, Appendices, or Exhibits in this Agreement and any table of contents or marginal notes appended to copies hereof, shall be solely for the convenience of reference and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

ARTICLE II

GENERAL

SECTION 2.01. CONTRACTOR'S RESPONSIBILITY. Except as otherwise specified elsewhere herein, the Contractor shall provide required personnel, and associated wages, salaries and benefits, services, materials (including chemicals, electricity and fuel), vehicles, utilities and other consumables necessary to perform the services specified herein. Furthermore, the Contractor shall provide required tools and equipment, except tools and equipment which are GUA Non-Fixed Assets.

to so contest shall be construed as a negligent or willful action or inaction of such party;

(D) a Change in Law; and

(E) the loss or inability to obtain for reasons other than the negligent, willful or wrongful action or inaction of the Contractor, utility services, including sewerage, sludge disposal and standby electric power, necessary for the operation and maintenance of the Utility Facilities directly resulting in a partial or total curtailment of operations at the Utility Facilities.

"Utility Facilities" shall mean all of the property and rights, both tangible and intangible, that the GUA owns or uses or subsequently acquires or uses in conjunction with the operation and maintenance of the Carrollwood System, including by way of example and not limitation, the following:

(A) All real property and interests, whether recorded in the public records or not.

(B) All water and wastewater facilities, including reuse and reclaimed water, treatment plants, wells, collection, transmission, distribution, pumping, effluent and disposal facilities of every kind and description, including by way of example and not limitation, all trade fixtures, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities and property installations used in the operation of the Carrollwood System.

(C) All equipment, tools, parts, laboratory equipment, and other personal property owned or used by the GUA in connection with the operation of the Carrollwood System.

(D) All easements in favor of the GUA or its predecessors in interest.

(E) All customer records and supplier lists, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer models and studies, accounting, budget and business records and all other information controlled by or in the possession of the GUA that relates to the description and operation of the Carrollwood System.

(F) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, use and maintain the Carrollwood System.

"Trustee" shall mean SunTrust Bank, Central Florida, National Banking Association, and any successor banking corporation, banking association or trust company serving as trustee under the indenture providing for the bonds to be issued by the GUA to acquire the Utility Facilities.

"Uncontrollable Circumstance(s)" shall mean any act, event or condition that prevents the Contractor or the GUA from meeting or performing its obligations under this Agreement, if such act, event or condition is beyond the reasonable control of the party relying thereon as justification for not meeting or performing such obligations. Such acts, events or conditions may include, but shall not be limited to, the following:

(A) an act of God (except normal weather conditions for the geographic area of the County), hurricane, tornado, epidemic, landslide, lightning, earthquake, flood, fire or explosion, or similar occurrence, war, strikes, lockouts, blockade, acts of public enemies, insurrection, riot, general unrest, restraint of government and people, civil disturbance, sabotage or similar occurrence;

(B) the order, injunction or judgment of any federal, State or local court, administrative agency or governmental body or officer with jurisdiction of the GUA acting in its governmental capacity, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State and local tax laws; provided, however, that such order, injunction or judgment shall not arise in connection with or be related to the negligent or wrongful action or inaction of the party relying thereon and that neither the contesting in good faith of any such order, injunction, or judgment nor the reasonable failure to so contest shall constitute or be construed as a wrongful or negligent action or inaction of such party;

(C) the suspension, termination, interruption, denial, failure to issue, modification or failure of renewal of any permit, license, consent, authorization or approval necessary for the operation and maintenance of the Utility Facilities, if such act or event shall not arise in connection with or be related to the negligent or willful action or inaction of the party relying thereon, and that neither the contesting in good faith of any such order nor the reasonable failure

hereunder.

"Meter Replacement Program" shall mean the annual program of small meter replacements approved in the Capital Improvement Plan.

"Meter Setting" shall mean the installation of a new meter and appurtenances on an existing water service line where no prior service was provided.

"Normal Business Hours" shall mean 8:00 a.m. until 5:00 p.m., Monday through Friday except holidays observed by the GUA.

"One-Call Notification System" shall mean the statewide toll-free telephone notification system established by Sunshine State One-Call of Florida, Inc., a not-for-profit corporation created pursuant to Chapter 556, Florida Statutes, for the purpose of notifying underground facility operators of potential excavation activities within the proximity of their facilities so that such facilities may be located and their location marked accordingly.

"Permits" shall mean federal, State and local permits and registrations governing the operation and maintenance of the Utility Facilities.

"Plant Equipment" shall mean machines and devices consisting of various components which by themselves provide a specific function which represents an end function or contributes to a broader function, including operating and processing equipment and special tools in use as of the Commencement Date or procured or provided pursuant to this Agreement for use at or associated with the Utility Facilities (exclusive of equipment owned or leased by the Contractor and used by the Contractor to perform its obligations under this Agreement).

"Renewal" shall mean rehabilitation, overhaul, restoration or improved function of a Utility Facilities component to the extent that it is at or near new condition and its useful life is extended.

"Repair" shall mean correction of defect in a Utility Facilities component without complete overhaul, renewal or replacement.

"Replacement" shall mean the replacement of a Utility Facilities component with a component having similar characteristics and equal quality.

"State" shall mean the State of Florida.

"County" shall mean Hillsborough County, Florida.

"Emergency Condition" shall mean a condition which threatens the public health and safety.

"Extra Renewals and Replacements" shall mean Renewals and Replacements of Utility Facilities other than Basic Renewals and Replacements which are undertaken to increase capacity, or as part of a modernization or upgrading program including any meter change-out programs.

"FDEP" shall mean the Florida Department of Environmental Protection.

"Fiscal Year" shall mean the period commencing on October 1 of each year and continuing through the next September 30th.

"Full Tap and Meters" shall mean the tapping of a water main, installation of a service line and setting a new meter and appurtenances where no previous service was provided.

"General Manager" shall mean the person, corporation, or entity under contract with the GUA to provide administrative and financial services. The initial General Manager shall be Government Services Group, Inc., a Florida corporation.

"GUA" shall mean the Florida Governmental Utility Authority, an authority created by interlocal agreement pursuant to section 163.01(7), Florida Statutes.

"GUA Non-Fixed Assets" shall mean the assets to be identified pursuant to the inventory procedure provided in Appendix D.

"GUA Representative" shall mean the person or persons designated by the GUA to represent the GUA in interpretations of the performance of the Contractor of its duties and responsibilities under this Agreement as provided in Section 6.01.

"Interlocal Agreement" shall mean the interlocal agreement entered into by participating counties pursuant to section 163.01(7)(g), Florida Statutes, creating the GUA.

"Inventory" shall mean the chemicals, diesel fuel used for power generation, spare parts, pipe, fittings, and valves and other GUA Non-Fixed Assets identified pursuant to the inventory procedure listed in Appendix D or subsequently acquired by the Contractor during the term of this Agreement which the Contractor uses or is permitted to use in providing the services

approvals for the water system or wastewater system, other than any requirements set forth in said applications to comply with future laws, ordinances, codes, rules, regulations or similar legislation.

"Commencement Date" shall mean the day following the payment of the purchase price for the Utility Facilities pursuant to the terms of the Asset Acquisition Agreement.

"Contractor's Cost" shall mean the sum of the Contractor's Labor Cost, the Contractor's Material, Supply and Plant Equipment Cost, and the Contractor's Outsource Cost.

"Contractor's Cost Plus" shall mean the Contractor's Cost plus allowances for profit as follows:

(A) The Contractor's Labor Cost – fifteen percent (15%).

(B) The Contractor's Material, Supply and Plant Equipment Cost – ten percent (10%).

(C) The Contractor's Outsource Cost – five percent (5%).

"**Contractor's Labor Cost**" shall mean the sum of the following:

(A) The Contractor's direct cost of employee salaries and wages including overtime; and

(B) The Contractor's payroll taxes, the cost of employee benefits, including but not limited to, insurance, paid time off (holidays, vacation, sick and other paid leave), uniforms, employee training, and transportation, and which costs for purposes of this Agreement, shall be calculated and determined as fifty percent (50%) of direct labor cost.

"Contractor's Material, Supply and Plant Equipment Cost" shall mean the Contractor's direct cost of materials, parts, supplies and Plant Equipment, including applicable taxes.

"**Contractor's Outsource Cost**" shall mean the Contractor's direct cost of subcontracted and hired work, parts, materials, and supplies, and construction equipment, and fixture rental, including applicable taxes.

"Contractor Representative" shall mean the person or persons designated by the Contractor to represent the Contractor in interpretations of the performance of the Contractor's duties and responsibilities under this Agreement.

"Basic Renewals and Replacements" shall mean the renewal or replacement of a Utility Facility component which is no longer capable of performing the function for which it is intended due to a defect or through examinations, measurements and observations it is apparent that the development of defects to the extent that said component will no longer be capable of performing the function for which it is intended is imminent.

"Board" shall mean the governing body of the GUA.

"Bullhead Meter Setting" shall mean a second complete meter installation connected to an existing service line.

"Capital Improvement" shall mean the planned acquisition or construction of improvements or additions to the Utility Facilities, the acquisition of equipment or other personal property not constituting a Basic Renewal and Replacement or the provision of improvements to increase capacity, modernize or otherwise upgrade Utility Facilities components.

"Capital Improvement Plan" shall mean the annual report of projected Capital Improvements submitted by the Contractor and approved by the GUA in Section 3.01.

"Carrollwood System" shall mean Utility Facilities located in Hillsborough County.

"Change in Law" shall mean (a) the enactment, adoption, promulgation, modification or repeal after the Commencement Date of any federal, State, or local law, ordinance, code, rule, regulation or other similar legislation or the change in interpretation after the Commencement Date, of any federal, State, or local law, ordinance, code, rule, regulation, official permit, license or approval by any regulatory entity having jurisdiction with respect to the operation or maintenance of the Utility Facilities, or (b) the imposition, after the Commencement Date, of any material conditions on the issuance, modification or renewal of any official permit, license or approval necessary for the operation and maintenance of the Utility Facilities, which, in either case, necessitates or makes advisable a capital project, increases the Contractor's Costs by establishing requirements with respect to the operation or maintenance of the Utility Facilities which are more burdensome than the most stringent requirements:

(i) in effect on the Commencement Date, or

(ii) agreed to by the GUA in any applications for official permits, licenses or

"Basic Billing and Customer Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Billing and Customer Service as provided in Section 4.09.

"Basic Billing and Customer Service Performance Standards" shall mean those specific billing and customer service performance standards provided in Appendix C to guide and define the billing and customer service responsibility of the Contractor in providing the Basic Billing and Customer Service.

"Basic Billing and Customer Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Billing and Customer Service and as provided in Article IV.

"Basic Operation and Maintenance Service" shall generally mean the provision and performance by the Contractor of the operation and maintenance services described in Section 3.01. The term Basic Operation and Maintenance Service excludes: (1) Additional Services; (2) non-routine expenditures that are planned, budgeted, and approved by the GUA; (3) and the acquisition or construction of Capital Improvements and other capital outlays authorized by the GUA . To define its scope, the term "Basic Operation and Maintenance Service" shall specifically include, by way of example and not limitation, the Basic Operation and Maintenance Service Performance Standards.

"Basic Operation and Maintenance Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Operation and Maintenance Service as provided in Section 3.06.

"Basic Operation and Maintenance Service Performance Standards" shall mean those specific operations and maintenance performance standards provided in Appendix B to guide and define the operations and maintenance responsibility of the Contractor in providing the Basic Operation and Maintenance Service.

"Basic Operation and Maintenance Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Operation and Maintenance Service.

herein shall have the meanings set forth in the Asset Acquisition Agreement unless the context requires otherwise:

"Additional Services" shall mean the provision of the following:

(A) Extra Renewals and Replacements.

(B) Capital Improvements.

(C) Observation and inspection of new pipelines and lift stations.

(D) Installation of Full Tap and Meters and Meter Settings as provided in Appendix H.

(E) Infiltration and inflow investigations and correction programs.

(F) Services not contemplated as a part of the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

"Agreement" shall mean this Carrollwood System Utility Operations, Billing and Customer Service Agreement, including any amendments and supplements hereto executed and delivered in accordance with its terms.

"Annual Maintenance Plan" shall mean the annual plan submitted by the Contractor and approved by the GUA documenting the schedule and performance standards to be used in the preventative and operational maintenance of the Utility Facilities as required in Section 3.01.

"Applicable Law" shall mean all of the permits required for the performance by the parties under this Agreement, any State or federal constitution restrictions, any State law, regulation or directive, any County ordinance, law or directive, any federal or State judicial judgment or order and any federal, State or County administrative order, which are in effect during the term of this Agreement, or subsequently enacted, adopted, promulgated, issued or enforced, in any manner relating to the operation and maintenance of the Carrollwood System.

"Basic Billing and Customer Service" shall mean the provision and performance by the Contractor of the billing and customer services described in Article IV. To define its scope, the term shall specifically include, by way of example and not limitation, the Basic Billing and Customer Service Performance Standards.

(4) To treat and provide potable water that meets or exceeds the requirements of Applicable Law to the extent of the capability of the supply and treatment components of the Utility Facilities.

(5) To operate all treatment plants to their optimum capability and efficiency to the extent reasonably practical.

(6) To conserve the capital investment in Utility Facilities and to ensure long-term reliability and efficiency of the Utility Facilities by performing adequate preventative and corrective maintenance, upgrading and replacement consistent with prevailing industry standards.

(7) To provide responsive customer services on all issues relating to the provision of utility services within the control of the Contractor including issues pertaining to meter readings, customer billing and utility usage; and

WHEREAS, the Contractor represents that it currently has, and will have throughout the term of this Agreement, the experience and professional skill to provide the utility services required to operate and maintain the Utility Facilities, to timely and accurately bill for utility service provided and to maintain effective relationships with utility customers.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, the parties to this Carrollwood System Utility Operations, Billing and Customer Service Agreement do agree for themselves, their permitted successors and assigns as follows:

ARTICLE I

DEFINITIONS AND CONSTRUCTION

SECTION 1.01. PURPOSE AND DEFINITIONS.

(A) This Agreement is entered into as a condition precedent to the transfer of the assets of the Carrollwood System under the Utility System Asset Acquisition Agreement, dated April 1, 1999, between the GUA and Florida Cities Water Company and Poinciana Utilities Inc. (the "Asset Acquisition Agreement").

(B) As used in this Agreement all capitalized words and terms not otherwise defined

CARROLLWOOD SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

THIS UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT, is made and entered into as of this 1st day of April, 1999, by and between the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), and Avatar Utility Services, Inc., a Florida corporation (the "Contractor").

WITNESSETH:

WHEREAS, the GUA owns a water and wastewater utility system located in Hillsborough County, Florida, known as the Carrollwood System and consisting of the facilities described at Appendix "A" hereto; and

WHEREAS, the GUA intends by the execution of this Agreement to contract for the operation and maintenance of the Utility Facilities and the billing and customer service provided within the Carrollwood System by the Contractor at standards not less than those provided on December 18, 1998; and

WHEREAS, the scope of utility operation and maintenance services, and billing and customer services to be provided for the Carrollwood System as incorporated in the provision of this Agreement is intended to meet the following operating objectives of the GUA:

(1) To provide water treatment, water distribution, wastewater treatment, and wastewater disposal services to the utility customers of the Carrollwood System without unnecessary interruption.

(2) To mitigate bypass or overflow of sanitary sewage from the transmission system and treatment plant.

(3) To handle and treat sanitary sewage in a manner that meets or exceeds the requirements of Applicable Law to the extent of the capability of the Utility Facilities.

Contractor's Pollution Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep contractor's pollution liability insurance in minimum amounts of $2,000,000.00.

Miscellaneous Errors and Omissions Insurance
At all times during the term of this Agreement, the Contractor shall keep miscellaneous errors and omissions insurance in minimum amounts of $2,000,000.00.

APPENDIX I

Schedule of Insurance

The following is an outline of the insurance coverages the Contractor shall obtain and maintain as provided herein, and in the type, amounts and in conformance with the following minimum requirements and is subject to the terms and conditions of each insurance policy:

Worker's Compensation
Statutory benefits as defined by Chapter 440, Florida Statutes, encompassing all operations contemplated by this Agreement to apply to all owners, officers, and employees regardless of number of employees. Individual employees may be exempted per State Law. Employers Liability will have minimum limits of $1,000,000.00 per accident.

Commercial General Liability
Coverage shall apply to premises and/or operations, products and/or completed operations, independent contractors, contractual liability, and broad form property damage exposures with minimum limits of $1,000,000.00 per occurrence. Said policy shall be insured by an insurance company, or companies, with a current minimum rating by the A.M. Best Agency of A.

Commercial Automobile Liability
Coverage shall apply to owned vehicles and/or hired and non-owned vehicles and employee non-ownership use with minimum limits of $1,000,000.00 CSL (combined single limit).

Umbrella/Excess Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep umbrella/excess liability insurance in minimum amount of $30,000,000.00.

Certificate of Insurance
The GUA shall be listed as a certificate holder and additional insured with respects to Commercial General Liability. An original hand signed certificate shall be on file with and approved by the GUA prior to the operation date. Said certificate shall evidence the required coverages and amounts as contained herein and provide a thirty (30) day notice of cancellation for non-renewal or material change in coverage.

Commercial Crime/Employee Dishonesty
Coverage shall apply to employees and include coverage for faithful performance of duty, depositors forgery, money-securities (in and out), and counterfeit papers with a minimum limit of $5,000,000.00 per occurrence.

Bullhead Service Installation Cost

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	225.12	100.00	325.12
1	274.12	100.00	374.12

Replacement Meter Costs (4)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	15.00	43.22
1	77.22	15.00	92.22
1½	196.02	30.00	226.02
2	267.30	30.00	297.30
3	815.66	50.00	865.66
4	1276.72	50.00	1326.72
6	2012.67	50.00	2062.67
8	1461.83	50.00	1511.83

(1) Does not include the meter box or backflow prevention device.

(2) Material costs include the meter or meter head assembly costs, service piping, corporation stops, stops, meter boxes, casing under the roadway for long services and appurtenances excluding the backflow prevention device.

(3) ⅝, 1, 1½ and 2" material prices based on Neptune T-10, bronze body, cast iron bottom, with polymer register housing and lid.

(4) ⅝, 1, 1½ and 2" meters will be replaced entirely; only the meter head assembly will be replaced on 3, 4, 6, and 8" meters, 3, 4, 6" meter cost are for Tru/Flo meter heads, the 8" price is for a turbine meter head.

(5) Short side means service to property on the same side of the road as the water main. Long side means service to property on the opposite side of the road as the water main. Long side costs include installation of casing under the roadway, casing length not greater than twenty four (24') feet.

APPENDIX H

Meter Setting Cost (3)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	20.00	48.22
1	77.22	20.00	97.22
1½	196.02	40.00	236.02
2	267.30	40.00	307.30
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Short Side) (5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	265.82	226.00	491.82
1	314.82	226.00	540.83
1½	683.32	226.00	909.32
2	754.60	226.00	980.60
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Long Side)(5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	499.02	226.00	725.02
1	548.02	226.00	774.02
1½	927.52	226.00	1153.52
2	998.80	226.00	1224.80
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

(F) Events and situations described in (B)(1), (B)(2), (C)(1), and (D)(2) by telephone within twenty four (24) hours after the Contractor becomes aware of the event or situation and makes an assessment of impacts thereof followed by a written report within five (5) business days thereafter.

(3) average-day, maximum-day, minimum-day and average of the maximum-month for the ended 12-month period.

(B) Description of any emergencies and incidents occurring during the month including, but not limited to:

(1) operational anomalies or other emergencies which had a material adverse impact on customer service or the public;

(2) environmental incidents;

(3) Utility Facilities stress situations;

(4) work order log detailing when work orders were received and completed, location of event, work performed, equipment and resources used; and

(5) quality assurance reports and resolutions.

(C) Description of regulatory matters including, but not limited to:

(1) regulatory notices and responses thereto;

(2) requirement for any public notices;

(3) inspections or visits to Utility Facilities by regulatory agencies; and

(4) implementation of new regulatory requirements.

(D) Progress report including, but not limited to:

(1) material operational changes;

(2) major maintenance and repair activities; and

(3) Replacement and Renewal activities.

(E) Summary of new customers connected.

Meter Aging Report	A report that lists every account that had a meter installed between a range of dates selected by the GUA	
Consumption History Report	A report listing meter usages for up to 24 months past by rate classification and meter size	
Billing Register	A report indicating each customer account billed with all pertinent information contained on the customer bill	
Monthly Activity Report	A report indicating a summary of all billings, adjustments and payments recorded during a particular calendar month Specifically, it indicates: (a) billing by rate class by service; (b) charges/adjustments by rate class; (c) total payments received; and (d) total bills printed.	
Other reports commonly available at the time of acquisition		as requested and available

SECTION G.02. BASIC OPERATION AND MAINTENANCE SERVICE REPORTS. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Operation and Maintenance Service, the Contractor shall submit to the GUA, not later than the fifteenth (15th) day of each month, a report consisting of the following:

(A) Reclaimed and potable water produced at each treatment facility:

(1) monthly operating reports for each facility;

(2) total and average-day for the month; and

APPENDIX G

REPORTS

SECTION G.01. BASIC BILLING AND CUSTOMER SERVICES. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Billing and Customer Services, the Contractor shall submit or make available to the GUA electronically, the following reports:

REPORT	CONTENT	REPORTING PERIOD
Daily Transaction Journal	A documentation of all monetary and non-monetary transactions that have been posted to a customer's account	available daily
Preliminary Meter Reading Report	A report indicating the meter readings entered for each account prior to billing. Error in readings and/or consumption will be indicated for correction	
Account Balance Report	A report indicating each customer's current and past due balance	
Alpha-Cross Reference	A report listed in alphabetic order by customer's last name with a cross index to the customer's account number	
Aged Trial Balance	A report listing each customer's account with total balance, current, 30, 60, 90, and 120 day balances	available once monthly
Delete Report	A report listing all accounts which should be deleted from GUA's file	available once monthly
Past Due Report	A report indicating all delinquent accounts that have a balance other than current	

APPENDIX F

LABORATORY TESTING

SECTION F.01. LABORATORY TESTING BY GUA. The GUA shall be responsible for employing a laboratory, certified by the FDEP or other regulatory agency, as applicable, to perform all laboratory testing required for regulatory reports. The Contractor shall coordinate with the GUA and the laboratory employed by the GUA for all such testing.

SECTION F.02. LABORATORY TESTING BY THE CONTRACTOR. The Contractor shall perform laboratory testing to the extent necessary for treatment process control.

As of '99

CHART 3
NORTH OPERATIONS
CLIL. GROUP I

NORTH OPERATIONS MANAGER
LARRY GOOD

BAREFOOT BAY DIVISION
DIVISION MANAGER
WILLIAM M. SANDBURY

- FIELD FOREMAN J. STEVE HAYES
  - 3 UTILITY SERVICE POSITIONS
- 2 CUSTOMER SERVICE POSITIONS
- WATER TREATMENT PLANT
  - STAFFING REQ. CATEGORY I, CLASS B - STAFFED BY CLASS C OR HIGHER 12 HR / DAY, 7 D/W LEAD CHIEF OPERATOR MUST BE 'B' OR HIGHER
  - LEAD OPERATOR MARK S. DOWE
  - 2 OPERATOR/ OPERATOR TRAINEE POSITIONS
- WASTEWATER TREATMENT PLANT
  - STAFFING REQ. CATEGORY I, CLASS B - STAFFED BY CLASS C OR HIGHER 8 HR / DAY, 7 D/W LEAD CHIEF OPERATOR MUST BE 'B' OR HIGHER
  - LEAD OPERATOR GLEN SILER
  - 1 OPERATOR/ OPERATOR TRAINEE POSITION
  - 1 MAINTENANCE POSITION

POINCIANA DIVISION
DIVISION MANAGER
LARRY GOOD

- FIELD FOREMAN VICTOR WINKLER
  - 8 UTILITY SERVICE POSITIONS
- CHIEF SYS. SUPVR. LORLEE F. MILLER
  - 2.5 CUSTOMER SERVICE POSITIONS
- WASTEWATER TREATMENT PLANT
  - W.W.T.P. # 1 STAFFING REQ.
  - CATEGORY III, CLASS C - STAFFED BY CLASS C OR HIGHER 3 HR / DAY, 5 D/W - ONE WKEND VISIT
  - W.W.T.P. # 2 STAFFING REQ.
  - CATEGORY III, CLASS C - STAFFED BY CLASS C OR HIGHER 6 HR / DAY, 5 D/W - ONE VISIT EACH WKEND DAY -
  - W.W.T.P. # 3 STAFFING REQ.
  - CATEGORY III, CLASS C - STAFFED BY CLASS C OR HIGHER 3 HR / DAY, 5 D/W - ONE WKEND VISIT
  - W.W.T.P. # 5 STAFFING REQ.
  - CATEGORY II, CLASS C - STAFFED BY CLASS C OR HIGHER 6 HR / DAY, 5 D/W - ONE VISIT EACH WKEND DAY -
- WATER TREATMENT PLANT
  - W.T.P. # 1 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 1 HR / DAY, 5 D/W - ONE VISIT EACH WKEND DAY -
  - W.T.P. # 2 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 1 HR / DAY, 5 D/W - ONE VISIT EACH WKEND DAY -
  - W.T.P. # 3 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 1 HR / DAY, 5 D/W - ONE VISIT EACH WKEND DAY -
  - W.T.P. # 4 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 5 VISITS PER WK - ONE WKEND VISIT
  - W.T.P. # 5 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 5 VISITS PER WK - ONE WKEND VISIT

CARROLLWOOD DIVISION

- W.T.P. # 1 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 5 VISITS PER WK - ONE WKEND VISIT
- W.T.P. # 2 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 5 VISITS PER WK - ONE WKEND VISIT
- W.T.P. # 3 STAFFING REQ.
  - CATEGORY IV, CLASS C - STAFFED BY CLASS C OR HIGHER 5 VISITS PER WK - ONE WKEND VISIT
- LEAD OPERATOR BRIAN SOUTHWELL
- 1 CUSTOMER SERVICE POSITION
- 2 UTILITY SERVICE POSITIONS

SARASOTA DIVISION

- FIELD FOREMAN CHET VANHORN
  - 7 UTILITY SERVICE OPERATOR POSITIONS
  - 2 CUSTOMER SERVICE POSITIONS
- WW SUPRST. WM. RANDY MUSGROVE
  - SOUTH GATE A.W.T.P.
    - STAFFING REQ. CATEGORY I, CLASS B - STAFFED BY CLASS C OR HIGHER 16 HR / DAY, 7 D/W LEAD CHIEF OPERATOR MUST BE 'B' OR HIGHER
    - LEAD OPERATOR WILLIAM (BILL) DYMEK
    - 3 OPERATOR POSITIONS
  - GULF GATE A.W.T.P.
    - STAFFING REQ. CATEGORY I, CLASS B - STAFFED BY CLASS C OR HIGHER 16 HR / DAY, 7 D/W LEAD CHIEF OPERATOR MUST BE 'B' OR HIGHER
    - LEAD OPERATOR E. S. 'CHARLIE' GARRETT
    - 3 OPERATOR POSITIONS
  - 1 LAB. TECHNICIAN POSITION
  - 1 MAINTENANCE POSITION

CHIEF OPERATOR KEITH S. KEENAN

- 5 OPERATOR POSITIONS
- 1 MAINTENANCE/ TRUCK DRIVER POSITION

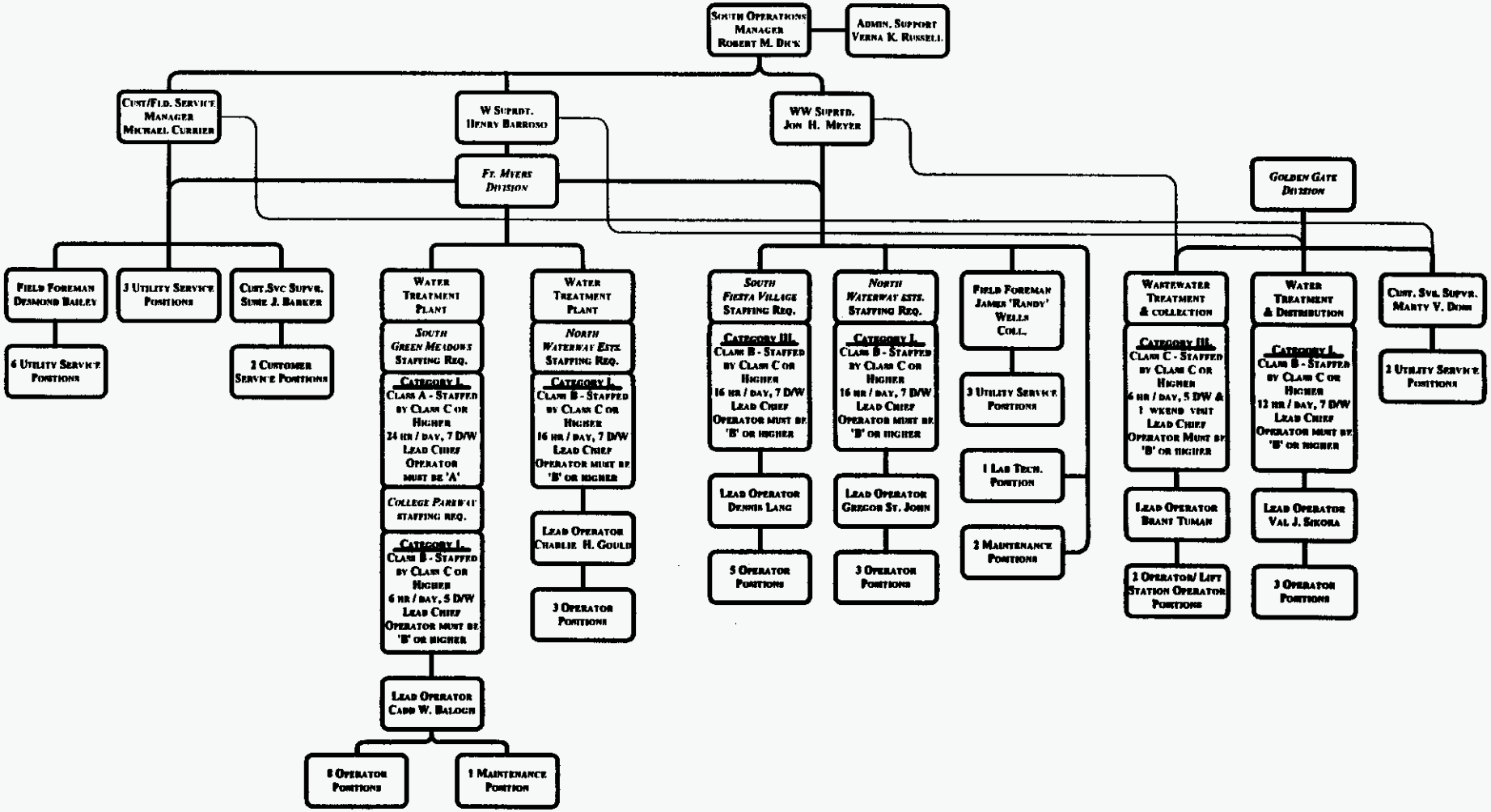
SOLID LINES = DIRECT SUPERVISION
DOTTED LINES = INDIRECT SUPERVISION

NOTES:
(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

As of 1/99

CI 2 SOUTH ATIONS

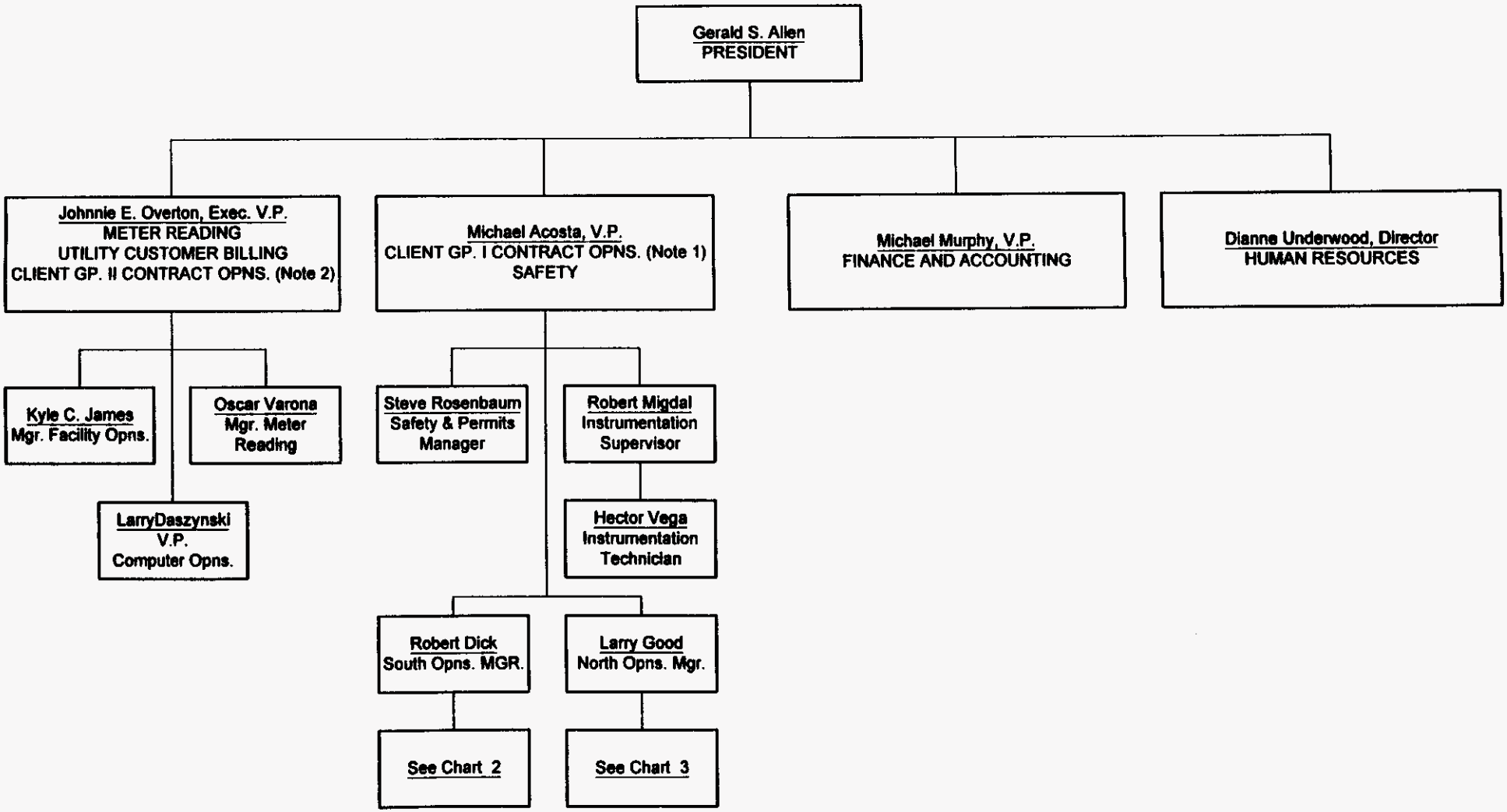
CLIENT GROUP I



NOTES:

(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

APP DIX E
STAFFING PLAN
Chart 1
AVATAR UTILITY SERVICES, INC.
Provisional Organizational Chart
Effective 4/1/99



NOTES:
1. Client Group I consists of the GUA or a combination of the GUA and individual counties and pertain to the utility system formerly owned by Poinciana Utilities Inc., and the former Golden Gate, Ft. Myers, Sarasota, Carrollwood and Barefoot Bay Divisions of Florida Cities Water Company.

2. Client Group II consists of all other AUSI contract operations clients.

APPENDIX D

INVENTORY

Within five (5) days after the Commencement Date, the parties hereto shall establish the Inventory by a physical inventory of the items on hand or as otherwise mutually agreed.

- verify meter sizes;
- verify meter reading accuracy;
- meet with customer at property to discuss and evaluate disputes and make a report to customer service; and
- review with customers at property, how to read meter, typical usage of water, and conservation measures that customer can implement.

(B) All field service shall be made via work orders with prompt notification of the maintenance service provider when applicable. Information from these work orders shall be summarized on monthly order reports.

(C) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders relating to existing water services or distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order.

(G) Meter reading must be accurate with an error level of no greater than 1 per 1,000 reads. Errors are defined as misreads found by field audits, investigations, and readings the following month which are lower than reported the previous month as an accurate read or customer requested rechecks which, after investigation, a reading error is confirmed.

(H) All meter reading routes are to be accomplished within two (2) business days of the day scheduled. Weather conditions, excluding conditions associated with hurricanes and floods, must not prevent the accomplishment of meter reading unless otherwise agreed to by the GUA.

- Individual accounts on routes which are "no reads" (skips) will be reviewed daily by the Contractor. If upon further investigation, it is determined that a reading could have been obtained, the Contractor shall take immediate steps to obtain the reading.
- All meter boxes or meter conditions which impose an impediment to readers or citizens must be entered in the hand held devices by the meter readers when observed and promptly reported to the operation and maintenance provider. Other conditions of special interest that may explain high usage, as well as notification made of suspected leaks found, must also be entered.

SECTION C.02. FIELD SERVICES.

(A) The Contractor shall provide field personnel to accomplish the following meter service functions:

- turn-on and turn-off of customer meters in response to account changes, delinquent accounts, customer requests, or emergencies;

APPENDIX C

BASIC BILLING AND CUSTOMER

SERVICE PERFORMANCE STANDARDS

SECTION C.01. METER READING.

(A) All water meters shall be read on a monthly basis.

(B) Malfunctioning meters, visible leaks or damage to the meter or box shall be reported to the operation and maintenance provider for repairs.

(C) The Contractor shall enter the appropriate codes in the hand held meter reading devices to notify customer service personnel to issue work orders for repairs where needed (e.g., broken or obscured glass, box too high/low, broken lid, cannot find meter).

(D) The Contractor shall reread "suspected" erroneously read meters at the Contractor's earliest convenience. The Contractor shall provide an exception (hi-low audit) report on each business day for a previous days' reading. The Contractor shall review reports and select meters to be rechecked before billing.

(E) Meter readers are required to read every meter in the route. Any instances where a meter reader suspects an illegal hook-up should be reported immediately to the Contractor's office. If a meter is present, the Contractor will have a meter reader note the serial number and reading. Illegal hook-ups will be reported to the GUA for action.

(F) Normal hours of meter reading shall be Monday through Saturday, except GUA holidays, between 7 a.m. and 6 p.m. each day (unless mutually agreed upon between the GUA and the Contractor).

SECTION B.08 FULL TAP AND METERS AND A METER SETTING. The Contractor shall complete installation of a Full Tap and Meters and a Meter Setting requested by the GUA in a timely manner and in no event later than as follows:

(A) For meter installations where service is already in place, five (5) business days from the date of the installation or meter setting request.

(B) For Full Taps and Meter Settings where a permit from an outside agency is not required, fifteen (15) business days from the date of the installation or meter setting request.

(C) For Full Taps and Meter Settings where a permit from an outside agency is required, twenty (20) business days after the receipt of the permit.

(C) The Contractor shall timely, and properly, maintain and repair the wastewater collection and transmission facilities. The Contractor shall take all necessary measures to remedy conditions in the wastewater collection system facilities resulting from a main pipeline blockage and consequential surcharging of such pipelines or manholes and shall be responsible for clean up and abatement resulting from such conditions which occur within the wastewater collection system facilities.

SECTION B.07. COMPUTERIZED MAINTENANCE RECORDS.

The Contractor shall be responsible for performing routine, preventive, predictive, and corrective maintenance procedures of the Utility Facilities, all in a manner that assures the readiness and availability of equipment, processes, and systems on a consistent basis, and which ensures efficiency, long-term reliability, and conservation of the capital investment in the Utility Facilities. Such procedures shall include preventive maintenance and work order based corrective maintenance program components for the Utility Facilities and shall be capable of providing the following:

- maintain a record of repair and repair history for each piece of equipment or line section;
- schedule preventive and predictive maintenance;
- maintain records of routine transmission and distribution line repairs;
- maintain records of corrective maintenance;
- issue and monitor work orders;
- maintain a spare parts inventory; and
- issue equipment status and repair priority reports.

- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(8) Painting of all exposed equipment, and all exposed piping, on a five year rotation basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping on a three year rotating basis.

SECTION B.06. WASTEWATER COLLECTION SYSTEMS.

(A) The Contractor shall be responsible for procurement of all materials, supplies, chemicals and other consumables that may be necessary for proper operation, maintenance and repair of the system collection facilities (this requirement does not include a planned program of cleaning, television inspection and grouting) including the following:

- cleaning;
- flushing; and
- inspection of main pipelines and manholes.

(B) The Contractor shall respond to any wastewater collection system emergency including, but not limited to, pipeline blockage or potential thereof, or manhole surcharging as may reported by any source with the GUA's service area as soon as possible, but in any event, within two (2) hours of being notified or otherwise learning of such or related condition in the wastewater collection system.

- maintain the station's alarm lights, lights and replace bulbs as necessary;
- check the wet well levels for proper distance of pumping as necessary;
- check motor starter contacts twice annually;
- clean floats quarterly;
- remove debris from pumps and check valves as necessary;
- clean out pumps as required as necessary;
- exercise all station valves twice annually; and
- clean check valves as necessary as necessary.

(6) Supply all materials as needed for the preventative maintenance program in conformance with Section B.05(A)(5) herein.

(7) Repair and rehabilitate pump stations including, but not limited to, the following:

- repairing or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;
- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments.

(4) Monitor those wastewater pumping facilities which have the technology for such monitoring for the following parameters:

- pump running times;
- high water level in wet well;
- loss of electrical power; and
- thermal overload.

(5) The Contractor shall provide preventative maintenance service with respect to the wastewater pumping facilities including, but not limited to:

- regularly scheduled inspections;
- adjustment of electrical and mechanical equipment;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- change and maintain the oil level in pumps as specified by the Contractor;
- lubricate and clean air blowers weekly or as specified by the Contractor;
- poll the station on a scheduled basis by the telemetry system at five (5) minute increments;
- check pump running times twice weekly;
- clean "wet wells" quarterly or more often if needed;
- check remote telemetry units for proper operation daily;

- visual inspection of the hydrant;
- fire hydrant leak checks; and
- fire hydrant lubrication (outlet threads, cap threads and valve stem).

(B) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders such as line leaks, valve breads and damage to appurtenances relating to existing water services or the distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order, unless any delay beyond three (3) working days is due to unavailability of parts, in which case such work will be completed as soon as the parts are obtained.

(C) The Contractor shall respond to emergency conditions without a work order and within two (2) hours of being notified or otherwise learning of such emergency or any unforeseen combination of circumstances or the resulting state that reasonably call for immediate action.

SECTION B.04. STORAGE TANKS. The Contractor shall render preventative maintenance service to the GUA with respect to all the GUA storage tanks. Such preventative maintenance services, at a minimum shall consist of regularly scheduled inspections (inspections by the Contractor, not part of a planned, formal inspection program) and adjustment of electrical and mechanical equipment in each of the GUA's water storage tanks.

SECTION B.05. WASTEWATER PUMPING FACILITIES.

(A) Operate and maintain the wastewater pumping facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of lift or pumping stations for emergency conditions.

- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;
- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(5) The Contractor shall provide routine repairs to all equipment, including painting of all exposed equipment, and all exposed piping, on a five year rotating basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping.

SECTION B.03. WATER DISTRIBUTION SYSTEMS.

(A) The Contractor shall operate, maintain, and repair the water transmission, distribution piping, treated water storage, meters and other appurtenances including, but not limited to, the following:

- timely repair of any water main breaks, water main leaks;
- service line breaks;
- excavation, backfilling and compaction of such excavations in the course of performing work in the water distribution system;
- regular flushing of dead end system main lines;
- fire hydrant flow testing;

- check pump running times twice weekly;
- maintain the station's lights and replace bulbs as needed;
- check motor starter contacts twice annually;
- clean floats quarterly;
- maintain alarm lights and horns weekly;
- remove debris from pumps and check valves as required;
- lubricate pump and motor bearings as specified by the manufacturer;
- clean out pumps as required;
- exercise all station valves twice annually; and
- clean check valves as required.

(4) The Contractor shall repair pump stations and wells in order to maintain their integrity. Such activities to be performed or provided shall include, but not be limited to, the following Repairs, Replacements and Renewals:

- rebuilding or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;

- procure sludge removal services.

(B) Take immediate action to either prevent environmental incidents or dangerous situations, and endeavor to keep the number and duration of such incidents and situations to a minimum.

SECTION B.02. WATER PUMPING STATIONS AND WELLS.

(A) Operate and maintain the pumping stations and raw water supply well facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of pump stations and wells for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments. A list of activities to be performed at the following minimum intervals shall include, but not be limited to, the following:

- clean sump pumps as needed;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- check and clean filter elements for gas or diesel engines as specified by the Contractor;
- change and maintain the oil level in pumps as specified by the manufacturer;
- lubricate and clean air blowers weekly or as specified by the manufacturer;
- maintain proper belt tension weekly;
- poll the station on a scheduled basis by the telemetry system to the extent of the capability of said system at fifteen (15) minute increments;

APPENDIX B

OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

SECTION B.01. TREATMENT FACILITIES.

(A) Operate and maintain the water and wastewater treatment plant facilities, unit processes, and their respective appurtenances including, but not limited to, the following:

- control of treated water corrositivity within the limits of the existing treatment process;
- general housekeeping;
- grounds maintenance;
- maintain Supervisory Control And Data Acquisition (SCADA) system;
- issue public notices of non-compliance with drinking water standards resulting from acts or omissions of the Contractor. The GUA shall issue notices of non-compliance resulting from limitations of the treatment process or equipment failure;
- minimize the generation of noise and odors;
- assist the GUA's laboratory testing contractor with any sampling required by any regulatory agency, including well, soil and distribution system sampling;
- provide necessary coordination with the GUA's construction contractors, engineers, or other consultants or vendors for line tie-ins, process standards and connection of Capital Improvements to the Utility Facilities during Normal Business Hours;
- provide timely submittal of all monthly operating reports required by regulatory agencies;
- maintain equipment, pumps and motors similar to that required for pumping stations in sections B.02 and B.05; and

b. Collection system facilities:

(1) Collection and Interceptor Mains: Approximately 170,569 feet, 8"-18" in diameter, polyvinyl chloride, cast iron, and vitrified clay pipe, and appurtenances thereto.

(2) Force Mains: Approximately 25,996 feet, 2"-16" in diameter, cast iron and polyvinyl chloride pipe, and appurtenances thereto.

(3) Lift and Pumping Stations:
   (a) Master: 0
   (b) Other: 10

(4) Manholes: Approximately 729

**All statistics unless otherwise noted were taken from the 1997 Public service Commission Consolidated Annual Report.

APPENDIX A

DESCRIPTION OF UTILITY FACILITIES

The Utility Facilities consist of the following facilities located in Brevard County:

1. Water system facilities:

    a. Water supply and treatment facilities:

        (1) Water Treatment Plant
            (a) Supply: 8 wells and pumps
            (b) Treatment: Line softening, disinfection (chlorination), filtration
            (c) Treatment Capacity: 1.0 MGD
            (d) Storage:
                (i) 0.30 MG Steel Ground Storage Tank
                (ii) 0.005 MG Steel Hydro-Pneumatic Tank
            (e) High service pumps: 4

2. Wastewater facilities:

    a. Treatment facilities:

        (1) Wastewater Treatment Plant
            (a) Treatment: Activated sludge
                (I) Process: Influent screening, flow equalization, anoxic/aeration basins, secondary clarification, filtration, disinfection (dechlorination for surface water discharge), aerobic digestion of residuals
                (ii) Standard: Advanced
                (iii) Capacity: 0.750 MGD
            (b) Reclaimed Water Disposal: golf course irrigation/sod farm irrigation/spray irrigation/limited wet weather surface water discharge

LIST OF APPENDICES
BAREFOOT BAY SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

APP.

A. DESCRIPTION OF UTILITY FACILITIES

B. OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

C. BILLING, METER READING AND FIELD CUSTOMER SERVICE STANDARDS

D. INVENTORY

E. STAFFING

F. LABORATORY TESTING

G. REPORTS

H. SCHEDULE OF FIXED-FEES FOR ADDITIONAL SERVICES

I. SCHEDULE OF INSURANCE

not similar, unless otherwise expressly provided.

SECTION 6.15. ENTIRE AGREEMENT. This Agreement, including the referenced Appendices hereto, is the entire agreement between the parties and supersedes all prior and contemporaneous agreements, understandings, negotiations, and discussions of the agreements, understandings, negotiations, and discussions of the parties, whether oral or written, pertaining to the subject matter hereof. Upon execution by all parties, the GUA shall provide the Contractor three complete, certified copies of this Agreement, together with all appendices hereto. This Agreement shall be construed as solely for the benefit of the GUA and the Contractor, their successors and assigns, and no claim or cause of action shall accrue to or be for the benefit of any third party by reason of the execution of this Agreement.

IN WITNESS WHEREOF, the GUA and the Contractor have caused this Agreement to be duly executed and entered into on the date first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

EXHIBIT

By: Lealand Thomas
Its: Chairman

Attest:

EXHIBIT

AVATAR UTILITY SERVICES, INC.

EXHIBIT

By: Michael Murphy
Its: Treasurer

Attest:

EXHIBIT

by the proposed assignee of its general ability to perform the obligations of the Contractor under this Agreement, which consent shall not be unreasonably withheld. A consented to assignee shall be required to assume the obligations of the assigning party by written assignment in a form reasonably satisfactory to the GUA's attorney.

(B) Nothwithstanding the provisions of subsections (A) and (C) of this Section 6.13, the Contractor shall have the right to assign this Agreement to the following entities without the consent of the GUA: ST Environmental Services, Enron, OMI, United Water and AquaSource or their affiliates. Such assumption shall be effective upon giving twenty (20) days notice to the GUA and upon execution with such entity of a written assignment in a form satisfactory to the GUA's attorney by which such entity assumes all the obligations of the Contractor under this Agreement.

(C) Any assignment of this Agreement consented to by the GUA shall be an assignment of the Agreement in its entirety and the Basic Operation and Maintenance Service and the Basic Billing and Customer Service cannot be severed or assigned separately unless specifically consented to by the GUA; provided, however, this prohibition shall not apply to an affiliate of the Contractor if such separate assignment shall not, in the judgment of the GUA, interfere with the performance of the duties and the provision of the services provided in this Agreement.

(D) A transfer of a majority of the outstanding stock of the Contractor to another corporate entity or business enterprise shall be deemed an assignment of the Agreement requiring the consent of the GUA under this Section 6.13.

(E) Notwithstanding the provisions of subsection (C) of this Section 6.13, a transfer of the outstanding stock of the Contractor to an affiliated company within Avatar Holdings, Inc. shall not require the consent of the GUA under this Section 6.13.

SECTION 6.14. AMENDMENTS AND WAIVERS. No amendment, supplement, modification or waiver of this Agreement shall be binding upon any party hereto unless executed in writing by such party. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision of this Agreement, whether or

with a copy to:

Nabors, Giblin & Nickerson, P.A.
315 South Calhoun Street, Suite 800
Tallahassee, Florida 32301
Attention: Robert L. Nabors, Esq.

To Contractor:

Avatar Utility Services, Inc.
201 Alhambra Circle, 12th Floor
Coral Gables, Florida 33134
Attention: General Counsel

with a copy to:

Avatar Utility Services, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with another copy to:

Greenberg Traurig, P.A.
777 South Flagler Drive, Suite 300E
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan, Esq.

(B) Any written notice given to one person in subsection (A) of this section shall also be provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or five (5) days after the date mailed.

SECTION 6.13. ASSIGNMENT.

(A) The Contractor shall not have the right to assign any of its rights, duties or obligations under this Agreement without the consent of the GUA Board upon a demonstration

(B) The GUA shall respond to the Contractor in writing within thirty (30) days of receipt of the notice by the Contractor of an actual or potential conflict of interest. If the GUA determines the prospective business association, interest or circumstance does not appear to constitute a conflict of interest by the Contractor, the GUA shall so state in the response and the Contractor may, at its option, enter into said association, interest or circumstance and it shall be deemed not in conflict of interest with respect to Utility Services provided by the Contractor.

SECTION 6.10. RIGHT TO ENTER AND INSPECT. At all times the GUA and the General Manager or its representatives or agents shall have the right, but not the duty, to enter upon the Utility Facilities to inspect and observe the performance or provision of the Utility Services.

SECTION 6.11. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Agreement shall be governed by and construed in accordance with the laws of the State.

(B) The parties to this Agreement expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State, whether state, local or federal, and further agree that venue shall lie in Brevard County, Florida.

SECTION 6.12. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, to the parties at the following addresses:

To the GUA:

Government Services Group, Inc.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Robert Sheets

SECTION 6.08. MODIFICATION OF SCOPE OF SERVICES.

(A) The GUA shall at all times during the term of this Agreement have the right to request unilateral changes in the scope of services, including alterations, reductions therein or additions thereto. Upon receipt by the Contractor of the GUA's notification of the contemplated change, the Contractor, shall in writing: (1) timely provide a detailed estimate for the increase or decrease in cost due to the contemplated change, (2) notify the GUA of any changes in work schedules, (3) advise the GUA if the contemplated change shall affect the Contractor's ability to perform or provide the Utility Services in a manner consistent with the requirements and performance standards incorporated into this Agreement, and (4) advise the GUA if the contemplated change is within the capabilities of the Contractor.

(B) If the GUA so instructs in writing, the Contractor shall suspend work on that portion of the Utility Services affected by the contemplated change, pending the GUA's decision to proceed with the change.

(C) If the GUA elects to make a change in this Agreement, the GUA shall initiate an amendment to this Agreement, and the Contractor shall not commence work on any such change until such written amendment is agreed to and signed by the Contractor and the GUA Representative.

SECTION 6.09. CONFLICTS.

(A) The Contractor represents that it has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance or provision of the Utility Services. The Contractor shall promptly notify the GUA Representative of all potential conflicts of interest for any prospective business association, interest or other circumstance which may influence or appear to influence the Contractor's judgment or quality of the Utility Services to be provided under this Agreement. Such notification shall be in writing and identify the prospective business association, interest or circumstance, the nature of the work the Contractor may undertake and request a determination from the GUA, as to whether the association, interest or circumstance would, in the opinion of the GUA, constitute a conflict of interest if entered into by the Contractor.

the contracting party agrees to hold harmless and to defend the other party, its agents and employees from all suits and actions, including attorney's fees, and all costs of litigation and judgments of any name and description arising out of or incidental to the performance of the construction contract or work performed for the Utility Facilities.

(C) The Contractor shall be liable for any fines or civil penalties which may be imposed by any governmental or quasi-governmental agencies or bodies for violations of the effluent guarantees specified herein arising out of, or resulting from the negligent performance of its duties and obligations under this Agreement, including without limitation, negligent acts and omissions of the Contractor, its employees, agents, officers and subcontractors. The GUA will assist the Contractor in any contest of any such fines or civil penalties in administrative or court proceedings. The Contractor shall pay such fines or civil penalties prior to such protest if such payment is required prior to making such protest. The Contractor shall be solely responsible for all costs, including attorney's and accountants' fees, of protesting any such fines or civil penalties. The Contractor shall not be responsible for any fines or civil penalties due to proceedings concluded prior to execution of this Agreement unless such fines or civil penalties are the direct result of an act or omission of the Contractor pursuant to the terms hereof. Notwithstanding the above, the Contractor shall not be liable for fines, civil penalties and judgments or for defending against same, arising from structural and design defects and deficiencies in the Utility Facilities or the capacity limitations of the Utility Facilities for which the Contractor is not responsible for correcting or remedying under this Agreement.

(E) The GUA shall secure and maintain at its expense property damage insurance for the Utility Facilities.

SECTION 6.06. NOTICE OF CLAIMS. The Contractor shall notify in writing the GUA Representative of all incidents, events or injuries which the Contractor reasonably believes may result in a claim of fifty thousand dollars ($50,000.00) or more, arising out of the Contractor's performance under this Agreement, including, but not limited to, claims relating to workplace injuries. The Contractor shall notify the GUA of any claim established and accepted as a liability under its commercial insurance or self insurance which is paid in an amount equal to or greater than fifty thousand dollars ($50,000.00). The Contractor shall notify the GUA of any death arising out of the Contractor's performance under this Agreement. The Contractor shall notify the GUA of any and all events, accidents, injuries, incidents, suits or claims which name or otherwise may involve or create a liability for the GUA or result from the provision by the Contractor of the Utility Services, including by way of example and not limitation, any events involving pollution at, on, or near the Utility Facilities. The obligation of the Contractor to report under this Section 6.06 is subject to any confidentiality agreement relating to any claim. All notices required under this Section 6.06 shall be provided promptly and within forty eight (48) hours of the Contractor learning of same.

SECTION 6.07. INDEMNIFICATION AND PENALTIES.

(A) Each party shall protect, defend, indemnify and hold the other party and its officers, employees and agents harmless from and against any and all liabilities, claims, losses, and expenses, including attorney's fees and all costs of litigation and judgments arising out of any willful misconduct or negligent act, error or omission of that party, its subcontractors, agents or employees, arising out of or incidental to the performance of this Agreement. This indemnification shall also pertain to any claims brought against a party by the other party, its officers, employees or agents, or any subcontractor, or anyone directly or indirectly employed by any of them.

(B) Each party acknowledges that the general conditions of any construction or subcontractor contract shall include language, satisfactory to the other party's attorney, in which

properly executed certificates of insurance supplied by the Contractor. Policies of insurance shall be with carriers admitted to do business in the State of Florida. Carriers shall be "A" rated and have a financial rating size of "IX" or better, according to the A.M. Best Key Rating Guide. All certificates of insurance shall reflect thirty (30) days' notice of any cancellation, change or reduction in insurance coverage. All properly executed certificates of insurance shall be received and approved by the GUA prior to the Commencement Date. On renewal at the end of each policy term, properly executed certificates of insurance must be delivered to the GUA at least thirty (30) days before expiration of the insurance policies for review and approval so that there will be no interruption in the Contractor's provision of Utility Services under this Agreement due to the lack of proof of insurance.

(C) To the extent not otherwise stated herein, and in addition to any other requirements set forth herein, the Contractor shall operate and maintain the Utility Facilities in accordance with the following laws and regulations, as applicable:

(1) Chapter 440, Florida Statutes, Workers' Compensation Law, as amended;

(2) Florida Administrative Code Chapters 38F and 38I, as amended, relating to Workers' Compensation;

(3) 29 Code of Federal Regulations 1910 and 29 Code of Federal Regulations 1926, Occupational Safety and Health Act, General Industrial Standards and Construction Industrial Standards, respectively; and

(4) the Florida Toxic Substances Act.

(D) Should the Contractor at any time fail to maintain the insurance coverages required in this Section 6.05, the GUA, at its discretion, shall be authorized to purchase such coverages and charge the Contractor for such coverages purchased or deduct such cost from the monthly payment due for the Basic Operation and Maintenance Service Fee. The GUA shall be under no obligation to purchase such insurance or to be responsible for the coverages purchased or the financial stability of the insurance companies used and failure of the GUA to purchase such insurance shall not lessen or release the Contractor of its obligations as provided in this Section 6.05.

personal vehicles are used for GUA purposes.

SECTION 6.03. AUTHORITY TO PERFORM. The Contractor shall continuously maintain at all material times all Permits, licenses and approvals required under the Applicable Law to provide the Utility Services. Proof of all such Permits, licenses and approvals shall be submitted to the GUA Representative at least annually and upon request.

SECTION 6.04. ACCESS AND AUDITS. The Contractor shall maintain adequate records to justify all charges, expenses and costs incurred in estimating and performing the Utility Services for at least two (2) years after the termination of this Agreement. The GUA, the General Manager or their contracted representatives shall have access to such books, records and documents as required for the purpose of inspection or audit, during Normal Business Hours, at the place of business of the Contractor within the State. The Contractor shall be subject to an annual independent financial and performance audit on its performance and provision of the Utility Services under this Agreement. Any such audit shall be undertaken by an auditor or auditors selected and paid for by the GUA.

SECTION 6.05. GENERAL INSURANCE REQUIREMENTS.

(A) The Contractor shall purchase at its cost and maintain at all times the insurance coverages listed in Appendix I with insurance companies acceptable to the GUA for limits of liability not less than the amount stated for each coverage in Appendix I.

(B) The GUA and the General Manager are to be additional insureds under the Commercial General Liability and Contractor's Pollution Liability Insurance policies with the Severability of Interest Provision applicable to each policy. If requested by the GUA, the Contractor shall promptly revise the insurance policies to include other local governments using or acquiring the Utility Facilities as additional insureds. All liability insurance shall be on an "occurrence form," except Miscellaneous Errors and Omissions policies and Contractor's Pollution Liability policies, which shall be on a "claims made" form. Each policy shall provide that the Contractor's coverage is primary to any insurance or self-insurance program of the GUA and that the GUA shall not be directly responsible for the payment of any insurance premium due the insurance companies. The insurance coverages and limits required must be evidenced by

Services; or

(3) the amount of compensation the GUA is obligated or committed to pay the Contractor under this Agreement.

SECTION 6.02. MANNER OF PERFORMANCE.

(A) The Contractor is, and shall be, in the performance of all Utility Services, an independent contractor, and not an employee or agent of the GUA or the General Manager. All persons engaged in the performance or provision of Utility Services shall at all times, and in all places, be subject to the Contractor's sole direction, supervision, and control. The Contractor shall exercise control over all the means and manner in which it and its employees perform or provide the Utility Services.

(B) The Contractor represents that it has, or will secure at its own expense, all necessary personnel required to perform the Utility Services under this Agreement. Personnel of the Contractor shall not be employees of or have any contractual relationship with the GUA or the General Manager, nor shall such personnel or employee of the Contractor be entitled to any benefits of the GUA or the General Manager including, by way of example and not limitation, pension, health and worker's compensation benefits.

(C) All of the services required hereunder shall be performed by the Contractor or under its supervision, and all personnel, employees and subcontractors engaged in performing the Utility Services shall be fully qualified and, if required, authorized or permitted under State and local law to perform the Utility Services undertaken.

(D) The GUA shall at all times comply with the provisions of the Public Records Law, Chapter 119, Florida Statutes.

(E) The Contractor, at its sole expense, shall correct or replace any defective or faulty work.

(F) All non-supervisory employees of the Contractor assigned to the field will shall be required to wear at all times a uniform and identification badge.

(G) The Contractor is responsible for checking its employees for proof of a valid Florida driver's license and insurance a minimum of twice annually in those cases where

to original condition (ordinary wear and tear excepted) any portions of the Utility Facilities that were altered or changed by the Contractor without the GUA's approval.

ARTICLE VI

GENERAL PROVISIONS

SECTION 6.01. DESIGNATION OF GUA REPRESENTATIVE.

(A) The GUA shall designate in writing a GUA Representative to act on its behalf with respect to the Utility Services to be rendered under this Agreement. The GUA Representative may be a designated employee of the General Manager. The Contractor shall be entitled to rely upon any written notice of change of the designated GUA Representative.

(B) The GUA Representative shall have the following responsibilities:

(1) Review and make appropriate recommendations on all requests submitted by the Contractor for payment for services and work provided and performed in accordance with this Agreement.

(2) Provide all criteria and information requested by the Contractor as to the requirements of the GUA for the Utility Services.

(3) Upon request from the Contractor, assist the Contractor by placing at its disposal all available information in the possession of the GUA pertinent to the Utility Services, including by way of example and not limitation, existing drawings, specifications, shop drawings, public literature, previous reports and any other data relative to the provision of the Utility Services of the maintenance, construction, acquisition or improvement of the Utility Facilities.

(4) Provide notice to the Contractor of any deficiencies or defects discovered by the GUA with respect to the services to be rendered by the Contractor under this Agreement.

(C) The GUA Representative is not authorized to issue any verbal or written orders or instructions to the Contractor that would have the effect, or be interpreted to have the effect, of modifying or changing in any way:

(1) the scope of the Utility Services to be provided and performed by the Contractor under this Agreement;

(2) the time the Contractor is obligated to commence and complete all Utility

have been fulfilled.

(H) The fees, charges and expenses of the arbitrators, any experts engaged by the arbitrators, the respective counsel engaged by the parties, and any witnesses called by the parties shall be paid as follows:

(1) If the arbitrators determine that the disputed issues raised or objected to by the Contractor are justified and appropriate, the GUA shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of Contractor's counsel and any witnesses called by the Contractor.

(2) If the arbitrators determine that the disputed issues raised or objected to by the GUA are justified and appropriate, the Contractor shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of the GUA's counsel and any witnesses called by the GUA.

(3) If the determination of the arbitrators does not fall within the parameters of (H)(1) or (H)(2) above, the arbitrators shall order each party to pay their own fees, charges and expenses and, in the sound discretion of the arbitrators, assess the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators between the parties.

(I) The provisions of the Florida Arbitration Code, Chapter 682, Florida Statutes, and the Florida Evidence Code, Chapter 90, Florida Statutes, except to the extent inconsistent with the provisions of this Agreement, shall specifically be deemed to apply to any arbitration proceeding conducted hereunder. Unless the venue is mutually agreed upon otherwise by the parties, the venue for any arbitration commenced pursuant to this Section shall be in Brevard County, Florida.

SECTION 5.07. VACATING THE PREMISES. Upon vacating the Utility Facilities, the Contractor shall leave all sites, structures, equipment, and improvements in good condition. The Contractor shall properly dispose of any accumulations of waste materials, rubbish, and other debris resulting from the Contractor's activities. The Contractor shall restore

Contractor fails to appoint an arbitrator within forty (40) days from the date one of the parties has notified the other of the existence of a dispute, then an arbitrator shall be appointed by the American Arbitration Association from its qualified panel of arbitrators as the appointment of the party failing to timely appoint and the two so appointed shall appoint a third arbitrator to chair the panel. The party on whose behalf an arbitrator is appointed shall have the right to veto up to two of the arbitrators appointed by the American Arbitration Association.

(3) Nothing in this Section 5.06 shall preclude the parties from mutually agreeing to a single arbitrator to resolve the dispute.

(4) No arbitrator shall have a business or other pecuniary relationship with either party, except for payment of arbitrator's fees and expenses without the written consent of both parties.

(E) Arbitrators shall be sworn to perform their duties with impartiality and fidelity. In rendering any decision, the arbitrator shall proceed to consider the Agreement, the dispute identified in the notice and any response and the actions taken and the documentation thereof, conduct, and relative position, knowledge, and the ability of the parties in relation to the dispute.

(F) The arbitration hearing shall convene not earlier than sixty (60) days and not later than one hundred eighty (180) days of the acceptance of appointment of all of the arbitrators chosen by the parties unless the GUA and the Contractor mutually agree to an earlier date. The arbitrators shall render a decision within ten (10) business days of the date on which the arbitration hearing concludes, and such decisions shall be in writing and in duplicate, one counterpart thereof to be delivered simultaneously to each of the parties. The decision shall contain findings of fact and conclusions of law and shall be final and binding upon the GUA and the Contractor.

(G) The arbitrators may at their discretion, and shall upon written request of the Contractor or the GUA, engage experts to provide peer review of any technical, engineering, or scientific issues introduced by the parties. The parties shall be entitled to discovery pursuant to the Florida Rules of Civil Procedure. All discovery requests by a party shall be enforced by the arbitrators. The arbitration hearing shall not proceed until all outstanding discovery requests

(2) as soon as practical, but in no event more than five (5) business days thereafter, prepare and deliver to the other party a notice with a written description of (a) the commencement of the Uncontrollable Circumstance; (b) its estimated duration and cost impact, if any, on the party's obligations under this Agreement; and (c) its estimated impact (other than cost), if any, on the party's obligations under this Agreement.

SECTION 5.06. DISPUTE RESOLUTION.

(A) Notwithstanding any other provision in this Agreement, any dispute among the parties which arises from the Agreement shall be resolved by binding arbitration conducted in accordance with this Section 5.06. Either party may initiate the dispute resolution process by providing written notice to the other party.

(B) After transmittal and receipt of a written notice specifying the area or areas of disagreement or dispute, the parties agree to meet at reasonable times and places, as mutually agreed upon, to discuss the issues.

(C) If discussions between the parties fail to resolve the dispute within fifteen (15) business days of the receipt by each party of the notice described in subsection (A) of this Section 5.06, a binding arbitration may then be initiated by either party by written notification to the other party of the existence of a dispute. Any and all issues related to the matter addressed by the written notice provided in subsection (A) of Section 5.06 or any response by the other party shall be raised and resolved in a single proceeding.

(D) The arbitrators shall be appointed and act as follows:

(1) The GUA and the Contractor shall each appoint a person as arbitrator within thirty (30) days of the date one of the parties has notified the other of the existence of a dispute.

(2) Each appointment shall be signified in writing to the counter party and the arbitrators so appointed, within ten (10) days of their acceptance of appointment, shall appoint a third arbitrator, who shall chair the panel. If the arbitrators appointed by the parties are unable to agree upon a third arbitrator, the same shall be appointed by the American Arbitration Association from its qualified panel of arbitrators. Each party shall have the right to veto up to two appointments proposed by the American Arbitration Association. If either the GUA or the

notice within forty eight (48) hours followed by written notice within five (5) business days after the occurrence of the emergency, if the Contractor believes that any significant changes in the scope of services provided in this Agreement is required and merited. If the GUA determines that a modification of the compensation or scope of services is required because of the action taken in response to an emergency, an amendment shall be issued to document the consequences of the changes or variations. If the Contractor fails to provide such written notice to the GUA Representative within the forty eight (48) hour period, the Contractor shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the compensation or scope of service provided under this Agreement.

SECTION 5.04. EMERGENCY REPLACEMENT OF CONTRACTOR. In the event of any emergency condition involving the Utility Facilities which is found by the GUA to present a significant, immediate danger to public health, whether the cause of the Contractor or otherwise, and the Contractor is either unable or unwilling to correct such condition, the GUA may replace the Contractor without notice during the emergency condition, provided that at the conclusion of any such condition, the Contractor shall be reinstated by the GUA. Provided further, however, the GUA shall not be obligated to reinstate the Contractor at the conclusion of the emergency condition and may terminate this Agreement if the Contractor's inability or unwillingness to correct such condition itself constitutes grounds for termination of this Agreement or the Contractor is otherwise in default as provided in Section 5.02. The Contractor shall not be entitled to any compensation after the date upon which the GUA replaces the Contractor under this Section 5.04.

SECTION 5.05. OBLIGATIONS EXCUSED.

(A) Notwithstanding any other provision in this Agreement, neither the GUA nor the Contractor shall be liable to the other for any failure or delay in performance of any obligation under this Agreement due to the occurrence of an Uncontrollable Circumstance.

(B) As a condition precedent to the right to claim excuse of performance, the party experiencing an Uncontrollable Circumstance shall:

(1) promptly notify the other party verbally; and

(B) The events by which the Contractor shall be deemed to have failed to fulfill a material obligation of this Agreement shall include, by way of example and not limitation, the following:

(1) failing to begin an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(2) discontinuing prosecution of an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(3) failing to comply with any Applicable Law, whether willfully or negligently;

(4) breaching any material warranty or making any representation in this Agreement that is materially untrue;

(5) failing to pay, when due, any sums owed to a subcontractor for services or materials in a manner approved by the GUA; or

(6) failing to perform the Basic Operation and Maintenance Service or the Basic Billing and Customer Service in a manner consistent with the performance standards or other requirements established or incorporated in this Agreement.

(C) Each of the following also shall be deemed an event of default: (1) written admission by a party that it is bankrupt; (2) filing by a party of a voluntary petition for bankruptcy; (3) consent by a party to the court appointment of a receiver or trustee for all or a substantial portion of its property or business; (4) the making of any arrangement by a party with, or for the benefit of, its creditors or assigning to a trustee, receiver, or similar functionary (regardless of how designated) of all or a substantial portion of a party's property or business; (5) becoming insolvent; or (6) final adjudication of a party as bankrupt under the Federal Bankruptcy Act.

SECTION 5.03. EMERGENCIES. In the event of an emergency affecting the safety or protection of persons, the Utility Facilities, or property adjacent thereto, or to avoid imminent environmental contamination, the Contractor, without special instruction or authorization from the GUA Representative or the General Manager is obligated to act to prevent such threatened damage, injury or loss. The Contractor shall give the GUA Representative oral

separate from bill - $0.447 per notice plus postage.

SECTION 4.11. PAYMENT OF BASIC BILLING AND CUSTOMER SERVICE FEE. The Basic Billing and Customer Service Fee shall be paid in twelve (12) equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. For the first month in which the Commencement Date occurs, the Basic Billing and Customer Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 4.12. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's itemized invoice consistent with the authorizations received from the GUA. The Contractor shall document all such fees for Additional Services.

ARTICLE V

TERMS AND TERMINATION

SECTION 5.01. TERM OF AGREEMENT. The initial term of this Agreement shall commence on the Commencement Date and shall expire on May 31, 2000. The initial term of this Agreement may be extended for an additional term of five 5 years upon the mutual agreement of the parties.

SECTION 5.02. DEFAULT.

(A) An event of default occurs if the persistent, repeated, or substantial failure or refusal by either the GUA or the Contractor to substantially fulfill any of its material obligations in accordance with this Agreement, provided, however, that no such event shall constitute a default unless and until:

(1) the non-defaulting party has given written notice to the defaulting party that a default or defaults exist which will, unless corrected, constitute an event of default on the part of the defaulting party; and

(2) the defaulting party either has not corrected such default, or has not initiated reasonable steps expeditiously to correct such default within five (5) days from the date of such written notice.

SECTION 4.09. BASIC BILLING AND CUSTOMER SERVICE FEE. For the provision of the Basic Billing and Customer Service, the Contractor shall be paid a fixed annual price of two hundred thirty one thousand seven hundred fifty dollars ($231,750.00).

SECTION 4.10. PAYMENT FOR ADDITIONAL SERVICES. For Additional Services not included in the Basic Billing and Customer Service Fee, the Contractor shall be compensated as follows:

(A) Customer service activation (turn-on) occurring other than Normal Business Hours – thirty five dollars ($35.00) per activation.

(B) Make changes in the customer service record format and other changes to customer records, billing and remittance format requested by the GUA – eighty five dollars ($85.00) per hour of programmer time.

(C) Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor for implementation – eighty five dollars ($85.00) per hour of programmer time.

(D) Insert single-page "bill stuffers" (not larger than 8.5" x 11") with customer bill form - $0.035 per bill plus any additional postage required.

(E) Print mailing labels from the GUA's master customer records - $0.069 per label.

(F) Change customer bill form format – eighty five dollars ($85.00) per hour of programmer time plus the Contractor's cost of unused bill forms on hand.

(G) Prepare rate analysis reports using historical usage information to analyze past periods of one to twenty four (1-24) months and consolidate totals by rate class and meter size - $0.08 per customer account ($150.00 minimum).

(H) Produce billing registers with proposed rates for comparison with current rates - $0.18 per customer account plus a set-up charge of $170.00.

(I) Change customer rates and charges - eighty five dollars ($85.00) per hour of programmer time.

(J) Special computer programming – eighty five dollars ($85.00) per hour of programmer time.

(K) Mail single-page (8.5" x 11") special customer notices in envelopes to customers

(E) The Contractor shall provide for walk-in customer service, for setting up temporary meters, or for the collection of fees charged for tapping and connection based on GUA tariffs. In addition to the receipt of payment at the customer service center, the Contractor shall process payments transmitted by mail.

SECTION 4.07. FIELD CUSTOMER SERVICE. The Contractor shall provide field customer service by qualified personnel consistent with the Basic Billing and Customer Service Performance Standards. Customer service provided in the field shall include, by way of example and not limitation, activation and termination of service during the hours on the days when the customer service center is open and the investigation of customer problem reports. Customer service activation (turn-on) occurring other than Normal Business Hours will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.08. REMITTANCE OF FUNDS TO TRUSTEE.

(A) All receipts will be combined daily for deposit to the GUA's designated bank account. These moneys will be deposited within twenty four (24) hours of receipt except for legal holidays, weekends, and disasters beyond the control of the Contractor.

(B) A report by facility of daily receipts will be provided by FAX or electronically to the GUA and the Trustee for verification of deposits made to the GUA account. Such report shall identify receipts by water connection fees, wastewater connection fees, customer deposits, such other receipts or revenues required to be segregated by the GUA and all other receipts. Any discrepancies shall be reported and responded to within forty eight (48) hours.

(C) Mail-in payments must be addressed and be in an acceptable format to the GUA's lock box provider. A computer file containing details of the lock box receipts shall be provided via modem or tape to the Contractor to be used to update customers' accounts.

(D) Any mail-in receipts not provided in accordance with or acceptable to the GUA's lock box provider's specifications shall be considered rejected and must be processed by the Contractor's cashiers in a manner similar to any mail-in receipts that do not go directly to the GUA's lock box provider.

can be moved only with the consent of the GUA, which consent shall not be unreasonably withheld. Should the location of the customer service center be relocated at the request of the GUA, the Contractor shall be compensated the full cost of such relocation as an additional fee not included in the Basic Billing and Customer Service Fee. The customer service center shall be:

(1) open to the public during Normal Business Hours;

(2) during periods when the customer service center is not open, the center shall be equipped with an answering service to take incoming calls or otherwise direct incoming calls to a staffed location; and

(3) staffed with sufficient personnel to take customer and emergency calls, process and dispatch customer service and other work orders, accept customer payments, and process changes to customer accounts.

(B) The Contractor shall respond in a timely manner to all customer inquiries including, by way of example and not limitation, bill inquiries and inquiries pertaining to service initiation and termination, and reports of water breaks, low water pressure, water quality concerns, odors and wastewater discharge. The Contractor's customer service personnel shall also be prepared to answer commonly asked questions without referral to other personnel. Commonly asked questions include, by way of example and not limitation, typical annual usage, account balance, how a bill was calculated, last payment and date, when the last bill was issued, detailed and summary information concerning the customer's account for the current year or within a two (2) year history, the due dates, and mailing and service address.

(C) The Contractor shall be responsible for answering questions regarding delinquent account information. It shall be the responsibility of the Contractor's customer service personnel to respond to these questions and respond how to rectify the delinquent situation.

(D) The Contractor shall be responsible for setting up new accounts, computing necessary deposits in accordance with GUA tariffs, closing accounts, and relaying this information to the General Manager. The Contractor shall immediately enter this information into the Contractor's computer system and verify it for quality assurance.

accounts contain information relative to special health or guardianship circumstances. The Contractor will determine if there is a valid reason why a bill is unpaid, including by way of example and not limitation, a dispute, a lost bill, vacancy, or change of accounts, and allow a maximum of five (5) business days for the delinquency situation to be corrected by the customer before the Contractor proceeds with discontinuance of service.

(3) If a customer disputes the billed amount and provides the Contractor written notice of the dispute, the Contractor shall hold in abeyance for a maximum of thirty (30) days any discontinuance of service until the dispute has been investigated and resolved. If the dispute has not been resolved and the account remains delinquent for more than thirty (30) days after the customer provides written notice to the Contractor of the dispute, a work order will be issued to discontinue service.

(E) The Contractor shall make reasonable efforts to collect all utility revenues, in an efficient manner, with due consideration to customers, without jeopardizing revenue collections and consistent with the applicable covenants under the indenture applicable to any outstanding bonds.

(F) Whenever customers raise questions, point out billing errors, express concerns, or otherwise dispute any bill, the Contractor shall attempt to resolve them in an expeditious manner. If a resolution requires additional research to respond to a customer's dispute, the Contractor will document each stage of the dispute process and prepare a written record of all customer reports indicating the reporting party, address, nature of the problem, action taken by the Contractor and the final resolution shall be maintained by the Contractor and a copy provided to the GUA Representative. If customer service personnel are working with a customer they must report that fact to field service personnel so that customers will not experience discontinuance of service before dispute resolution.

SECTION 4.06. TELEPHONE AND WALK-IN CUSTOMER SERVICE; REMITTANCE PROCESSING.

(A) The Contractor shall maintain a customer service center at 931 Barefoot Boulevard, Suite 2, Barefoot Bay, Florida 32976. The location of the customer service center

Contractor for an additional fee not included in the Basic Billing and Customer Service Fee, by way of example and not limitation, shall include water revenues, wastewater revenues, special assessment revenues, connection fee revenues, reuse revenues, and revenues from any other fees approved by the GUA. All revenue reports should list year-to-date totals and compare revenue to the prior year.

SECTION 4.04. BASIC BILLING AND CUSTOMER SERVICE REPORTS. The Contractor shall timely prepare and provide the reports listed in Appendix G. Such reports and all other required reports and information provided to the General Manager and the Trustee shall be available in ASCII format and by electronic means capable of remote access by the General Manager and the Trustee.

SECTION 4.05. GENERAL CUSTOMER SERVICE RESPONSIBILITY OF THE CONTRACTOR . To satisfy the customer service objectives of the GUA as stated in the preamble to this Agreement, the following general customer services shall be required of and timely provided by the Contractor.

(A) The Contractor shall be responsible for the accuracy of all customer information such as deposits, new accounts, file information, and changes to accounts and charges.

(B) Customer accounts shall be closed and finaled upon the request of the customer. No customer account shall be deleted until a new account with a deposit is opened. A work order to discontinue service may be issued to eliminate delinquent customer usage charges.

(C) If at any time a customer account is opened or a meter set without a deposit, the Contractor will notify a field service representative to issue notice to the property that service will be terminated within five (5) business days unless a deposit is provided.

(D) The Contractor shall be responsible for the initial enforcement of delinquent customer accounts including the following:

(1) The Contractor shall be responsible for delivering delinquent notices to each individual customer via the U. S. Postal Service and, if necessary, to issue any work orders for discontinuance of service.

(2) The Contractor shall be responsible for contacting those customers whose

(A) The Contractor shall maintain, on its own computer system, the master customer records of the Barefoot Bay System. This information shall be made available to the General Manager and the Trustee via modem. In addition, the Contractor shall transfer data on a daily basis to the computer systems of the General Manager and the Trustee to the extent that said computer systems are compatible with the Contractor's computer system. The GUA may bill water and wastewater charges and other fees and assessments as separate items on the bills. The Contractor must provide an itemized bill in the same manner currently used. The addition of other fees or assessments, changes in the bill format and bill printing programs in the Contractor's utility billing system are not included in the Basic Billing and Customer Service Fee.

(B) All date-related data shall be formatted as required by the General Manager and shall contain no ambiguous references with respect to century.

(C) The Contractor shall provide the ability within software, to provide the following services:

(1) deposit report - a report that shows all customer deposits including options providing a range of deposit dates and status of refundable accounts;

(2) rate changes - changes to rates and charges applicable to customer billing approved by the GUA will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee;

(3) customer message - adding or changing a special "customer message" on the customer bill form as requested by the General Manager. Such messages shall be limited to four (4) lines of text; and

(4) mailing labels - the Contractor will provide mailing labels from the GUA's master customer records upon request for selected zip codes or class of customer for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall develop necessary special programming and controls that show customer accounts on a billed versus collected basis and provide a percentage of collection on each of the items. Such special programming and controls which will be provided by the

included in the Basic Billing and Customer Service Fee.

(B) The Contractor shall undertake and perform all billing services required to timely and regularly process customer utility bills. Such billing services shall include, by way of example and not limitation, the following:

(1) create a working file of prepared meter readings formatted for the billing system;

(2) review notes or trouble codes from meter readers and issue appropriate work orders to rectify problems;

(3) follow up on notices (e.g., apparent leaks, reasons for high usage, inaccessible meters, broken register, vacant houses, stuck meters) left by meter readers to the customers or owners;

(4) produce consumption reports for the billing process and analyze unusual usage or stuck meters; issue work orders and contact customers as appropriate;

(5) produce a billing from consumption reports, and review the billing for appropriateness of charges and suspected errors;

(6) develop quality assurance procedures to insure, by sample testing and review, the accuracy of bills on a periodic basis;

(7) work with the operation and maintenance field service personnel in verifying any unusual situations found in the billing process that are related to meter or meter reading problems;

(8) issue work orders designed to clarify questions raised during the billing process and categorize and analyze work orders and make recommendations as to how to minimize work orders and gain efficiencies;

(9) mail single page (8.5" x 11") special notices in envelopes to customers separate from the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee; and

(10) insert single page "bill stuffers"(not larger than 8.5" x 11") with the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.03. COMPUTER PROCESSING AND RELATED SERVICES.

(1) interface for on-line hookup by the General Manager;

(2) read only access by the General Manager to all functions of the billing system as determined by security clearance;

(3) provide multiple-line transaction history showing a running account balance;

(4) ability to extract information as requested by the General Manager, including date-specific information;

(5) ability to regularly generate user-specifiable reports including, by way of example and not limitation, billing summary, trial balance, aged trial balance (by date), and transaction audit controls;

(6) ability to review customer charges and payments by account;

(7) ability to review billing history by account;

(8) ability to review usage history by customer account or meter number;

(9) ability to review utility billing system work order status;

(10) ability to review turn on and off history by account;

(11) ability to review customer information by account; and

(12) search by customer number, customer name, meter number and street address.

(F) The Contractor shall provide a business recovery functions plan to the GUA which shall include, by way of example and not limitation, daily off-site storage of all transactions.

SECTION 4.02. PROCESSING UTILITY BILLS; PROBLEM RESOLUTION.

(A) The Contractor shall compose, prepare, print (laser) customer bills, on a single (8.5" x 11") one-colored page bill form prescribed by the GUA, and mail customer bills monthly. Customer bills shall be prepared in such cycles as mutually agreed by the Contractor and the GUA. The cost of first class postage for customer bills shall be at the expense of the Contractor. Any billing error or omission, whether human or mechanical, on the part of the Contractor shall be corrected at no cost to the GUA. Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor by the GUA will be provided for an additional fee not

(1) process billing on a monthly basis;

(2) process billing dollar amounts up to $999,999.99;

(3) process multiple meters for each service address with different rate schedules for each meter;

(4) update the rate schedule by date and have the ability to use two different rate schedules within a single billing period;

(5) apply rates as a flat amount or based on usage;

(6) generate delinquent notices prior to a turn-off;

(7) accept a GUA-specified dollar threshold for delinquent mailers;

(8) track turnoffs and delinquency by account;

(9) make adjustments or error corrections;

(10) post messages on bills as requested by the GUA;

(11) provide aging information to the GUA to assist with the GUA's determination of when a lien should be applied to an account; and

(12) make GUA-requested changes to the customer service record format or changes to the billing and remittance processing procedures or programs for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall have the capability to provide the requested data to the GUA in ASCII format. Said interface shall include, but not be limited to:

(1) automated extraction of ledger entry information from monthly billings, final billings and adjustments based on transaction codes in the rate schedule; and

(2) automated extraction of customer information for refunds of deposits or after final billings.

(E) The billing system employed and used by the Contractor shall contain the capacity to allow read only access to customer accounts by the General Manager via on-line access. The GUA shall be responsible for all costs associated with its on-line access including communications link, special hardware and software. Such on-line access shall include, by way of example and not limitation, the following:

SECTION 3.08. PAYMENT OF BASIC OPERATION AND MAINTENANCE SERVICE FEE. The Basic Operation and Maintenance Service Fee shall be paid by the GUA in twelve equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. The Contractor shall submit a separate itemized invoice and supporting documentation for the Contractor's Material, Supply and Plant Equipment Costs and Contractor's Outsource Costs for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event. The GUA shall pay the Contractor within twenty (20) days of receipt of the Contractor's invoice for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00). For the first month in which the Commencement Date occurs, the Basic Operation and Maintenance Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 3.09. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's invoice and supporting documentation.

ARTICLE IV

UTILITY BILLING AND CUSTOMER SERVICE

SECTION 4.01. GENERAL BILLING RESPONSIBILITY OF THE CONTRACTOR.

(A) It is contemplated by the parties that the Basic Billing and Customer Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The general billing, meter reading and customer service shall be required of and timely provided by the Contractor.

(B) The Contractor shall have full responsibility to provide all billing and customer services in a manner consistent with the Basic Billing and Customer Service Performance Standards.

(C) The billing system employed and used by the Contractor shall be organized in a manner that will:

SECTION 3.05. GENERAL REPORTING RESPONSIBILITIES.

(A) The Contractor shall prepare and file all reports required by Applicable Law. If requested to do so by the GUA Representative, the Contractor shall timely provide copies to the GUA for review and comment prior to filing.

(B) In addition to the recommended Annual Maintenance Plan, the recommended annual list of Capital Improvements, the recommended annual list of Repairs and Basic Renewals and Replacements estimated to cost more than twenty five hundred dollars ($2,500.00) and the recommended annual list of Extra Renewals and Replacements, the Contractor shall timely prepare and deliver to the GUA Representative the Basic Operation and Maintenance Service Reports listed in Appendix G.

(C) The Contractor shall provide all reports required under this Article III in an electronic data format and by electronic means capable of remote access by the General Manager and the Trustee to the extent of the Contractor's capability on December 18, 1998.

SECTION 3.06. BASIC OPERATION AND MAINTENANCE SERVICE FEE.

(A) For the provision of the Basic Operation and Maintenance Service, the Contractor shall be paid a fixed annual price of eight hundred eighty thousand five hundred forty four dollars ($880,544.00). Included in the Basic Operation and Maintenance Service Fee is the first twenty five hundred dollars ($2,500.00) of the Contractor's Material, Supply and Plant Equipment Cost, Contractor's Labor Cost, and the Contractor's Outsource Cost for any Repair or any Basic Renewals and Replacements.

(B) The GUA shall reimburse the Contractor for Contractor's Material, Supply and Plant Equipment Costs, and Contractor's Outsource Costs associated with Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event.

SECTION 3.07. FEES FOR ADDITIONAL SERVICES. Fees for Additional Services shall be paid by one of the following:

(A) fixed fees as set forth in Appendix H, if applicable; or

(B) the Contractor's Cost Plus; or

(C) as otherwise mutually agreed by the parties.

the Contractor without prior approval by the GUA. The Contractor shall notify the GUA whenever it contemplates that the cost of a Repair or Basic Renewal and Replacement will exceed twenty five hundred dollars ($2,500.00).

(C) The construction or acquisition of a Capital Improvement or Extra Renewals and Replacements in an approved Capital Improvement Plan shall not be commenced by the Contractor until approval by the GUA Representative of a work order documenting the Contractor's Cost, including specifically any Contractor's Outsource Cost. Inclusion of a special project in an approved Capital Improvement Plan shall not waive said requirement for prior approval.

SECTION 3.03. STANDARDS FOR CAPITAL IMPROVEMENTS, REPAIRS AND RENEWALS AND REPLACEMENTS. The Contractor shall use the "FCWC/PUI Specification Listings" (Revised 5/97) and the Specification Details and Drawings (January 1999 edition) as the minimum standards for use of materials and methods for Capital Improvements, Repairs, and Renewals and Replacements, except as part of the Basic Operation and Maintenance Service, the Contractor shall not be required to replace components of water and wastewater pumping stations to the above-referenced standards unless said pumping stations have components that conform to the referenced standards. Notwithstanding, the replaced components shall be of quality equal to the original.

SECTION 3.04. USE OF FACILITIES; FIELDWORK. The Contractor shall confine all operation, maintenance and construction equipment, shall confine the storage of all materials and equipment, and shall limit the operations and work of all employees and subcontractors to the Utility Facilities and other areas permitted by law, rights-of-way, Permits and easements, and shall not unreasonably encumber the Utility Facilities or such other land areas with materials, equipment, or vehicles of the Contractor. At all times the Contractor shall use and administer the Utility Facilities in a professional, neat and orderly fashion. The Contractor shall assume full responsibility for any damage to the Utility Facilities or real or personal property within areas contiguous to the Utility Facilities resulting from the provision of Basic Operation and Maintenance Service.

Fiscal Year, the Capital Improvement list prepared by the Contractor shall contain recommended Capital Improvements for an additional four (4) Fiscal Years for use by the GUA in financial planning for the provision of future Capital Improvements to the Utility Facilities.

(1) The Capital Improvement Plan for the remainder of the initial Fiscal Year commencing on October 1, 1998, shall be the Capital Improvement Plan approved by the GUA prior to the Commencement Date. The Capital Improvement list prepared by the Contractor for the Fiscal Year commencing October 1, 1999, shall be submitted to the GUA within sixty (60) days subsequent to the Commencement Date. For all remaining Fiscal Years during the term of this Agreement, the Capital Improvement list prepared by the Contractor shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(2) The initial Capital Improvement list submitted by the Contractor for the initial Fiscal Year commencing on October 1, 1998, shall contain all Fiscal Year 1998/1999 Capital Improvements to be completed or initiated during Fiscal Year 1998/1999 and shall identify those portions of the Contractor's Costs of Capital Improvements in progress on the Commencement Date required to be funded by the GUA pursuant to this Agreement.

(F) The Contractor shall prepare a recommended Extra Renewals and Replacements list with cost estimates and an estimate of Repairs and Basic Renewals and Replacements costing over twenty five hundred dollars ($2,500.00) for the ensuing Fiscal Year on the same schedule as Capital Improvements as provided in subsection (E)(1) of this Section 3.01.

(G) The Contractor shall submit to the GUA a disaster recovery plan for the Utility Facilities within sixty (60) days subsequent to the Commencement Date. Such plan shall address the Contractor's plan for dealing with a major disaster, by way of example and not limitation, hurricane, flood, tornado, or sabotage.

SECTION 3.02. ADDITIONAL SERVICES AUTHORIZATION.

(A) The Contractor shall perform the Basic Operation and Maintenance Service, Basic Renewals and Replacements and Repairs without prior authorization from the GUA.

(B) Additional Services and Extra Renewals and Replacements will not be initiated by

(C) The Contractor shall operate and maintain all Utility Facilities in such a manner that the water quality is maintained at a level equal to, or better than, the water quality limitations established by Applicable Law to the extent of the capability of the Utility Facilities. In the event the water quality achieved is not in compliance with the Permit, the Contractor shall immediately submit a report to the GUA outlining the proposed corrective action and a schedule to accomplish such corrective action. All such corrective action shall be taken as soon as practical.

(D) The Contractor shall prepare and submit to the GUA an Annual Maintenance Plan for the Utility Facilities.

(1) The Annual Maintenance Plan shall include a schedule incorporating the maintenance activities and services listed in the Basic Operation and Maintenance Service Performance Standards. The performance standards for the preventative maintenance and cleaning of all Utility Facilities shall be consistent with the Basic Operation and Maintenance Service Performance Standards.

(2) The Annual Maintenance Plan for the remainder of the Fiscal Year commencing on October 1, 1998 and for the Fiscal Year commencing on October 1, 1999 shall be submitted by the Contractor to the GUA for approval within sixty (60) days of the Commencement Date. For the remaining Fiscal Years during the term of this Agreement, the Annual Maintenance Plan shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(3) To implement the Annual Maintenance Plan, the Contractor shall continue the use of a computerized maintenance management system.

(E) The Contractor shall prepare a recommended list of Capital Improvements for inclusion in the Capital Improvement Plan for the ensuing Fiscal Year. The Capital Improvement Plan prepared by the Contractor shall include an estimate of the cost to construct or acquire the recommended Capital Improvement and provide a recommendation whether the Capital Improvement should be acquired or constructed by the Contractor or by subcontract to a third party. In addition to the projected or recommended Capital Improvements for the ensuing

standards, equipment manufacturer's instructions, and standard operation and maintenance manuals so that upon termination of this Agreement, the Utility Facilities are returned to the GUA in the same or better condition than at the Commencement Date, normal wear and tear excepted. Work performed by the Contractor or subcontractors shall be of the quality normally associated with work of the kind in which the Contractor is engaged.

(8) The Contractor shall perform all preventive and corrective maintenance and Repairs in a timely manner. If, in the opinion of the GUA, preventive and corrective maintenance or Repairs have been unreasonably delayed, the GUA shall so inform the Contractor. The Contractor shall respond within five (5) business days outlining the reason for the delay. If the GUA determines that the delay is within the control of the Contractor, the Contractor shall be so notified, and the Contractor agrees to complete the necessary work within ten (10) business days or by a date certain beyond ten (10) business days of notification if approved by the GUA. If the Contractor fails to complete the work, the GUA may take steps to have the specific items of work which have not been performed completed by a third party. The cost of completing this work by a third party shall be deducted from the monthly payment of the Basic Operation and Maintenance Service Fee otherwise due the Contractor.

(9) The Contractor shall regularly water, mow, fertilize, prune, remove weeds, maintain and repair permanent sprinkler systems and controls, and otherwise maintain landscaping of all buildings and plants.

(10) The Contractor shall maintain the appearance and cleanliness of all buildings and plants in a neat and orderly condition and provide those custodial services normally associated with maintenance of a business office or plant, as applicable, and provide periodic painting of the Utility Facilities as provided in the Annual Maintenance Plan.

(B) The GUA shall be responsible for all laboratory testing required by Applicable Law except those tests listed in Appendix F which shall be performed by the Contractor. The Contractor shall provide access and cooperate with the laboratory testing contractor engaged by the GUA. The Contractor shall collect all samples, except groundwater, surface water and sediment samples.

ARTICLE III

OPERATION AND MAINTENANCE SERVICE

SECTION 3.01. BASIC OPERATION AND MAINTENANCE SERVICE.

(A) It is contemplated by the parties that the Basic Operation and Maintenance Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The following general operation and maintenance services shall be required of and timely provided by the Contractor in the operation and maintenance of the Utility Facilities:

(1) The Contractor shall have full responsibility for the daily operation and maintenance of the Utility Facilities in a manner consistent with the specific Basic Operation and Maintenance Service Performance Standards.

(2) The Contractor shall perform Repairs and Basic Renewals and Replacements. Specifically excluded are Extra Renewals and Replacements and Capital Improvements.

(3) The Contractor shall secure and maintain all permits required in the Contractor's name for the performance of the services described in this Agreement. The GUA shall be responsible for acquiring and renewing all Permits required by Applicable Law for the operation and maintenance of the Utility Facilities and for the acquisition and construction of Capital Improvements to be constructed by the Contractor.

(4) The Contractor shall cooperate and facilitate in the acquisition and completion of all approved Capital Improvements.

(5) The Contractor shall maintain responsive working relationships with: the GUA Representative, the General Manager, the County and other local governments within the Barefoot Bay System service area, federal and State regulatory authorities, utility suppliers and vendors, and the public.

(6) The Contractor shall receive and check requests for water and wastewater pipeline locations from the One-Call Notification System and, if necessary, provide on-site location assistance.

(7) The Contractor shall provide prudent maintenance consistent with industry

provide a clean and mechanically sound image. As vehicles are replaced or repainted, the Contractor shall provide uniform signage that is acceptable to the GUA Representative and which reflects the fact that the vehicles are used in the service of the Utility Facilities.

SECTION 2.07. YEAR 2000 COMPLIANCE. Year 2000 compliance relates to the fact that many existing computer programs and embedded computer chips recognize only the last two digits of the year, and are unable to distinguish between the year 1900 and the year 2000. Because of the unprecedented nature of the year 2000 compliance issue, its effects and the success of related remediation efforts will not be fully determined until the year 2000 and thereafter. Although the Contractor is not aware of any material year 2000 compliance issues it has not addressed, the Contractor can provide no assurance the computer systems it owns and will utilize in connection with the services hereunder are or will be year 2000 ready, or that its remediation efforts were or will be successful in whole or in part. Furthermore, the Contractor can provide no assurance that vendors, government agencies, paying agents or other third parties providing services to the Contractor have or are effectively dealing with year 2000 compliance issues in a timely manner.

SECTION 2.08. SUBCONTRACTING.

(A) The Contractor shall not subcontract services or work included in the Basic Operation and Maintenance Service (exclusive of sludge disposal) and the Basic Billing and Customer Service to an extent materially beyond that work and services being subcontracted as of December 18, 1998, without the prior written approval of the GUA Representative, which approval shall not be unreasonably withheld. The Contractor shall have the duty to evaluate all subcontractors and to inspect all the work of subcontractors and make a determination as to the capability of any subcontractors to perform properly under the terms of this Agreement.

(B) The Contractor may subcontract any work or services which are not a part of the Basic Operation and Maintenance Service and Basic Billing and Customer Service without the consent of the GUA.

The Contractor shall also take all necessary precautions to provide the necessary protection to prevent damage or loss to materials or equipment to be provided under this Agreement, whether stored on or off of the property and to all property listed on the Inventory or incorporated into the Utility Facilities.

(B) The Contractor shall designate a representative whose duties shall include the prevention of accidents.

(C) The Contractor shall comply with Applicable Law relating to the safety of persons or property or protection thereof from damage, injury or loss. The Contractor shall at all times erect and maintain all necessary safeguards or barriers for safety and protection.

SECTION 2.05. *USE OF GUA NON-FIXED ASSETS AND INVENTORY.*

(A) The Contractor shall have the use and control in the provision of the services hereunder, including the use and control of the GUA Non-Fixed Assets and the Inventory. The Contractor shall be responsible for the maintenance or repair of all GUA Non-Fixed Assets used by the Contractor in the provision of services hereunder and shall replenish the Inventory as the Contractor deems appropriate.

(B) The GUA and the Contractor shall jointly determine the value of the Inventory on the Commencement Date and upon termination of this Agreement, based upon initial cost. Should said value at termination be greater than the value on the Commencement Date, the GUA shall pay the Contractor the difference and conversely, should the value upon termination be less than the value on the Commencement Date, the Contractor shall pay the GUA the difference. For purposes of determining the value of the Inventory, the prices paid by Florida Cities Water Company and the Contractor shall be used.

(C) The GUA shall be responsible for the replacement of equipment which is a part of the GUA Non-Fixed Assets that becomes non-usable through normal wear and tear. The Contractor shall be responsible for the replacement of all such equipment which becomes non-usable through damage or misuse.

SECTION 2.06. CONTRACTOR'S VEHICLES. The Contractor's vehicles shall be professionally and safely maintained in a mechanically sound manner. All vehicles must

vehicles, utilities and other consumables necessary to perform the services specified herein. Furthermore, the Contractor shall provide required tools and equipment, except tools and equipment which are GUA Non-Fixed Assets.

SECTION 2.02. CONTRACTOR STAFFING. To fulfill its obligations under this Agreement, the Contractor contemplates implementing the personnel staffing plan shown in Appendix E. Material changes in the staffing plan for the position of division manager and subordinate operational personnel shall require the consent of the GUA, which consent shall not be unreasonably withheld. Should regulatory requirements dictate a change in staffing level, the Contractor shall be entitled to an adjustment in the Basic Operation and Maintenance Service Fee and the Basic Billing and Customer Service Fee, as applicable . Should the Contractor invest in equipment that allows a reduction in staff, any cost reduction shall be for the Contractor's sole benefit. Should the Contractor and the GUA jointly invest in equipment that results in a staff reduction, then the labor savings shall be shared in amounts equal to the relative investment of each party.

SECTION 2.03. TRAINING PROGRAM. The Contractor shall provide a training program for employees of the Contractor performing the Basic Operation and Maintenance Service to insure they have a basic understanding of water and wastewater treatment processes and safety. The Contractor's training program shall place special emphasis on safety procedures and protocols and on those processes that employees will utilize in daily operation of the water and wastewater treatment plants and the water distribution and sewer collection and wastewater disposal systems. Documentation of the scope of the training program required by Applicable Law and participation by employees of the Contractor shall be provided to the GUA.

SECTION 2.04. SAFETY.

(A) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work and services to be provided under this Agreement. The Contractor shall take all necessary precautions for the safety of and to prevent injury to all employees, whether at the Utility Facilities or in the field, and other persons or entities who may be affected by the work and service to be provided under this Agreement.

(F) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, use and maintain the Barefoot Bay System.

"Utility Services" shall mean collectively, the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

SECTION 1.02. CONSTRUCTION AND INTERPRETATION.

(A) Words that indicate a singular number shall include the plural in each case and vice versa, and words that indicate a person shall include legal entities, firms and corporations.

(B) The terms "herein," "hereunder," "hereby," "hereof," and any similar terms, shall refer to this Agreement; the term "heretofore" shall mean before the date of execution of this Agreement; and the term "hereafter" shall mean on or after the initial date of execution of this Agreement.

(C) Words that reference only one gender shall include all genders.

(D) This Agreement shall be construed as resulting from ongoing negotiation and authorship. No part of this Agreement shall be construed as the product of any one of the parties hereto.

SECTION 1.03. INCORPORATION. The Appendices hereto and each of the documents referred to therein are incorporated and made a part hereof in their entirety by reference.

SECTION 1.04. SECTION HEADINGS. Any headings preceding the texts of the several Articles, Sections, Appendices, or Exhibits in this Agreement and any table of contents or marginal notes appended to copies hereof, shall be solely for the convenience of reference and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

ARTICLE II

GENERAL

SECTION 2.01. CONTRACTOR'S RESPONSIBILITY. Except as otherwise specified elsewhere herein, the Contractor shall provide required personnel, and associated wages, salaries and benefits, services, materials (including chemicals, electricity and fuel),

thereon, and that neither the contesting in good faith of any such order nor the reasonable failure to so contest shall be construed as a negligent or willful action or inaction of such party;

(D) a Change in Law; and

(E) the loss or inability to obtain for reasons other than the negligent, willful or wrongful action or inaction of the Contractor, utility services, including sewerage, sludge disposal and standby electric power, necessary for the operation and maintenance of the Utility Facilities directly resulting in a partial or total curtailment of operations at the Utility Facilities.

"Utility Facilities" shall mean all of the property and rights, both tangible and intangible, that the GUA owns or uses or subsequently acquires or uses in conjunction with the operation and maintenance of the Barefoot Bay System, including by way of example and not limitation, the following:

(A) All real property and interests, whether recorded in the public records or not.

(B) All water and wastewater facilities, including reuse and reclaimed water, treatment plants, wells, collection, transmission, distribution, pumping, effluent and disposal facilities of every kind and description, including by way of example and not limitation, all trade fixtures, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities and property installations used in the operation of the Barefoot Bay System.

(C) All equipment, tools, parts, laboratory equipment, and other personal property owned or used by the GUA in connection with the operation of the Barefoot Bay System.

(D) All easements in favor of the GUA or its predecessors in interest.

(E) All customer records and supplier lists, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer models and studies, accounting, budget and business records and all other information controlled by or in the possession of the GUA that relates to the description and operation of the Barefoot Bay System.

"State" shall mean the State of Florida.

"Trustee" shall mean SunTrust Bank, Central Florida, National Banking Association, and any successor banking corporation, banking association or trust company serving as trustee under the indenture providing for the bonds to be issued by the GUA to acquire the Utility Facilities.

"Uncontrollable Circumstance(s)" shall mean any act, event or condition that prevents the Contractor or the GUA from meeting or performing its obligations under this Agreement, if such act, event or condition is beyond the reasonable control of the party relying thereon as justification for not meeting or performing such obligations. Such acts, events or conditions may include, but shall not be limited to, the following:

(A) an act of God (except normal weather conditions for the geographic area of the County), hurricane, tornado, epidemic, landslide, lightning, earthquake, flood, fire or explosion, or similar occurrence, war, strikes, lockouts, blockade, acts of public enemies, insurrection, riot, general unrest, restraint of government and people, civil disturbance, sabotage or similar occurrence;

(B) the order, injunction or judgment of any federal, State or local court, administrative agency or governmental body or officer with jurisdiction of the GUA acting in its governmental capacity, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State and local tax laws; provided, however, that such order, injunction or judgment shall not arise in connection with or be related to the negligent or wrongful action or inaction of the party relying thereon and that neither the contesting in good faith of any such order, injunction, or judgment nor the reasonable failure to so contest shall constitute or be construed as a wrongful or negligent action or inaction of such party;

(C) the suspension, termination, interruption, denial, failure to issue, modification or failure of renewal of any permit, license, consent, authorization or approval necessary for the operation and maintenance of the Utility Facilities, if such act or event shall not arise in connection with or be related to the negligent or willful action or inaction of the party relying

this Agreement which the Contractor uses or is permitted to use in providing the services hereunder.

"Meter Replacement Program" shall mean the annual program of small meter replacements approved in the Capital Improvement Plan.

"Meter Setting" shall mean the installation of a new meter and appurtenances on an existing water service line where no prior service was provided.

"Normal Business Hours" shall mean 8:00 a.m. until 5:00 p.m., Monday through Friday except holidays observed by the GUA.

"One-Call Notification System" shall mean the statewide toll-free telephone notification system established by Sunshine State One-Call of Florida, Inc., a not-for-profit corporation created pursuant to Chapter 556, Florida Statutes, for the purpose of notifying underground facility operators of potential excavation activities within the proximity of their facilities so that such facilities may be located and their location marked accordingly.

"Permits" shall mean federal, State and local permits and registrations governing the operation and maintenance of the Utility Facilities.

"Plant Equipment" shall mean machines and devices consisting of various components which by themselves provide a specific function which represents an end function or contributes to a broader function, including operating and processing equipment and special tools in use as of the Commencement Date or procured or provided pursuant to this Agreement for use at or associated with the Utility Facilities (exclusive of equipment owned or leased by the Contractor and used by the Contractor to perform its obligations under this Agreement).

"Renewal" shall mean rehabilitation, overhaul, restoration or improved function of a Utility Facilities component to the extent that it is at or near new condition and its useful life is extended.

"Repair" shall mean correction of defect in a Utility Facilities component without complete overhaul, renewal or replacement.

"Replacement" shall mean the replacement of a Utility Facilities component with a component having similar characteristics and equal quality.

"County" shall mean Brevard County, Florida.

"Emergency Condition" shall mean a condition which threatens the public health and safety.

"Extra Renewals and Replacements" shall mean Renewals and Replacements of Utility Facilities other than Basic Renewals and Replacements which are undertaken to increase capacity, or as part of a modernization or upgrading program including any meter change-out programs.

"FDEP" shall mean the Florida Department of Environmental Protection.

"Fiscal Year" shall mean the period commencing on October 1 of each year and continuing through the next September 30th.

"Full Tap and Meters" shall mean the tapping of a water main, installation of a service line and setting a new meter and appurtenances where no previous service was provided.

"General Manager" shall mean the person, corporation, or entity under contract with the GUA to provide administrative and financial services. The initial General Manager shall be Government Services Group, Inc., a Florida corporation.

"GUA" shall mean the Florida Governmental Utility Authority, an authority created by interlocal agreement pursuant to section 163.01(7), Florida Statutes.

"GUA Non-Fixed Assets" shall mean the assets to be identified pursuant to the inventory procedure provided in Appendix D.

"GUA Representative" shall mean the person or persons designated by the GUA to represent the GUA in interpretations of the performance of the Contractor of its duties and responsibilities under this Agreement as provided in Section 6.01.

"Interlocal Agreement" shall mean the interlocal agreement entered into by participating counties pursuant to section 163.01(7)(g), Florida Statutes, creating the Florida Governmental Utility Authority (the "GUA").

"Inventory" shall mean the chemicals, diesel fuel used for power generation, spare parts, pipe, fittings, and valves and other GUA Non-Fixed Assets identified pursuant to the inventory procedure listed in Appendix D or subsequently acquired by the Contractor during the term of

approvals for the water system or wastewater system, other than any requirements set forth in said applications to comply with future laws, ordinances, codes, rules, regulations or similar legislation.

"Commencement Date" shall mean the day following the payment of the purchase price for the Utility Facilities pursuant to the terms of the Asset Acquisition Agreement.

"Contractor's Cost" shall mean the sum of the Contractor's Labor Cost, the Contractor's Material, Supply and Plant Equipment Cost, and the Contractor's Outsource Cost.

"Contractor's Cost Plus" shall mean the Contractor's Cost plus allowances for profit as follows:

(A) The Contractor's Labor Cost – fifteen percent (15%).

(B) The Contractor's Material, Supply and Plant Equipment Cost – ten percent (10%).

(C) The Contractor's Outsource Cost – five percent (5%).

"Contractor's Labor Cost" shall mean the sum of the following:

(A) The Contractor's direct cost of employee salaries and wages including overtime; and

(B) The Contractor's payroll taxes, the cost of employee benefits, including but not limited to, insurance, paid time off (holidays, vacation, sick and other paid leave), uniforms, employee training, and transportation, and which costs for purposes of this Agreement, shall be calculated and determined as fifty percent (50%) of direct labor cost.

"Contractor's Material, Supply and Plant Equipment Cost" shall mean the Contractor's direct cost of materials, parts, supplies and Plant Equipment, including applicable taxes.

"Contractor's Outsource Cost" shall mean the Contractor's direct cost of subcontracted and hired work, parts, materials, supplies, and construction equipment, and fixture rental, including applicable taxes.

"Contractor Representative" shall mean the person or persons designated by the Contractor to represent the Contractor in interpretations of the performance of the Contractor's duties and responsibilities under this Agreement.

Maintenance Service.

"Basic Renewals and Replacements" shall mean the renewal or replacement of a Utility Facility component which is no longer capable of performing the function for which it is intended due to a defect or through examinations, measurements and observations it is apparent that the development of defects to the extent that said component will no longer be capable of performing the function for which it is intended is imminent.

"Board" shall mean the governing body of the GUA.

"Bullhead Meter Setting" shall mean a second complete meter installation connected to an existing service line.

"Capital Improvement" shall mean the planned acquisition or construction of improvements or additions to the Utility Facilities, the acquisition of equipment or other personal property not constituting a Basic Renewal and Replacement or the provision of improvements to increase capacity, modernize or otherwise upgrade Utility Facilities components.

"Capital Improvement Plan" shall mean the annual report of projected Capital Improvements submitted by the Contractor and approved by the GUA in Section 3.01.

"Change in Law" shall mean (a) the enactment, adoption, promulgation, modification or repeal after the Commencement Date of any federal, State, or local law, ordinance, code, rule, regulation or other similar legislation or the change in interpretation after the Commencement Date, of any federal, State, or local law, ordinance, code, rule, regulation, official permit, license or approval by any regulatory entity having jurisdiction with respect to the operation or maintenance of the Utility Facilities, or (b) the imposition, after the Commencement Date, of any material conditions on the issuance, modification or renewal of any official permit, license or approval necessary for the operation and maintenance of the Utility Facilities, which, in either case, necessitates or makes advisable a capital project, increases the Contractor's Costs by establishing requirements with respect to the operation or maintenance of the Utility Facilities which are more burdensome than the most stringent requirements:

(i) in effect on the Commencement Date, or

(ii) agreed to by the GUA in any applications for official permits, licenses or

Customer Service Performance Standards.

"Basic Billing and Customer Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Billing and Customer Service as provided in Section 4.09.

"Basic Billing and Customer Service Performance Standards" shall mean those specific billing and customer service performance standards provided in Appendix C to guide and define the billing and customer service responsibility of the Contractor in providing the Basic Billing and Customer Service.

"Basic Billing and Customer Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Billing and Customer Service and as provided in Article IV.

"Basic Operation and Maintenance Service" shall generally mean the provision and performance by the Contractor of the operation and maintenance services described in Section 3.01. The term Basic Operation and Maintenance Service excludes: (1) Additional Services; (2) non-routine expenditures that are planned, budgeted, and approved by the GUA; (3) and the acquisition or construction of Capital Improvements and other capital outlays authorized by the GUA. To define its scope, the term "Basic Operation and Maintenance Service" shall specifically include, by way of example and not limitation, the Basic Operation and Maintenance Service Performance Standards.

"Basic Operation and Maintenance Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Operation and Maintenance Service as provided in Section 3.06.

"Basic Operation and Maintenance Service Performance Standards" shall mean those specific operations and maintenance performance standards provided in Appendix B to guide and define the operations and maintenance responsibility of the Contractor in providing the Basic Operation and Maintenance Service.

"Basic Operation and Maintenance Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Operation and

(B) As used in this Agreement all capitalized words and terms not otherwise defined herein shall have the meanings set forth in the Asset Acquisition Agreement unless the context requires otherwise:

"Additional Services" shall mean the provision of the following:

(A) Extra Renewals and Replacements.

(B) Capital Improvements.

(C) Observation and inspection of new pipelines and lift stations.

(D) Installation of Full Tap and Meters and Meter Settings as provided in Appendix H.

(E) Infiltration and inflow investigations and correction programs.

(F) Services not contemplated as a part of the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

"Agreement" shall mean this Barefoot Bay System Utility Operations, Billing and Customer Service Agreement, including any amendments and supplements hereto executed and delivered in accordance with its terms.

"Annual Maintenance Plan" shall mean the annual plan submitted by the Contractor and approved by the GUA documenting the schedule and performance standards to be used in the preventative and operational maintenance of the Utility Facilities as required in Section 3.01.

"Applicable Law" shall mean all of the permits required for the performance by the parties under this Agreement, any State or federal constitution restrictions, any State law, regulation or directive, any County ordinance, law or directive, any federal or State judicial judgment or order and any federal, State or County administrative order, which are in effect during the term of this Agreement, or subsequently enacted, adopted, promulgated, issued or enforced, in any manner relating to the operation and maintenance of the Barefoot Bay System.

"Barefoot Bay System" shall mean Utility Facilities located in Brevard County.

"Basic Billing and Customer Service" shall mean the provision and performance by the Contractor of the billing and customer services described in Article IV. To define its scope, the term shall specifically include, by way of example and not limitation, the Basic Billing and

(4) To treat and provide potable water that meets or exceeds the requirements of Applicable Law to the extent of the capability of the supply and treatment components of the Utility Facilities.

(5) To operate all treatment plants to their optimum capability and efficiency to the extent reasonably practical.

(6) To conserve the capital investment in Utility Facilities and to ensure long-term reliability and efficiency of the Utility Facilities by performing adequate preventative and corrective maintenance, upgrading and replacement consistent with prevailing industry standards.

(7) To provide responsive customer services on all issues relating to the provision of utility services within the control of the Contractor including issues pertaining to meter readings, customer billing and utility usage; and

WHEREAS, the Contractor represents that it currently has, and will have throughout the term of this Agreement, the experience and professional skill to provide the utility services required to operate and maintain the Utility Facilities, to timely and accurately bill for utility service provided and to maintain effective relationships with utility customers.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, the parties to this Barefoot Bay System Utility Operations, Billing and Customer Service Agreement do agree for themselves, their permitted successors and assigns as follows:

ARTICLE I

DEFINITIONS AND CONSTRUCTION

SECTION 1.01. PURPOSE AND DEFINITIONS.

(A) This Barefoot Bay System Utility Operations, Billing and Customer Service Agreement is entered into as a condition precedent to the transfer of the assets of the Barefoot Bay System under the Utility System Asset Acquisition Agreement, dated April 1, 1999, between the GUA and Florida Cities Water Company and Poinciana Utilities Inc. (the "Asset Acquisition Agreement").

BAREFOOT BAY SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

THIS UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT, is made and entered into as of this 1st day of April, 1999, by and between the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), and Avatar Utility Services, Inc., a Florida corporation (the "Contractor").

WITNESSETH:

WHEREAS, the GUA owns a water and wastewater utility system located in Brevard County, Florida, known as the Barefoot Bay System and consisting of the facilities described at Appendix "A" hereto; and

WHEREAS, the GUA intends by the execution of this Agreement to contract for the operation and maintenance of the Utility Facilities and the billing and customer service provided within the Barefoot Bay System by the Contractor at standards not less than those provided on December 18, 1998; and

WHEREAS, the scope of utility operation and maintenance services, and billing and customer services to be provided for the Barefoot Bay System as incorporated in the provision of this Agreement is intended to meet the following operating objectives of the GUA:

(1) To provide water treatment, water distribution, wastewater treatment, and wastewater disposal services to the utility customers of the Barefoot Bay System without unnecessary interruption.

(2) To mitigate bypass or overflow of sanitary sewage from the transmission system and treatment plant.

(3) To handle and treat sanitary sewage in a manner that meets or exceeds the requirements of Applicable Law to the extent of the capability of the Utility Facilities.

APPENDIX S

FORM OF UTILITY OPERATIONS AGREEMENT

- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(8) Painting of all exposed equipment, and all exposed piping, on a five year rotation basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping on a three year rotating basis.

SECTION B.06. WASTEWATER COLLECTION SYSTEMS.

(A) The Contractor shall be responsible for procurement of all materials, supplies, chemicals and other consumables that may be necessary for proper operation, maintenance and repair of the system collection facilities (this requirement does not include a planned program of cleaning, television inspection and grouting) including the following:

- cleaning;
- flushing; and
- inspection of main pipelines and manholes.

(B) The Contractor shall respond to any wastewater collection system emergency including, but not limited to, pipeline blockage or potential thereof, or manhole surcharging as may reported by any source with the County's service area as soon as possible, but in any event, within two (2) hours of being notified or otherwise learning of such or related condition in the wastewater collection system.

(C) The Contractor shall timely, and properly, maintain and repair the wastewater collection and transmission facilities. The Contractor shall take all necessary measures to remedy conditions in the wastewater collection system facilities resulting from a main pipeline blockage and consequential surcharging of such pipelines or manholes and shall be responsible for clean up and abatement resulting from such conditions which occur within the wastewater collection system facilities.

SECTION B.07. COMPUTERIZED MAINTENANCE RECORDS. The Contractor shall be responsible for performing routine, preventive, predictive, and corrective maintenance procedures of the Utility Facilities, all in a manner that assures the readiness and availability of equipment, processes, and systems on a consistent basis, and which ensures efficiency, long-term reliability, and conservation of the capital investment in the Utility Facilities. Such procedures shall include preventive maintenance and work order based corrective maintenance program components for the Utility Facilities and shall be capable of providing the following:

- maintain a record of repair and repair history for each piece of equipment or line section;
- schedule preventive and predictive maintenance;
- maintain records of routine transmission and distribution line repairs;
- maintain records of corrective maintenance;
- issue and monitor work orders;
- maintain a spare parts inventory; and
- issue equipment status and repair priority reports.

SECTION B.08 FULL TAP AND METERS AND A METER SETTING. The Contractor shall complete installation of a Full Tap and Meters and a Meter Setting requested by the County in a timely manner and in no event later than as follows:

(A) For meter installations where service is already in place, five (5) business days from the date of the installation or meter setting request.

(B) For Full Taps and Meter Settings where a permit from an outside agency is not required, fifteen (15) business days from the date of the installation or meter setting request.

(C) For Full Taps and Meter Settings where a permit from an outside agency is required, twenty (20) business days after the receipt of the permit.

APPENDIX C

BASIC BILLING AND CUSTOMER

SERVICE PERFORMANCE STANDARDS

SECTION C.01. METER READING.

(A) All water meters shall be read on a monthly basis.

(B) Malfunctioning meters, visible leaks or damage to the meter or box shall be reported to the operation and maintenance provider for repairs.

(C) The Contractor shall enter the appropriate codes in the hand held meter reading devices to notify customer service personnel to issue work orders for repairs where needed (e.g., broken or obscured glass, box too high/low, broken lid, cannot find meter).

(D) The Contractor shall reread "suspected" erroneously read meters at the Contractor's earliest convenience. The Contractor shall provide an exception (hi-low audit) report on each business day for a previous days' reading. The Contractor shall review reports and select meters to be rechecked before billing.

(E) Meter readers are required to read every meter in the route. Any instances where a meter reader suspects an illegal hook-up should be reported immediately to the Contractor's office. If a meter is present, the Contractor will have a meter reader note the serial number and reading. Illegal hook-ups will be reported to the County for action.

(F) Normal hours of meter reading shall be Monday through Saturday, except County holidays, between 7 a.m. and 6 p.m. each day (unless mutually agreed upon between the County and the Contractor).

(G) Meter reading must be accurate with an error level of no greater than 1 per 1,000 reads. Errors are defined as misreads found by field audits, investigations, and readings the following month which are lower than reported the previous month as an accurate read or customer requested rechecks which, after investigation, a reading error is confirmed.

(H) All meter reading routes are to be accomplished within two (2) business days of the day scheduled. Weather conditions, excluding conditions associated with hurricanes and floods, must not prevent the accomplishment of meter reading unless otherwise agreed to by the County.

- Individual accounts on routes which are "no reads" (skips) will be reviewed daily by the Contractor. If upon further investigation, it is determined that a reading could have been obtained, the Contractor shall take immediate steps to obtain the reading.
- All meter boxes or meter conditions which impose an impediment to readers or citizens must be entered in the hand held devices by the meter readers when observed and promptly reported to the operation and maintenance provider. Other conditions of special interest that may explain high usage, as well as notification made of suspected leaks found, must also be entered.

SECTION C.02. FIELD SERVICES

(A) The Contractor shall provide field personnel to accomplish the following meter service functions:

- turn-on and turn-off of customer meters in response to account changes, delinquent accounts, customer requests, or emergencies;

- verify meter sizes;
- verify meter reading accuracy;
- meet with customer at property to discuss and evaluate disputes and make a report to customer service; and
- review with customers at property, how to read meter, typical usage of water, and conservation measures that customer can implement.

(B) All field service shall be made via work orders with prompt notification of the maintenance service provider when applicable. Information from these work orders shall be summarized on monthly order reports.

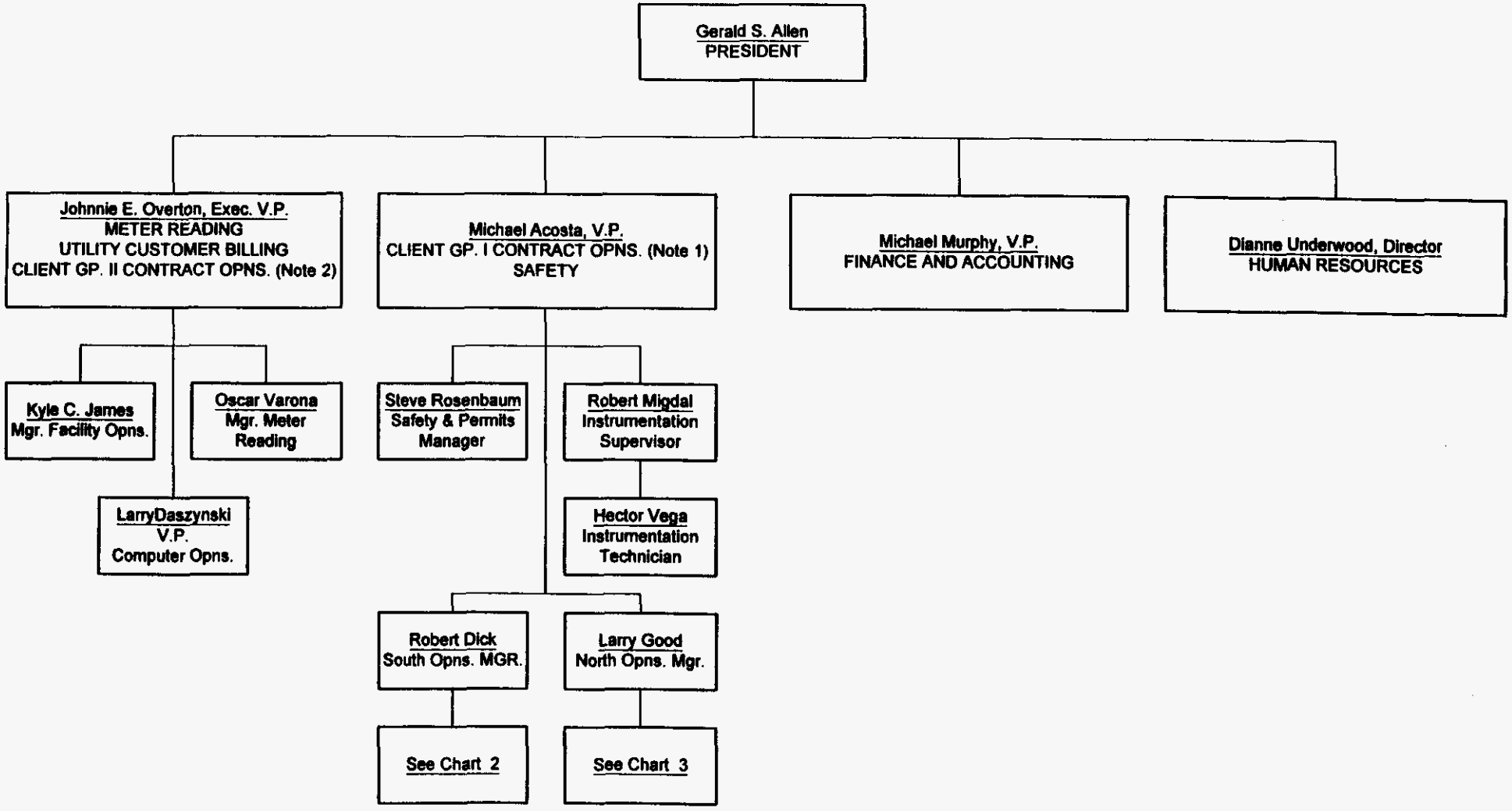
(C) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders relating to existing water services or distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order.

APPENDIX D

INVENTORY

Within five (5) days after the Commencement Date, the parties hereto shall establish the Inventory by a physical inventory of the items on hand or as otherwise mutually agreed.

APPENDIX E
STAFFING PLAN
Chart 1
AVATAR UTILITY SERVICES, INC.
Provisional Organizational Chart
Effective 4/1/99



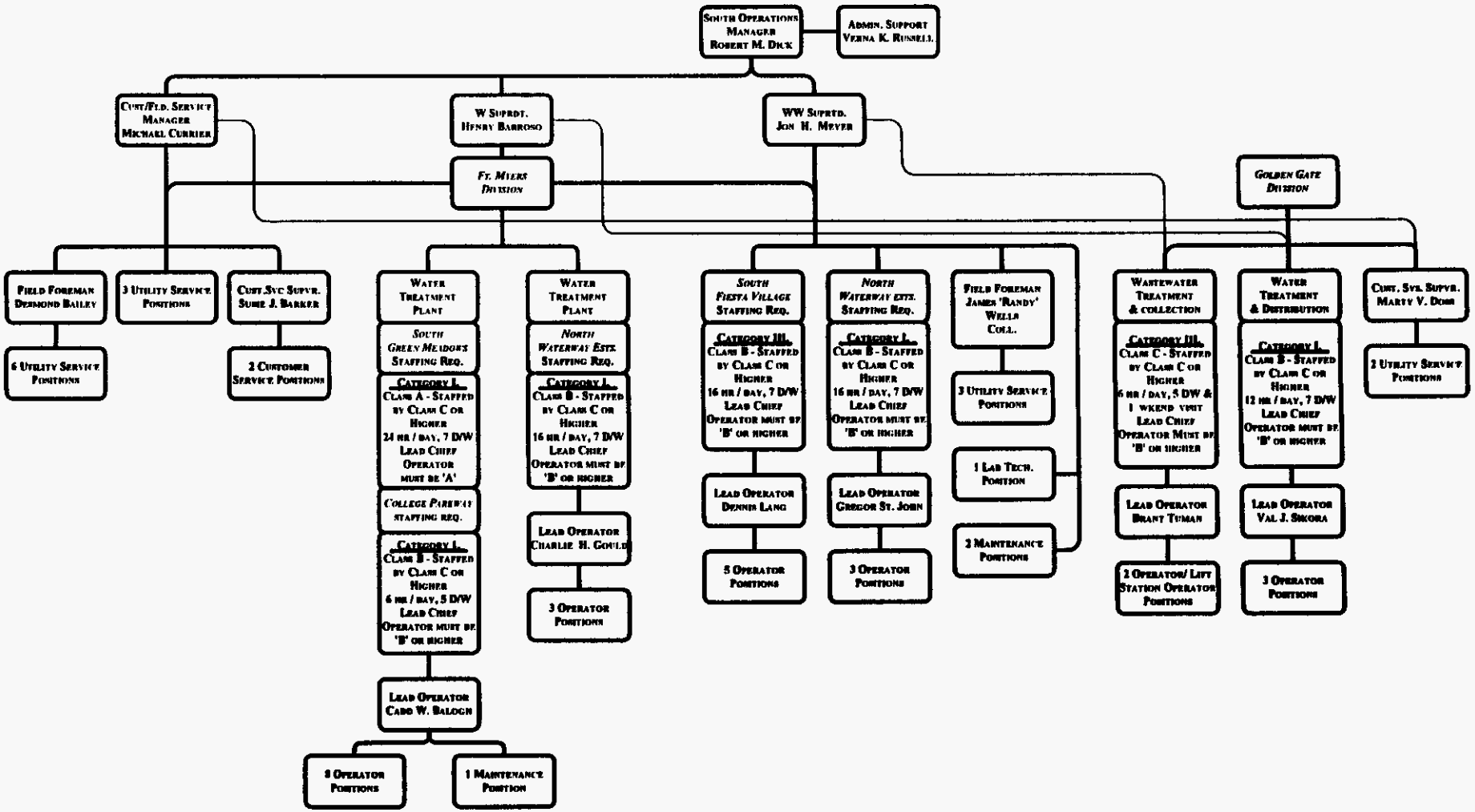
NOTES:

1. Client Group I consists of the GUA or a combination of the GUA and individual counties and pertain to the utility system formerly owned by Poinciana Utilities Inc., and the former Golden Gate, Ft. Myers, Sarasota, Carrollwood and Barefoot Bay Divisions of Florida Cities Water Company.

2. Client Group II consists of all other AUSI contract operations clients.

As of 1/99

CF 2 SOUTH LATIONS
CLIENT GROUP I



NOTES:
(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

As of · /9

NORTH OPERATIONS
CLIENT GROUP 1

North Operations Manager
Larry Good

Barefoot Bay Division
Division Manager
William M. Sansbury

- Field Foreman J. Steve Haven
  - 3 Utility Service Positions
- 2 Customer Service Positions
- **Water Treatment Plant**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 12 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Mark S. Dowe
  - 2 Operator/ Operator Trainee Positions
- **Wastewater Treatment Plant**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 8 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Glen Siler
  - 1 Operator/ Operator Trainee Position
  - 1 Maintenance Position

Poinciana Division
Division Manager
Larry Good

- Field Foreman Victor Winkler
  - 8 Utility Service Positions
- Cust. Svc. Supvr. Lorlee F. Miller
  - 2.5 Customer Service Positions
- **Wastewater Treatment Plant**
  - W.W.T.P. # 1 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 2 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
  - W.W.T.P. # 3 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 5 Staffing Req.
  - Category II, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
- **Water Treatment Plant**
  - W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 4 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
  - W.T.P. # 5 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- Chief Operator Keith S. Keenan
  - 5 Operator Positions
  - 1 Maintenance/ Truck Driver Position

Carrollwood Division
- W.T.P. # 1 Staffing Req.
- Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 2 Staffing Req.
- Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 3 Staffing Req.
- Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- Lead Operator Brian Southwell
  - 1 Customer Service Position
  - 2 Utility Service Positions

Sarasota Division
- Field Foreman Chet VanHorn
  - 7 Utility Service Operator Positions
- 2 Customer Service Positions
- **WW Suprdt. Wm. Randy Mingrove**
  - **South Gate A.W.T.P.**
    - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
    - Lead Operator William (Bill) Dymek
    - 3 Operator Positions
  - **Gulf Gate A.W.T.P.**
    - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
    - Lead Operator E. S. 'Charlie' Garrett
    - 3 Operator Positions
  - 1 Lab. Technician Position
  - 1 Maintenance Position

Solid Lines = Direct Supervision
Dotted Lines = Indirect Supervision

NOTES:
(1) Operator positions may temporarily be occupied by operator trainees.

APPENDIX F

LABORATORY TESTING

SECTION F.01. LABORATORY BY THE COUNTY. The County shall be responsible for employing a laboratory, certified by the FDEP to perform all laboratory testing required for regulatory reports except those tests listed in Section F.02. The Contractor shall coordinate with the County and the laboratory employed by the County for all such testing.

SECTION F.02. LABORATORY TESTING BY THE CONTRACTOR. The Contractor shall perform laboratory testing to the extent necessary for treatment process control. In addition, the Contractor shall perform the following tests required for regulatory reports:

(A) Ammonia;

(B) Carbonaceous Biochemical Oxygen Demand (CBOD);

(C) Dissolved Oxygen;

(D) Fecal Coliform;

(E) Nitrate as Nitrogen;

(F) Nitrite as Nitrogen;

(G) Organic Nitrogen;

(H) Percent Total Solids;

(I) pH;

(J) Specific Oxygen Uptake Rate;

(K) Temperature;

(L) Total Phosphorous;

(M) Total Chlorine Residual;

(N) Total Kjeldahl Nitrogen;

(O) Total Suspended Solids;

(P) Turbidity; and

(Q) Volatile Suspended Solids.

APPENDIX G

REPORTS

SECTION G.01. BASIC BILLING AND CUSTOMER SERVICES. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Billing and Customer Services, the Contractor shall submit or make available to the County electronically, the following reports:

REPORT	CONTENT	REPORTING PERIOD
Daily Transaction Journal	A documentation of all monetary and non-monetary transactions that have been posted to a customer's account	available daily
Preliminary Meter Reading Report	A report indicating the meter readings entered for each account prior to billing. Error in readings and/or consumption will be indicated for correction	
Account Balance Report	A report indicating each customer's current and past due balance	
Alpha-Cross Reference	A report listed in alphabetic order by customer's last name with a cross index to the customer's account number	
Aged Trial Balance	A report listing each customer's account with total balance, current, 30, 60, 90, and 120 day balances	available once monthly
Delete Report	A report listing all accounts which should be deleted from County's file	available once monthly
Past Due Report	A report indicating all delinquent accounts that have a balance other than current	

Meter Aging Report	A report that lists every account that had a meter installed between a range of dates selected by the County	
Consumption History Report	A report listing meter usages for up to 24 months past by rate classification and meter size	
Billing Register	A report indicating each customer account billed with all pertinent information contained on the customer bill	
Monthly Activity Report	A report indicating a summary of all billings, adjustments and payments recorded during a particular calendar month Specifically, it indicates: (a) billing by rate class by service; (b) charges/adjustments by rate class; (c) total payments received; and (d) total bills printed	
Other reports commonly available at the time of acquisition		as requested and available

SECTION G.02. BASIC OPERATION AND MAINTENANCE SERVICE REPORTS. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Operation and Maintenance Service, the Contractor shall submit to the County, not later than the fifteenth (15th) day of each month, a report consisting of the following:

(A) Reclaimed and potable water produced at each treatment facility:

(1) monthly operating reports for each facility;

(2) total and average-day for the month; and

(3) average-day, maximum-day, minimum-day and average of the maximum-month for the ended 12-month period.

(B) Description of any emergencies and incidents occurring during the month including, but not limited to:

(1) operational anomalies or other emergencies which had a material adverse impact on customer service or the public;

(2) environmental incidents;

(3) Utility Facilities stress situations;

(4) work order log detailing when work orders were received and completed, location of event, work performed, equipment and resources used; and

(5) quality assurance reports and resolutions.

(C) Description of regulatory matters including, but not limited to:

(1) regulatory notices and responses thereto;

(2) requirement for any public notices;

(3) inspections or visits to Utility Facilities by regulatory agencies; and

(4) implementation of new regulatory requirements.

(D) Progress report including, but not limited to:

(1) material operational changes;

(2) major maintenance and repair activities; and

(3) Replacement and Renewal activities.

(E) Summary of new customers connected.

(F) Events and situations described in (B)(1), (B)(2), (C)(1), and (D)(2) by telephone within twenty four (24) hours after the Contractor becomes aware of the event or situation and makes an assessment of impacts thereof followed by a written report within five (5) business days thereafter.

APPENDIX H

Meter Setting Cost (3)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	20.00	48.22
1	77.22	20.00	97.22
1½	196.02	40.00	236.02
2	267.30	40.00	307.30
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Short Side) (5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	265.82	226.00	491.82
1	314.82	226.00	540.83
1½	683.32	226.00	909.32
2	754.60	226.00	980.60
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Long Side)(5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	499.02	226.00	725.02
1	548.02	226.00	774.02
1½	927.52	226.00	1153.52
2	998.80	226.00	1224.80
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Bullhead Service Installation Cost

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	225.12	100.00	325.12
1	274.12	100.00	374.12

Replacement Meter Costs (4)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	15.00	43.22
1	77.22	15.00	92.22
1½	196.02	30.00	226.02
2	267.30	30.00	297.30
3	815.66	50.00	865.66
4	1276.72	50.00	1326.72
6	2012.67	50.00	2062.67
8	1461.83	50.00	1511.83

(1) Does not include the meter box or backflow prevention device.

(2) Material costs include the meter or meter head assembly costs, service piping, corporation stops, stops, meter boxes, casing under the roadway for long services and appurtenances excluding the backflow prevention device.

(3) ⅝, 1, 1½ and 2" material prices based on Neptune T-10, bronze body, cast iron bottom, with polymer register housing and lid.

(4) ⅝, 1, 1½ and 2" meters will be replaced entirely; only the meter head assembly will be replaced on 3, 4, 6, and 8" meters, 3, 4, 6" meter cost are for Tru/Flo meter heads, the 8" price is for a turbine meter head.

(5) Short side means service to property on the same side of the road as the water main. Long side means service to property on the opposite side of the road as the water main. Long side costs include installation of casing under the roadway, casing length not greater than twenty four (24') feet.

APPENDIX I

Schedule of Insurance

The following is an outline of the insurance coverages the Contractor shall obtain and maintain as provided herein, and in the type, amounts and in conformance with the following minimum requirements and is subject to the terms and conditions of each insurance policy:

Worker's Compensation
Statutory benefits as defined by Chapter 440, Florida Statutes, encompassing all operations contemplated by this Agreement to apply to all owners, officers, and employees regardless of number of employees. Individual employees may be exempted per State Law. Employers Liability will have minimum limits of $1,000,000.00 per accident.

Commercial General Liability
Coverage shall apply to premises and/or operations, products and/or completed operations, independent contractors, contractual liability, and broad form property damage exposures with minimum limits of $1,000,000.00 per occurrence. Said policy shall be insured by an insurance company, or companies, with a current minimum rating by the A.M. Best Agency of A.

Commercial Automobile Liability
Coverage shall apply to owned vehicles and/or hired and non-owned vehicles and employee non-ownership use with minimum limits of $1,000,000.00 CSL (combined single limit).

Umbrella/Excess Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep umbrella/excess liability insurance in minimum amount of $30,000,000.00.

Certificate of Insurance
The County shall be listed as a certificate holder and additional insured with respects to Commercial General Liability. An original hand signed certificate shall be on file with and approved by the County prior to the operation date. Said certificate shall evidence the required coverages and amounts as contained herein and provide a thirty (30) day notice of cancellation for non-renewal or material change in coverage.

Commercial Crime/Employee Dishonesty
Coverage shall apply to employees and include coverage for faithful performance of duty, depositors forgery, money-securities (in and out), and counterfeit papers with a minimum limit of $5,000,000.00 per occurrence.

Contractor's Pollution Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep contractor's pollution liability insurance in minimum amounts of $2,000,000.00.

Miscellaneous Errors and Omissions Insurance
At all times during the term of this Agreement, the Contractor shall keep miscellaneous errors and omissions insurance in minimum amounts of $2,000,000.00.

APPENDIX J

MARCH 30, 1999 CORRESPONDENCE FROM
FLORIDA CITIES WATER COMPANY REGARDING
FIESTA VILLAGE ADVANCED WASTEWATER TREATMENT PLANT

FLORIDA CITIES WATER COMPANY

POINCIANA UTILITIES INC.

March 30, 1999

Robert E. Sheets
Government Services Group, Inc.
315 Calhoun, Suite 860
Tallahassee, FL 32301

Re: Fiesta Village Advanced Wastewater Treatment Plant
Diesel Fuel Storage Tank

Dear Robert:

This letter updates you regarding the replacement of the existing diesel fuel storage tank at the Fiesta Village Advanced Wastewater Treatment Plant. Due to an error in Florida Cities Water Company's (FCWC) internal records the tank was believed to have been of double-walled construction. FCWC has determined the tank is of single-wall construction with a fiberglass coating on the exterior of the tank (fiberglass clad). FCWC has taken the tank out of service, removed the diesel fuel from the tank and placed a temporary tank in service until the tank can be replaced.

FCWC has issued a Notice of Award to Southern Tank and Piping, Inc. for the closure of the existing tank and piping system and replacement with an above ground double-walled concrete tank. We anticipate that this work will be completed in mid-August 1999. FCWC will bear the cost of the tank replacement.

Should you have any questions or need additional information, please contact me.

Sincerely,

Michael Acosta, P.E.
Vice President
Engineering & Operations

cc: P. Gildan
L. Johnson
R. Nabors

FLORIDA CITIES WATER COMPANY
POINCIANA UTILITIES INC.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Telephone (941)925-3088

Units of Avatar Utilities Inc.

GOLDEN GATE SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

THIS UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT, is made and entered into as of this 1st day of April, 1999, by and between the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), and Avatar Utility Services, Inc., a Florida corporation (the "Contractor").

WITNESSETH:

WHEREAS, the GUA owns a water and wastewater utility system located in Collier County, Florida, known as the Golden Gate System and consisting of the facilities described at Appendix "A" hereto; and

WHEREAS, the GUA intends by the execution of this Agreement to contract for the operation and maintenance of the Utility Facilities and the billing and customer service provided within the Golden Gate System by the Contractor at standards not less than those provided on December 18, 1998; and

WHEREAS, the scope of utility operation and maintenance services, and billing and customer services to be provided for the Golden Gate System as incorporated in the provision of this Agreement is intended to meet the following operating objectives of the GUA:

(1) To provide water treatment, water distribution, wastewater treatment, and wastewater disposal services to the utility customers of the Golden Gate System without unnecessary interruption.

(2) To mitigate bypass or overflow of sanitary sewage from the transmission system and treatment plant.

(3) To handle and treat sanitary sewage in a manner that meets or exceeds the requirements of Applicable Law to the extent of the capability of the Utility Facilities.

(4) To treat and provide potable water that meets or exceeds the requirements of Applicable Law to the extent of the capability of the supply and treatment components of the Utility Facilities.

(5) To operate all treatment plants to their optimum capability and efficiency to the extent reasonably practical.

(6) To conserve the capital investment in Utility Facilities and to ensure long-term reliability and efficiency of the Utility Facilities by performing adequate preventative and corrective maintenance, upgrading and replacement consistent with prevailing industry standards.

(7) To provide responsive customer services on all issues relating to the provision of utility services within the control of the Contractor including issues pertaining to meter readings, customer billing and utility usage; and

WHEREAS, the Contractor represents that it currently has, and will have throughout the term of this Agreement, the experience and professional skill to provide the utility services required to operate and maintain the Utility Facilities, to timely and accurately bill for utility service provided and to maintain effective relationships with utility customers.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, the parties to this Golden Gate System Utility Operations, Billing and Customer Service Agreement do agree for themselves, their permitted successors and assigns as follows:

ARTICLE I

DEFINITIONS AND CONSTRUCTION

SECTION 1.01. PURPOSE AND DEFINITIONS.

(A) This Agreement is entered into as a condition precedent to the transfer of the assets of the Golden Gate System under the Utility System Asset Acquisition Agreement, dated April 1, 1999, between the GUA and Florida Cities Water Company and Poinciana Utilities Inc. (the "Asset Acquisition Agreement").

(B) As used in this Agreement all capitalized words and terms not otherwise defined

herein shall have the meanings set forth in the Asset Acquisition Agreement unless the context requires otherwise:

"Additional Services" shall mean the provision of the following:

(A) Extra Renewals and Replacements.

(B) Capital Improvements.

(C) Observation and inspection of new pipelines and lift stations.

(D) Installation of Full Tap and Meters and Meter Settings as provided in Appendix H.

(E) Infiltration and inflow investigations and correction programs.

(F) Services not contemplated as a part of the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

"Agreement" shall mean this Golden Gate System Utility Operations, Billing and Customer Service Agreement, including any amendments and supplements hereto executed and delivered in accordance with its terms.

"Annual Maintenance Plan" shall mean the annual plan submitted by the Contractor and approved by the GUA documenting the schedule and performance standards to be used in the preventative and operational maintenance of the Utility Facilities as required in Section 3.01.

"Applicable Law" shall mean all of the permits required for the performance by the parties under this Agreement, any State or federal constitution restrictions, any State law, regulation or directive, any County ordinance, law or directive, any federal or State judicial judgment or order and any federal, State or County administrative order, which are in effect during the term of this Agreement, or subsequently enacted, adopted, promulgated, issued or enforced, in any manner relating to the operation and maintenance of the Golden Gate System.

"Basic Billing and Customer Service" shall mean the provision and performance by the Contractor of the billing and customer services described in Article IV. To define its scope, the term shall specifically include, by way of example and not limitation, the Basic Billing and Customer Service Performance Standards.

"Basic Billing and Customer Service Fee" shall mean the fixed annual compensation

payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Billing and Customer Service as provided in Section 4.09.

"Basic Billing and Customer Service Performance Standards" shall mean those specific billing and customer service performance standards provided in Appendix C to guide and define the billing and customer service responsibility of the Contractor in providing the Basic Billing and Customer Service.

"Basic Billing and Customer Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Billing and Customer Service and as provided in Article IV.

"Basic Operation and Maintenance Service" shall generally mean the provision and performance by the Contractor of the operation and maintenance services described in Section 3.01. The term Basic Operation and Maintenance Service excludes: (1) Additional Services; (2) non-routine expenditures that are planned, budgeted, and approved by the GUA; (3) and the acquisition or construction of Capital Improvements and other capital outlays authorized by the GUA. To define its scope, the term "Basic Operation and Maintenance Service" shall specifically include, by way of example and not limitation, the Basic Operation and Maintenance Service Performance Standards.

"Basic Operation and Maintenance Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Operation and Maintenance Service as provided in Section 3.06.

"Basic Operation and Maintenance Service Performance Standards" shall mean those specific operations and maintenance performance standards provided in Appendix B to guide and define the operations and maintenance responsibility of the Contractor in providing the Basic Operation and Maintenance Service.

"Basic Operation and Maintenance Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Operation and Maintenance Service.

"Basic Renewals and Replacements" shall mean the renewal or replacement of a Utility

Facility component which is no longer capable of performing the function for which it is intended due to a defect or through examinations, measurements and observations it is apparent that the development of defects to the extent that said component will no longer be capable of performing the function for which it is intended is imminent.

"Board" shall mean the governing body of the GUA.

"Bullhead Meter Setting" shall mean a second complete meter installation connected to an existing service line.

"Capital Improvement" shall mean the planned acquisition or construction of improvements or additions to the Utility Facilities, the acquisition of equipment or other personal property not constituting a Basic Renewal and Replacement or the provision of improvements to increase capacity, modernize or otherwise upgrade Utility Facilities components.

"Capital Improvement Plan" shall mean the annual report of projected Capital Improvements submitted by the Contractor and approved by the GUA in Section 3.01.

"Change in Law" shall mean (a) the enactment, adoption, promulgation, modification or repeal after the Commencement Date of any federal, State, or local law, ordinance, code, rule, regulation or other similar legislation or the change in interpretation after the Commencement Date, of any federal, State, or local law, ordinance, code, rule, regulation, official permit, license or approval by any regulatory entity having jurisdiction with respect to the operation or maintenance of the Utility Facilities, or (b) the imposition, after the Commencement Date, of any material conditions on the issuance, modification or renewal of any official permit, license or approval necessary for the operation and maintenance of the Utility Facilities, which, in either case, necessitates or makes advisable a capital project, increases the Contractor's Costs by establishing requirements with respect to the operation or maintenance of the Utility Facilities which are more burdensome than the most stringent requirements:

(i) in effect on the Commencement Date, or

(ii) agreed to by the GUA in any applications for official permits, licenses or approvals for the water system or wastewater system, other than any requirements set forth in said applications to comply with future laws, ordinances, codes, rules, regulations or similar

legislation.

"Commencement Date" shall mean the day following the payment of the purchase price for the Utility Facilities pursuant to the terms of the Asset Acquisition Agreement.

"Contractor's Cost" shall mean the sum of the Contractor's Labor Cost, the Contractor's Material, Supply and Plant Equipment Cost, and the Contractor's Outsource Cost.

"Contractor's Cost Plus" shall mean the Contractor's Cost plus allowances for profit as follows:

(A) The Contractor's Labor Cost – fifteen percent (15%).

(B) The Contractor's Material, Supply and Plant Equipment Cost – ten percent (10%).

(C) The Contractor's Outsource Cost – five percent (5%).

"Contractor's Labor Cost" shall mean the sum of the following:

(A) The Contractor's direct cost of employee salaries and wages including overtime; and

(B) The Contractor's payroll taxes, the cost of employee benefits, including but not limited to, insurance, paid time off (holidays, vacation, sick and other paid leave), uniforms, employee training, and transportation, and which costs for purposes of this Agreement, shall be calculated and determined as fifty percent (50%) of direct labor cost.

"Contractor's Material, Supply and Plant Equipment Cost" shall mean the Contractor's direct cost of materials, parts, supplies and Plant Equipment, including applicable taxes.

"Contractor's Outsource Cost" shall mean the Contractor's direct cost of subcontracted and hired work, parts, materials, supplies, and construction equipment, and fixture rental, including applicable taxes.

"Contractor Representative" shall mean the person or persons designated by the Contractor to represent the Contractor in interpretations of the performance of the Contractor's duties and responsibilities under this Agreement.

"County" shall mean Collier County, Florida.

"Emergency Condition" shall mean a condition which threatens the public health and

safety.

"Extra Renewals and Replacements" shall mean Renewals and Replacements of Utility Facilities other than Basic Renewals and Replacements which are undertaken to increase capacity, or as part of a modernization or upgrading program including any meter change-out programs.

"FDEP" shall mean the Florida Department of Environmental Protection.

"Fiscal Year" shall mean the period commencing on October 1 of each year and continuing through the next September 30th.

"Full Tap and Meters" shall mean the tapping of a water main, installation of a service line and setting a new meter and appurtenances where no previous service was provided.

"General Manager" shall mean the person, corporation, or entity under contract with the GUA to provide administrative and financial services. The initial General Manager shall be Government Services Group, Inc., a Florida corporation.

"Golden Gate System" shall mean Utility Facilities located in Collier County.

"GUA" shall mean the Florida Governmental Utility Authority, an authority created by interlocal agreement pursuant to section 163.01(7), Florida Statutes.

"GUA Non-Fixed Assets" shall mean the assets to be identified pursuant to the inventory procedure provided in Appendix D.

"GUA Representative" shall mean the person or persons designated by the GUA to represent the GUA in interpretations of the performance of the Contractor of its duties and responsibilities under this Agreement as provided in Section 6.01.

"Interlocal Agreement" shall mean the interlocal agreement entered into by participating counties pursuant to section 163.01(7)(g), Florida Statutes, creating the Florida Governmental Utility Authority (the "GUA").

"Inventory" shall mean the chemicals, diesel fuel used for power generation, spare parts, pipe, fittings, and valves and other GUA Non-Fixed Assets identified pursuant to the inventory procedure listed in Appendix D or subsequently acquired by the Contractor during the term of this Agreement which the Contractor uses or is permitted to use in providing the services

hereunder.

"Meter Replacement Program" shall mean the annual program of small meter replacements approved in the Capital Improvement Plan.

"Meter Setting" shall mean the installation of a new meter and appurtenances on an existing water service line where no prior service was provided.

"Normal Business Hours" shall mean 8:00 a.m. until 5:00 p.m., Monday through Friday except holidays observed by the GUA.

"One-Call Notification System" shall mean the statewide toll-free telephone notification system established by Sunshine State One-Call of Florida, Inc., a not-for-profit corporation created pursuant to Chapter 556, Florida Statutes, for the purpose of notifying underground facility operators of potential excavation activities within the proximity of their facilities so that such facilities may be located and their location marked accordingly.

"Permits" shall mean federal, State and local permits and registrations governing the operation and maintenance of the Utility Facilities.

"Plant Equipment" shall mean machines and devices consisting of various components which by themselves provide a specific function which represents an end function or contributes to a broader function, including operating and processing equipment and special tools in use as of the Commencement Date or procured or provided pursuant to this Agreement for use at or associated with the Utility Facilities (exclusive of equipment owned or leased by the Contractor and used by the Contractor to perform its obligations under this Agreement).

"Renewal" shall mean rehabilitation, overhaul, restoration or improved function of a Utility Facilities component to the extent that it is at or near new condition and its useful life is extended.

"Repair" shall mean correction of defect in a Utility Facilities component without complete overhaul, renewal or replacement.

"Replacement" shall mean the replacement of a Utility Facilities component with a component having similar characteristics and equal quality.

"State" shall mean the State of Florida.

"Trustee" shall mean SunTrust Bank, Central Florida, National Banking Association, and any successor banking corporation, banking association or trust company serving as trustee under the indenture providing for the bonds to be issued by the GUA to acquire the Utility Facilities.

"Uncontrollable Circumstance(s)" shall mean any act, event or condition that prevents the Contractor or the GUA from meeting or performing its obligations under this Agreement, if such act, event or condition is beyond the reasonable control of the party relying thereon as justification for not meeting or performing such obligations. Such acts, events or conditions may include, but shall not be limited to, the following:

(A) an act of God (except normal weather conditions for the geographic area of the County), hurricane, tornado, epidemic, landslide, lightning, earthquake, flood, fire or explosion, or similar occurrence, war, strikes, lockouts, blockade, acts of public enemies, insurrection, riot, general unrest, restraint of government and people, civil disturbance, sabotage or similar occurrence;

(B) the order, injunction or judgment of any federal, State or local court, administrative agency or governmental body or officer with jurisdiction of the GUA acting in its governmental capacity, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State and local tax laws; provided, however, that such order, injunction or judgment shall not arise in connection with or be related to the negligent or wrongful action or inaction of the party relying thereon and that neither the contesting in good faith of any such order, injunction, or judgment nor the reasonable failure to so contest shall constitute or be construed as a wrongful or negligent action or inaction of such party;

(C) the suspension, termination, interruption, denial, failure to issue, modification or failure of renewal of any permit, license, consent, authorization or approval necessary for the operation and maintenance of the Utility Facilities, if such act or event shall not arise in connection with or be related to the negligent or willful action or inaction of the party relying thereon, and that neither the contesting in good faith of any such order nor the reasonable failure

to so contest shall be construed as a negligent or willful action or inaction of such party;

(D) a Change in Law; and

(E) the loss or inability to obtain for reasons other than the negligent, willful or wrongful action or inaction of the Contractor, utility services, including sewerage, sludge disposal and standby electric power, necessary for the operation and maintenance of the Utility Facilities directly resulting in a partial or total curtailment of operations at the Utility Facilities.

"Utility Facilities" shall mean all of the property and rights, both tangible and intangible, that the GUA owns or uses or subsequently acquires or uses in conjunction with the operation and maintenance of the Golden Gate System, including by way of example and not limitation, the following:

(A) All real property and interests, whether recorded in the public records or not.

(B) All water and wastewater facilities, including reuse and reclaimed water, treatment plants, wells, collection, transmission, distribution, pumping, effluent and disposal facilities of every kind and description, including by way of example and not limitation, all trade fixtures, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities and property installations used in the operation of the Golden Gate System.

(C) All equipment, tools, parts, laboratory equipment, and other personal property owned or used by the GUA in connection with the operation of the Golden Gate System.

(D) All easements in favor of the GUA or its predecessors in interest.

(E) All customer records and supplier lists, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer models and studies, accounting, budget and business records and all other information controlled by or in the possession of the GUA that relates to the description and operation of the Golden Gate System.

(F) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, use and maintain the Golden Gate System.

"Utility Services" shall mean collectively, the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

SECTION 1.02. CONSTRUCTION AND INTERPRETATION.

(A) Words that indicate a singular number shall include the plural in each case and vice versa, and words that indicate a person shall include legal entities, firms and corporations.

(B) The terms "herein," "hereunder," "hereby," "hereof," and any similar terms, shall refer to this Agreement; the term "heretofore" shall mean before the date of execution of this Agreement; and the term "hereafter" shall mean on or after the initial date of execution of this Agreement.

(C) Words that reference only one gender shall include all genders.

(D) This Agreement shall be construed as resulting from ongoing negotiation and authorship. No part of this Agreement shall be construed as the product of any one of the parties hereto.

SECTION 1.03. INCORPORATION. The Appendices hereto and each of the documents referred to therein are incorporated and made a part hereof in their entirety by reference.

SECTION 1.04. SECTION HEADINGS. Any headings preceding the texts of the several Articles, Sections, Appendices, or Exhibits in this Agreement and any table of contents or marginal notes appended to copies hereof, shall be solely for the convenience of reference and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

ARTICLE II

GENERAL

SECTION 2.01. CONTRACTOR'S RESPONSIBILITY. Except as otherwise specified elsewhere herein, the Contractor shall provide required personnel, and associated wages, salaries and benefits, services, materials (including chemicals, electricity and fuel), vehicles, utilities and other consumables necessary to perform the services specified herein. Furthermore, the Contractor shall provide required tools and equipment, except tools and equipment which are GUA Non-Fixed Assets.

SECTION 2.02. CONTRACTOR STAFFING. To fulfill its obligations under this Agreement, the Contractor contemplates implementing the personnel staffing plan shown in Appendix E. Material changes in the staffing plan for the position of division manager and subordinate operational personnel shall require the consent of the GUA, which consent shall not be unreasonably withheld. Should regulatory requirements dictate a change in staffing level, the Contractor shall be entitled to an adjustment in the Basic Operation and Maintenance Service Fee and the Basic Billing and Customer Service Fee, as applicable. Should the Contractor invest in equipment that allows a reduction in staff, any cost reduction shall be for the Contractor's sole benefit. Should the Contractor and the GUA jointly invest in equipment that results in a staff reduction, then the labor savings shall be shared in amounts equal to the relative investment of each party.

SECTION 2.03. TRAINING PROGRAM. The Contractor shall provide a training program for employees of the Contractor performing the Basic Operation and Maintenance Service to insure they have a basic understanding of water and wastewater treatment processes and safety. The Contractor's training program shall place special emphasis on safety procedures and protocols and on those processes that employees will utilize in daily operation of the water and wastewater treatment plants and the water distribution and sewer collection and wastewater disposal systems. Documentation of the scope of the training program required by Applicable Law and participation by employees of the Contractor shall be provided to the GUA.

SECTION 2.04. SAFETY.

(A) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work and services to be provided under this Agreement. The Contractor shall take all necessary precautions for the safety of and to prevent injury to all employees, whether at the Utility Facilities or in the field, and other persons or entities who may be affected by the work and service to be provided under this Agreement. The Contractor shall also take all necessary precautions to provide the necessary protection to prevent damage or loss to materials or equipment to be provided under this Agreement, whether stored on or off of the property and to all property listed on the Inventory or incorporated into the Utility Facilities.

(B) The Contractor shall designate a representative whose duties shall include the prevention of accidents.

(C) The Contractor shall comply with Applicable Law relating to the safety of persons or property or protection thereof from damage, injury or loss. The Contractor shall at all times erect and maintain all necessary safeguards or barriers for safety and protection.

SECTION 2.05. USE OF GUA NON-FIXED ASSETS AND INVENTORY.

(A) The Contractor shall have the use and control in the provision of the services hereunder, including the use and control of the GUA Non-Fixed Assets and the Inventory. The Contractor shall be responsible for the maintenance or repair of all GUA Non-Fixed Assets used by the Contractor in the provision of services hereunder and shall replenish the Inventory as the Contractor deems appropriate.

(B) The GUA and the Contractor shall jointly determine the value of the Inventory on the Commencement Date and upon termination of this Agreement, based upon initial cost. Should said value at termination be greater than the value on the Commencement Date, the GUA shall pay the Contractor the difference and conversely, should the value upon termination be less than the value on the Commencement Date, the Contractor shall pay the GUA the difference. For purposes of determining the value of the Inventory, the prices paid by Florida Cities Water Company and the Contractor shall be used.

(C) The GUA shall be responsible for the replacement of equipment which is a part of the GUA Non-Fixed Assets that becomes non-usable through normal wear and tear. The Contractor shall be responsible for the replacement of all such equipment which becomes non-usable through damage or misuse.

SECTION 2.06. CONTRACTOR'S VEHICLES. The Contractor's vehicles shall be professionally and safely maintained in a mechanically sound manner. All vehicles must provide a clean and mechanically sound image. As vehicles are replaced or repainted, the Contractor shall provide uniform signage that is acceptable to the GUA Representative and which reflects the fact that the vehicles are used in the service of the Utility Facilities.

SECTION 2.07. YEAR 2000 COMPLIANCE. Year 2000 compliance relates to the fact that many existing computer programs and embedded computer chips recognize only the last two digits of the year, and are unable to distinguish between the year 1900 and the year 2000. Because of the unprecedented nature of the year 2000 compliance issue, its effects and the success of related remediation efforts will not be fully determined until the year 2000 and thereafter. Although the Contractor is not aware of any material year 2000 compliance issues it has not addressed, the Contractor can provide no assurance the computer systems it owns and will utilize in connection with the services hereunder are or will be year 2000 ready, or that its remediation efforts were or will be successful in whole or in part. Furthermore, the Contractor can provide no assurance that vendors, government agencies, paying agents or other third parties providing services to the Contractor have or are effectively dealing with year 2000 compliance issues in a timely manner.

SECTION 2.08. SUBCONTRACTING.

(A) The Contractor shall not subcontract services or work included in the Basic Operation and Maintenance Service (exclusive of sludge disposal) and the Basic Billing and Customer Service to an extent materially beyond that work and services being subcontracted as of December 18, 1998, without the prior written approval of the GUA Representative, which approval shall not be unreasonably withheld. The Contractor shall have the duty to evaluate all subcontractors and to inspect all the work of subcontractors and make a determination as to the

capability of any subcontractors to perform properly under the terms of this Agreement.

(B) The Contractor may subcontract any work or services which are not a part of the Basic Operation and Maintenance Service and Basic Billing and Customer Service without the consent of the GUA.

ARTICLE III

OPERATION AND MAINTENANCE SERVICE

SECTION 3.01. BASIC OPERATION AND MAINTENANCE SERVICE.

(A) It is contemplated by the parties that the Basic Operation and Maintenance Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The following general operation and maintenance services shall be required of and timely provided by the Contractor in the operation and maintenance of the Utility Facilities:

(1) The Contractor shall have full responsibility for the daily operation and maintenance of the Utility Facilities in a manner consistent with the specific Basic Operation and Maintenance Service Performance Standards.

(2) The Contractor shall perform Repairs and Basic Renewals and Replacements. Specifically excluded are Extra Renewals and Replacements and Capital Improvements.

(3) The Contractor shall secure and maintain all permits required in the Contractor's name for the performance of the services described in this Agreement. The GUA shall be responsible for acquiring and renewing all Permits required by Applicable Law for the operation and maintenance of the Utility Facilities and for the acquisition and construction of Capital Improvements to be constructed by the Contractor.

(4) The Contractor shall cooperate and facilitate in the acquisition and completion of all approved Capital Improvements.

(5) The Contractor shall maintain responsive working relationships with: the GUA Representative, the General Manager, the County and other local governments within the Golden Gate System service area, federal and State regulatory authorities, utility suppliers and vendors, and the public.

(6) The Contractor shall receive and check requests for water and wastewater pipeline locations from the One-Call Notification System and, if necessary, provide on-site location assistance.

(7) The Contractor shall provide prudent maintenance consistent with industry standards, equipment manufacturer's instructions, and standard operation and maintenance manuals so that upon termination of this Agreement, the Utility Facilities are returned to the GUA in the same or better condition than at the Commencement Date, normal wear and tear excepted. Work performed by the Contractor or subcontractors shall be of the quality normally associated with work of the kind in which the Contractor is engaged.

(8) The Contractor shall perform all preventive and corrective maintenance and Repairs in a timely manner. If, in the opinion of the GUA, preventive and corrective maintenance or Repairs have been unreasonably delayed, the GUA shall so inform the Contractor. The Contractor shall respond within five (5) business days outlining the reason for the delay. If the GUA determines that the delay is within the control of the Contractor, the Contractor shall be so notified, and the Contractor agrees to complete the necessary work within ten (10) business days or by a date certain beyond ten (10) business days of notification if approved by the GUA. If the Contractor fails to complete the work, the GUA may take steps to have the specific items of work which have not been performed completed by a third party. The cost of completing this work by a third party shall be deducted from the monthly payment of the Basic Operation and Maintenance Service Fee otherwise due the Contractor.

(9) The Contractor shall regularly water, mow, fertilize, prune, remove weeds, maintain and repair permanent sprinkler systems and controls, and otherwise maintain landscaping of all buildings and plants.

(10) The Contractor shall maintain the appearance and cleanliness of all buildings and plants in a neat and orderly condition and provide those custodial services normally associated with maintenance of a business office or plant, as applicable, and provide periodic painting of the Utility Facilities as provided in the Annual Maintenance Plan.

(B) The GUA shall be responsible for all laboratory testing required by Applicable

Law except those tests listed in Appendix F which shall be performed by the Contractor. The Contractor shall provide access and cooperate with the laboratory testing contractor engaged by the GUA. The Contractor shall collect all samples, except groundwater, surface water and sediment samples.

(C) The Contractor shall operate and maintain all Utility Facilities in such a manner that the water quality is maintained at a level equal to, or better than, the water quality limitations established by Applicable Law to the extent of the capability of the Utility Facilities. In the event the water quality achieved is not in compliance with the Permit, the Contractor shall immediately submit a report to the GUA outlining the proposed corrective action and a schedule to accomplish such corrective action. All such corrective action shall be taken as soon as practical.

(D) The Contractor shall prepare and submit to the GUA an Annual Maintenance Plan for the Utility Facilities.

(1) The Annual Maintenance Plan shall include a schedule incorporating the maintenance activities and services listed in the Basic Operation and Maintenance Service Performance Standards. The performance standards for the preventative maintenance and cleaning of all Utility Facilities shall be consistent with the Basic Operation and Maintenance Service Performance Standards.

(2) The Annual Maintenance Plan for the remainder of the Fiscal Year commencing on October 1, 1998 and for the Fiscal Year commencing on October 1, 1999 shall be submitted by the Contractor to the GUA for approval within sixty (60) days of the Commencement Date. For the remaining Fiscal Years during the term of this Agreement, the Annual Maintenance Plan shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(3) To implement the Annual Maintenance Plan, the Contractor shall continue the use of a computerized maintenance management system.

(E) The Contractor shall prepare a recommended list of Capital Improvements for inclusion in the Capital Improvement Plan for the ensuing Fiscal Year. The Capital

Improvement Plan prepared by the Contractor shall include an estimate of the cost to construct or acquire the recommended Capital Improvement and provide a recommendation whether the Capital Improvement should be acquired or constructed by the Contractor or by subcontract to a third party. In addition to the projected or recommended Capital Improvements for the ensuing Fiscal Year, the Capital Improvement list prepared by the Contractor shall contain recommended Capital Improvements for an additional four (4) Fiscal Years for use by the GUA in financial planning for the provision of future Capital Improvements to the Utility Facilities.

(1) The Capital Improvement Plan for the remainder of the initial Fiscal Year commencing on October 1, 1998, shall be the Capital Improvement Plan approved by the GUA prior to the Commencement Date. The Capital Improvement list prepared by the Contractor for the Fiscal Year commencing October 1, 1999, shall be submitted to the GUA within sixty (60) days subsequent to the Commencement Date. For all remaining Fiscal Years during the term of this Agreement, the Capital Improvement list prepared by the Contractor shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(2) The initial Capital Improvement list submitted by the Contractor for the initial Fiscal Year commencing on October 1, 1998, shall contain all Fiscal Year 1998/1999 Capital Improvements to be completed or initiated during Fiscal Year 1998/1999 and shall identify those portions of the Contractor's Costs of Capital Improvements in progress on the Commencement Date required to be funded by the GUA pursuant to this Agreement.

(F) The Contractor shall prepare a recommended Extra Renewals and Replacements list with cost estimates and an estimate of Repairs and Basic Renewals and Replacements costing over twenty five hundred dollars ($2,500.00) for the ensuing Fiscal Year on the same schedule as Capital Improvements as provided in subsection (E)(1) of this Section 3.01.

(G) The Contractor shall submit to the GUA a disaster recovery plan for the Utility Facilities within sixty (60) days subsequent to the Commencement Date. Such plan shall address the Contractor's plan for dealing with a major disaster, by way of example and not limitation, hurricane, flood, tornado, or sabotage.

SECTION 3.02. ADDITIONAL SERVICES AUTHORIZATION.

(A) The Contractor shall perform the Basic Operation and Maintenance Service, Basic Renewals and Replacements and Repairs without prior authorization from the GUA.

(B) Additional Services and Extra Renewals and Replacements will not be initiated by the Contractor without prior approval by the GUA. The Contractor shall notify the GUA whenever it contemplates that the cost of a Repair or Basic Renewal and Replacement will exceed twenty five hundred dollars ($2,500.00).

(C) The construction or acquisition of a Capital Improvement or Extra Renewals and Replacements in an approved Capital Improvement Plan shall not be commenced by the Contractor until approval by the GUA Representative of a work order documenting the Contractor's Cost, including specifically any Contractor's Outsource Cost. Inclusion of a special project in an approved Capital Improvement Plan shall not waive said requirement for prior approval.

SECTION 3.03. STANDARDS FOR CAPITAL IMPROVEMENTS, REPAIRS AND RENEWALS AND REPLACEMENTS. The Contractor shall use the "FCWC/PUI Specification Listings" (Revised 5/97) and the Specification Details and Drawings (January 1999 edition) as the minimum standards for use of materials and methods for Capital Improvements, Repairs, and Renewals and Replacements, except as part of the Basic Operation and Maintenance Service, the Contractor shall not be required to replace components of water and wastewater pumping stations to the above-referenced standards unless said pumping stations have components that conform to the referenced standards. Notwithstanding, the replaced components shall be of quality equal to the original.

SECTION 3.04. USE OF FACILITIES; FIELDWORK. The Contractor shall confine all operation, maintenance and construction equipment, shall confine the storage of all materials and equipment, and shall limit the operations and work of all employees and subcontractors to the Utility Facilities and in other areas permitted by law, rights-of-way, Permits and easements, and shall not unreasonably encumber the Utility Facilities or such other land areas with materials, equipment, or vehicles of the Contractor. At all times the Contractor shall

use and administer the Utility Facilities in a professional, neat and orderly fashion. The Contractor shall assume full responsibility for any damage to the Utility Facilities or real or personal property within areas contiguous to the Utility Facilities resulting from the provision of Basic Operation and Maintenance Service.

SECTION 3.05. GENERAL REPORTING RESPONSIBILITIES.

(A) The Contractor shall prepare and file all reports required by Applicable Law. If requested to do so by the GUA Representative, the Contractor shall timely provide copies to the GUA for review and comment prior to filing.

(B) In addition to the recommended Annual Maintenance Plan, the recommended annual list of Capital Improvements, the recommended annual list of Repairs and Basic Renewals and Replacements estimated to cost more than twenty five hundred dollars ($2,500.00) and the recommended annual list of Extra Renewals and Replacements, the Contractor shall timely prepare and deliver to the GUA Representative the Basic Operation and Maintenance Reports listed in Appendix G.

(C) The Contractor shall provide all reports required under this Article III in an electronic data format and by electronic means capable of remote access by the General Manager and the Trustee to the extent of the Contractor's capability on December 18, 1998.

SECTION 3.06. BASIC OPERATION AND MAINTENANCE SERVICE FEE.

(A) For the provision of the Basic Operation and Maintenance Service, the Contractor shall be paid a fixed annual price of nine hundred forty eight thousand five hundred two dollars ($948,502.00). Included in the Basic Operation and Maintenance Service Fee is the first twenty five hundred dollars ($2,500.00) of the Contractor's Material, Supply and Plant Equipment Cost, Contractor's Labor Cost, and the Contractor's Outsource Cost for any Repair or any Basic Renewals and Replacements.

(B) The GUA shall reimburse the Contractor for Contractor's Material, Supply and Plant Equipment Costs, and Contractor's Outsource Costs associated with Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event.

SECTION 3.07. FEES FOR ADDITIONAL SERVICES. Fees for Additional

Services shall be paid by one of the following:

(A) fixed fees as set forth in Appendix H, if applicable; or

(B) the Contractor's Cost Plus; or

(C) as otherwise mutually agreed by the parties.

SECTION 3.08. PAYMENT OF BASIC OPERATION AND MAINTENANCE SERVICE FEE. The Basic Operation and Maintenance Service Fee shall be paid by the GUA in twelve equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. The Contractor shall submit a separate itemized invoice and supporting documentation for the Contractor's Material, Supply, and Plant Equipment Costs and Contractor's Outsource Costs for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event. The GUA shall pay the Contractor within twenty (20) days of receipt of the Contractor's invoice for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00). For the first month in which the Commencement Date occurs, the Basic Operation and Maintenance Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 3.09. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's invoice and supporting documentation.

ARTICLE IV

UTILITY BILLING AND CUSTOMER SERVICE

SECTION 4.01. GENERAL BILLING RESPONSIBILITY OF THE CONTRACTOR.

(A) It is contemplated by the parties that the Basic Billing and Customer Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The general billing, meter reading and customer service shall be required of and timely provided by the Contractor.

(B) The Contractor shall have full responsibility to provide all billing and customer

services in a manner consistent with the Basic Billing and Customer Service Performance Standards.

(C) The billing system employed and used by the Contractor shall be organized in a manner that will:

(1) process billing on a monthly basis;

(2) process billing dollar amounts up to $999,999.99;

(3) process multiple meters for each service address with different rate schedules for each meter;

(4) update the rate schedule by date and have the ability to use two different rate schedules within a single billing period;

(5) apply rates as a flat amount or based on usage;

(6) generate delinquent notices prior to a turn-off;

(7) accept a GUA-specified dollar threshold for delinquent mailers;

(8) track turnoffs and delinquency by account;

(9) make adjustments or error corrections;

(10) post messages on bills as requested by the GUA;

(11) provide aging information to the GUA to assist with the GUA's determination of when a lien should be applied to an account; and

(12) make GUA-requested changes to the customer service record format or changes to the billing and remittance processing procedures or programs for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall have the capability to provide the requested data to the GUA in ASCII format. Said interface shall include, but not be limited to:

(1) automated extraction of ledger entry information from monthly billings, final billings and adjustments based on transaction codes in the rate schedule; and

(2) automated extraction of customer information for refunds of deposits or after final billings.

(E) The billing system employed and used by the Contractor shall contain the

capacity to allow read only access to customer accounts by the General Manager via on-line access. The GUA shall be responsible for all costs associated with its on-line access including communications link, special hardware and software. Such on-line access shall include, by way of example and not limitation, the following:

(1) interface for on-line hookup by the General Manager;

(2) read only access by the General Manager to all functions of the billing system as determined by security clearance;

(3) provide multiple-line transaction history showing a running account balance;

(4) ability to extract information as requested by the General Manager, including date-specific information;

(5) ability to regularly generate user-specifiable reports including, by way of example and not limitation, billing summary, trial balance, aged trial balance (by date), and transaction audit controls;

(6) ability to review customer charges and payments by account;

(7) ability to review billing history by account;

(8) ability to review usage history by customer account or meter number;

(9) ability to review utility billing system work order status;

(10) ability to review turn on and off history by account;

(11) ability to review customer information by account; and

(12) search by customer number, customer name, meter number and street address.

(F) The Contractor shall provide a business recovery functions plan to the GUA which shall include, by way of example and not limitation, daily off-site storage of all transactions.

SECTION 4.02. PROCESSING UTILITY BILLS; PROBLEM RESOLUTION.

(A) The Contractor shall compose, prepare, print (laser) customer bills, on a single (8.5" x 11") one-colored page bill form prescribed by the GUA, and mail customer bills monthly. Customer bills shall be prepared in such cycles as mutually agreed by the Contractor and the

GUA. The cost of first class postage for customer bills shall be at the expense of the Contractor. Any billing error or omission, whether human or mechanical, on the part of the Contractor shall be corrected at no cost to the GUA. Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor by the GUA will be provided for an additional fee not included in the Basic Billing and Customer Service Fee.

(B) The Contractor shall undertake and perform all billing services required to timely and regularly process customer utility bills. Such billing services shall include, by way of example and not limitation, the following:

(1) create a working file of prepared meter readings formatted for the billing system;

(2) review notes or trouble codes from meter readers and issue appropriate work orders to rectify problems;

(3) follow up on notices (e.g., apparent leaks, reasons for high usage, inaccessible meters, broken register, vacant houses, stuck meters) left by meter readers to the customers or owners;

(4) produce consumption reports for the billing process and analyze unusual usage or stuck meters; issue work orders and contact customers as appropriate;

(5) produce a billing from consumption reports, and review the billing for appropriateness of charges and suspected errors;

(6) develop quality assurance procedures to insure, by sample testing and review, the accuracy of bills on a periodic basis;

(7) work with the operation and maintenance field service personnel in verifying any unusual situations found in the billing process that are related to meter or meter reading problems;

(8) issue work orders designed to clarify questions raised during the billing process and categorize and analyze work orders and make recommendations as to how to minimize work orders and gain efficiencies;

(9) mail single page (8.5" x 11") special notices in envelopes to customers separate from the GUA bill for an additional fee not included in the Basic Billing and Customer Service

Fee; and

(10) insert single page "bill stuffers" (not larger than 8.5" x 11") with the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.03. COMPUTER PROCESSING AND RELATED SERVICES.

(A) The Contractor shall maintain, on its own computer system, the master customer records of the Golden Gate System. This information shall be made available to the General Manager and the Trustee via modem. In addition, the Contractor shall transfer data on a daily basis to the computer systems of the General Manager and the Trustee to the extent that said computer systems are compatible with the Contractor's computer system. The GUA may bill water and wastewater charges and other fees and assessments as separate items on the bills. The Contractor must provide an itemized bill in the same manner currently used. The addition of other fees or assessments, changes in the bill format and bill printing programs in the Contractor's utility billing system are not included in the Basic Billing and Customer Service Fee.

(B) All date-related data shall be formatted as required by the General Manager and shall contain no ambiguous references with respect to century.

(C) The Contractor shall provide the ability within software, to provide the following services:

(1) deposit report - a report that shows all customer deposits including options providing a range of deposit dates and status of refundable accounts;

(2) rate changes - changes to rates and charges applicable to customer billing approved by the GUA will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee;

(3) customer message - adding or changing a special "customer message" on the customer bill form as requested by the General Manager. Such messages shall be limited to four (4) lines of text; and

(4) mailing labels - the Contractor will provide mailing labels from the GUA's master customer records upon request for selected zip codes or class of customer for an additional fee

not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall develop necessary special programming and controls that show customer accounts on a billed versus collected basis and provide a percentage of collection on each of the items. Such special programming and controls which will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee, by way of example and not limitation, shall include water revenues, wastewater revenues, special assessment revenues, connection fee revenues, reuse revenues, and revenues from any other fees approved by the GUA. All revenue reports should list year-to-date totals and compare revenue to the prior year.

SECTION 4.04. BASIC BILLING AND CUSTOMER SERVICE REPORTS. The Contractor shall timely prepare and provide the reports listed in Appendix G. Such reports and all other required reports and information provided to the General Manager and the Trustee shall be available in ASCII format and by electronic means capable of remote access by the General Manager and the Trustee.

SECTION 4.05. GENERAL CUSTOMER SERVICE RESPONSIBILITY OF THE CONTRACTOR . To satisfy the customer service objectives of the GUA as stated in the preamble to this Agreement, the following general customer services shall be required of and timely provided by the Contractor.

(A) The Contractor shall be responsible for the accuracy of all customer information such as deposits, new accounts, file information, and changes to accounts and charges.

(B) Customer accounts shall be closed and finaled upon the request of the customer. No customer account shall be deleted until a new account with a deposit is opened. A work order to discontinue service may be issued to eliminate delinquent customer usage charges.

(C) If at any time a customer account is opened or a meter set without a deposit, the Contractor will notify a field service representative to issue notice to the property that service will be terminated within five (5) business days unless a deposit is provided.

(D) The Contractor shall be responsible for the initial enforcement of delinquent customer accounts including the following:

(1) The Contractor shall be responsible for delivering delinquent notices to each individual customer via the U. S. Postal Service and, if necessary, to issue any work orders, for discontinuance of service.

(2) The Contractor shall be responsible for contacting those customers whose accounts contain information relative to special health or guardianship circumstances. The Contractor will determine if there is a valid reason why a bill is unpaid, including by way of example and not limitation, a dispute, a lost bill, vacancy, or change of accounts, and allow a maximum of five (5) business days for the delinquency situation to be corrected by the customer before the Contractor proceeds with discontinuance of service.

(3) If a customer disputes the billed amount and provides the Contractor written notice of the dispute, the Contractor shall hold in abeyance for a maximum of thirty (30) days any discontinuance of service until the dispute has been investigated and resolved. If the dispute has not been resolved and the account remains delinquent for more than thirty (30) days after the customer provides written notice to the Contractor of the dispute, a work order will be issued to discontinue service.

(E) The Contractor shall make reasonable efforts to collect all utility revenues, in an efficient manner, with due consideration to customers, without jeopardizing revenue collections and consistent with the applicable covenants under the indenture applicable to any outstanding bonds.

(F) Whenever customers raise questions, point out billing errors, express concerns, or otherwise dispute any bill, the Contractor shall attempt to resolve them in an expeditious manner. If a resolution requires additional research to respond to a customer's dispute, the Contractor will document each stage of the dispute process and prepare a written record of all customer reports indicating the reporting party, address, nature of the problem, action taken by the Contractor and the final resolution shall be maintained by the Contractor and a copy provided to the GUA Representative. If customer service personnel are working with a customer they must report that fact to field service personnel so that customers will not experience discontinuance of service before dispute resolution.

SECTION 4.06. TELEPHONE AND WALK-IN CUSTOMER SERVICE; REMITTANCE PROCESSING.

(A) The Contractor shall maintain a customer service center at 1805 CR 951, Suite C, Naples, Florida 34116. The location of the customer service center can be moved only with the consent of the GUA, which consent shall not be unreasonably withheld. Should the location of the customer service center be relocated at the request of the GUA, the Contractor shall be compensated the full cost of such relocation as an additional fee not included in the Basic Billing and Customer Service Fee. The customer service center shall be:

(1) open to the public during Normal Business Hours;

(2) during periods when the customer service center is not open, the center shall be equipped with an answering service to take incoming calls or otherwise direct incoming calls to a staffed location; and

(3) staffed with sufficient personnel to take customer and emergency calls, process and dispatch customer service and other work orders, accept customer payments, and process changes to customer accounts.

(B) The Contractor shall respond in a timely manner to all customer inquiries including, by way of example and not limitation, bill inquiries and inquiries pertaining to service initiation and termination, and reports of water breaks, low water pressure, water quality concerns, odors and wastewater discharge. The Contractor's customer service personnel shall also be prepared to answer commonly asked questions without referral to other personnel. Commonly asked questions include, by way of example and not limitation, typical annual usage, account balance, how a bill was calculated, last payment and date, when the last bill was issued, detailed and summary information concerning the customer's account for the current year or within a two (2) year history, the due dates, and mailing and service address.

(C) The Contractor shall be responsible for answering questions regarding delinquent account information. It shall be the responsibility of the Contractor's customer service personnel to respond to these questions and respond how to rectify the delinquent situation.

(D) The Contractor shall be responsible for setting up new accounts, computing

necessary deposits in accordance with GUA tariffs, closing accounts, and relaying this information to the General Manager. The Contractor shall immediately enter this information into the Contractor's computer system and verify it for quality assurance.

(E) The Contractor shall provide for walk-in customer service, for setting up temporary meters, or for the collection of fees charged for tapping and connection based on GUA tariffs. In addition to the receipt of payment at the customer service center, the Contractor shall process payments transmitted by mail.

SECTION 4.07. FIELD CUSTOMER SERVICE. The Contractor shall provide field customer service by qualified personnel consistent with the Basic Billing and Customer Service Performance Standards. Customer service provided in the field shall include, by way of example and not limitation, activation and termination of service during the hours on the days when the customer service center is open and the investigation of customer problem reports. Customer service activation (turn-on) occurring other than Normal Business Hours will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.08. REMITTANCE OF FUNDS TO TRUSTEE.

(A) All receipts will be combined daily for deposit to the GUA's designated bank account. These moneys will be deposited within twenty four (24) hours of receipt except for legal holidays, weekends, and disasters beyond the control of the Contractor.

(B) A report by facility of daily receipts will be provided by FAX or electronically to the GUA and the Trustee for verification of deposits made to the GUA account. Such report shall identify receipts by water connection fees, wastewater connection fees, customer deposits, such other receipts or revenues required to be segregated by the GUA and all other receipts. Any discrepancies shall be reported and responded to within forty eight (48) hours.

(C) Mail-in payments must be addressed and be in an acceptable format to the GUA's lock box provider. A computer file containing details of the lock box receipts shall be provided via modem or tape to the Contractor to be used to update customers' accounts.

(D) Any mail-in receipts not provided in accordance with or acceptable to the GUA's

lock box provider's specifications shall be considered rejected and must be processed by the Contractor's cashiers in a manner similar to any mail-in receipts that do not go directly to the GUA's lock box provider.

SECTION 4.09. BASIC BILLING AND CUSTOMER SERVICE FEE. For the provision of the Basic Billing and Customer Service, the Contractor shall be paid a fixed annual price of one hundred sixty eight thousand nine hundred dollars ($168,900,00).

SECTION 4.10. PAYMENT FOR ADDITIONAL SERVICES. For Additional Services not included in the Basic Billing and Customer Service Fee, the Contractor shall be compensated as follows:

(A) Customer service activation (turn-on) occurring other than Normal Business Hours – thirty five dollars ($35.00) per activation.

(B) Make changes in the customer service record format and other changes to customer records, billing and remittance format requested by the GUA – eighty five dollars ($85.00) per hour of programmer time.

(C) Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor for implementation – eighty five dollars ($85.00) per hour of programmer time.

(D) Insert single-page "bill stuffers" (not larger than 8.5" x 11") with customer bill form - $0.035 per bill plus any additional postage required.

(E) Print mailing labels from the GUA's master customer records - $0.069 per label.

(F) Change customer bill form format – eighty five dollars ($85.00) per hour of programmer time plus the Contractor's cost of unused bill forms on hand.

(G) Prepare rate analysis reports using historical usage information to analyze past periods of one to twenty four (1-24) months and consolidate totals by rate class and meter size - $0.08 per customer account ($150.00 minimum).

(H) Produce billing registers with proposed rates for comparison with current rates - $0.18 per customer account plus a set-up charge of $170.00.

(I) Change customer rates and charges – eighty five dollars ($85.00) per hour of programmer time.

(J) Special computer programming – eighty five dollars ($85.00) per hour of programmer time.

(K) Mail single-page (8.5" x 11") special customer notices in envelopes to customers separate from bill - $0.447 per notice plus postage.

SECTION 4.11. PAYMENT OF BASIC BILLING AND CUSTOMER SERVICE FEE. The Basic Billing and Customer Service Fee shall be paid in twelve (12) equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. For the first month in which the Commencement Date occurs, the Basic Billing and Customer Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 4.12. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's itemized invoice consistent with the authorizations received from the GUA. The Contractor shall document all such fees for Additional Services.

ARTICLE V

TERMS AND TERMINATION

SECTION 5.01. TERM OF AGREEMENT. The initial term of this Agreement shall commence on the Commencement Date and shall expire on May 31, 2000. The initial term of this Agreement may be extended for an additional term of 5 years upon the mutual agreement of the parties.

SECTION 5.02. DEFAULT.

(A) An event of default occurs if the persistent, repeated, or substantial failure or refusal by either the GUA or the Contractor to substantially fulfill any of its material obligations in accordance with this Agreement, provided, however, that no such event shall constitute a default unless and until:

(1) the non-defaulting party has given written notice to the defaulting party that a default or defaults exist which will, unless corrected, constitute an event of default on the part of the defaulting party; and

(2) the defaulting party either has not corrected such default, or has not initiated reasonable steps expeditiously to correct such default within five (5) days from the date of such written notice.

(B) The events by which the Contractor shall be deemed to have failed to fulfill a material obligation of this Agreement shall include, by way of example and not limitation, the following:

(1) failing to begin an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(2) discontinuing prosecution of an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(3) failing to comply with any Applicable Law, whether willfully or negligently;

(4) breaching any material warranty or making any representation in this Agreement that is materially untrue;

(5) failing to pay, when due, any sums owed to a subcontractor for services or materials in a manner approved by the GUA; or

(6) failing to perform the Basic Operation and Maintenance Service or the Basic Billing and Customer Service in a manner consistent with the performance standards or other requirements established or incorporated in this Agreement.

(C) Each of the following also shall be deemed an event of default: (1) written admission by a party that it is bankrupt; (2) filing by a party of a voluntary petition for bankruptcy; (3) consent by a party to the court appointment of a receiver or trustee for all or a substantial portion of its property or business; (4) the making of any arrangement by a party with, or for the benefit of, its creditors or assigning to a trustee, receiver, or similar functionary (regardless of how designated) of all or a substantial portion of a party's property or business; (5) becoming insolvent; or (6) final adjudication of a party as bankrupt under the Federal Bankruptcy Act.

SECTION 5.03. EMERGENCIES. In the event of an emergency affecting the safety or protection of persons, the Utility Facilities, or property adjacent thereto, or to avoid

imminent environmental contamination, the Contractor, without special instruction or authorization from the GUA Representative or the General Manager is obligated to act to prevent such threatened damage, injury or loss. The Contractor shall give the GUA Representative oral notice within forty eight (48) hours followed by written notice within five (5) business days after the occurrence of the emergency, if the Contractor believes that any significant changes in the scope of services provided in this Agreement is required and merited. If the GUA determines that a modification of the compensation or scope of services is required because of the action taken in response to an emergency, an amendment shall be issued to document the consequences of the changes or variations. If the Contractor fails to provide such written notice to the GUA Representative within the forty eight (48) hour period, the Contractor shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the compensation or scope of service provided under this Agreement.

SECTION 5.04. EMERGENCY REPLACEMENT OF CONTRACTOR. In the event of any emergency condition involving the Utility Facilities which is found by the GUA to present a significant, immediate danger to public health, whether the cause of the Contractor or otherwise, and the Contractor is either unable or unwilling to correct such condition, the GUA may replace the Contractor without notice during the emergency condition, provided that at the conclusion of any such condition, the Contractor shall be reinstated by the GUA. Provided further, however, the GUA shall not be obligated to reinstate the Contractor at the conclusion of the emergency condition and may terminate this Agreement if the Contractor's inability or unwillingness to correct such condition itself constitutes grounds for termination of this Agreement or the Contractor is otherwise in default as provided in Section 5.02. The Contractor shall not be entitled to any compensation after the date upon which the GUA replaces the Contractor under this Section 5.04.

SECTION 5.05. OBLIGATIONS EXCUSED.

(A) Notwithstanding any other provision in this Agreement, neither the GUA nor the Contractor shall be liable to the other for any failure or delay in performance of any obligation under this Agreement due to the occurrence of an Uncontrollable Circumstance.

(B) As a condition precedent to the right to claim excuse of performance, the party experiencing an Uncontrollable Circumstance shall:

(1) promptly notify the other party verbally; and

(2) as soon as practical, but in no event more than five (5) business days thereafter, prepare and deliver to the other party a notice with a written description of (a) the commencement of the Uncontrollable Circumstance; (b) its estimated duration and cost impact, if any, on the party's obligations under this Agreement; and (c) its estimated impact (other than cost), if any, on the party's obligations under this Agreement.

SECTION 5.06. DISPUTE RESOLUTION.

(A) Notwithstanding any other provision in this Agreement, any dispute among the parties which arises from the Agreement shall be resolved by binding arbitration conducted in accordance with this Section 5.06. Either party may initiate the dispute resolution process by providing written notice to the other party.

(B) After transmittal and receipt of a written notice specifying the area or areas of disagreement or dispute, the parties agree to meet at reasonable times and places, as mutually agreed upon, to discuss the issues.

(C) If discussions between the parties fail to resolve the dispute within fifteen (15) business days of the receipt by each party of the notice described in subsection (A) of this Section 5.06, a binding arbitration may then be initiated by either party by written notification to the other party of the existence of a dispute. Any and all issues related to the matter addressed by the written notice provided in subsection (A) of Section 5.06 or any response by the other party shall be raised and resolved in a single proceeding.

(D) The arbitrators shall be appointed and act as follows:

(1) The GUA and the Contractor shall each appoint a person as arbitrator within thirty

(30) days of the date one of the parties has notified the other of the existence of a dispute.

(2) Each appointment shall be signified in writing to the counter party and the arbitrators so appointed, within ten (10) days of their acceptance of appointment, shall appoint a third arbitrator, who shall chair the panel. If the arbitrators appointed by the parties are unable to agree upon a third arbitrator, the same shall be appointed by the American Arbitration Association from its qualified panel of arbitrators. Each party shall have the right to veto up to two appointments proposed by the American Arbitration Association. If either the GUA or the Contractor fails to appoint an arbitrator within forty (40) days from the date one of the parties has notified the other of the existence of a dispute, then an arbitrator shall be appointed by the American Arbitration Association from its qualified panel of arbitrators as the appointment of the party failing to timely appoint and the two so appointed shall appoint a third arbitrator to chair the panel. The party on whose behalf an arbitrator is appointed shall have the right to veto up to two of the arbitrators appointed by the American Arbitration Association.

(3) Nothing in this Section 5.06 shall preclude the parties from mutually agreeing to a single arbitrator to resolve the dispute.

(4) No arbitrator shall have a business or other pecuniary relationship with either party, except for payment of arbitrator's fees and expenses without the written consent of both parties.

(E) Arbitrators shall be sworn to perform their duties with impartiality and fidelity. In rendering any decision, the arbitrator shall proceed to consider the Agreement, the dispute identified in the notice and any response and the actions taken and the documentation thereof, conduct, and relative position, knowledge, and the ability of the parties in relation to the dispute.

(F) The arbitration hearing shall convene not earlier than sixty (60) days and not later than one hundred eighty (180) days of the acceptance of appointment of all of the arbitrators chosen by the parties unless the GUA and the Contractor mutually agree to an earlier date. The arbitrators shall render a decision within ten (10) business days of the date on which the arbitration hearing concludes, and such decisions shall be in writing and in duplicate, one counterpart thereof to be delivered simultaneously to each of the parties. The decision shall

contain findings of fact and conclusions of law and shall be final and binding upon the GUA and the Contractor.

(G) The arbitrators may at their discretion, and shall upon written request of the Contractor or the GUA, engage experts to provide peer review of any technical, engineering, or scientific issues introduced by the parties. The parties shall be entitled to discovery pursuant to the Florida Rules of Civil Procedure. All discovery requests by a party shall be enforced by the arbitrators. The arbitration hearing shall not proceed until all outstanding discovery requests have been fulfilled.

(H) The fees, charges and expenses of the arbitrators, any experts engaged by the arbitrators, the respective counsel engaged by the parties, and any witnesses called by the parties shall be paid as follows:

(1) If the arbitrators determine that the disputed issues raised or objected to by the Contractor are justified and appropriate, the GUA shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of Contractor's counsel and any witnesses called by the Contractor.

(2) If the arbitrators determine that the disputed issues raised or objected to by the GUA are justified and appropriate, the Contractor shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of the GUA's counsel and any witnesses called by the GUA.

(3) If the determination of the arbitrators does not fall within the parameters of (H)(1) or (H)(2) above, the arbitrators shall order each party to pay their own fees, charges and expenses and, in the sound discretion of the arbitrators, assess the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators between the parties.

(I) The provisions of the Florida Arbitration Code, Chapter 682, Florida Statutes, and the Florida Evidence Code, Chapter 90, Florida Statutes, except to the extent inconsistent with the provisions of this Agreement, shall specifically be deemed to apply to any arbitration

proceeding conducted hereunder. Unless the venue is mutually agreed upon otherwise by the parties, the venue for any arbitration commenced pursuant to this Section shall be in Collier County, Florida.

SECTION 5.07. VACATING THE PREMISES. Upon vacating the Utility Facilities, the Contractor shall leave all sites, structures, equipment, and improvements in good condition. The Contractor shall properly dispose of any accumulations of waste materials, rubbish, and other debris resulting from the Contractor's activities. The Contractor shall restore to original condition (ordinary wear and tear excepted) any portions of the Utility Facilities that were altered or changed by the Contractor without the GUA's approval.

ARTICLE VI

GENERAL PROVISIONS

SECTION 6.01. DESIGNATION OF GUA REPRESENTATIVE.

(A) The GUA shall designate in writing a GUA Representative to act on its behalf with respect to the Utility Services to be rendered under this Agreement. The GUA Representative may be a designated employee of the General Manager. The Contractor shall be entitled to rely upon any written notice of change of the designated GUA Representative.

(B) The GUA Representative shall have the following responsibilities:

(1) Review and make appropriate recommendations on all requests submitted by the Contractor for payment for services and work provided and performed in accordance with this Agreement.

(2) Provide all criteria and information requested by the Contractor as to the requirements of the GUA for the Utility Services.

(3) Upon request from the Contractor, assist the Contractor by placing at its disposal all available information in the possession of the GUA pertinent to the Utility Services, including by way of example and not limitation, existing drawings, specifications, shop drawings, public literature, previous reports and any other data relative to the provision of the Utility Services of the maintenance, construction, acquisition or improvement of the Utility Facilities.

(4) Provide notice to the Contractor of any deficiencies or defects discovered by the

GUA with respect to the services to be rendered by the Contractor under this Agreement.

(C) The GUA Representative is not authorized to issue any verbal or written orders or instructions to the Contractor that would have the effect, or be interpreted to have the effect, of modifying or changing in any way:

(1) the scope of the Utility Services to be provided and performed by the Contractor under this Agreement;

(2) the time the Contractor is obligated to commence and complete all Utility Services; or

(3) the amount of compensation the GUA is obligated or committed to pay the Contractor under this Agreement.

SECTION 6.02. MANNER OF PERFORMANCE.

(A) The Contractor is, and shall be, in the performance of all Utility Services, an independent contractor, and not an employee or agent of the GUA or the General Manager. All persons engaged in the performance or provision of Utility Services shall at all times, and in all places, be subject to the Contractor's sole direction, supervision, and control. The Contractor shall exercise control over all the means and manner in which it and its employees perform or provide the Utility Services.

(B) The Contractor represents that it has, or will secure at its own expense, all necessary personnel required to perform the Utility Services under this Agreement. Personnel of the Contractor shall not be employees of or have any contractual relationship with the GUA or the General Manager, nor shall such personnel or employee of the Contractor be entitled to any benefits of the GUA or the General Manager including, by way of example and not limitation, pension, health and worker's compensation benefits.

(C) All of the services required hereunder shall be performed by the Contractor or under its supervision, and all personnel, employees and subcontractors engaged in performing the Utility Services shall be fully qualified and, if required, authorized or permitted under State and local law to perform the Utility Services undertaken.

(D) The GUA shall at all times comply with the provisions of the Public Records Law, Chapter 119, Florida Statutes.

(E) The Contractor, at its sole expense, shall correct or replace any defective or faulty work.

(F) All non-supervisory employees of the Contractor assigned to the field will shall be required to wear at all times a uniform and identification badge.

(G) The Contractor is responsible for checking its employees for proof of a valid Florida driver's license and insurance a minimum of twice annually in those cases where personal vehicles are used for GUA purposes.

SECTION 6.03. AUTHORITY TO PERFORM. The Contractor shall continuously maintain at all material times all Permits, licenses and approvals required under the Applicable Law to provide the Utility Services. Proof of all such Permits, licenses and approvals shall be submitted to the GUA Representative at least annually and upon request.

SECTION 6.04. ACCESS AND AUDITS. The Contractor shall maintain adequate records to justify all charges, expenses and costs incurred in estimating and performing the Utility Services for at least two (2) years after the termination of this Agreement. The GUA, the General Manager or their contracted representatives shall have access to such books, records and documents as required for the purpose of inspection or audit, during Normal Business Hours, at the place of business of the Contractor within the State. The Contractor shall be subject to an annual independent financial and performance audit on its performance and provision of the Utility Services under this Agreement. Any such audit shall be undertaken by an auditor or auditors selected and paid for by the GUA.

SECTION 6.05. GENERAL INSURANCE REQUIREMENTS.

(A) The Contractor shall purchase at its cost and maintain at all times the insurance coverages listed in Appendix I with insurance companies acceptable to the GUA for limits of liability not less than the amount stated for each coverage in Appendix I.

(B) The GUA and the General Manager are to be additional insureds under the Commercial General Liability and Contractor's Pollution Liability Insurance policies with the

Severability of Interest Provision applicable to each policy. If requested by the GUA, the Contractor shall promptly revise the insurance policies to include other local governments using or acquiring the Utility Facilities as additional insureds. All liability insurance shall be on an "occurrence form," except Miscellaneous Errors and Omissions policies and Contractor's Pollution Liability policies, which shall be on a "claims made" form. Each policy shall provide that the Contractor's coverage is primary to any insurance or self-insurance program of the GUA and that the GUA shall not be directly responsible for the payment of any insurance premium due the insurance companies. The insurance coverages and limits required must be evidenced by properly executed certificates of insurance supplied by the Contractor. Policies of insurance shall be with carriers admitted to do business in the State of Florida. Carriers shall be "A" rated and have a financial rating size of "IX" or better, according to the A.M. Best Key Rating Guide. All certificates of insurance shall reflect thirty (30) days' notice of any cancellation, change or reduction in insurance coverage. All properly executed certificates of insurance shall be received and approved by the GUA prior to the Commencement Date. On renewal at the end of each policy term, properly executed certificates of insurance must be delivered to the GUA at least thirty (30) days before expiration of the insurance policies for review and approval so that there will be no interruption in the Contractor's provision of Utility Services under this Agreement due to the lack of proof of insurance.

(C) To the extent not otherwise stated herein, and in addition to any other requirements set forth herein, the Contractor shall operate and maintain the Utility Facilities in accordance with the following laws and regulations, as applicable:

(1) Chapter 440, Florida Statutes, Workers' Compensation Law, as amended;

(2) Florida Administrative Code Chapters 38F and 38I, as amended, relating to Workers' Compensation;

(3) 29 Code of Federal Regulations 1910 and 29 Code of Federal Regulations 1926, Occupational Safety and Health Act, General Industrial Standards and Construction Industrial Standards, respectively; and

(4) the Florida Toxic Substances Act.

(D) Should the Contractor at any time fail to maintain the insurance coverages required in this Section 6.05, the GUA, at its discretion, shall be authorized to purchase such coverages and charge the Contractor for such coverages purchased or deduct such cost from the monthly payment due for the Basic Operation and Maintenance Service Fee. The GUA shall be under no obligation to purchase such insurance or to be responsible for the coverages purchased or the financial stability of the insurance companies used and failure of the GUA to purchase such insurance shall not lessen or release the Contractor of its obligations as provided in this Section 6.05.

(E) The GUA shall secure and maintain at its expense property damage insurance for the Utility Facilities.

SECTION 6.06. NOTICE OF CLAIMS. The Contractor shall notify in writing the GUA Representative of all incidents, events or injuries which the Contractor reasonably believes may result in a claim of fifty thousand dollars ($50,000.00) or more, arising out of the Contractor's performance under this Agreement, including, but not limited to, claims relating to workplace injuries. The Contractor shall notify the GUA of any claim established and accepted as a liability under its commercial insurance or self insurance which is paid in an amount equal to or greater than fifty thousand dollars ($50,000.00). The Contractor shall notify the GUA of any death arising out of the Contractor's performance under this Agreement. The Contractor shall notify the GUA of any and all events, accidents, injuries, incidents, suits or claims which name or otherwise may involve or create a liability for the GUA or result from the provision by the Contractor of the Utility Services, including by way of example and not limitation, any events involving pollution at, on, or near the Utility Facilities. The obligation of the Contractor to report under this Section 6.06 is subject to any confidentiality agreement relating to any claim. All notices required under this Section 6.06 shall be provided promptly and within forty eight (48) hours of the Contractor learning of same.

SECTION 6.07. INDEMNIFICATION AND PENALTIES.

(A) Each party shall protect, defend, indemnify and hold the other party and its officers, employees and agents harmless from and against any and all liabilities, claims, losses,

and expenses, including attorney's fees and all costs of litigation and judgments arising out of any willful misconduct or negligent act, error or omission of that party, its subcontractors, agents or employees, arising out of or incidental to the performance of this Agreement. This indemnification shall also pertain to any claims brought against a party by the other party, its officers, employees or agents, or any subcontractor, or anyone directly or indirectly employed by any of them.

(B) Each party acknowledges that the general conditions of any construction or subcontractor contract shall include language, satisfactory to the other party's attorney, in which the contracting party agrees to hold harmless and to defend the other party, its agents and employees and the General Manager from all suits and actions, including attorney's fees, and all costs of litigation and judgments of any name and description arising out of or incidental to the performance of the construction contract or work performed for the Utility Facilities.

(C) The Contractor shall be liable for any fines or civil penalties which may be imposed by any governmental or quasi-governmental agencies or bodies for violations of the effluent guarantees specified herein arising out of, or resulting from the negligent performance of its duties and obligations under this Agreement, including without limitation, negligent acts and omissions of the Contractor, its employees, agents, officers and subcontractors. The GUA will assist the Contractor in any contest of any such fines or civil penalties in administrative or court proceedings. The Contractor shall pay such fines or civil penalties prior to such protest if such payment is required prior to making such protest. The Contractor shall be solely responsible for all costs, including attorney's and accountants' fees, of protesting any such fines or civil penalties. The Contractor shall not be responsible for any fines or civil penalties due to proceedings concluded prior to execution of this Agreement unless such fines or civil penalties are the direct result of an act or omission of the Contractor pursuant to the terms hereof. Notwithstanding the above, the Contractor shall not be liable for fines, civil penalties and judgments or for defending against same, arising from structural and design defects and deficiencies in the Utility Facilities or the capacity limitations of the Utility Facilities for which the Contractor is not responsible for correcting or remedying under this Agreement.

SECTION 6.08. MODIFICATION OF SCOPE OF SERVICES.

(A) The GUA shall at all times during the term of this Agreement have the right to request unilateral changes in the scope of services, including alterations, reductions therein or additions thereto. Upon receipt by the Contractor of the GUA's notification of the contemplated change, the Contractor, shall in writing: (1) timely provide a detailed estimate for the increase or decrease in cost due to the contemplated change, (2) notify the GUA of any changes in work schedules, (3) advise the GUA if the contemplated change shall affect the Contractor's ability to perform or provide the Utility Services in a manner consistent with the requirements and performance standards incorporated into this Agreement, and (4) advise the GUA if the contemplated change is within the capabilities of the Contractor.

(B) If the GUA so instructs in writing, the Contractor shall suspend work on that portion of the Utility Services affected by the contemplated change, pending the GUA's decision to proceed with the change.

(C) If the GUA elects to make a change in this Agreement, the GUA shall initiate an amendment to this Agreement and the Contractor shall not commence work on any such change until such written amendment is agreed to and signed by the Contractor and the GUA Representative.

SECTION 6.09. CONFLICTS.

(A) The Contractor represents that it has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance or provision of the Utility Services. The Contractor shall promptly notify the GUA Representative of all potential conflicts of interest for any prospective business association, interest or other circumstance which may influence or appear to influence the Contractor's judgment or quality of the Utility Services to be provided under this Agreement. Such notification shall be in writing and identify the prospective business association, interest or circumstance, the nature of the work the Contractor may undertake and request a determination from the GUA, as to whether the association, interest or circumstance would, in the opinion of the GUA, constitute a conflict of interest if entered into by the Contractor.

(B) The GUA shall respond to the Contractor in writing within thirty (30) days of receipt of the notice by the Contractor of an actual or potential conflict of interest. If the GUA determines the prospective business association, interest or circumstance does not appear to constitute a conflict of interest by the Contractor, the GUA shall so state in the response and the Contractor may, at its option, enter into said association, interest or circumstance and it shall be deemed not in conflict of interest with respect to Utility Services provided by the Contractor.

SECTION 6.10. RIGHT TO ENTER AND INSPECT. At all times the GUA and the General Manager or its representatives or agents shall have the right, but not the duty, to enter upon the Utility Facilities to inspect and observe the performance or provision of the Utility Services.

SECTION 6.11. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Agreement shall be governed by and construed in accordance with the laws of the State.

(B) The parties to this Agreement expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State, whether state, local or federal, and further agree that venue shall lie in Collier County, Florida.

SECTION 6.12. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, to the parties at the following addresses:

To the GUA:

Government Services Group, Inc.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Robert Sheets

with a copy to:

Nabors, Giblin & Nickerson, P.A.
315 South Calhoun Street, Suite 800
Tallahassee, Florida 32301
Attention: Robert L. Nabors, Esq.

To Contractor:

Avatar Utility Services, Inc.
201 Alhambra Circle, 12th Floor
Coral Gables, Florida 33134
Attention: General Counsel

with a copy to:

Avatar Utility Services, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with another copy to:

Greenberg Traurig, P.A.
777 South Flagler Drive, Suite 300E
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan, Esq.

(B) Any written notice given to one person in subsection (A) of this section shall also be provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or five (5) days after the date mailed.

SECTION 6.13. **ASSIGNMENT.**

(A) The Contractor shall not have the right to assign any of its rights, duties or obligations under this Agreement without the consent of the GUA Board upon a demonstration

by the proposed assignee of its general ability to perform the obligations of the Contractor under this Agreement, which consent shall not be unreasonably withheld. A consented to assignee shall be required to assume the obligations of the assigning party by written assignment in a form reasonably satisfactory to the GUA's attorney.

(B) Nothwithstanding the provisions of subsections (A) and (C) of this Section 6.13, the Contractor shall have the right to assign this Agreement to the following entities without the consent of the GUA: ST Environmental Services, Enron, OMI, United Water and AquaSource or their affiliates. Such assumption shall be effective upon giving twenty (20) days notice to the GUA and upon execution with such entity of a written assignment in a form satisfactory to the GUA's attorney by which such entity assumes all the obligations of the Contractor under this Agreement.

(C) Any assignment of this Agreement consented to by the GUA shall be an assignment of the Agreement in its entirety and the Basic Operation and Maintenance Service and the Basic Billing and Customer Service cannot be severed or assigned separately unless specifically consented to by the GUA; provided, however, this prohibition shall not apply to an affiliate of the Contractor if such separate assignment shall not, in the judgment of the GUA, interfere with the performance of the duties and the provision of the services provided in this Agreement.

(D) A transfer of a majority of the outstanding stock of the Contractor to another corporate entity or business enterprise shall be deemed an assignment of the Agreement requiring the consent of the GUA under this Section 6.13.

(E) Notwithstanding the provisions of subsection (C) of this Section 6.13, a transfer of the outstanding stock of the Contractor to an affiliated company within Avatar Holdings, Inc. shall not require the consent of the GUA under this Section 6.13.

SECTION 6.14. AMENDMENTS AND WAIVERS. No amendment, supplement, modification or waiver of this Agreement shall be binding upon any party hereto unless executed in writing by such party. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision of this Agreement, whether or

not similar, unless otherwise expressly provided.

SECTION 6.15. ENTIRE AGREEMENT. This Agreement, including the referenced Appendices hereto, is the entire agreement between the parties and supersedes all prior and contemporaneous agreements, understandings, negotiations, and discussions of the agreements, understandings, negotiations, and discussions of the parties, whether oral or written, pertaining to the subject matter hereof. Upon execution by all parties, the GUA shall provide the Contractor three complete, certified copies of this Agreement, together with all appendices hereto. This Agreement shall be construed as solely for the benefit of the GUA and the Contractor, their successors and assigns, and no claim or cause of action shall accrue to or be for the benefit of any third party by reason of the execution of this Agreement.

IN WITNESS WHEREOF, the GUA and the Contractor have caused this Agreement to be duly executed and entered into on the date first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY EXHIBIT

By: Lealan Thomas
Its: Chairman

Attest: EXHIBIT

AVATAR UTILITY SERVICES, INC.

By: Michael G. Murphy
Its: Treasurer

Attest: EXHIBIT

POINCIANA SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

THIS UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT, is made and entered into as of this 1st day of April, 1999, by and between the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7)(g), Florida Statutes, (the "GUA"), and Avatar Utility Services, Inc., a Florida corporation (the "Contractor").

WITNESSETH:

WHEREAS, the GUA owns a water and wastewater utility system located in Osceola County and Polk County, Florida, known as the Poinciana System and consisting of the facilities described at Appendix "A" hereto; and

WHEREAS, the GUA intends by the execution of this Agreement to contract for the operation and maintenance of the Utility Facilities and the billing and customer service provided within the Poinciana System by the Contractor at standards not less than those provided on December 18, 1998; and

WHEREAS, the scope of utility operation and maintenance services, and billing and customer services to be provided for the Poinciana System as incorporated in the provision of this Agreement is intended to meet the following operating objectives of the GUA:

(1) To provide water treatment, water distribution, wastewater treatment, and wastewater disposal services to the utility customers of the Poinciana System without unnecessary interruption.

(2) To mitigate bypass or overflow of sanitary sewage from the transmission system and treatment plant.

(3) To handle and treat sanitary sewage in a manner that meets or exceeds the requirements of Applicable Law to the extent of the capability of the Utility Facilities.

Contractor's Pollution Liability Insurance

At all times during the term of this Agreement, the Contractor shall keep contractor's pollution liability insurance in minimum amounts of $2,000,000.00.

Miscellaneous Errors and Omissions Insurance

At all times during the term of this Agreement, the Contractor shall keep miscellaneous errors and omissions insurance in minimum amounts of $2,000,000.00.

APPENDIX I

Schedule of Insurance

The following is an outline of the insurance coverages the Contractor shall obtain and maintain as provided herein, and in the type, amounts and in conformance with the following minimum requirements and is subject to the terms and conditions of each insurance policy:

Worker's Compensation
Statutory benefits as defined by Chapter 440, Florida Statutes, encompassing all operations contemplated by this Agreement to apply to all owners, officers, and employees regardless of number of employees. Individual employees may be exempted per State Law. Employers Liability will have minimum limits of $1,000,000.00 per accident.

Commercial General Liability
Coverage shall apply to premises and/or operations, products and/or completed operations, independent contractors, contractual liability, and broad form property damage exposures with minimum limits of $1,000,000.00 per occurrence. Said policy shall be insured by an insurance company, or companies, with a current minimum rating by the A.M. Best Agency of A.

Commercial Automobile Liability
Coverage shall apply to owned vehicles and/or hired and non-owned vehicles and employee non-ownership use with minimum limits of $1,000,000.00 CSL (combined single limit).

Umbrella/Excess Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep umbrella/excess liability insurance in minimum amount of $30,000,000.00.

Certificate of Insurance
The GUA shall be listed as a certificate holder and additional insured with respects to Commercial General Liability. An original hand signed certificate shall be on file with and approved by the GUA prior to the operation date. Said certificate shall evidence the required coverages and amounts as contained herein and provide a thirty (30) day notice of cancellation for non-renewal or material change in coverage.

Commercial Crime/Employee Dishonesty
Coverage shall apply to employees and include coverage for faithful performance of duty, depositors forgery, money-securities (in and out), and counterfeit papers with a minimum limit of $5,000,000.00 per occurrence.

Bullhead Service Installation Cost

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	225.12	100.00	325.12
1	274.12	100.00	374.12

Replacement Meter Costs (4)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	15.00	43.22
1	77.22	15.00	92.22
1½	196.02	30.00	226.02
2	267.30	30.00	297.30
3	815.66	50.00	865.66
4	1276.72	50.00	1326.72
6	2012.67	50.00	2062.67
8	1461.83	50.00	1511.83

(1) Does not include the meter box or backflow prevention device.

(2) Material costs include the meter or meter head assembly costs, service piping, corporation stops, stops, meter boxes, casing under the roadway for long services and appurtenances excluding the backflow prevention device.

(3) ⅝, 1, 1½ and 2" material prices based on Neptune T-10, bronze body, cast iron bottom, with polymer register housing and lid.

(4) ⅝, 1, 1½ and 2" meters will be replaced entirely; only the meter head assembly will be replaced on 3, 4, 6, and 8" meters, 3, 4, 6" meter cost are for Tru/Flo meter heads, the 8" price is for a turbine meter head.

(5) Short side means service to property on the same side of the road as the water main. Long side means service to property on the opposite side of the road as the water main. Long side costs include installation of casing under the roadway, casing length not greater than twenty four (24') feet.

APPENDIX H

Meter Setting Cost (3)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	20.00	48.22
1	77.22	20.00	97.22
1½	196.02	40.00	236.02
2	267.30	40.00	307.30
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Short Side) (5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	265.82	226.00	491.82
1	314.82	226.00	540.83
1½	683.32	226.00	909.32
2	754.60	226.00	980.60
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Long Side)(5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	499.02	226.00	725.02
1	548.02	226.00	774.02
1½	927.52	226.00	1153.52
2	998.80	226.00	1224.80
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

(F) Events and situations described in (B)(1), (B)(2), (C)(1), and (D)(2) by telephone within twenty four (24) hours after the Contractor becomes aware of the event or situation and makes an assessment of impacts thereof followed by a written report within five (5) business days thereafter.

(3) average-day, maximum-day, minimum-day and average of the maximum-month for the ended 12-month period.

(B) Description of any emergencies and incidents occurring during the month including, but not limited to:

(1) operational anomalies or other emergencies which had a material adverse impact on customer service or the public;

(2) environmental incidents;

(3) Utility Facilities stress situations;

(4) work order log detailing when work orders were received and completed, location of event, work performed, equipment and resources used; and

(5) quality assurance reports and resolutions.

(C) Description of regulatory matters including, but not limited to:

(1) regulatory notices and responses thereto;

(2) requirement for any public notices;

(3) inspections or visits to Utility Facilities by regulatory agencies; and

(4) implementation of new regulatory requirements.

(D) Progress report including, but not limited to:

(1) material operational changes;

(2) major maintenance and repair activities; and

(3) Replacement and Renewal activities.

(E) Summary of new customers connected.

Meter Aging Report	A report that lists every account that had a meter installed between a range of dates selected by the GUA	
Consumption History Report	A report listing meter usages for up to 24 months past by rate classification and meter size	
Billing Register	A report indicating each customer account billed with all pertinent information contained on the customer bill	
Monthly Activity Report	A report indicating a summary of all billings, adjustments and payments recorded during a particular calendar month Specifically, it indicates: (a) billing by rate class by service; (b) charges/adjustments by rate class; (c) total payments received; and (d) total bills printed	
Other reports commonly available at the time of acquisition		as requested and available

SECTION G.02. BASIC OPERATION AND MAINTENANCE SERVICE REPORTS. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Operation and Maintenance Service, the Contractor shall submit to the GUA, not later than the fifteenth (15th) day of each month, a report consisting of the following:

(A) Reclaimed and potable water produced at each treatment facility:

(1) monthly operating reports for each facility;

(2) total and average-day for the month; and

APPENDIX G

REPORTS

SECTION G.01. BASIC BILLING AND CUSTOMER SERVICES. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Billing and Customer Services, the Contractor shall submit or make available to the GUA electronically, the following reports:

REPORT	CONTENT	REPORTING PERIOD
Daily Transaction Journal	A documentation of all monetary and non-monetary transactions that have been posted to a customer's account	available daily
Preliminary Meter Reading Report	A report indicating the meter readings entered for each account prior to billing. Error in readings and/or consumption will be indicated for correction	
Account Balance Report	A report indicating each customer's current and past due balance	
Alpha-Cross Reference	A report listed in alphabetic order by customer's last name with a cross index to the customer's account number	
Aged Trial Balance	A report listing each customer's account with total balance, current, 30, 60, 90, and 120 day balances	available once monthly
Delete Report	A report listing all accounts which should be deleted from GUA's file	available once monthly
Past Due Report	A report indicating all delinquent accounts that have a balance other than current	

APPENDIX F

LABORATORY TESTING

SECTION F.01. LABORATORY TESTING BY THE GUA. The GUA shall be responsible for employing a laboratory, certified by the FDEP to perform all laboratory testing required for regulatory reports except those tests listed in Section F.02. The Contractor shall coordinate with the GUA and the laboratory employed by the GUA for all such testing.

SECTION F.02. LABORATORY TESTING BY CONTRACTOR. The Contractor shall perform laboratory testing to extent necessary for treatment process control. In addition, the Contractor shall perform the following tests required for regulatory reports as long as the testing laboratory located at the Fiesta Village Wastewater Treatment Plant, Ft. Myers Division, remains under the Contractor's custody and control. Thereafter, the GUA shall be responsible for employing a laboratory, certified by the FDEP, to perform said tests.

(A) Ammonia

(B) Carbonaceous Biochemical Oxygen Demand (CBOD)

(C) Dissolved Oxygen

(D) Fecal Coliform

(E) Nitrate as Nitrogen

(F) Nitrite as Nitrogen

(G) Organic Nitrogen

(H) Percent Total Solids

(I) pH

(J) Specific Oxygen Uptake Rate

(K) Temperature

(L) Total Phosphorous

(M) Total Chlorine Residual

(N) Total Kjeldahl Nitrogen

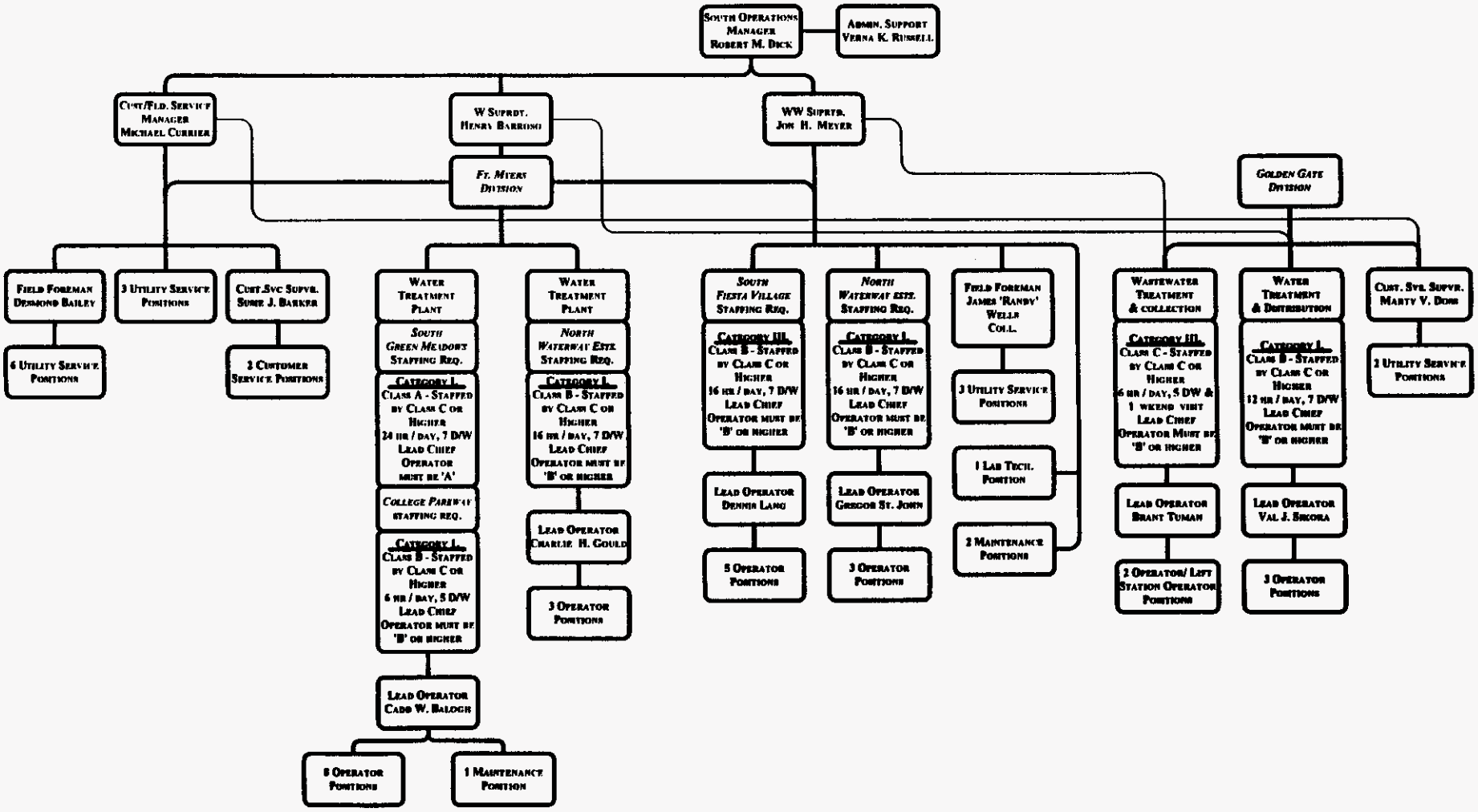
(O) Total Suspended Solids

(P) Turbidity

(Q) Volatile Suspended Solids

As of 1/99

CH 2 SOUTH ATIONS
CLIENT GROUP I



NOTES:

(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

As of - 19

NORTH OPERATIONS
CLIENT GROUP

North Operations Manager
Larry Good

Barefoot Bay Division

Division Manager
William M. Sansbury

- Field Foreman J. Steve Hayes
  - 3 Utility Service Positions
- 2 Customer Service Positions
- Water Treatment Plant
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 12 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Mark S. Dowe
  - 2 Operator/ Operator Trainee Positions
- Wastewater Treatment Plant
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 8 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Glen Siler
  - 1 Operator/ Operator Trainee Position
  - 1 Maintenance Position

Poinciana Division

Division Manager
Larry Good

- Field Foreman Victor Winkler
  - 8 Utility Service Positions
- Cust. Svs. Supvr. Lorilee F. Miller
  - 2.5 Customer Service Positions
- Wastewater Treatment Plant
  - W.W.T.P. # 1 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 2 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
  - W.W.T.P. # 3 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 5 Staffing Req.
  - Category II, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
- Water Treatment Plant
  - W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 4 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
  - W.T.P. # 5 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit

Chief Operator
Keith S. Keenan

- 5 Operator Positions
- 1 Maintenance/ Truck Driver Position

Carrollwood Division

- W.T.P. # 1 Staffing Req.
- Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 2 Staffing Req.
- Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 3 Staffing Req.
- Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- Lead Operator Brian Southwell
- 1 Customer Service Position
- 2 Utility Service Positions

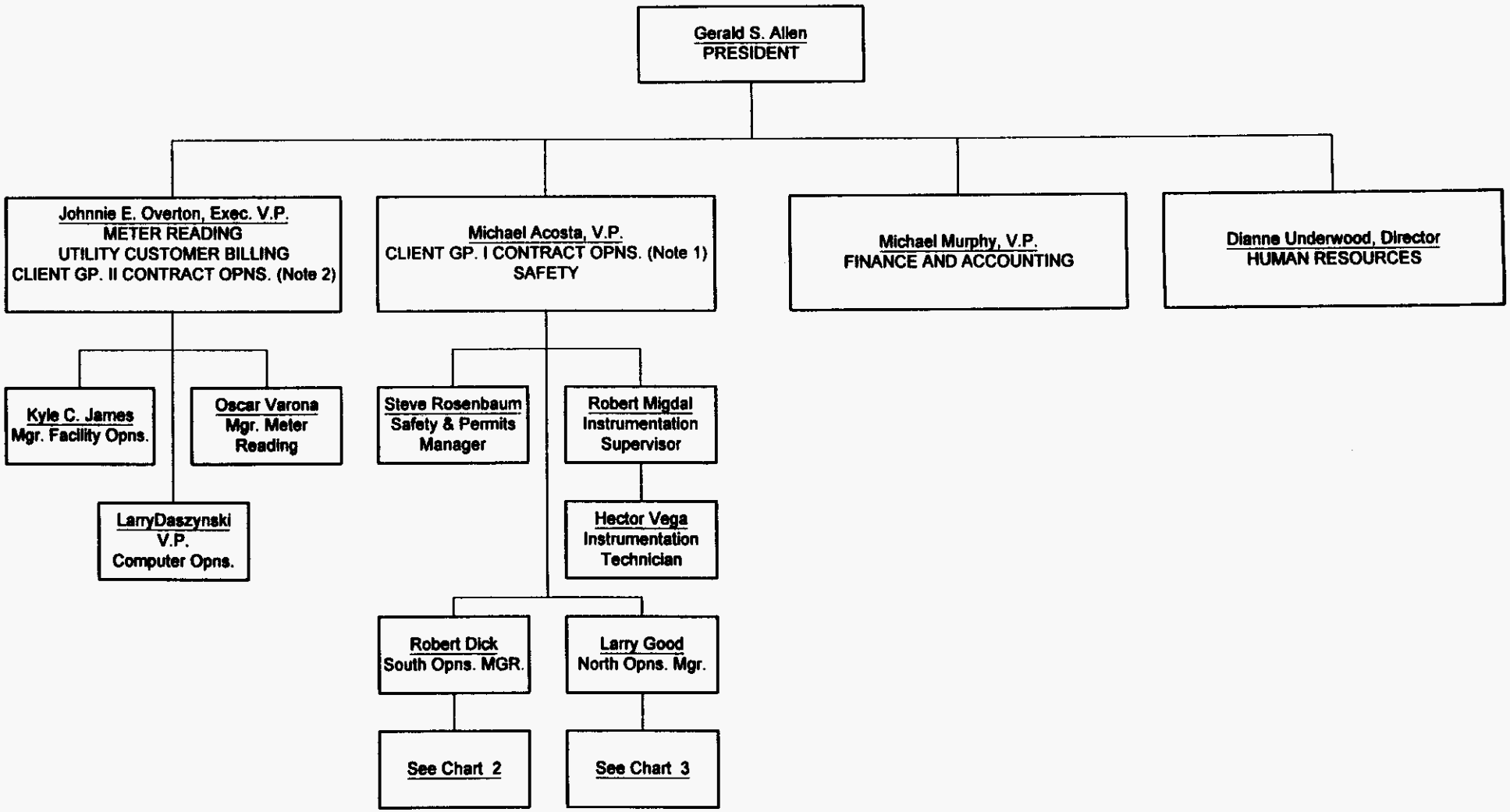
Sarasota Division

- Field Foreman Chet VanHorn
  - 7 Utility Service Operator Positions
- 2 Customer Service Positions
- WW Suprdt. Wm. Randy Musgrove
  - South Gate A.W.T.P.
    - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
    - Lead Operator William (Bill) Dymek
    - 3 Operator Positions
  - Gulf Gate A.W.T.P.
    - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
    - Lead Operator E. S. 'Charlie' Garrett
    - 3 Operator Positions
  - 1 Lab. Technician Position
  - 1 Maintenance Position

Solid Lines = Direct Supervision
Dotted Lines = Indirect Supervision

NOTES:
(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

APPENDIX E
STAFFING PLAN
Chart 1
AVATAR UTILITY SERVICES, INC.
Provisional Organizational Chart
Effective 4/1/99



NOTES:
1. Client Group I consists of the GUA or a combination of the GUA and individual counties and pertain to the utility system formerly owned by Poinciana Utilities Inc., and the former Golden Gate, Ft. Myers, Sarasota, Carrollwood and Barefoot Bay Divisions of Florida Cities Water Company.

2. Client Group II consists of all other AUSI contract operations clients.

APPENDIX D

INVENTORY

Within five (5) days after the Commencement Date, the parties hereto shall establish the Inventory by a physical inventory of the items on hand or as otherwise mutually agreed.

- verify meter sizes;
- verify meter reading accuracy;
- meet with customer at property to discuss and evaluate disputes and make a report to customer service; and
- review with customers at property, how to read meter, typical usage of water, and conservation measures that customer can implement.

(B) All field service shall be made via work orders with prompt notification of the maintenance service provider when applicable. Information from these work orders shall be summarized on monthly order reports.

(C) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders relating to existing water services or distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order.

(G) Meter reading must be accurate with an error level of no greater than 1 per 1,000 reads. Errors are defined as misreads found by field audits, investigations, and readings the following month which are lower than reported the previous month as an accurate read or customer requested rechecks which, after investigation, a reading error is confirmed.

(H) All meter reading routes are to be accomplished within two (2) business days of the day scheduled. Weather conditions, excluding conditions associated with hurricanes and floods, must not prevent the accomplishment of meter reading unless otherwise agreed to by the GUA.

- Individual accounts on routes which are "no reads" (skips) will be reviewed daily by the Contractor. If upon further investigation, it is determined that a reading could have been obtained, the Contractor shall take immediate steps to obtain the reading.
- All meter boxes or meter conditions which impose an impediment to readers or citizens must be entered in the hand held devices by the meter readers when observed and promptly reported to the operation and maintenance provider. Other conditions of special interest that may explain high usage, as well as notification made of suspected leaks found, must also be entered.

SECTION C.02. FIELD SERVICES.

(A) The Contractor shall provide field personnel to accomplish the following meter service functions:

- turn-on and turn-off of customer meters in response to account changes, delinquent accounts, customer requests, or emergencies;

APPENDIX C

BASIC BILLING AND CUSTOMER SERVICE PERFORMANCE STANDARDS

SECTION C.01. METER READING.

(A) All water meters shall be read on a monthly basis.

(B) Malfunctioning meters, visible leaks or damage to the meter or box shall be reported to the operation and maintenance provider for repairs.

(C) The Contractor shall enter the appropriate codes in the hand held meter reading devices to notify customer service personnel to issue work orders for repairs where needed (e.g., broken or obscured glass, box too high/low, broken lid, cannot find meter).

(D) The Contractor shall reread "suspected" erroneously read meters at the Contractor's earliest convenience. The Contractor shall provide an exception (hi-low audit) report on each business day for a previous days' reading. The Contractor shall review reports and select meters to be rechecked before billing.

(E) Meter readers are required to read every meter in the route. Any instances where a meter reader suspects an illegal hook-up should be reported immediately to the Contractor's office. If a meter is present, the Contractor will have a meter reader note the serial number and reading. Illegal hook-ups will be reported to the GUA for action.

(F) Normal hours of meter reading shall be Monday through Saturday, except GUA holidays, between 7 a.m. and 6 p.m. each day (unless mutually agreed upon between the GUA and the Contractor).

SECTION B.08 FULL TAP AND METERS AND A METER SETTING. The Contractor shall complete installation of a Full Tap and Meters and a Meter Setting requested by the GUA in a timely manner and in no event later than as follows:

(A) For meter installations where service is already in place, five (5) business days from the date of the installation or meter setting request.

(B) For Full Taps and Meter Settings where a permit from an outside agency is not required, fifteen (15) business days from the date of the installation or meter setting request.

(C) For Full Taps and Meter Settings where a permit from an outside agency is required, twenty (20) business days after the receipt of the permit.

(C) The Contractor shall timely, and properly, maintain and repair the wastewater collection and transmission facilities. The Contractor shall take all necessary measures to remedy conditions in the wastewater collection system facilities resulting from a main pipeline blockage and consequential surcharging of such pipelines or manholes and shall be responsible for clean up and abatement resulting from such conditions which occur within the wastewater collection system facilities.

SECTION B.07. COMPUTERIZED MAINTENANCE RECORDS. The Contractor shall be responsible for performing routine, preventive, predictive, and corrective maintenance procedures of the Utility Facilities, all in a manner that assures the readiness and availability of equipment, processes, and systems on a consistent basis, and which ensures efficiency, long-term reliability, and conservation of the capital investment in the Utility Facilities. Such procedures shall include preventive maintenance and work order based corrective maintenance program components for the Utility Facilities and shall be capable of providing the following:

- maintain a record of repair and repair history for each piece of equipment or line section;
- schedule preventive and predictive maintenance;
- maintain records of routine transmission and distribution line repairs;
- maintain records of corrective maintenance;
- issue and monitor work orders;
- maintain a spare parts inventory; and
- issue equipment status and repair priority reports.

- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(8) Painting of all exposed equipment, and all exposed piping, on a five year rotation basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping on a three year rotating basis.

SECTION B.06. WASTEWATER COLLECTION SYSTEMS.

(A) The Contractor shall be responsible for procurement of all materials, supplies, chemicals and other consumables that may be necessary for proper operation, maintenance and repair of the system collection facilities (this requirement does not include a planned program of cleaning, television inspection and grouting) including the following:

- cleaning;
- flushing; and
- inspection of main pipelines and manholes.

(B) The Contractor shall respond to any wastewater collection system emergency including, but not limited to, pipeline blockage or potential thereof, or manhole surcharging as may reported by any source with the GUA's service area as soon as possible, but in any event, within two (2) hours of being notified or otherwise learning of such or related condition in the wastewater collection system.

- maintain the station's alarm lights, lights and replace bulbs as necessary;
- check the wet well levels for proper distance of pumping as necessary;
- check motor starter contacts twice annually;
- clean floats quarterly;
- remove debris from pumps and check valves as necessary;
- clean out pumps as required as necessary;
- exercise all station valves twice annually; and
- clean check valves as necessary as necessary.

(6) Supply all materials as needed for the preventative maintenance program in conformance with Section B.05(A)(5) herein.

(7) Repair and rehabilitate pump stations including, but not limited to, the following:

- repairing or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;
- removing submersible pumps ror cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments.

(4) Monitor those wastewater pumping facilities which have the technology for such monitoring for the following parameters:

- pump running times;
- high water level in wet well;
- loss of electrical power; and
- thermal overload.

(5) The Contractor shall provide preventative maintenance service with respect to the wastewater pumping facilities including, but not limited to:

- regularly scheduled inspections;
- adjustment of electrical and mechanical equipment;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- change and maintain the oil level in pumps as specified by the Contractor;
- lubricate and clean air blowers weekly or as specified by the Contractor;
- poll the station on a scheduled basis by the telemetry system at five (5) minute increments;
- check pump running times twice weekly;
- clean "wet wells" quarterly or more often if needed;
- check remote telemetry units for proper operation daily;

- visual inspection of the hydrant;
- fire hydrant leak checks; and
- fire hydrant lubrication (outlet threads, cap threads and valve stem).

(B) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders such as line leaks, valve breads and damage to appurtenances relating to existing water services or the distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order, unless any delay beyond three (3) working days is due to unavailability of parts, in which case such work will be completed as soon as the parts are obtained.

(C) The Contractor shall respond to emergency conditions without a work order and within two (2) hours of being notified or otherwise learning of such emergency or any unforeseen combination of circumstances or the resulting state that reasonably call for immediate action.

SECTION B.04. STORAGE TANKS. The Contractor shall render preventative maintenance service to the GUA with respect to all the GUA storage tanks. Such preventative maintenance services, at a minimum shall consist of regularly scheduled inspections (inspections by the Contractor, not part of a planned, formal inspection program) and adjustment of electrical and mechanical equipment in each of the GUA's water storage tanks.

SECTION B.05. WASTEWATER PUMPING FACILITIES.

(A) Operate and maintain the wastewater pumping facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of lift or pumping stations for emergency conditions.

- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;
- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(5) The Contractor shall provide routine repairs to all equipment, including painting of all exposed equipment, and all exposed piping, on a five year rotating basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping.

SECTION B.03. WATER DISTRIBUTION SYSTEMS.

(A) The Contractor shall operate, maintain, and repair the water transmission, distribution piping, treated water storage, meters and other appurtenances including, but not limited to, the following:

- timely repair of any water main breaks, water main leaks;
- service line breaks;
- excavation, backfilling and compaction of such excavations in the course of performing work in the water distribution system;
- regular flushing of dead end system main lines;
- fire hydrant flow testing;

- check pump running times twice weekly;
- maintain the station's lights and replace bulbs as needed;
- check motor starter contacts twice annually;
- clean floats quarterly;
- maintain alarm lights and horns weekly;
- remove debris from pumps and check valves as required;
- lubricate pump and motor bearings as specified by the manufacturer;
- clean out pumps as required;
- exercise all station valves twice annually; and
- clean check valves as required.

(4) The Contractor shall repair pump stations and wells in order to maintain their integrity. Such activities to be performed or provided shall include, but not be limited to, the following Repairs, Replacements and Renewals:

- rebuilding or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;

- procure sludge removal services.

(B) Take immediate action to either prevent environmental incidents or dangerous situations, and endeavor to keep the number and duration of such incidents and situations to a minimum.

SECTION B.02. WATER PUMPING STATIONS AND WELLS.

(A) Operate and maintain the pumping stations and raw water supply well facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of pump stations and wells for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments. A list of activities to be performed at the following minimum intervals shall include, but not be limited to, the following:

- clean sump pumps as needed;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- check and clean filter elements for gas or diesel engines as specified by the Contractor;
- change and maintain the oil level in pumps as specified by the manufacturer;
- lubricate and clean air blowers weekly or as specified by the manufacturer;
- maintain proper belt tension weekly;
- poll the station on a scheduled basis by the telemetry system to the extent of the capability of said system at fifteen (15) minute increments;

APPENDIX B

OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

SECTION B.01. TREATMENT FACILITIES.

(A) Operate and maintain the water and wastewater treatment plant facilities, unit processes, and their respective appurtenances including, but not limited to, the following:

- control of treated water corrositivity within the limits of the existing treatment process;
- general housekeeping;
- grounds maintenance;
- maintain Supervisory Control And Data Acquisition (SCADA) system;
- issue public notices of non-compliance with drinking water standards resulting from acts or omissions of the Contractor. The GUA shall issue notices of non-compliance resulting from limitations of the treatment process or equipment failure;
- minimize the generation of noise and odors;
- assist the GUA's laboratory testing contractor with any sampling required by any regulatory agency, including well, soil and distribution system sampling;
- provide necessary coordination with the GUA's construction contractors, engineers, or other consultants or vendors for line tie-ins, process standards and connection of Capital Improvements to the Utility Facilities during Normal Business Hours;
- provide timely submittal of all monthly operating reports required by regulatory agencies;
- maintain equipment, pumps and motors similar to that required for pumping stations in sections B.02 and B.05; and

2. Wastewater facilities:

a. Treatment facilities:

(1) Wastewater Treatment Plant
- (a) Treatment: Activated sludge
  - (I) Process: Influent screening, aeration/anoxic/reaeration basins, secondary clarification, chlorination, aerobic digestion of residuals
  - (ii) Standard: Secondary-Plus
  - (iii) Capacity: 0.95 MGD
- (b) Reclaimed Water Disposal: rapid infiltration basins

b. Collection system facilities:

(1) Collection and Interceptor Mains: Approximately 115,317 feet, 8"-15" in diameter, cast iron, polyvinyl chloride, and vitrified clay pipe, and appurtenances thereto.

(2) Force Mains: Approximately 62,386 feet, 1.5"-16" in diameter, cast iron and polyvinyl chloride pipe, and appurtenances thereto.

(3) Lift and Pumping Stations:
- (a) Master: 0
- (b) Other: 25

(4) Manholes: Approximately 521

**All statistics unless noted otherwise were taken from the 1997 Consolidated Annual Report for the Collier County Water and Wastewater Authority.

APPENDIX A

DESCRIPTION OF UTILITY FACILITIES

The Utility Facilities consist of the following facilities located in Collier County:

1. Water system facilities:

   a. Water supply and treatment facilities:

      (1) Water Treatment Plant
         (a) Supply: 7 wells and pumps
         (b) Treatment: Lime softening, disinfection, filtration
         (c) Treatment Capacity: 1.224 MGD
         (d) Storage:
            (i) 0.30 MG Steel Ground Storage Tank
            (ii) 0.14 MG Steel Ground Storage Tank
         (e) High service pumps: 4

   b. Distribution and transmission facilities:

      (1) Mains: Approximately 215,149 feet, 2"-14" in diameter, ductile iron, polyvinyl chloride and asbestos-cement pipe, and appurtenances thereto.

      (2) Fire Hydrants: Approximately 276

      (3) Meters: Approximately 2,966 (End of year 1998)

      (4) Storage: 1.0 MG Concrete Ground Storage Tank
         (a) High service pumps: 4

LIST OF APPENDICES
GOLDEN GATE SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

APP.

A. DESCRIPTION OF UTILITY FACILITIES

B. OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

C. BILLING, METER READING AND FIELD CUSTOMER SERVICE STANDARDS

D. INVENTORY

E. STAFFING

F. LABORATORY TESTING

G. REPORTS

H. SCHEDULE OF FIXED-FEES FOR ADDITIONAL SERVICES

I. SCHEDULE OF INSURANCE

(4) To treat and provide potable water that meets or exceeds the requirements of Applicable Law to the extent of the capability of the supply and treatment components of the Utility Facilities.

(5) To operate all treatment plants to their optimum capability and efficiency to the extent reasonably practical.

(6) To conserve the capital investment in Utility Facilities and to ensure long-term reliability and efficiency of the Utility Facilities by performing adequate preventative and corrective maintenance, upgrading and replacement consistent with prevailing industry standards.

(7) To provide responsive customer services on all issues relating to the provision of utility services within the control of the Contractor including issues pertaining to meter readings, customer billing and utility usage; and

WHEREAS, the Contractor represents that it currently has, and will have throughout the term of this Agreement, the experience and professional skill to provide the utility services required to operate and maintain the Utility Facilities, to timely and accurately bill for utility service provided and to maintain effective relationships with utility customers.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, the parties to this Poinciana System Utility Operations, Billing and Customer Service Agreement do agree for themselves, their permitted successors and assigns as follows:

ARTICLE I

DEFINITIONS AND CONSTRUCTION

SECTION 1.01. PURPOSE AND DEFINITIONS.

(A) This Agreement is entered into as a condition precedent to the transfer of the assets of the Poinciana System under the Utility System Asset Acquisition Agreement, dated April 1, 1999, between the GUA and Florida Cities Water Company and Poinciana Utilities Inc. (the "Asset Acquisition Agreement").

(B) As used in this Agreement all capitalized words and terms not otherwise defined

herein shall have the meanings set forth in the Asset Acquisition Agreement unless the context requires otherwise:

"Additional Services" shall mean the provision of the following:

(A) Extra Renewals and Replacements.

(B) Capital Improvements.

(C) Observation and inspection of new pipelines and lift stations.

(D) Installation of Full Tap and Meters and Meter Settings as provided in Appendix H.

(E) Infiltration and inflow investigations and correction programs.

(F) Services not contemplated as a part of the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

"Agreement" shall mean this Poinciana System Utility Operations, Billing and Customer Service Agreement, including any amendments and supplements hereto executed and delivered in accordance with its terms.

"Annual Maintenance Plan" shall mean the annual plan submitted by the Contractor and approved by the GUA documenting the schedule and performance standards to be used in the preventative and operational maintenance of the Utility Facilities as required in Section 3.01.

"Applicable Law" shall mean all of the permits required for the performance by the parties under this Agreement, any State or federal constitution restrictions, any State law, regulation or directive, any County ordinance, law or directive, any federal or State judicial judgment or order and any federal, State or County administrative order, which are in effect during the term of this Agreement, or subsequently enacted, adopted, promulgated, issued or enforced, in any manner relating to the operation and maintenance of the Poinciana System.

"Basic Billing and Customer Service" shall mean the provision and performance by the Contractor of the billing and customer services described in Article IV. To define its scope, the term shall specifically include, by way of example and not limitation, the Basic Billing and Customer Service Performance Standards.

"Basic Billing and Customer Service Fee" shall mean the fixed annual compensation

payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Billing and Customer Service as provided in Section 4.09.

"Basic Billing and Customer Service Performance Standards" shall mean those specific billing and customer service performance standards provided in Appendix C to guide and define the billing and customer service responsibility of the Contractor in providing the Basic Billing and Customer Service.

"Basic Billing and Customer Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Billing and Customer Service.

"Basic Operation and Maintenance Service" shall generally mean the provision and performance by the Contractor of the operation and maintenance services described in Section 3.01. The term Basic Operation and Maintenance Service excludes: (1) Additional Services; (2) non-routine expenditures that are planned, budgeted, and approved by the GUA; (3) and the acquisition or construction of Capital Improvements and other capital outlays authorized by the GUA. To define its scope, the term "Basic Operation and Maintenance Service" shall specifically include, by way of example and not limitation, the Basic Operation and Maintenance Service Performance Standards.

"Basic Operation and Maintenance Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Operation and **Maintenance Service** as provided in Section 3.06.

"Basic Operation and Maintenance Service Performance Standards" shall mean those specific operations and maintenance performance standards provided in Appendix B to guide and define the operations and maintenance responsibility of the Contractor in providing the Basic Operation and **Maintenance Service**.

"Basic Operation and Maintenance Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Operation and Maintenance Service.

"Basic Renewals and Replacements" shall mean the renewal or replacement of a Utility

Facility component which is no longer capable of performing the function for which it is intended due to a defect or through examinations, measurements and observations it is apparent that the development of defects to the extent that said component will no longer be capable of performing the function for which it is intended is imminent.

"Board" shall mean the governing body of the GUA.

"Bullhead Meter Setting" shall mean a second complete meter installation connected to an existing service line.

"Capital Improvement" shall mean the planned acquisition or construction of improvements or additions to the Utility Facilities, the acquisition of equipment or other personal property not constituting a Basic Renewal and Replacement or the provision of improvements to increase capacity, modernize or otherwise upgrade Utility Facilities components.

"Capital Improvement Plan" shall mean the annual report of projected Capital Improvements submitted by the Contractor and approved by the GUA in Section 3.01.

"Change in Law" shall mean (a) the enactment, adoption, promulgation, modification or repeal after the Commencement Date of any federal, State, or local law, ordinance, code, rule, regulation or other similar legislation or the change in interpretation after the Commencement Date, of any federal, State, or local law, ordinance, code, rule, regulation, official permit, license or approval by any regulatory entity having jurisdiction with respect to the operation or maintenance of the Utility Facilities, or (b) the imposition, after the Commencement Date, of any material conditions on the issuance, modification or renewal of any official permit, license or approval necessary for the operation and maintenance of the Utility Facilities, which, in either case, necessitates or makes advisable a capital project, increases the Contractor's costs by establishing requirements with respect to the operation or maintenance of the Utility Facilities which are more burdensome than the most stringent requirements:

(i) in effect on the Commencement Date, or

(ii) agreed to by the GUA in any applications for official permits, licenses or approvals for the water system or wastewater system, other than any requirements set forth in said applications to comply with future laws, ordinances, codes, rules, regulations or similar

legislation.

"Commencement Date" shall mean the day following the payment of the purchase price for the Utility Facilities pursuant to the terms of the Asset Acquisition Agreement.

"Contractor's Cost" shall mean the sum of the Contractor's Labor Cost, the Contractor's Material, Supply and Plant Equipment Cost, and the Contractor's Outsource Cost.

"Contractor's Cost Plus" shall mean the Contractor's Cost plus allowances for profit as follows:

(A) The Contractor's Labor Cost - fifteen percent (15%).

(B) The Contractor's Material, Supply and Plant Equipment Cost - ten percent (10 %).

(C) The Contractor's Outsource Cost - five percent (5%).

"Contractor's Labor Cost" shall mean the sum of the following:

(A) The Contractor's direct cost of employee salaries and wages including overtime; and

(B) The Contractor's payroll taxes, the cost of employee benefits, including but not limited to, insurance, paid time off (holidays, vacation, sick and other paid leave), uniforms, employee training, and transportation, and which costs for purposes of this Agreement, shall be calculated and determined as fifty percent (50%) of direct labor cost.

"Contractor's Material, Supply and Plant Equipment Cost" shall mean the Contractor's direct cost of materials, parts, supplies and Plant Equipment, including applicable taxes.

"Contractor's Outsource Cost" shall mean the Contractor's direct cost of subcontracted and hired work, parts, materials, supplies, and construction equipment, and fixture rental, including applicable taxes.

"Contractor Representative" shall mean the person or persons designated by the Contractor to represent the Contractor in interpretations of the performance of the Contractor's duties and responsibilities under this Agreement.

"County" shall mean Osceola County and Polk County, Florida, collectively and individually.

"Emergency Condition" shall mean a condition which threatens the public health and safety.

"Extra Renewals and Replacements" shall mean Renewals and Replacements of Utility Facilities other than Basic Renewals and Replacements which are undertaken to increase capacity, or as part of a modernization or upgrading program including any meter change-out programs.

"FDEP" shall mean the Florida Department of Environmental Protection.

"Fiscal Year" shall mean the period commencing on October 1 of each year and continuing through the next September 30th.

"Full Tap and Meters" shall mean the tapping of a water main, installation of a service line and setting a new meter and appurtenances where no previous service was provided.

"General Manager" shall mean the person, corporation, or entity under contract with the GUA to provide administrative and financial services. The initial General Manager shall be Government Services Group, Inc., a Florida corporation.

"GUA Non-Fixed Assets" shall mean the assets to be identified pursuant to the inventory procedure provided in Appendix D.

"GUA Representative" shall mean the person or persons designated by the GUA to represent the GUA in interpretations of the performance of the Contractor of its duties and responsibilities under this Agreement as provided in Section 6.01.

"Interlocal Agreement" shall mean the interlocal agreement entered into by participating counties pursuant to section 163.01(7)(g), Florida Statutes, creating the GUA.

"Inventory" shall mean the chemicals, diesel fuel used for power generation, spare parts, pipe, fittings, and valves and other GUA Non-Fixed Assets identified pursuant to the inventory procedure provided in Appendix D or subsequently acquired by the Contractor during the term of this Agreement which the Contractor uses or is permitted to use in providing the services hereunder.

"Meter Replacement Program" shall mean the annual program of small meter replacements approved in the Capital Improvement Plan.

"Meter Setting" shall mean the installation of a new meter and appurtenances on an existing water service line where no prior service was provided.

"Normal Business Hours" shall mean 8:00 a.m. until 5:00 p.m., Monday through Friday except holidays observed by the GUA.

"One-Call Notification System" shall mean the statewide toll-free telephone notification system established by Sunshine State One-Call of Florida, Inc., a not-for-profit corporation created pursuant to Chapter 556, Florida Statutes, for the purpose of notifying underground facility operators of potential excavation activities within the proximity of their facilities so that such facilities may be located and their location marked accordingly.

"Permits" shall mean federal, State and local permits and registrations governing the operation and maintenance of the Utility Facilities.

"Plant Equipment" shall mean machines and devices consisting of various components which by themselves provide a specific function which represents an end function or contributes to a broader function, including operating and processing equipment and special tools in use as of the Commencement Date or procured or provided pursuant to this Agreement for use at or associated with the Utility Facilities (exclusive of equipment owned or leased by the Contractor and used by the Contractor to perform its obligations under this Agreement).

"Poinciana" shall mean the subdivision known as Poinciana New Township located in Osceola County and Polk County, Florida.

"Poinciana System" shall mean Utility Facilities located in Polk County and Osceola County.

"Renewal" shall mean rehabilitation, overhaul, restoration or improved function of a Utility Facilities component to the extent that it is at or near new condition and its useful life is extended.

"Repair" shall mean correction of a defect in a Utility Facilities component without complete overhaul, renewal or replacement.

"Replacement" shall mean the replacement of a Utility Facilities component with a component having similar characteristics and equal quality.

"State" shall mean the State of Florida.

"Trustee" shall mean SunTrust Bank, Central Florida, National Banking Association, and any successor banking corporation, banking association or trust company serving as trustee under the indenture providing for the bonds to be issued by the GUA to acquire the Utility Facilities.

"Uncontrollable Circumstance(s)" shall mean any act, event or condition that prevents the Contractor or the GUA from meeting or performing its obligations under this Agreement, if such act, event or condition is beyond the reasonable control of the party relying thereon as justification for not meeting or performing such obligations. Such acts, events or conditions may include, but shall not be limited to, the following:

(A) an act of God (except normal weather conditions for the geographic area of the County), hurricane, tornado, epidemic, landslide, lightning, earthquake, flood, fire or explosion, or similar occurrence, war, strikes, lockouts, blockade, acts of public enemies, insurrection, riot, general unrest, restraint of government and people, civil disturbance, sabotage or similar occurrence;

(B) the order, injunction or judgment of any federal, State or local court, administrative agency or governmental body or officer with jurisdiction of the GUA acting in its governmental capacity, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State and local tax laws; provided, however, that such order, injunction or judgment shall not arise in connection with or be related to the negligent or wrongful action or inaction of the party relying thereon and that neither the contesting in good faith of any such order, injunction, or judgment nor the reasonable failure to so contest shall constitute or be construed as a wrongful or negligent action or inaction of such party;

(C) the suspension, termination, interruption, denial, failure to issue, modification or failure of renewal of any permit, license, consent, authorization or approval necessary for the operation and maintenance of the Utility Facilities, if such act or event shall not arise in connection with or be related to the negligent or willful action or inaction of the party relying

thereon, and that neither the contesting in good faith of any such order nor the reasonable failure to so contest shall be construed as a negligent or willful action or inaction of such party;

(D) a Change in Law; and

(E) the loss or inability to obtain for reasons other than the negligent, willful or wrongful action or inaction of the Contractor, utility services, including sewerage, sludge disposal and standby electric power, necessary for the operation and maintenance of the Utility Facilities directly resulting in a partial or total curtailment of operations at the Utility Facilities.

"Utility Facilities" shall mean all of the property and rights, both tangible and intangible, that the GUA owns or uses or subsequently acquires or uses in conjunction with the operation and maintenance of the Poinciana System, including by way of example and not limitation, the following:

(A) All real property and interests, whether recorded in the public records or not.

(B) All water and wastewater facilities, including reuse and reclaimed water, treatment plants, wells, collection, transmission, distribution, pumping, effluent and disposal facilities of every kind and description, including by way of example and not limitation, all trade fixtures, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities and property installations used in the operation of the Poinciana System.

(C) All equipment, tools, parts, laboratory equipment, and other personal property owned or used by the GUA in connection with the operation of the Poinciana System.

(D) All easements in favor of the GUA or its predecessors in interest.

(E) All customer records and supplier lists, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer models and studies, accounting, budget and business records and all other information controlled by or in the possession of the GUA that relates to the description and operation of the Poinciana System.

(F) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, use and maintain the Poinciana System.

"Utility Services" shall mean collectively, the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

SECTION 1.02. CONSTRUCTION AND INTERPRETATION.

(A) Words that indicate a singular number shall include the plural in each case and vice versa, and words that indicate a person shall include legal entities, firms and corporations.

(B) The terms "herein," "hereunder," "hereby," "hereof," and any similar terms, shall refer to this Agreement; the term "heretofore" shall mean before the date of execution of this Agreement; and the term "hereafter" shall mean on or after the initial date of execution of this Agreement.

(C) Words that reference only one gender shall include all genders.

(D) This Agreement shall be construed as resulting from ongoing negotiation and authorship. No part of this Agreement shall be construed as the product of any one of the parties hereto.

SECTION 1.03. INCORPORATION. The Appendices hereto and each of the documents referred to therein are incorporated and made a part hereof in their entirety by reference.

SECTION 1.04. SECTION HEADINGS. Any headings preceding the texts of the several Articles, Sections, Appendices, or Exhibits in this Agreement and any table of contents or marginal notes appended to copies hereof, shall be solely for the convenience of reference and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

ARTICLE II

GENERAL

SECTION 2.01. CONTRACTOR'S RESPONSIBILITY. Except as otherwise specified elsewhere herein, the Contractor shall provide required personnel, and associated wages, salaries and benefits, services, materials (including chemicals, electricity and fuel),

vehicles, utilities and other consumables necessary to perform the services specified herein. Furthermore, the Contractor shall provide required tools and equipment, except tools and equipment which are GUA Non-Fixed Assets.

SECTION 2.02. CONTRACTOR STAFFING. To fulfill its obligations under this Agreement, the Contractor contemplates implementing the personnel staffing plan shown in Appendix E. The Contractor shall give notice to GUA of any changes in the staffing plan. Should the GUA deem the changes to be material either in its number of positions or importance, the GUA will have the right to ask for further clarification and explanation. Should regulatory requirements dictate a change in staffing level, the Contractor shall be entitled to an adjustment in the Basic Operation and Maintenance Service Fee and the Basic Billing and Customer Service Fee, as applicable. Should the Contractor invest in equipment that allows a reduction in staff, any cost reduction shall be for the Contractor's sole benefit. Should the Contractor and the GUA jointly invest in equipment that results in a staff reduction, then the labor savings shall be shared in amounts equal to the relative investment of each party.

SECTION 2.03. TRAINING PROGRAM. The Contractor shall provide a training program for employees of the Contractor performing the Basic Operation and Maintenance Service to insure they have a basic understanding of water and wastewater treatment processes and safety. The Contractor's training program shall place special emphasis on safety procedures and protocols and on those processes that employees will utilize in daily operation of the water and wastewater treatment plants and the water distribution and sewer collection and wastewater disposal systems. Documentation of the scope of the training program required by Applicable Law and participation by employees of the Contractor shall be provided to the GUA.

SECTION 2.04. SAFETY.

(A) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work and services to be provided under this Agreement. The Contractor shall take all necessary precautions for the safety of and to prevent injury to all employees, whether at the Utility Facilities or in the field, and other persons

or entities who may be affected by the work and service to be provided under this Agreement. The Contractor shall also take all necessary precautions to provide the necessary protection to prevent damage or loss to materials or equipment to be provided under this Agreement, whether stored on or off of the property and to all property listed on the Inventory or incorporated into the Utility Facilities.

(B) The Contractor shall designate a representative whose duties shall include the prevention of accidents.

(C) The Contractor shall comply with Applicable Law relating to the safety of persons or property or protection thereof from damage, injury or loss. The Contractor shall at all times erect and maintain all necessary safeguards or barriers for safety and protection.

SECTION 2.05. USE OF GUA NON-FIXED ASSETS AND INVENTORY.

(A) The Contractor shall have the use and control in the provision of the services hereunder of the GUA Non-Fixed Assets and the Inventory. The Contractor shall be responsible for the maintenance or repair of all GUA Non-Fixed Assets used by the Contractor in the provision of services hereunder and shall replenish the Inventory as the Contractor deems appropriate.

(B) The GUA and the Contractor shall jointly determine the value of the Inventory on the Commencement Date and upon termination of this Agreement, based upon initial cost. Should said value at termination be greater than the value on the Commencement Date, the GUA shall pay the Contractor the difference and conversely, should the value upon termination be less than the value on the Commencement Date, the Contractor shall pay the GUA the difference. For purposes of determining the value of the Inventory, the prices paid by Poinciana Utilities Inc. and the Contractor shall be used.

(C) The GUA shall be responsible for the replacement of equipment which is a part of the GUA Non-Fixed Assets that becomes non-usable through normal wear and tear. The Contractor shall be responsible for the replacement of all such equipment which becomes non-usable through damage or misuse.

SECTION 2.06. CONTRACTOR'S VEHICLES. The Contractor's vehicles

shall be professionally and safely maintained in a mechanically sound manner. All vehicles must provide a clean and mechanically sound image. As vehicles are replaced or repainted, the Contractor shall provide uniform signage that is acceptable to the GUA Representative and which reflects the fact that the vehicles are used in the service of the Utility Facilities.

SECTION 2.07. YEAR 2000 COMPLIANCE. Year 2000 compliance relates to the fact that many existing computer programs and embedded computer chips recognize only the last two digits of the year, and are unable to distinguish between the year 1900 and the Year 2000. Because of the unprecedented nature of the Year 2000 compliance issue, its effects and the success of related remediation efforts will not be fully determined until the Year 2000 and thereafter. Although the Contractor is not aware of any material Year 2000 compliance issues it has not addressed, the Contractor can provide no assurance the computer systems it owns and will utilize in connection with the services hereunder are or will be Year 2000 ready, or that its remediation efforts were or will be successful in whole or in part. Furthermore, the Contractor can provide no assurance that vendors, government agencies, paying agents or other third parties providing services to the Contractor have or are effectively dealing with Year 2000 compliance issues in a timely manner.

SECTION 2.08. SUBCONTRACTING.

(A) The Contractor shall not subcontract services or work included in the Basic Operation and Maintenance Service (exclusive of sludge disposal) and the Basic Billing and Customer Service to an extent materially beyond that work and services being subcontracted as of December 18, 1998, without the prior written approval of the GUA Representative, which approval shall not be unreasonably withheld. The Contractor shall have the duty to evaluate all subcontractors and to inspect all the work of subcontractors and make a determination as to the capability of any subcontractors to perform properly under the terms of this Agreement.

(B) The Contractor may subcontract any work or services which are not a part of the Basic Operation and Maintenance Service and Basic Billing and Customer Service without the consent of the GUA.

ARTICLE III

OPERATION AND MAINTENANCE SERVICE

SECTION 3.01. BASIC OPERATION AND MAINTENANCE SERVICE.

(A) It is contemplated by the parties that the Basic Operation and Maintenance Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The following general operation and maintenance services shall be required of and timely provided by the Contractor in the operation and maintenance of the Utility Facilities:

(1) The Contractor shall have full responsibility for the daily operation and maintenance of the Utility Facilities in a manner consistent with the specific Basic Operation and Maintenance Service Performance Standards.

(2) The Contractor shall perform Repairs and Basic Renewals and Replacements. Specifically excluded are Extra Renewals and Replacements and Capital Improvements.

(3) The Contractor shall secure and maintain all permits required in the Contractor's name for the performance of the services described in this Agreement. The GUA shall be responsible for acquiring and renewing all Permits required by Applicable Law for the operation and maintenance of the Utility Facilities and for the acquisition and construction of Capital Improvements to be constructed by the Contractor.

(4) The Contractor shall cooperate and facilitate in the acquisition and completion of all approved Capital Improvements.

(5) The Contractor shall maintain responsive working relationships with: the GUA Representative, the General Manager, the County and other local governments within the Poinciana System service area, federal and State regulatory authorities, utility suppliers and vendors, and the public.

(6) The Contractor shall receive and check requests for water and wastewater pipeline locations from the One-Call Notification System and, if necessary, provide on-site location assistance.

(7) The Contractor shall provide prudent maintenance consistent with industry

standards, equipment manufacturer's instructions, and standard operation and maintenance manuals so that upon termination of this Agreement, the Utility Facilities are returned to the GUA in the same or better condition than at the Commencement Date, normal wear and tear excepted. Work performed by the Contractor or subcontractors shall be of the quality normally associated with work of the kind in which the Contractor is engaged.

(8) The Contractor shall perform all preventive and corrective maintenance and Repairs in a timely manner. If, in the opinion of the GUA, preventive and corrective maintenance or Repairs have been unreasonably delayed, the GUA shall so inform the Contractor. The Contractor shall respond within five (5) business days outlining the reason for the delay. If the GUA determines that the delay is within the control of the Contractor, the Contractor shall be so notified, and the Contractor agrees to complete the necessary work within ten (10) business days or by a date certain beyond ten (10) business days of notification if approved by the GUA. If the Contractor fails to complete the work, the GUA may take steps to have the specific items of work which have not been performed completed by a third party. The cost of completing this work by a third party shall be deducted from the monthly payment of the Basic Operation and Maintenance Service Fee otherwise due the Contractor.

(9) The Contractor shall regularly water, mow, fertilize, prune, remove weeds, maintain and repair permanent sprinkler systems and controls, and otherwise maintain landscaping of all buildings and plants.

(10) The Contractor shall maintain the appearance and cleanliness of all buildings and plants in a neat and orderly condition and provide those custodial services normally associated with maintenance of a business office or plant, as applicable, and provide periodic painting of the Utility Facilities as provided in the Annual Maintenance Plan.

(B) The GUA shall be responsible for all laboratory testing required by Applicable Law except those tests listed in Appendix F which shall be performed by the Contractor. The Contractor shall provide access and cooperate with the laboratory testing contractor engaged by the GUA. The Contractor shall collect all samples, except groundwater, surface water and sediment samples.

(C) The Contractor shall operate and maintain all Utility Facilities in such a manner that the water quality is maintained at a level equal to, or better than, the water quality limitations established by Applicable Law to the extent of the capability of the Utility Facilities. In the event the water quality achieved is not in compliance with the Permit, the Contractor shall immediately submit a report to the GUA outlining the proposed corrective action and a schedule to accomplish such corrective action. All such corrective action shall be taken as soon as practical.

(D) The Contractor shall prepare and submit to the GUA an Annual Maintenance Plan for the Utility Facilities.

(1) The Annual Maintenance Plan shall include a schedule incorporating the maintenance activities and services listed in the Basic Operation and Maintenance Service Performance Standards. The performance standards for the preventative maintenance and cleaning of all Utility Facilities shall be consistent with the Basic Operation and Maintenance Service Performance Standards.

(2) The Annual Maintenance Plan for the remainder of the Fiscal Year commencing on October 1, 1998 and for the Fiscal Year commencing on October 1, 1999 shall be submitted by the Contractor to the GUA for approval within sixty (60) days of the Commencement Date. For the remaining Fiscal Years during the term of this Agreement, the Annual Maintenance Plan shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(3) To implement the Annual Maintenance Plan, the Contractor shall continue the use of a computerized maintenance management system.

(E) The Contractor shall prepare a recommended list of Capital Improvements for inclusion in the Capital Improvement Plan for the ensuing Fiscal Year. The Capital Improvement list prepared by the Contractor shall include an estimate of the cost to construct or acquire the recommended Capital Improvement and provide a recommendation whether the Capital Improvement should be acquired or constructed by the Contractor or by subcontract to a third party. In addition to the projected or recommended Capital Improvements for the ensuing

Fiscal Year, the Capital Improvement list prepared by the Contractor shall contain recommended Capital Improvements for an additional four (4) Fiscal Years for use by the GUA in financial planning for the provision of future Capital Improvements to the Utility Facilities.

(1) The Capital Improvement Plan for the remainder of the initial Fiscal Year commencing on October 1, 1998, shall be the Capital Improvement Plan approved by the GUA prior to the Commencement Date. The Capital Improvement list prepared by the Contractor for the Fiscal Year commencing October 1, 1999, shall be submitted to the GUA within sixty (60) days subsequent to the Commencement Date. For all remaining Fiscal Years during the term of this Agreement, the Capital Improvement list prepared by the Contractor shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(2) The initial Capital Improvement list submitted by the Contractor for the initial Fiscal Year commencing on October 1, 1998, shall contain all Fiscal Year 1998/1999 Capital Improvements to be completed or initiated during Fiscal Year 1998/1999 and shall identify those portions of the Contractor's Costs of Capital Improvements in progress on the Commencement Date required to be funded by the GUA pursuant to this Agreement.

(F) The Contractor shall prepare a recommended Extra Renewals and Replacements list with cost estimates and an estimate of Repairs and Basic Renewals and Replacements costing over twenty five hundred dollars ($2,500.00) for the ensuing Fiscal Year on the same schedule as Capital Improvements as provided in subsection (E)(1) of this Section 3.01.

(G) The Contractor shall submit to the GUA a disaster recovery plan for the Utility Facilities within sixty (60) days subsequent to the Commencement Date. Such plan shall address the Contractor's plan for dealing with a major disaster, by way of example and not limitation, hurricane, flood, tornado, or sabotage.

SECTION 3.02. ADDITIONAL SERVICES AUTHORIZATION.

(A) The Contractor shall perform the Basic Operation and Maintenance Service, Basic Renewals and Replacements and Repairs without prior authorization from the GUA

(B) Additional Services and Extra Renewals and Replacements will not be initiated by

the Contractor without prior approval by the GUA. The Contractor shall notify the GUA whenever it contemplates that the cost of a Repair or Basic Renewal and Replacement will exceed twenty five hundred dollars ($2,500.00).

(C) The construction or acquisition of a Capital Improvement or Extra Renewals and Replacements in an approved Capital Improvement Plan shall not be commenced by the Contractor until approval by the GUA Representative of a work order documenting the Contractor's Cost, including specifically any Contractor's Outsource Cost. Inclusion of a special project in an approved Capital Improvement Plan shall not waive said requirement for prior approval.

SECTION 3.03. STANDARDS FOR CAPITAL IMPROVEMENTS, REPAIRS AND RENEWALS AND REPLACEMENTS. The Contractor shall use the "FCWC/PUI Specification Listings" (Revised 5/97) and the Specification Details and Drawings (January 1999 edition) as the minimum standards for use of materials and methods for Capital Improvements, Repairs, and Renewals and Replacements, except as part of the Basic Operation and Maintenance Service, the Contractor shall not be required to replace components of water and wastewater pumping stations to the above-referenced standards unless said pumping stations have components that conform to the referenced standards. Notwithstanding, the replaced components shall be of quality equal to the original.

SECTION 3.04. USE OF FACILITIES; FIELDWORK. The Contractor shall confine all operation, maintenance and construction equipment, shall confine the storage of all materials and equipment, and shall limit the operations and work of all employees and subcontractors to the Utility Facilities and other areas permitted by law, rights-of-way, Permits and easements, and shall not unreasonably encumber the Utility Facilities or such other land areas with materials, equipment, or vehicles of the Contractor. At all times the Contractor shall use and administer the Utility Facilities in a professional, neat and orderly fashion. The Contractor shall assume full responsibility for any damage to the Utility Facilities or real or personal property within areas contiguous to the Utility Facilities resulting from the provision of Basic Operation and Maintenance Service.

SECTION 3.05. GENERAL REPORTING RESPONSIBILITIES.

(A) The Contractor shall prepare and file all reports required by Applicable Law. If requested to do so by the GUA Representative, the Contractor shall timely provide copies to the GUA for review and comment prior to filing.

(B) In addition to the recommended Annual Maintenance Plan, the recommended annual list of Capital Improvements, the recommended annual list of Repairs and Basic Renewals and Replacements estimated to cost more than twenty five hundred dollars ($2,500.00) and the recommended annual list of Extra Renewals and Replacements, the Contractor shall timely prepare and deliver to the GUA Representative the Basic Operation and Maintenance Service Reports listed in Appendix G.

(C) The Contractor shall provide all reports required under this Article III in an electronic data format and by electronic means capable of remote access by the General Manager and the Trustee to the extent of the Contractor's capability on December 18, 1998.

SECTION 3.06. BASIC OPERATION AND MAINTENANCE SERVICE FEE.

(A) For the provision of the Basic Operation and Maintenance Service, the Contractor shall be paid a fixed annual price of one million five hundred fifty two thousand one hundred twenty four dollars ($1,552,124.00). Included in the Basic Operation and Maintenance Service Fee is the first twenty five hundred dollars ($2,500.00) of the Contractor's Material, Supply and Plant Equipment Cost, Contractor's Labor Cost, and the Contractor's Outsource Cost for any Repair or any Basic Renewals and Replacements.

(B) The GUA shall reimburse the Contractor for Contractor's Material, Supply and Plant Equipment Costs, and Contractor's Outsource Costs associated with Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event.

SECTION 3.07. FEES FOR ADDITIONAL SERVICES. Fees for Additional Services shall be paid by one of the following:

(A) fixed fees as set forth in Appendix H, if applicable; or

(B) the Contractor's Cost Plus; or

(C) as otherwise mutually agreed by the parties.

SECTION 3.08. PAYMENT OF BASIC OPERATION AND MAINTENANCE SERVICE FEE. The Basic Operation and Maintenance Service Fee shall be paid by the GUA in twelve equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. The Contractor shall submit a separate itemized invoice and supporting documentation for the Contractor's Material, Supply and Plant Equipment Costs and Contractor's Outsource Costs for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event. The GUA shall pay the Contractor within twenty (20) days of receipt of the Contractor's invoice for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00). For the first month in which the Commencement Date occurs, the Basic Operation and Maintenance Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 3.09. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's invoice and supporting documentation.

SECTION 3.10. ADJUSTMENTS TO THE BASIC OPERATION AND MAINTENANCE SERVICE FEE. Starting on June 1, 2000, the Basic Operation and Maintenance Service Fee shall be automatically adjusted annually based on the following methodologies:

Component	Adjustment Methodology
Purchased Power	Rate plus Growth. Rate: Percentage of documented rate change implemented by the power provider for kilowatt or kilowatt hours. Growth: The percentage change in customer accounts. The initial adjustment shall be on June 1, 2000 and each succeeding anniversary thereafter. For purposes of computing the initial percentage, the number of customer accounts on December 31, 1998 will be compared with the number of accounts on May 31, 2000.
Chemicals	Rate plus Growth Rate: Percentage of documented rate change from the previous contract rate compared with the lowest reasonable rate for a current year provider. Growth: The percentage change in customer accounts. The initial adjustment shall be on June 1, 2000 and each succeeding anniversary thereafter. For purposes of computing the initial percentage, the number of customer accounts on December 31, 1998 will be compared with the number of accounts on May 31, 2000.
Sludge Removal	Rate plus Growth. Rate: Percentage of documented rate change from previous contracted rate compared with the lowest reasonable rate for a current year provider. Growth: The percentage change in customer accounts. The initial adjustment shall be on June 1, 2000 and each succeeding anniversary thereafter. For purposes of computing the initial percentage, the number of customer accounts on December 31, 1998 will be compared with the number of accounts on May 31, 2000.
Basic Operation and Maintenance Service Fee except Purchased Power, Chemicals, and Sludge Removal	An amount derived by the percentage change in the U.S. Bureau of Labor Statistics, Consumer Price Index-All Urban Consumers, U.S. City Average, Services. The initial adjustment shall be on June 1, 2000 and each succeeding anniversary thereafter.

ARTICLE IV

UTILITY BILLING AND CUSTOMER SERVICE

SECTION 4.01. GENERAL BILLING RESPONSIBILITY OF THE CONTRACTOR.

(A) It is contemplated by the parties that the Basic Billing and Customer Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The general billing, meter reading and customer service shall be required of and timely provided by the Contractor.

(B) The Contractor shall have full responsibility to provide all billing and customer services in a manner consistent with the Basic Billing and Customer Service Performance Standards.

(C) The billing system employed and used by the Contractor shall be organized in a manner that will:

(1) process billing on a monthly basis;

(2) process billing dollar amounts up to $999,999.99;

(3) process multiple meters for each service address with different rate schedules for each meter;

(4) update the rate schedule by date and have the ability to use two different rate schedules within a single billing period;

(5) apply rates as a flat amount or based on usage;

(6) generate delinquent notices prior to a turn-off;

(7) accept a GUA-specified dollar threshold for delinquent mailers;

(8) track turnoffs and delinquency by account;

(9) make adjustments or error corrections;

(10) post messages on bills as requested by the GUA;

(11) provide aging information to the GUA to assist with the GUA's determination of when a lien should be applied to an account; and

(12) make GUA-requested changes to the customer service record format or changes to the billing and remittance processing procedures or programs for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall have the capability to provide the requested data to the GUA in ASCII format. Said interface shall include, but not be limited to:

(1) automated extraction of ledger entry information from monthly billings, final billings and adjustments based on transaction codes in the rate schedule; and

(2) automated extraction of customer information for refunds of deposits or after final billings.

(E) The billing system employed and used by the Contractor shall contain the capacity to allow read only access to customer accounts by the General Manager via on-line access. The GUA shall be responsible for all costs associated with its on-line access including communications link, special hardware and software. Such on-line access shall include, by way of example and not limitation, the following:

(1) interface for on-line hookup by the General Manager;

(2) read only access by the General Manager to all functions of the billing system as determined by security clearance;

(3) provide multiple-line transaction history showing a running account balance;

(4) ability to extract information as requested by the General Manager, including date-specific information;

(5) ability to regularly generate user-specifiable reports including, by way of example and not limitation, billing summary, trial balance, aged trial balance (by date), and transaction audit controls;

(6) ability to review customer charges and payments by account;

(7) ability to review billing history by account;

(8) ability to review usage history by customer account or meter number;

(9) ability to review utility billing system work order status;

(10) ability to review turn on and off history by account;

(11) ability to review customer information by account; and

(12) search by customer number, customer name, meter number and street address.

(F) The Contractor shall provide a business recovery functions plan to the GUA which shall include, by way of example and not limitation, daily off-site storage of all transactions.

SECTION 4.02. PROCESSING UTILITY BILLS; PROBLEM RESOLUTION.

(A) The Contractor shall compose, prepare, print (laser) customer bills, on a single (8.5" x 11") one-colored page bill form prescribed by the GUA, and mail customer bills monthly. Customer bills shall be prepared in such cycles as mutually agreed by the Contractor and the GUA. The cost of first class postage for customer bills shall be at the expense of the Contractor. Any billing error or omission, whether human or mechanical, on the part of the Contractor shall be corrected at no cost to the GUA. Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor by the GUA will be provided for an additional fee not included in the Basic Billing and Customer Service Fee.

(B) The Contractor shall undertake and perform all billing services required to timely and regularly process customer utility bills. Such billing services shall include, by way of example and not limitation, the following:

(1) create a working file of prepared meter readings formatted for the billing system;

(2) review notes or trouble codes from meter readers and issue appropriate work orders to rectify problems;

(3) follow up on notices (e.g., apparent leaks, reasons for high usage, inaccessible meters, broken register, vacant houses, stuck meters) left by meter readers to the customers or owners;

(4) produce consumption reports for the billing process and analyze unusual usage or stuck meters; issue work orders and contact customers as appropriate;

(5) produce a billing from consumption reports, and review the billing for appropriateness of charges and suspected errors;

(6) develop quality assurance procedures to insure, by sample testing and review, the accuracy of bills on a periodic basis;

(7) work with the operation and maintenance field service personnel in verifying any unusual situations found in the billing process that are related to meter or meter reading problems;

(8) issue work orders designed to clarify questions raised during the billing process and categorize and analyze work orders and make recommendations as to how to minimize work orders and gain efficiencies;

(9) mail single page (8.5" x 11") special notices in envelopes to customers separate from the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee; and

(10) insert single page "bill stuffers" (not larger than 8.5" x 11") with the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.03. COMPUTER PROCESSING AND RELATED SERVICES.

(A) The Contractor shall maintain, on its own computer system, the master customer records of the Poinciana System. This information shall be made available to the General Manager and the Trustee via modem. In addition, the Contractor shall transfer data on a daily basis to the computer systems of the General Manager and the Trustee to the extent that said computer systems are compatible with the Contractor's computer system. The GUA may bill water and wastewater charges and other fees and assessments as separate items on the bills. The Contractor must provide an itemized bill in the same manner currently used. The addition of other fees or assessments, changes in the bill format and bill printing programs in the Contractor's utility billing system are not included in the Basic Billing and Customer Service Fee.

(B) All date-related data shall be formatted as required by the General Manager and shall contain no ambiguous references with respect to century.

(C) The Contractor shall provide the ability within software, to provide the following services:

(1) deposit report - a report that shows all customer deposits including options providing a range of deposit dates and status of refundable accounts;

(2) rate changes - changes to rates and charges applicable to customer billing approved by the GUA will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee;

(3) customer message - adding or changing a special "customer message" on the customer bill form as requested by the General Manager. Such messages shall be limited to four (4) lines of text; and

(4) mailing labels - the Contractor will provide mailing labels from the GUA's master customer records upon request for selected zip codes or class of customer for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall develop necessary special programming and controls that show customer accounts on a billed versus collected basis and provide a percentage of collection on each of the items. Such special programming and controls which will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee, by way of example and not limitation, shall include water revenues, wastewater revenues, special assessment revenues, connection fee revenues, reuse revenues, and revenues from any other fees approved by the GUA. All revenue reports should list year-to-date totals and compare revenue to the prior year.

SECTION 4.04. BASIC BILLING AND CUSTOMER SERVICE REPORTS. The Contractor shall timely prepare and provide the reports listed in Appendix G. Such reports and all other required reports and information provided to the General Manager and the Trustee shall be available in ASCII format and by electronic means capable of remote access by the General Manager and the Trustee.

SECTION 4.05. GENERAL CUSTOMER SERVICE RESPONSIBILITY OF THE CONTRACTOR. To satisfy the customer service objectives of the GUA as stated in the preamble to this Agreement, the following general customer services shall be required of and timely provided by the Contractor:

(A) The Contractor shall be responsible for the accuracy of all customer information such as deposits, new accounts, file information, and changes to accounts and charges.

(B) Customer accounts shall be closed and finaled upon the request of the customer. No customer account shall be deleted until a new account with a deposit is opened. A work order to discontinue service may be issued to eliminate delinquent customer usage charges.

(C) If at any time a customer account is opened or a meter set without a deposit, the Contractor will notify a field service representative to issue notice to the property that service will be terminated within five (5) business days unless a deposit is provided.

(D) The Contractor shall be responsible for the initial enforcement of delinquent customer accounts including the following:

(1) The Contractor shall be responsible for delivering delinquent notices to each individual customer via the U. S. Postal Service and, if necessary, to issue any work orders for discontinuance of service.

(2) The Contractor shall be responsible for contacting those customers whose accounts contain information relative to special health or guardianship circumstances. The Contractor will determine if there is a valid reason why a bill is unpaid, including by way of example and not limitation, a dispute, a lost bill, vacancy, or change of accounts, and allow a maximum of five (5) business days for the delinquency situation to be corrected by the customer before the Contractor proceeds with discontinuance of service.

(3) If a customer disputes the billed amount and provides the Contractor written notice of the dispute, the Contractor shall hold in abeyance for a maximum of thirty (30) days any discontinuance of service until the dispute has been investigated and resolved. If the dispute has not been resolved and the account remains delinquent for more than thirty (30) days after the customer provides written notice to the Contractor of the dispute, a work order will be issued to discontinue service.

(E) The Contractor shall make reasonable efforts to collect all utility revenues, in an efficient manner, with due consideration to customers, without jeopardizing revenue collections

and consistent with the applicable covenants under the indenture applicable to any outstanding bonds.

(F) Whenever customers raise questions, point out billing errors, express concerns, or otherwise dispute any bill, the Contractor shall attempt to resolve them in an expeditious manner. If a resolution requires additional research to respond to a customer's dispute, the Contractor will document each stage of the dispute process and prepare a written record of all customer reports indicating the reporting party, address, nature of the problem, action taken by the Contractor and the final resolution shall be maintained by the Contractor and a copy provided to the GUA Representative. If customer service personnel are working with a customer they must report that fact to field service personnel so that customers will not experience discontinuance of service before dispute resolution.

SECTION 4.06. TELEPHONE AND WALK-IN CUSTOMER SERVICE; REMITTANCE PROCESSING.

(A) The Contractor shall maintain a customer service center at 871 Town Center Drive, Poinciana, Florida. The location of the customer service center can be moved only with the consent of the GUA, which consent shall not be unreasonably withheld. Should the location of the customer service center be relocated at the request of the GUA, the Contractor shall be compensated the full cost of such relocation as an additional fee not included in the Basic Billing and Customer Service Fee. The customer service center shall be:

(1) open to the public during Normal Business Hours;

(2) during periods when the customer service center is not open, the center shall be equipped with an answering service to take incoming calls or otherwise direct incoming calls to a staffed location; and

(3) staffed with sufficient personnel to take customer and emergency calls, process and dispatch customer service and other work orders, accept customer payments, and process changes to customer accounts.

(B) The Contractor shall respond in a timely manner to all customer inquiries including, by way of example and not limitation, bill inquiries and inquiries pertaining to service

initiation and termination, and reports of water breaks, low water pressure, water quality concerns, odors and wastewater discharge. The Contractor's customer service personnel shall also be prepared to answer commonly asked questions without referral to other personnel. Commonly asked questions include, by way of example and not limitation, typical annual usage, account balance, how a bill was calculated, last payment and date, when the last bill was issued, detailed and summary information concerning the customer's account for the current year or within a two (2) year history, the due dates, and mailing and service address.

(C) The Contractor shall be responsible for answering questions regarding delinquent account information. It shall be the responsibility of the Contractor's customer service personnel to respond to these questions and respond how to rectify the delinquent situation.

(D) The Contractor shall be responsible for setting up new accounts, computing necessary deposits in accordance with GUA tariffs, closing accounts, and relaying this information to the General Manager. The Contractor shall immediately enter this information into the Contractor's computer system and verify it for quality assurance.

(E) The Contractor shall provide for walk-in customer service, for setting up temporary meters, or for the collection of fees charged for tapping and connection based on GUA tariffs. In addition to the receipt of payment at the customer service center, the Contractor shall process payments transmitted by mail.

SECTION 4.07. FIELD CUSTOMER SERVICE. The Contractor shall provide field customer service by qualified personnel consistent with the Basic Billing and Customer Service Performance Standards. Customer service provided in the field shall include, by way of example and not limitation, activation and termination of service during the hours on the days when the customer service center is open and the investigation of customer problem reports. Customer service activation (turn-on) occurring other than Normal Business Hours will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.08. REMITTANCE OF FUNDS TO TRUSTEE.

(A) All receipts will be combined daily for deposit to the GUA's designated bank account. These moneys will be deposited within twenty four (24) hours of receipt except for legal holidays, weekends, and disasters beyond the control of the Contractor.

(B) A report by facility of daily receipts will be provided by FAX or electronically to the GUA and the Trustee for verification of deposits made to the GUA account. Such report shall identify receipts by water connection fees, wastewater connection fees, customer deposits, such other receipts or revenues required to be segregated by the GUA and all other receipts. Any discrepancies shall be reported and responded to within forty eight (48) hours.

(C) Mail-in payments must be addressed and be in an acceptable format to the GUA's lock box provider. A computer file containing details of the lock box receipts shall be provided via modem or tape to the Contractor to be used to update customers' accounts.

(D) Any mail-in receipts not provided in accordance with or acceptable to the GUA's lock box provider's specifications shall be considered rejected and must be processed by the Contractor's cashiers in a manner similar to any mail-in receipts that do not go directly to the GUA's lock box provider.

SECTION 4.09. BASIC BILLING AND CUSTOMER SERVICE FEE. For the provision of the Basic Billing and Customer Service, the Contractor shall be paid a fixed annual price of three hundred forty thousand seven hundred dollars ($340,700.00).

SECTION 4.10. PAYMENT FOR ADDITIONAL SERVICES. For Additional Services not included in the Basic Billing and Customer Service Fee, the Contractor shall be compensated as follows:

(A) Customer service activation (turn-on) occurring other than Normal Business Hours – thirty five dollars ($35.00) per activation.

(B) Make changes in the customer service record format and other changes to customer records, billing and remittance format requested by the GUA – eighty five dollars ($85.00) per hour of programmer time.

(C) Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor for implementation – eighty five dollars ($85.00) per hour of programmer time.

(D) Insert single-page "bill stuffers" (not larger than 8.5" x 11") with customer bill form - $0.035 per bill plus any additional postage required.

(E) Print mailing labels from the GUA's master customer records - $0.069 per label.

(F) Change customer bill form format – eighty five dollars ($85.00) per hour of programmer time plus the Contractor's cost of unused bill forms on hand.

(G) Prepare rate analysis reports using historical usage information to analyze past periods of one to twenty four (1-24) months and consolidate totals by rate class and meter size - $0.08 per customer account ($150.00 minimum).

(H) Produce billing registers with proposed rates for comparison with current rates - $0.18 per customer account plus a set-up charge of $170.00.

(I) Change customer rates and charges – eighty five dollars ($85.00) per hour of programmer time.

(J) Special computer programming – eighty five dollars ($85.00) per hour of programmer time.

(K) Mail single-page (8.5" x 11") special customer notices in envelopes to customers separate from bill - $0.447 per notice plus postage.

SECTION 4.11. PAYMENT OF BASIC BILLING AND CUSTOMER SERVICE FEE. The Basic Billing and Customer Service Fee shall be paid in twelve (12) equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. For the first month in which the Commencement Date occurs, the Basic Billing and Customer Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 4.12. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's itemized invoice consistent with the authorizations received from the GUA. The Contractor shall document all such fees for Additional Services.

SECTION 4.13. ADJUSTMENT TO THE BASE BILLING AND CUSTOMER SERVICE FEE. The Basic Billing and Customer Service Fee shall be adjusted each anniversary date of the Commencement Date, or more frequently as indicated below, for each year based on the following methodologies:

(A) The Basic Billing and Customer Service Fee shall be automatically adjusted on June 1, 2000, and each succeeding anniversary of the term of this Agreement in an amount derived by the percentage change in the U.S. Bureau of Labor Statistics, Consumer Price Index All Urban Consumers, U.S. City Average, Services. Further, said price shall be adjusted on June 1, 2000, and each succeeding six (6) month period thereafter during the term of this Agreement in an amount derived by the percentage change in the number of customer accounts during the calculation period. The first calculation period shall be December 31, 1998, as compared to the number of customer accounts on May 31, 2000.

(B) The Basic Billing and Customer Service Fee shall immediately be increased in an amount equal to any increase in postage multiplied times the number of bills/delinquency notices for each mailing that occurs after the effective date of said increase.

ARTICLE V

TERMS AND TERMINATION

SECTION 5.01. TERM OF AGREEMENT. The initial term of this Agreement shall commence on the Commencement Date and shall be for a term of 5 years. The initial term of this Agreement may be extended for an additional term of 5 years upon the mutual agreement of the parties.

SECTION 5.02. DEFAULT.

(A) An event of default occurs if the persistent, repeated, or substantial failure or refusal by either the GUA or the Contractor to substantially fulfill any of its material obligations in accordance with this Agreement, provided, however, that no such event shall constitute a default unless and until:

(1) the non-defaulting party has given written notice to the defaulting party that a default or defaults exist which will, unless corrected, constitute an event of default on the part of

the defaulting party; and

(2) the defaulting party either has not corrected such default, or has not initiated reasonable steps expeditiously to correct such default within five (5) days from the date of such written notice.

(B) The events by which the Contractor shall be deemed to have failed to fulfill a material obligation of this Agreement shall include, by way of example and not limitation, the following:

(1) failing to begin an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(2) discontinuing prosecution of an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(3) failing to comply with any Applicable Law, whether willfully or negligently;

(4) breaching any material warranty or making any representation in this Agreement that is materially untrue;

(5) failing to pay, when due, any sums owed to a subcontractor for services or materials in a manner approved by the GUA; or

(6) failing to perform the Basic Operation and Maintenance Service or the Basic Billing and Customer Service in a manner consistent with the performance standards or other requirements established or incorporated in this Agreement.

(C) Each of the following also shall be deemed an event of default: (1) written admission by a party that it is bankrupt; (2) filing by a party of a voluntary petition for bankruptcy; (3) consent by a party to the court appointment of a receiver or trustee for all or a substantial portion of its property or business; (4) the making of any arrangement by a party with, or for the benefit of, its creditors or assigning to a trustee, receiver, or similar functionary (regardless of how designated) of all or a substantial portion of a party's property or business; (5) becoming insolvent; or (6) final adjudication of a party as bankrupt under the Federal Bankruptcy Act.

SECTION 5.03. EMERGENCIES. *In the event of an emergency affecting the*

safety or protection of persons, the Utility Facilities, or property adjacent thereto, or to avoid imminent environmental contamination, the Contractor, without special instruction or authorization from the GUA Representative or the General Manager is obligated to act to prevent such threatened damage, injury or loss. The Contractor shall give the GUA Representative oral notice within forty eight (48) hours followed by written notice within five (5) business days after the occurrence of the emergency, if the Contractor believes that any significant changes in the scope of services provided in this Agreement is required and merited. If the GUA determines that a modification of the compensation or scope of services is required because of the action taken in response to an emergency, an amendment shall be issued to document the consequences of the changes or variations. If the Contractor fails to provide such written notice to the GUA Representative within the forty eight (48) hour period, the Contractor shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the compensation or scope of service provided under this Agreement.

SECTION 5.04. EMERGENCY REPLACEMENT OF CONTRACTOR. In the event of any emergency condition involving the Utility Facilities which is found by the GUA to present a significant, immediate danger to public health, whether the cause of the Contractor or otherwise, and the Contractor is either unable or unwilling to correct such condition, the GUA may replace the Contractor without notice during the emergency condition, provided that at the conclusion of any such condition, the Contractor shall be reinstated by the GUA. Provided further, however, the GUA shall not be obligated to reinstate the Contractor at the conclusion of the emergency condition and may terminate this Agreement if the Contractor's inability or unwillingness to correct such condition itself constitutes grounds for termination of this Agreement or the Contractor is otherwise in default as provided in Section 5.02. The Contractor shall not be entitled to any compensation after the date upon which the GUA replaces the Contractor under this Section 5.04.

SECTION 5.05. OBLIGATIONS EXCUSED.

(A) Notwithstanding any other provision in this Agreement, neither the GUA nor the Contractor shall be liable to the other for any failure or delay in performance of any obligation under this Agreement due to the occurrence of an Uncontrollable Circumstance.

(B) As a condition precedent to the right to claim excuse of performance, the party experiencing an Uncontrollable Circumstance shall:

(1) promptly notify the other party verbally; and

(2) as soon as practical, but in no event more than five (5) business days thereafter, prepare and deliver to the other party a notice with a written description of (a) the commencement of the Uncontrollable Circumstance; (b) its estimated duration and cost impact, if any, on the party's obligations under this Agreement; and (c) its estimated impact (other than cost), if any, on the party's obligations under this Agreement.

SECTION 5.06. DISPUTE RESOLUTION.

(A) Notwithstanding any other provision in this Agreement, any dispute among the parties which arises from the Agreement shall be resolved by binding arbitration conducted in accordance with this Section 5.06. Either party may initiate the dispute resolution process by providing written notice to the other party.

(B) After transmittal and receipt of a written notice specifying the area or areas of disagreement or dispute, the parties agree to meet at reasonable times and places, as mutually agreed upon, to discuss the issues.

(C) If discussions between the parties fail to resolve the dispute within fifteen (15) business days of the receipt by each party of the notice described in subsection (A) of this Section 5.06, a binding arbitration may then be initiated by either party by written notification to the other party of the existence of a dispute. Any and all issues related to the matter addressed by the written notice provided in subsection (A) of Section 5.06 or any response by the other party shall be raised and resolved in a single proceeding.

(D) The arbitrators shall be appointed and act as follows:

(1) The GUA and the Contractor shall each appoint a person as arbitrator within thirty

(30) days of the date one of the parties has notified the other of the existence of a dispute.

(2) Each appointment shall be signified in writing to the counter party and the arbitrators so appointed, within ten (10) days of their acceptance of appointment, shall appoint a third arbitrator, who shall chair the panel. If the arbitrators appointed by the parties are unable to agree upon a third arbitrator, the same shall be appointed by the American Arbitration Association from its qualified panel of arbitrators. Each party shall have the right to veto up to two appointments proposed by the American Arbitration Association. If either the GUA or the Contractor fails to appoint an arbitrator within forty (40) days from the date one of the parties has notified the other of the existence of a dispute, then an arbitrator shall be appointed by the American Arbitration Association from its qualified panel of arbitrators as the appointment of the party failing to timely appoint and the two so appointed shall appoint a third arbitrator to chair the panel. The party on whose behalf an arbitrator is appointed shall have the right to veto up to two of the arbitrators appointed by the American Arbitration Association.

(3) Nothing in this Section 5.06 shall preclude the parties from mutually agreeing to a single arbitrator to resolve the dispute.

(4) No arbitrator shall have a business or other pecuniary relationship with either party, except for payment of arbitrator's fees and expenses without the written consent of both parties.

(E) Arbitrators shall be sworn to perform their duties with impartiality and fidelity. In rendering any decision, the arbitrator shall proceed to consider the Agreement, the dispute identified in the notice and any response and the actions taken and the documentation thereof, conduct, and relative position, knowledge, and the ability of the parties in relation to the dispute.

(F) The arbitration hearing shall convene not earlier than sixty (60) days and not later than one hundred eighty (180) days of the acceptance of appointment of all of the arbitrators chosen by the parties unless the GUA and the Contractor mutually agree to an earlier date. The arbitrators shall render a decision within ten (10) business days of the date on which the arbitration hearing concludes, and such decisions shall be in writing and in duplicate, one counterpart thereof to be delivered simultaneously to each of the parties. The decision shall

contain findings of fact and conclusions of law and shall be final and binding upon the GUA and the Contractor.

(G) The arbitrators may at their discretion, and shall upon written request of the Contractor or the GUA, engage experts to provide peer review of any technical, engineering, or scientific issues introduced by the parties. The parties shall be entitled to discovery pursuant to the Florida Rules of Civil Procedure. All discovery requests by a party shall be enforced by the arbitrators. The arbitration hearing shall not proceed until all outstanding discovery requests have been fulfilled.

(H) The fees, charges and expenses of the arbitrators, any experts engaged by the arbitrators, the respective counsel engaged by the parties, and any witnesses called by the parties shall be paid as follows:

(1) If the arbitrators determine that the disputed issues raised or objected to by the Contractor are justified and appropriate, the GUA shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of Contractor's counsel and any witnesses called by the Contractor.

(2) If the arbitrators determine that the disputed issues raised or objected to by the GUA are justified and appropriate, the Contractor shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of the GUA's counsel and any witnesses called by the GUA.

(3) If the determination of the arbitrators does not fall within the parameters of (H)(1) or (H)(2) above, the arbitrators shall order each party to pay their own fees, charges and expenses and, in the sound discretion of the arbitrators, assess the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators between the parties.

(I) The provisions of the Florida Arbitration Code, Chapter 682, Florida Statutes, and the Florida Evidence Code, Chapter 90, Florida Statutes, except to the extent inconsistent with the provisions of this Agreement, shall specifically be deemed to apply to any arbitration

proceeding conducted hereunder. Unless the venue is mutually agreed upon otherwise by the parties, the venue for any arbitration commenced pursuant to this Section shall be in Osceola County or Polk County, Florida.

SECTION 5.07. VACATING THE PREMISES. Upon vacating the Utility Facilities, the Contractor shall leave all sites, structures, equipment, and improvements in good condition. The Contractor shall properly dispose of any accumulations of waste materials, rubbish, and other debris resulting from the Contractor's activities. The Contractor shall restore to original condition (ordinary wear and tear excepted) any portions of the Utility Facilities that were altered or changed by the Contractor without the GUA's approval.

ARTICLE VI

GENERAL PROVISIONS

SECTION 6.01. DESIGNATION OF GUA REPRESENTATIVE.

(A) The GUA shall designate in writing a GUA Representative to act on its behalf with respect to the Utility Services to be rendered under this Agreement. The GUA Representative may be a designated employee of the General Manager. The Contractor shall be entitled to rely upon any written notice of change of the designated GUA Representative.

(B) The GUA Representative shall have the following responsibilities:

(1) Review and make appropriate recommendations on all requests submitted by the Contractor for payment for services and work provided and performed in accordance with this Agreement.

(2) Provide all criteria and information requested by the Contractor as to the requirements of the GUA for the Utility Services.

(3) Upon request from the Contractor, assist the Contractor by placing at its disposal all available information in the possession of the GUA pertinent to the Utility Services, including by way of example and not limitation, existing drawings, specifications, shop drawings, public literature, previous reports and any other data relative to the provision of the Utility Services of the maintenance, construction, acquisition or improvement of the Utility Facilities.

(4) Provide notice to the Contractor of any deficiencies or defects discovered by the

GUA with respect to the services to be rendered by the Contractor under this Agreement.

(C) The GUA Representative is not authorized to issue any verbal or written orders or instructions to the Contractor that would have the effect, or be interpreted to have the effect, of modifying or changing in any way:

(1) the scope of the Utility Services to be provided and performed by the Contractor under this Agreement;

(2) the time the Contractor is obligated to commence and complete all Utility Services; or

(3) the amount of compensation the GUA is obligated or committed to pay the Contractor under this Agreement.

SECTION 6.02. MANNER OF PERFORMANCE.

(A) The Contractor is, and shall be, in the performance of all Utility Services, an independent contractor, and not an employee or agent of the GUA or the General Manager. All persons engaged in the performance or provision of Utility Services shall at all times, and in all places, be subject to the Contractor's sole direction, supervision, and control. The Contractor shall exercise control over all the means and manner in which it and its employees perform or provide the Utility Services.

(B) The Contractor represents that it has, or will secure at its own expense, all necessary personnel required to perform the Utility Services under this Agreement. Personnel of the Contractor shall not be employees of or have any contractual relationship with the GUA or the General Manager, nor shall such personnel or employee of the Contractor be entitled to any benefits of the GUA or the General Manager including, by way of example and not limitation, pension, health and worker's compensation benefits.

(C) All of the services required hereunder shall be performed by the Contractor or under its supervision, and all personnel, employees and subcontractors engaged in performing the Utility Services shall be fully qualified and, if required, authorized or permitted under State and local law to perform the Utility Services undertaken.

(D) The GUA shall at all times comply with the provisions of the Public Records

Law, Chapter 119, Florida Statutes.

(E) The Contractor, at its sole expense, shall correct or replace any defective or faulty work.

(F) All non-supervisory employees of the Contractor assigned to the field will shall be required to wear at all times a uniform and identification badge.

(G) The Contractor is responsible for checking its employees for proof of a valid Florida driver's license and insurance a minimum of twice annually in those cases where personal vehicles are used for GUA purposes.

SECTION 6.03. AUTHORITY TO PERFORM. The Contractor shall continuously maintain at all material times all Permits, licenses and approvals required under the Applicable Law to provide the Utility Services. Proof of all such Permits, licenses and approvals shall be submitted to the GUA Representative at least annually and upon request.

SECTION 6.04. ACCESS AND AUDITS. The Contractor shall maintain adequate records to justify all charges, expenses and costs incurred in estimating and performing the Utility Services for at least two (2) years after the termination of this Agreement. The GUA, the General Manager or their contracted representatives shall have access to such books, records and documents as required for the purpose of inspection or audit, during Normal Business Hours, at the place of business of the Contractor within the State. The Contractor shall be subject to an annual independent financial and performance audit on its performance and provision of the Utility Services under this Agreement. Any such audit shall be undertaken by an auditor or auditors selected and paid for by the GUA.

SECTION 6.05. GENERAL INSURANCE REQUIREMENTS.

(A) The Contractor shall purchase at its cost and maintain at all times the insurance coverages listed in Appendix I with insurance companies acceptable to the GUA for limits of liability not less than the amount stated for each coverage in Appendix I.

(B) The GUA and the General Manager are to be additional insureds under the Commercial General Liability and Contractor's Pollution Liability Insurance policies with the Severability of Interest Provision applicable to each policy. If requested by the GUA, the

Contractor shall promptly revise the insurance policies to include other local governments using or acquiring the Utility Facilities as additional insureds. All liability insurance shall be on an "occurrence form," except Miscellaneous Errors and Omissions policies and Contractor's Pollution Liability policies which shall be on a "claims made" form. Each policy shall provide that the Contractor's coverage is primary to any insurance or self-insurance program of the GUA and that the GUA shall not be directly responsible for the payment of any insurance premium due the insurance companies. The insurance coverages and limits required must be evidenced by properly executed certificates of insurance supplied by the Contractor. Policies of insurance shall be with carriers admitted to do business in the State of Florida. Carriers shall be "A" rated and have a financial rating size of "IX" or better, according to the A.M. Best Key Rating Guide. All certificates of insurance shall reflect thirty (30) days' notice of any cancellation, change or reduction in insurance coverage. All properly executed certificates of insurance shall be received and approved by the GUA prior to the Commencement Date. On renewal at the end of each policy term, properly executed certificates of insurance must be delivered to the GUA at least thirty (30) days before expiration of the insurance policies for review and approval so that there will be no interruption in the Contractor's provision of Utility Services under this Agreement due to the lack of proof of insurance.

(C) To the extent not otherwise stated herein, and in addition to any other requirements set forth herein, the Contractor shall operate and maintain the Utility Facilities in accordance with the following laws and regulations, as applicable:

(1) Chapter 440, Florida Statutes, Workers' Compensation Law, as amended;

(2) Florida Administrative Code Chapters 38F and 38I, as amended, relating to Workers' Compensation;

(3) 29 Code of Federal Regulations 1910 and 29 Code of Federal Regulations 1926, Occupational Safety and Health Act, General Industrial Standards and Construction Industrial Standards, respectively; and

(4) the Florida Toxic Substances Act.

(D) Should the Contractor at any time fail to maintain the insurance coverages

required in this Section 6.05, the GUA, at its discretion, shall be authorized to purchase such coverages and charge the Contractor for such coverages purchased or deduct such cost from the monthly payment due for the Basic Operation and Maintenance Service Fee. The GUA shall be under no obligation to purchase such insurance or to be responsible for the coverages purchased or the financial stability of the insurance companies used and failure of the GUA to purchase such insurance shall not lessen or release the Contractor of its obligations as provided in this Section 6.05.

(E) The GUA shall secure and maintain at its expense property damage insurance for the Utility Facilities.

SECTION 6.06. NOTICE OF CLAIMS. The Contractor shall notify in writing the GUA Representative of all incidents, events or injuries which the Contractor reasonably believes may result in a claim of fifty thousand dollars ($50,000.00) or more, arising out of the Contractor's performance under this Agreement, including, but not limited to, claims relating to workplace injuries. The Contractor shall notify the GUA of any claim established and accepted as a liability under its commercial insurance or self insurance which is paid in an amount equal to or greater than fifty thousand dollars ($50,000.00). The Contractor shall notify the GUA of any death arising out of the Contractor's performance under this Agreement. The Contractor shall notify the GUA of any and all events, accidents, injuries, incidents, suits or claims which name or otherwise may involve or create a liability for the GUA or result from the provision by the Contractor of the Utility Services, including by way of example and not limitation, any events involving pollution at, on, or near the Utility Facilities. The obligation of the Contractor to report under this Section 6.06 is subject to any confidentiality agreement relating to any claim. All notices required under this Section 6.06 shall be provided promptly and within forty eight (48) hours of the Contractor learning of same.

SECTION 6.07. INDEMNIFICATION AND PENALTIES.

(A) Each party shall protect, defend, indemnify and hold the other party and its officers, employees and agents harmless from and against any and all liabilities, claims, losses, and expenses, including attorney's fees and all costs of litigation and judgments arising out of

any willful misconduct or negligent act, error or omission of that party, its subcontractors, agents or employees, arising out of or incidental to the performance of this Agreement. This indemnification shall also pertain to any claims brought against a party by the other party, its officers, employees or agents, or any subcontractor, or anyone directly or indirectly employed by any of them.

(B) Each party acknowledges that the general conditions of any construction or subcontractor contract shall include language, satisfactory to the other party's attorney, in which the contracting party agrees to hold harmless and to defend the other party, its agents and employees from all suits and actions, including attorney's fees, and all costs of litigation and judgments of any name and description arising out of or incidental to the performance of the construction contract or work performed for the Utility Facilities.

(C) The Contractor shall be liable for any fines or civil penalties which may be imposed by any governmental or quasi-governmental agencies or bodies for violations of the effluent guarantees specified herein arising out of, or resulting from the negligent performance of its duties and obligations under this Agreement, including without limitation, negligent acts and omissions of the Contractor, its employees, agents, officers and subcontractors. The GUA will assist the Contractor in any contest of any such fines or civil penalties in administrative or court proceedings. The Contractor shall pay such fines or civil penalties prior to such protest if such payment is required prior to making such protest. The Contractor shall be solely responsible for all costs, including attorney's and accountants' fees, of protesting any such fines or civil penalties. The Contractor shall not be responsible for any fines or civil penalties due to proceedings concluded prior to execution of this Agreement unless such fines or civil penalties are the direct result of an act or omission of the Contractor pursuant to the terms hereof. Notwithstanding the above, the Contractor shall not be liable for fines, civil penalties and judgments or for defending against same, arising from structural and design defects and deficiencies in the Utility Facilities or the capacity limitations of the Utility Facilities for which the Contractor is not responsible for correcting or remedying under this Agreement.

SECTION 6.08. MODIFICATION OF SCOPE OF SERVICES.

(A) The GUA shall at all times during the term of this Agreement have the right to request unilateral changes in the scope of services, including alterations, reductions therein or additions thereto. Upon receipt by the Contractor of the GUA's notification of the contemplated change, the Contractor, shall in writing: (1) timely provide a detailed estimate for the increase or decrease in cost due to the contemplated change, (2) notify the GUA of any changes in work schedules, (3) advise the GUA if the contemplated change shall affect the Contractor's ability to perform or provide the Utility Services in a manner consistent with the requirements and performance standards incorporated into this Agreement, and (4) advise the GUA if the contemplated change is within the capabilities of the Contractor.

(B) If the GUA so instructs in writing, the Contractor shall suspend work on that portion of the Utility Services affected by the contemplated change, pending the GUA's decision to proceed with the change.

(C) If the GUA elects to make a change in this Agreement, the GUA shall initiate an amendment to this Agreement, and the Contractor shall not commence work on any such change until such written amendment is agreed to and signed by the Contractor and the GUA Representative.

SECTION 6.09. CONFLICTS.

(A) The Contractor represents that it has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance or provision of the Utility Services. The Contractor shall promptly notify the GUA Representative of all potential conflicts of interest for any prospective business association, interest or other circumstance which may influence or appear to influence the Contractor's judgment or quality of the Utility Services to be provided under this Agreement. Such notification shall be in writing and identify the prospective business association, interest or circumstance, the nature of the work the Contractor may undertake and request a determination from the GUA, as to whether the association, interest or circumstance would, in the opinion of the GUA, constitute a conflict of interest if entered into by the Contractor.

(B) The GUA shall respond to the Contractor in writing within thirty (30) days of receipt of the notice by the Contractor of an actual or potential conflict of interest. If the GUA determines the prospective business association, interest or circumstance does not appear to constitute a conflict of interest by the Contractor, the GUA shall so state in the response and the Contractor may, at its option, enter into said association, interest or circumstance and it shall be deemed not in conflict of interest with respect to Utility Services provided by the Contractor.

SECTION 6.10. RIGHT TO ENTER AND INSPECT. At all times the GUA and the General Manager or its representatives or agents shall have the right, but not the duty, to enter upon the Utility Facilities to inspect and observe the performance or provision of the Utility Services.

SECTION 6.11. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Agreement shall be governed by and construed in accordance with the laws of the State.

(B) The parties to this Agreement expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State, whether state, local or federal, and further agree that venue shall lie in Osceola County or Polk County, Florida.

SECTION 6.12. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, to the parties at the following addresses:

To the GUA:

Government Services Group, Inc.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Robert Sheets

with a copy to:

Nabors, Giblin & Nickerson, P.A.
315 South Calhoun Street, Suite 800
Tallahassee, Florida 32301
Attention: Robert L. Nabors, Esq.

To Contractor:

Avatar Utility Services, Inc.
201 Alhambra Circle, 12th Floor
Coral Gables, Florida 33134
Attention: General Counsel

with a copy to:

Avatar Utility Services, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with another copy to:

Greenberg Traurig, P.A.
777 South Flagler Drive, Suite 300E
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan, Esq.

(B) Any written notice given to one person in subsection (A) of this section shall also be provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or five (5) days after the date mailed.

SECTION 6.13. ASSIGNMENT.

(A) The Contractor shall not have the right to assign any of its rights, duties or obligations under this Agreement without the consent of the GUA Board upon a demonstration by the proposed assignee of its general ability to perform the obligations of the Contractor under

this Agreement, which consent shall not be unreasonably withheld. A consented to assignee shall be required to assume the obligations of the assigning party by written assignment in a form reasonably satisfactory to the GUA's attorney.

(B) Notwithstanding the provisions of subsections (A) and (C) of this Section 6.13, the Contractor shall have the right to assign this Agreement to the following entities without the consent of the GUA: ST Environmental Services, Enron, OMI, United Water and AquaSource or their affiliates or any entity that assumes the rights and obligations of the Contractor under this Capacity Acquisition Agreement and acquires a substantial portion of the property owned by Avatar Properties, Inc. within Poinciana. Such assumption shall be effective upon giving 20 days notice to the GUA and upon execution with such entity of a written assignment in a form satisfactory to the GUA's attorney by which such entity assumes all the obligations of the Contractor under this Agreement.

(C) Any assignment of this Agreement consented to by the GUA shall be an assignment of the Agreement in its entirety and the Basic Operation and Maintenance Service and the Basic Billing and Customer Service cannot be severed or assigned separately unless specifically consented to by the GUA; provided, however, this prohibition shall not apply to an affiliate of the Contractor if such separate assignment shall not, in the judgment of the GUA, interfere with the performance of the duties and the provision of the services provided in this Agreement.

(D) A transfer of a majority of the outstanding stock of the Contractor to another corporate entity or business enterprise shall be deemed an assignment of the Agreement requiring the consent of the GUA under this Section 6.13.

(E) Notwithstanding the provisions of subsection (C) of this Section 6.13, a transfer of the outstanding stock of the Contractor to an affiliated company within Avatar Holdings, Inc. shall not require the consent of the GUA under this Section 6.13.

SECTION 6.14. AMENDMENTS AND WAIVERS. No amendment, supplement, modification or waiver of this Agreement shall be binding upon any party hereto unless executed in writing by such party. No waiver of any of the provisions of this Agreement

shall be deemed or shall constitute a waiver of any other provision of this Agreement, whether or not similar, unless otherwise expressly provided.

SECTION 6.15. ENTIRE AGREEMENT. This Agreement, including the referenced Appendices hereto, is the entire agreement between the parties and supersedes all prior and contemporaneous agreements, understandings, negotiations, and discussions of the agreements, understandings, negotiations, and discussions of the parties, whether oral or written, pertaining to the subject matter hereof. Upon execution by all parties, the GUA shall provide the Contractor three complete, certified copies of this Agreement, together with all appendices hereto. This Agreement shall be construed as solely for the benefit of the GUA and the Contractor, their successors and assigns, and no claim or cause of action shall accrue to or be for the benefit of any third party by reason of the execution of this Agreement.

IN WITNESS WHEREOF, the GUA and the Contractor have caused this Agreement to be duly executed and entered into on the date first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

By: EXHIBIT Leo Thomas
Its: Chairman

Attest: EXHIBIT

AVATAR UTILITY SERVICES, INC.

By: EXHIBIT Michael S. Murphy
Its: Treasurer

Attest: EXHIBIT

LIST OF APPENDICES
FT. MYERS SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

APP.

A. DESCRIPTION OF UTILITY FACILITIES

B. OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

C. BILLING, METER READING AND FIELD CUSTOMER SERVICE STANDARDS

D. INVENTORY

E. STAFFING

F. LABORATORY TESTING

G. REPORTS

H. SCHEDULE OF FIXED-FEES FOR ADDITIONAL SERVICES

I. SCHEDULE OF INSURANCE

J. MARCH 30, 1999 CORRESPONDENCE FROM FLORIDA CITIES WATER COMPANY REGARDING FIESTA VILLAGE ADVANCED WASTEWATER TREATMENT PLANT

pertaining to the subject matter hereof. Upon execution by all parties, the County shall provide the Contractor three complete. certified copies of this Agreement, together with all appendices hereto. This Agreement shall be construed as solely for the benefit of the County and the Contractor, their successors and assigns, and no claim or cause of action shall accrue to or be for the benefit of any third party by reason of the execution of this Agreement.

IN WITNESS WHEREOF, the County and the Contractor have caused this Agreement to be duly executed and entered into on the date first above written.

LEE COUNTY, FLORIDA

By: EXHIBIT

Its: Vice-Chairman

Attest: Charlie Green, Clerk

EXHIBIT

By: Lisa S. Fisher

Deputy Clerk

APPROVED AS TO FORM

EXHIBIT

OFFICE OF COUNTY ATTORNEY

AVATAR UTILITY SERVICES, INC.

By: EXHIBIT

Its: Treasurer

Attest:

EXHIBIT

APPENDIX A

DESCRIPTION OF UTILITY FACILITIES

The Utility Facilities consist of the following facilities located in Polk and Osceola Counties:

1. Water system facilities:

   a. Water supply and treatment facilities:

      (1) Water Treatment Plant No. 1
         (a) Supply: 2 wells and pumps
         (b) Treatment: Aeration and disinfection (chlorination)
         (c) Treatment Capacity: 1.080 MGD
         (d) Storage:
            (i) 0.05 MG Steel Ground Storage Tank
         (e) High service pumps: 4

      (2) Water Treatment Plant No. 2
         (a) Supply: 2 wells and pumps
         (b) Treatment: Aeration and disinfection (chlorination)
         (c) Treatment Capacity: 1.361 MGD
         (d) Storage:
            (i) 0.01 MG Steel Hydro-Pneumatic Tank
            (ii) 0.60 MG Concrete Ground Storage Tank
         (e) High Service Pumps: 4

      (3) Water Treatment Plant No. 3
         (a) Supply: 3 wells and pumps
         (b) Treatment: Aeration and disinfection (chlorination)
         (c) Treatment Capacity: 1.000 MGD
         (d) Storage:
            (i) 0.01 MG Steel Hydro-Pneumatic Tank
            (ii) 0.350 MG Concrete Ground Storage Tank
         (e) High Service Pumps: 3

LIST OF APPENDICES
POINCIANA SYSTEM
UTILITY OPERATIONS, BILLING AND
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APP.

A. DESCRIPTION OF UTILITY FACILITIES

B. OPERATION AND MAINTENANCE PERFORMANCE STANDARDS

C. BILLING AND CUSTOMER SERVICE PERFORMANCE STANDARDS

D. INVENTORY

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H. SCHEDULE OF FIXED-FEES FOR ADDITIONAL SERVICES

I. SCHEDULE OF INSURANCE

(4) Water Treatment Plant No. 4
- (a) Supply: 2 wells and pumps
- (b) Treatment: Aeration and disinfection (chlorination)
- (c) Capacity: 0.077 MGD
- (d) Storage:
  - (i) 0.004 MG Steel Hydro-Pneumatic Tank
  - (ii) 0.016 MG Steel Ground Storage Tank
- (e) High Service Pumps: 2

(5) Water Treatment Plant No. 5
- (a) Supply: 2 wells and pumps
- (b) Capacity: 0.250 MGD
- (c) Treatment: Aeration and disinfection (chlorination)
- (d) Storage:
  - (i) 0.01 MG Steel Hydro-Pneumatic Tank
  - (ii) 0.07 MG Steel Ground Storage Tank
- (e) High Service Pumps: 3

b. *Distribution and transmission facilities:*

(1) Mains: Approximately 1,015,084 feet, 1.5"-16" in diameter, ductile iron, polyvinyl chloride and asbestos-cement pipe, and appurtenances thereto.

(2) Fire Hydrants: Approximately 915

(3) Meters: Approximately 7,000

(4) Storage: 0.40 MG Steel Elevated Storage Tank (WTP 1 distribution system)

2. Wastewater facilities:

a. Treatment facilities:

(1) Wastewater Treatment Plant No. 1
- (a) Treatment: Activated sludge
  - (I) Process: Influent screening, oxidation ditch, secondary clarification, chlorination, aerobic digestion of residuals.
  - (ii) Standard: Secondary-Plus
  - (iii) Capacity: 0.35 MGD
- (b) Reclaimed Water Disposal: rapid infiltration basins

(2) Wastewater Treatment Plant No. 2
- (a) Treatment: Activated sludge
  - (I) Process: Influent screening, aeration, secondary clarification, chlorination, aerobic digestion of residuals
  - (ii) Standard: Secondary
  - (iii) Capacity: 0.50 MGD
- (b) Reclaimed Water Disposal: sod-farm irrigation

(3) Wastewater Treatment Plant No. 3
- (a) Treatment: Activated sludge
  - (I) Process: Influent screening, aeration, secondary clarification, chlorination, dechlorination, aerobic digestion of residuals
  - (ii) Standard: Secondary-Plus
  - (iii) Capacity: 0.35 MGD
- (b) Reclaimed Water Disposal: wetlands discharge

(4) Wastewater Treatment Plant No. 5
- (a) Treatment: Activated sludge
  - (I) Process: Influent screening, aeration, reaeration, secondary clarification, chlorination, aerobic digestion of residuals
  - (ii) Standard: Secondary-Plus
  - (iii) Capacity: 0.95 MGD
- (b) Reclaimed Water Disposal: rapid infiltration basins

b. Collection system facilities:

(1) Collection and Interceptor Mains: Approximately 893,767 feet, 8"-15" in diameter, ductile iron, polyvinyl chloride, polyethylene, and vitrified clay pipe, and appurtenances thereto.

(2) Force Mains: Approximately 198,466 feet, 3"-16" in diameter, ductile iron and polyvinyl chloride pipe, and appurtenances thereto.

(3) Lift and Pumping Stations:
- (a) Master: 4
- (b) Other: 46

(4) Manholes: Approximately 3,905

**All statistics are end of year 1998 totals.

APPENDIX A

DESCRIPTION OF UTILITY FACILITIES

The Utility Facilities consist of the following facilities located in Lee County:

1. Water system facilities:

   a. Water supply and treatment facilities:

      (1) Green Meadows Water Treatment Plant
         (a) Supply: 27 wells and pumps
         (b) Treatment: Lime softening, filtration and disinfection (chlorination)
         (c) Treatment Capacity: 9 MGD
         (d) Storage: None
         (e) High service pumps: 4

      (2) College Parkway Water Treatment Plant
         (a) Supply: 8 wells and pumps
         (b) Treatment: Lime softening, filtration, and disinfection (chlorination)
         (c) Treatment Capacity: 1.5 MGD
         (d) Storage
            (i) 1.0 MG Masonry Ground Storage Tank
            (ii) 0.50 MG Masonry Ground Storage Tank
         (e) High Service Pumps: 3

      (3) Waterway Estates Water Treatment Plan

         (a) Supply: 18 wells and pumps
         (b) Treatment: Lime softening, filtration, and disinfection (chlorination), recarbonation
         (c) Capacity: 1.5 MGD
         (d) Storage:
            (i) 1.0 MG Masonry Ground Storage Tank
         (e) High Service Pumps: 5

b. Distribution and transmission facilities:

(1) Mains: Approximately 1,787,492 fee, 1"-30" in diameter, ductile iron, prestressed concrete, polyvinyl chloride and asbestos-cement pipe, and appurtenances thereto.

(2) Fire Hydrants: Approximately 1,729

(3) Meters: Approximately 19,772 (End of year 1998)

(4) Storage:
- (i) 2.0 MG Steel Ground Storage Tank
  - (a) High Service Pumps: 4
- (ii) 1.0 MG Masonry Ground Storage Tank
  - (a) High Service Pumps: 3
- (iii) 0.5 MG Steel Ground Storage Tank
  - (a) High Service Pumps: 3
- (IV) 1.0 MG Masonry Ground Storage Tank
  - (a) High Service Pumps: 3

(5) High Service Pumps: 2 (Marina Booster Station)

2. Wastewater facilities:

a. Treatment facilities:

(1) Fiesta Village Advanced Wastewater Treatment Plan
- (a) Treatment: Activated sludge
  - (i) Process: Influent screening, grit removal, oxidation ditch, secondary clarification, denitrification/filtration, chlorination, dechlorination, aerobic digestion and thickening of residuals
  - (ii) Standard: Advanced.
  - (iii) Capacity: 2.5 MGD
- (b) Reclaimed Water Disposal: surface water discharge, golf course irrigation, and public access reuse

(2) Waterway Estates Wastewater Treatment Plant
- (a) Treatment: Activated sludge
  - (i) Process: Influent screening, flow equalization, aeration/anoxic basins, secondary clarification, denitrification/filtration, ultraviolet disinfection, chlorination of reuse, aerobic digestion of residuals
  - (ii) Standard: Advanced

(iv) Capacity: 1.25 MGD

(b) Reclaimed Water Disposal: surface water discharge, golf course irrigation

b. Collection system facilities:

(1) Collection and Interceptor Mains: approximately 469,391 feet, 4"-16" in diameter, ductile iron, polyvinyl chloride and vitrified clay pipe, and appurtenances thereto.

(2) Force Mains: approximately 241,879 feet, 3"-30" in diameter, ductile iron, prestressed concrete, and polyvinyl chloride pipe, and appurtenances thereto.

(3) Lift and Pumping Stations:
   (a) Master: 1
   (b) Other: 115

(4) Manholes: approximately 2,078

**All statistics unless noted otherwise were taken from the 1997 Public Service Commission Consolidated Annual Report.

APPENDIX B

OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

SECTION B.01. TREATMENT FACILITIES.

(A) Operate and maintain the water and wastewater treatment plant facilities, unit processes, and their respective appurtenances including, but not limited to, the following:

- control of treated water corrositivity within the limits of the existing treatment process;
- general housekeeping;
- grounds maintenance;
- maintain Supervisory Control And Data Acquisition (SCADA) system;
- issue public notices of non-compliance with drinking water standards resulting from acts or omissions of the Contractor. The County shall issue notices of non-compliance resulting from limitations of the treatment process or equipment failure;
- minimize the generation of noise and odors;
- assist the County's laboratory testing contractor with any sampling required by any regulatory agency, including well, soil and distribution system sampling;
- provide necessary coordination with the County's construction contractors, engineers, or other consultants or vendors for line tie-ins, process standards and connection of Capital Improvements to the Utility Facilities during Normal Business Hours;
- provide timely submittal of all monthly operating reports required by regulatory agencies;
- maintain equipment, pumps and motors similar to that required for pumping stations in sections B.02 and B.05; and

- procure sludge removal services.

(B) Take immediate action to either prevent environmental incidents or dangerous situations, and endeavor to keep the number and duration of such incidents and situations to a minimum.

SECTION B.02. WATER PUMPING STATIONS AND WELLS.

(A) Operate and maintain the pumping stations and raw water supply well facilities, and their respective appurtenances including, but not limited to the following:

(1) Monitoring of pump stations and wells for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments. A list of activities to be performed at the following minimum intervals shall include, but not be limited to, the following:

- clean sump pumps as needed;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- check and clean filter elements for gas or diesel engines as specified by the Contractor;
- change and maintain the oil level in pumps as specified by the manufacturer;
- lubricate and clean air blowers weekly or as specified by the manufacturer;
- maintain proper belt tension weekly;
- poll the station on a scheduled basis by the telemetry system to the extent of the capability of said system at fifteen (15) minute increments;

- check pump running times twice weekly;
- maintain the station's lights and replace bulbs as needed;
- check motor starter contacts twice annually;
- clean floats quarterly;
- maintain alarm lights and horns weekly;
- remove debris from pumps and check valves as required;
- lubricate pump and motor bearings as specified by the manufacturer;
- clean out pumps as required;
- exercise all station valves twice annually; and
- clean check valves as required.

(4) The Contractor shall repair pump stations and wells in order to maintain their integrity. Such activities to be performed or provided shall include, but not be limited to, the following Repairs, Replacements and Renewals:

- rebuilding or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;

- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;
- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(5) The Contractor shall provide routine repairs to all equipment, including painting of all exposed equipment, and all exposed piping, on a five year rotating basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping.

SECTION B.03. WATER DISTRIBUTION SYSTEMS.

(A) The Contractor shall operate, maintain, and repair the water transmission, distribution piping, treated water storage, meters and other appurtenances including, but not limited to, the following:

- timely repair of any water main breaks, water main leaks;
- service line breaks;
- excavation, backfilling and compaction of such excavations in the course of performing work in the water distribution system;
- regular flushing of dead end system main lines;
- fire hydrant flow testing;

- visual inspection of the hydrant;
- fire hydrant leak checks; and
- fire hydrant lubrication (outlet threads, cap threads and valve stem).

(B) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders such as line leaks, valve breads and damage to appurtenances relating to existing water services or the distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order, unless any delay beyond three (3) working days is due to unavailability of parts, in which case such work will be completed as soon as the parts are obtained.

(C) The Contractor shall respond to emergency conditions without a work order and within two (2) hours of being notified or otherwise learning of such emergency or any unforeseen combination of circumstances or the resulting state that reasonably call for immediate action.

SECTION B.04. STORAGE TANKS. The Contractor shall render preventative maintenance service to the County with respect to all the County storage tanks. Such preventative maintenance services, at a minimum shall consist of regularly scheduled inspections (inspections by the Contractor, not part of a planned, formal inspection program) and adjustment of electrical and mechanical equipment in each of the County's water storage tanks.

SECTION B.05. WASTEWATER PUMPING FACILITIES.

(A) Operate and maintain the wastewater pumping facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of lift or pumping stations for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments.

(4) Monitor those wastewater pumping facilities which have the technology for such monitoring for the following parameters:

- pump running times;
- high water level in wet well;
- loss of electrical power; and
- thermal overload.

(5) The Contractor shall provide preventative maintenance service with respect to the wastewater pumping facilities including, but not limited to:

- regularly scheduled inspections;
- adjustment of electrical and mechanical equipment;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- change and maintain the oil level in pumps as specified by the Contractor;
- lubricate and clean air blowers weekly or as specified by the Contractor;
- poll the station on a scheduled basis by the telemetry system at five (5) minute increments;
- check pump running times twice weekly;
- clean "wet wells" quarterly or more often if needed;
- check remote telemetry units for proper operation daily;

- maintain the station's alarm lights, lights and replace bulbs as necessary;
- check the wet well levels for proper distance of pumping as necessary;
- check motor starter contacts twice annually;
- clean floats quarterly;
- remove debris from pumps and check valves as necessary;
- clean out pumps as required as necessary;
- exercise all station valves twice annually; and
- clean check valves as necessary as necessary.

(6) Supply all materials as needed for the preventative maintenance program in conformance with Section B.05(A)(5) herein.

(7) Repair and rehabilitate pump stations including, but not limited to, the following:

- repairing or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;
- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;

APPENDIX B

OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

SECTION B.01. TREATMENT FACILITIES.

(A) Operate and maintain the water and wastewater treatment plant facilities, unit processes, and their respective appurtenances including, but not limited to, the following:

- control of treated water corrositivity within the limits of the existing treatment process;
- general housekeeping;
- grounds maintenance;
- maintain Supervisory Control And Data Acquisition (SCADA) system;
- issue public notices of non-compliance with drinking water standards resulting from acts or omissions of the Contractor. The GUA shall issue notices of non-compliance resulting from limitations of the treatment process or equipment failure;
- minimize the generation of noise and odors;
- assist the GUA's laboratory testing contractor with any sampling required by any regulatory agency, including well, soil and distribution system sampling;
- provide necessary coordination with the GUA's construction contractors, engineers, or other consultants or vendors for line tie-ins, process standards and connection of Capital Improvements to the Utility Facilities during Normal Business Hours;
- provide timely submittal of all monthly operating reports required by regulatory agencies;
- maintain equipment, pumps and motors similar to that required for pumping stations in sections B.02 and B.05; and

- procure sludge removal services.

(B) Take immediate action to either prevent environmental incidents or dangerous situations, and endeavor to keep the number and duration of such incidents and situations to a minimum.

SECTION B.02. WATER PUMPING STATIONS AND WELLS.

(A) Operate and maintain the pumping stations and raw water supply well facilities, and their respective appurtenances including, but not limited to the following:

(1) Monitoring of pump stations and wells for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments. A list of activities to be performed at the following minimum intervals shall include, but not be limited to, the following:

- clean sump pumps as needed;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- check and clean filter elements for gas or diesel engines as specified by the Contractor;
- change and maintain the oil level in pumps as specified by the manufacturer;
- lubricate and clean air blowers weekly or as specified by the manufacturer;
- maintain proper belt tension weekly;
- poll the station on a scheduled basis by the telemetry system to the extent of the capability of said system at fifteen (15) minute increments;

- check pump running times twice weekly;
- maintain the station's lights and replace bulbs as needed;
- check motor starter contacts twice annually;
- clean floats quarterly;
- maintain alarm lights and horns weekly;
- remove debris from pumps and check valves as required;
- lubricate pump and motor bearings as specified by the manufacturer;
- clean out pumps as required;
- exercise all station valves twice annually; and
- clean check valves as required.

(4) The Contractor shall repair pump stations and wells in order to maintain their integrity. Such activities to be performed or provided shall include, but not be limited to, the following Repairs, Replacements and Renewals:

- rebuilding or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;

- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;
- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(5) The Contractor shall provide routine repairs to all equipment, including painting of all exposed equipment, and all exposed piping, on a five year rotating basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping.

SECTION B.03. WATER DISTRIBUTION SYSTEMS.

(A) The Contractor shall operate, maintain, and repair the water transmission, distribution piping, treated water storage, meters and other appurtenances including, but not limited to, the following:

- timely repair of any water main breaks, water main leaks;
- service line breaks;
- excavation, backfilling and compaction of such excavations in the course of performing work in the water distribution system;
- regular flushing of dead end system main lines;
- fire hydrant flow testing;

- visual inspection of the hydrant;
- fire hydrant leak checks; and
- fire hydrant lubrication (outlet threads, cap threads and valve stem).

(B) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders such as line leaks, valve breads and damage to appurtenances relating to existing water services or the distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order, unless any delay beyond three (3) working days is due to unavailability of parts, in which case such work will be completed as soon as the parts are obtained.

(C) The Contractor shall respond to emergency conditions without a work order and within two (2) hours of being notified or otherwise learning of such emergency or any unforeseen combination of circumstances or the resulting state that reasonably call for immediate action.

SECTION B.04. STORAGE TANKS. The Contractor shall render preventative maintenance service to the GUA with respect to all the GUA storage tanks. Such preventative maintenance services, at a minimum shall consist of regularly scheduled inspections (inspections by the Contractor, not part of a planned, formal inspection program) and adjustment of electrical and mechanical equipment in each of the GUA's water storage tanks.

SECTION B.05. WASTEWATER PUMPING FACILITIES.

(A) Operate and maintain the wastewater pumping facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of lift or pumping stations for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments.

(4) Monitor those wastewater pumping facilities which have the technology for such monitoring for the following parameters:

- pump running times;
- high water level in wet well;
- loss of electrical power; and
- thermal overload.

(5) The Contractor shall provide preventative maintenance service with respect to the wastewater pumping facilities including, but not limited to:

- regularly scheduled inspections;
- adjustment of electrical and mechanical equipment;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- change and maintain the oil level in pumps as specified by the Contractor;
- lubricate and clean air blowers weekly or as specified by the Contractor;
- poll the station on a scheduled basis by the telemetry system at five (5) minute increments;
- check pump running times twice weekly;
- clean "wet wells" quarterly or more often if needed;
- check remote telemetry units for proper operation daily;

- maintain the station's alarm lights, lights and replace bulbs as necessary;
- check the wet well levels for proper distance of pumping as necessary;
- check motor starter contacts twice annually;
- clean floats quarterly;
- remove debris from pumps and check valves as necessary;
- clean out pumps as required as necessary;
- exercise all station valves twice annually; and
- clean check valves as necessary as necessary.

(6) Supply all materials as needed for the preventative maintenance program in conformance with Section B.05(A)(5) herein.

(7) Repair and rehabilitate pump stations including, but not limited to, the following:

- repairing or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;
- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;

- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(8) Painting of all exposed equipment, and all exposed piping, on a five year rotation basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping on a three year rotating basis.

SECTION B.06. WASTEWATER COLLECTION SYSTEMS.

(A) The Contractor shall be responsible for procurement of all materials, supplies, chemicals and other consumables that may be necessary for proper operation, maintenance and repair of the system collection facilities (this requirement does not include a planned program of cleaning, television inspection and grouting) including the following:

- cleaning;
- flushing; and
- inspection of main pipelines and manholes.

(B) The Contractor shall respond to any wastewater collection system emergency including, but not limited to, pipeline blockage or potential thereof, or manhole surcharging as may reported by any source with the GUA's service area as soon as possible, but in any event, within two (2) hours of being notified or otherwise learning of such or related condition in the wastewater collection system.

(C) The Contractor shall timely, and properly, maintain and repair the wastewater collection and transmission facilities. The Contractor shall take all necessary measures to remedy conditions in the wastewater collection system facilities resulting from a main pipeline blockage and consequential surcharging of such pipelines or manholes and shall be responsible for clean up and abatement resulting from such conditions which occur within the wastewater collection system facilities.

SECTION B.07. COMPUTERIZED MAINTENANCE RECORDS. The Contractor shall be responsible for performing routine, preventive, predictive, and corrective maintenance procedures of the Utility Facilities, all in a manner that assures the readiness and availability of equipment, processes, and systems on a consistent basis, and which ensures efficiency, long-term reliability, and conservation of the capital investment in the Utility Facilities. Such procedures shall include preventive maintenance and work order based corrective maintenance program components for the Utility Facilities and shall be capable of providing the following:

- maintain a record of repair and repair history for each piece of equipment or line section;
- schedule preventive and predictive maintenance;
- maintain records of routine transmission and distribution line repairs;
- maintain records of corrective maintenance;
- issue and monitor work orders;
- maintain a spare parts inventory; and
- issue equipment status and repair priority reports.

SECTION B.08 FULL TAP AND METERS AND A METER SETTING. The Contractor shall complete installation of a Full Tap and Meters and a Meter Setting requested by the GUA in a timely manner and in no event later than as follows:

(A) For meter installations where service is already in place, five (5) business days from the date of the installation or meter setting request.

(B) For Full Taps and Meter Settings where a permit from an outside agency is not required, fifteen (15) business days from the date of the installation or meter setting request.

(C) For Full Taps and Meter Settings where a permit from an outside agency is required, twenty (20) business days after the receipt of the permit.

APPENDIX C

BASIC BILLING AND CUSTOMER

SERVICE PERFORMANCE STANDARDS

SECTION C.01. METER READING.

(A) All water meters shall be read on a monthly basis.

(B) Malfunctioning meters, visible leaks or damage to the meter or box shall be reported to the operation and maintenance provider for repairs.

(C) The Contractor shall enter the appropriate codes in the hand held meter reading devices to notify customer service personnel to issue work orders for repairs where needed (e.g., broken or obscured glass, box too high/low, broken lid, cannot find meter).

(D) The Contractor shall reread "suspected" erroneously read meters at the Contractor's earliest convenience. The Contractor shall provide an exception (hi-low audit) report on each business day for a previous days' reading. The Contractor shall review reports and select meters to be rechecked before billing.

(E) Meter readers are required to read every meter in the route. Any instances where a meter reader suspects an illegal hook-up should be reported immediately to the Contractor's office. If a meter is present, the Contractor will have a meter reader note the serial number and reading. Illegal hook-ups will be reported to the GUA for action.

(F) Normal hours of meter reading shall be Monday through Saturday, except GUA holidays, between 7 a.m. and 6 p.m. each day (unless mutually agreed upon between the GUA and the Contractor).

(G) Meter reading must be accurate with an error level of no greater than 1 per 1,000 reads. Errors are defined as misreads found by field audits, investigations, and readings the following month which are lower than reported the previous month as an accurate read or customer requested rechecks which, after investigation, a reading error is confirmed.

(H) All meter reading routes are to be accomplished within two (2) business days of the day scheduled. Weather conditions, excluding conditions associated with hurricanes and floods, must not prevent the accomplishment of meter reading unless otherwise agreed to by the GUA.

- Individual accounts on routes which are "no reads" (skips) will be reviewed daily by the Contractor. If upon further investigation, it is determined that a reading could have been obtained, the Contractor shall take immediate steps to obtain the reading.
- All meter boxes or meter conditions which impose an impediment to readers or citizens must be entered in the hand held devices by the meter readers when observed and promptly reported to the operation and maintenance provider. Other conditions of special interest that may explain high usage, as well as notification made of suspected leaks found, must also be entered.

SECTION C.02. FIELD SERVICES.

(A) The Contractor shall provide field personnel to accomplish the following meter service functions:

- turn-on and turn-off of customer meters in response to account changes, delinquent accounts, customer requests, or emergencies;

- verify meter sizes;
- verify meter reading accuracy;
- meet with customer at property to discuss and evaluate disputes and make a report to customer service; and
- review with customers at property, how to read meter, typical usage of water, and conservation measures that customer can implement.

(B) All field service shall be made via work orders with prompt notification of the maintenance service provider when applicable. Information from these work orders shall be summarized on monthly order reports.

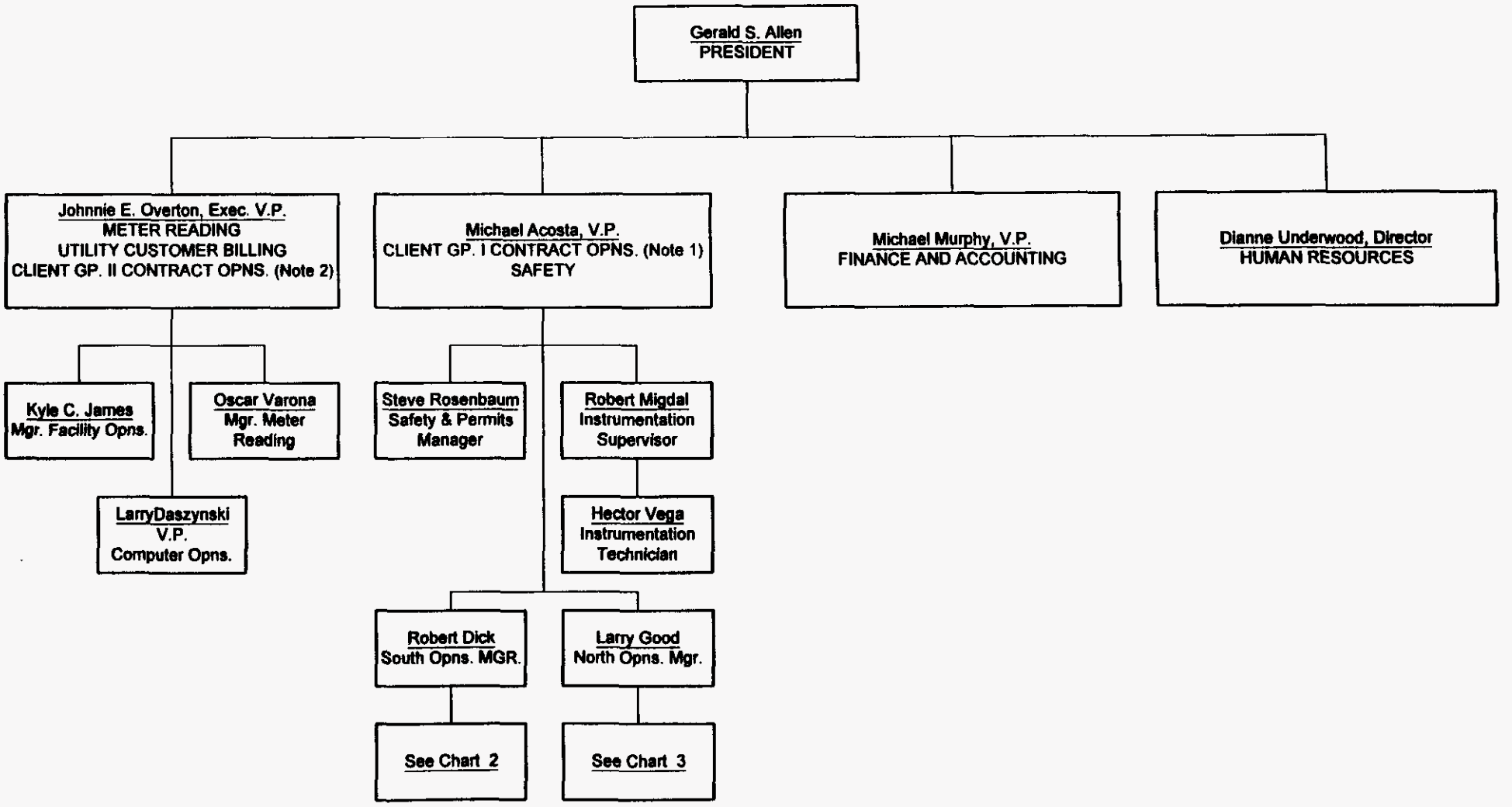
(C) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders relating to existing water services or distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order.

APPENDIX D

INVENTORY

Within five (5) days after the Commencement Date, the parties hereto shall establish the Inventory by a physical inventory of the items on hand or as otherwise mutually agreed.

APPI DIX E
STAFFING PLAN
Chart 1
AVATAR UTILITY SERVICES, INC.
Provisional Organizational Chart
Effective 4/1/99



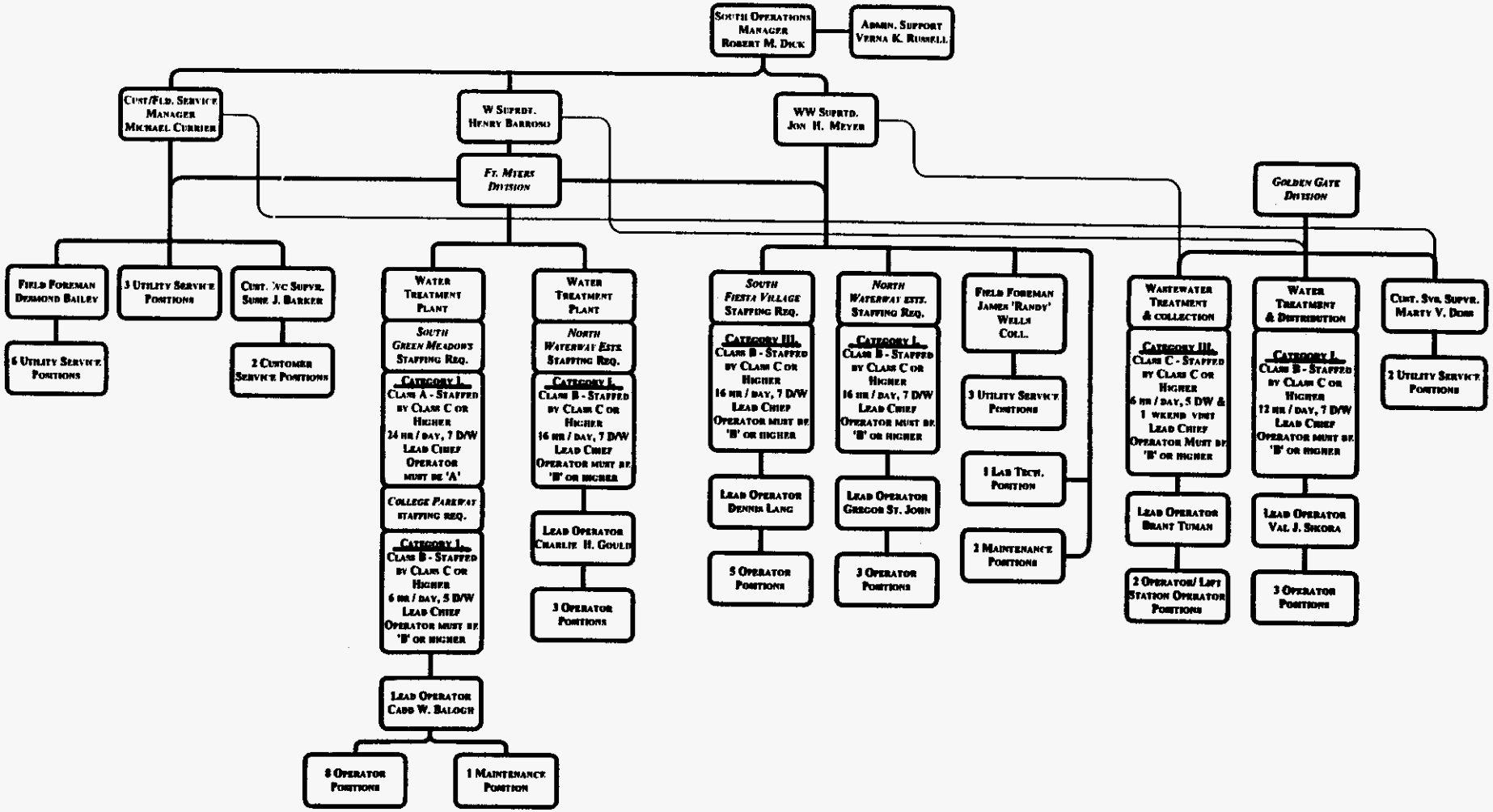
NOTES:

1. Client Group I consists of the GUA or a combination of the GUA and individual counties and pertain to the utility system formerly owned by Poinciana Utilities Inc., and the former Golden Gate, Ft. Myers, Sarasota, Carrollwood and Barefoot Bay Divisions of Florida Cities Water Company.

2. Client Group II consists of all other AUSI contract operations clients.

As of ./99

CH 2
SOUTH C ATIONS
CLIENT GROUP I



NOTES:
(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

As of - 99

CHART 3
NORTH OPERATIONS
CLIENT GROUP 1

North Operations Manager
Larry Good

Barefoot Bay Division
Division Manager
William M. Sansbury

- Field Foreman J. Steve Haver
  - 3 Utility Service Positions
- 2 Customer Service Positions
- **Water Treatment Plant**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 12 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Mark S. Dowe
  - 2 Operator/ Operator Trainee Positions
- **Wastewater Treatment Plant**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 8 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - Lead Operator Glen Siler
  - 1 Operator/ Operator Trainee Position
  - 1 Maintenance Position

Poinciana Division
Division Manager
Larry Good

- Field Foreman Victor Winkler
  - 8 Utility Service Positions
- Cust. Svs. Supvr. Lorlee F. Miller
  - 2.5 Customer Service Positions
- **Wastewater Treatment Plant**
  - W.W.T.P. # 1 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 2 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
  - W.W.T.P. # 3 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 5 Staffing Req.
  - Category II, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
- **Water Treatment Plant**
  - W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 4 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
  - W.T.P. # 5 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit

Carrollwood Division
- W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- Lead Operator Brian Southwell
- 1 Customer Service Position
- 2 Utility Service Positions

Sarasota Division
- Field Foreman Chet VanHorn
  - 7 Utility Service Operator Positions
  - 2 Customer Service Positions
- W/W Supvr. Wm. Randy Musgrove
  - **South Gate A.W.T.P.**
    - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
    - Lead Operator William (Bill) Dymek
    - 3 Operator Positions
  - **Gulf Gate A.W.T.P.**
    - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
    - Lead Operator E. S. 'Charlie' Garrett
    - 3 Operator Positions
  - 1 Lab. Technician Position
  - 1 Maintenance Position

- Chief Operator Keith S. Keenan
  - 5 Operator Positions
  - 1 Maintenance/ Truck Driver Position

Solid Lines = Direct Supervision
Dotted Lines = Indirect Supervision

NOTES:
(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

APPENDIX F

LABORATORY TESTING

SECTION F.01. LABORATORY TESTING BY GUA. The GUA shall be responsible for employing a laboratory, certified by the FDEP or other regulatory agency, as applicable, to perform all laboratory testing required for regulatory reports. The Contractor shall coordinate with the GUA and the laboratory employed by the GUA for all such testing.

SECTION F.02. LABORATORY TESTING BY THE CONTRACTOR. The Contractor shall perform laboratory testing to the extent necessary for treatment process control.

APPENDIX G

REPORTS

SECTION G.01. BASIC BILLING AND CUSTOMER SERVICES. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Billing and Customer Services, the Contractor shall submit or make available to the GUA electronically, the following reports:

REPORT	CONTENT	REPORTING PERIOD
Daily Transaction Journal	A documentation of all monetary and non-monetary transactions that have been posted to a customer's account	available daily
Preliminary Meter Reading Report	A report indicating the meter readings entered for each account prior to billing. Error in readings and/or consumption will be indicated for correction	
Account Balance Report	A report indicating each customer's current and past due balance	
Alpha-Cross Reference	A report listed in alphabetic order by customer's last name with a cross index to the customer's account number	
Aged Trial Balance	A report listing each customer's account with total balance, current, 30, 60, 90, and 120 day balances	available once monthly
Delete Report	A report listing all accounts which should be deleted from GUA's file	available once monthly
Past Due Report	A report indicating all delinquent accounts that have a balance other than current	

Meter Aging Report	A report that lists every account that had a meter installed between a range of dates selected by the GUA	
Consumption History Report	A report listing meter usages for up to 24 months past by rate classification and meter size.	
Billing Register	A report indicating each customer account billed with all pertinent information contained on the customer bill	
Monthly Activity Report	a report indicating a summary of all billings, adjustments and payments recorded during a particular calendar month Specifically, it indicates: (a) billing by rate class by service; (b) charges/adjustments by rate class; (c) total payments received; and (d) total bills printed	
Other reports commonly available at the time of acquisition		as requested and available

SECTION G.02. BASIC OPERATION AND MAINTENANCE SERVICE REPORTS. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Operation and Maintenance Service, the Contractor shall submit to the GUA, not later than the fifteenth (15th) day of each month, a report consisting of the following:

(A) Reclaimed and potable water produced at each treatment facility:

(1) monthly operating reports for each facility;

(2) total and average-day for the month; and

(3) average-day, maximum-day, minimum-day and average of the maximum-month for the ended 12-month period.

(B) Description of any emergencies and incidents occurring during the month including, but not limited to:

(1) operational anomalies or other emergencies which had a material adverse impact on customer service or the public;

(2) environmental incidents;

(3) Utility Facilities stress situations;

(4) work order log detailing when work orders were received and completed, location of event, work performed, equipment and resources used; and

(5) quality assurance reports and resolutions.

(C) Description of regulatory matters including, but not limited to:

(1) regulatory notices and responses thereto;

(2) requirement for any public notices;

(3) inspections or visits to Utility Facilities by regulatory agencies; and

(4) implementation of new regulatory requirements.

(D) Progress report including, but not limited to:

(1) material operational changes;

(2) major maintenance and repair activities; and

(3) Replacement and Renewal activities.

(E) Summary of new customers connected.

(F) Events and situations described in (B)(1), (B)(2), (C)(1), and (D)(2) by telephone within twenty four (24) hours after the Contractor becomes aware of the event or situation and makes an assessment of impacts thereof followed by a written report within five (5) business days thereafter.

APPENDIX H

Meter Setting Cost (3)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	20.00	48.22
1	77.22	20.00	97.22
1	196.02	40.00	236.02
2	267.30	40.00	307.30
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Short Side) (5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	265.82	226.00	491.82
1	314.82	226.00	540.83
1	683.32	226.00	909.32
2	754.60	226.00	980.60
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Long Side)(5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	499.02	226.00	725.02
1	548.02	226.00	774.02
1	927.52	226.00	1153.52
2	998.80	226.00	1224.80
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Bullhead Service Installation Cost

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	225.12	100.00	325.12
1	274.12	100.00	374.12

Replacement Meter Costs (4)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	15.00	43.22
1	77.22	15.00	92.22
1	196.02	30.00	226.02
2	267.30	30.00	297.30
3	815.66	50.00	865.66
4	1276.72	50.00	1326.72
6	2012.67	50.00	2062.67
8	1461.83	50.00	1511.83

(1) Does not include the meter box or backflow prevention device.

(2) Material costs include the meter or meter head assembly costs, service piping, corporation stops, stops, meter boxes, casing under the roadway for long services and appurtenances excluding the backflow prevention device.

(3) ⅝, 1, 1½ and 2" material prices based on Neptune T-10, bronze body, cast iron bottom, with polymer register housing and lid.

(4) ⅝, 1, 1½ and 2" meters will be replaced entirely; only the meter head assembly will be replaced on 3, 4, 6, and 8" meters, 3, 4, 6" meter cost are for Tru/Flo meter heads, the 8" price is for a turbine meter head.

(5) Short side means service to property on the same side of the road as the water main. Long side means service to property on the opposite side of the road as the water main. Long side costs include installation of casing under the roadway, casing length not greater than twenty four (24') feet.

APPENDIX I

Schedule of Insurance

The following is an outline of the insurance coverages the Contractor shall obtain and maintain as provided herein, and in the type, amounts and in conformance with the following minimum requirements and is subject to the terms and conditions of each insurance policy:

Worker's Compensation
Statutory benefits as defined by Chapter 440, Florida Statutes, encompassing all operations contemplated by this Agreement to apply to all owners, officers, and employees regardless of number of employees. Individual employees may be exempted per State Law. Employers Liability will have minimum limits of $1,000,000.00 per accident.

Commercial General Liability
Coverage shall apply to premises and/or operations, products and/or completed operations, independent contractors, contractual liability, and broad form property damage exposures with minimum limits of $1,000,000.00 per occurrence. Said policy shall be insured by an insurance company, or companies, with a current minimum rating by the A.M. Best Agency of A.

Commercial Automobile Liability
Coverage shall apply to owned vehicles and/or hired and non-owned vehicles and employee non-ownership use with minimum limits of $1,000,000.00 CSL (combined single limit).

Umbrella/Excess Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep umbrella/excess liability insurance in minimum amount of $30,000,000.00.

Certificate of Insurance
The GUA shall be listed as a certificate holder and additional insured with respects to Commercial General Liability. An original hand signed certificate shall be on file with and approved by the GUA prior to the operation date. Said certificate shall evidence the required coverages and amounts as contained herein and provide a thirty (30) day notice of cancellation for non-renewal or material change in coverage.

Commercial Crime/Employee Dishonesty
Coverage shall apply to employees and include coverage for faithful performance of duty, depositors forgery, money-securities (in and out), and counterfeit papers with a minimum limit of $5,000,000.00 per occurrence.

Contractor's Pollution Liability Insurance

At all times during the term of this Agreement, the Contractor shall keep contractor's pollution liability insurance in minimum amounts of $2,000,000.00.

Miscellaneous Errors and Omissions Insurance

At all times during the term of this Agreement, the Contractor shall keep miscellaneous errors and omissions insurance in minimum amounts of $2,000,000.00.

SARASOTA SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

THIS UTILITY OPERATIONS, BILLING AND CUSTOMER SERVICE AGREEMENT, is made and entered into as of this 1st day of April, 1999, by and between the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), and Avatar Utility Services, Inc., a Florida corporation (the "Contractor").

WITNESSETH:

WHEREAS, the GUA owns a water and wastewater utility system located in Sarasota County, Florida, known as the Sarasota System and consisting of the facilities described at Appendix "A" hereto; and

WHEREAS, the GUA intends by the execution of this Agreement to contract for the operation and maintenance of the Utility Facilities and the billing and customer service provided within the Sarasota System by the Contractor at standards not less than those provided on December 18, 1998; and

WHEREAS, the scope of utility operation and maintenance services, and billing and customer services to be provided for the Sarasota System as incorporated in the provision of this Agreement is intended to meet the following operating objectives of the GUA:

(1) To provide water treatment, water distribution, wastewater treatment, and wastewater disposal services to the utility customers of the Sarasota System without unnecessary interruption.

(2) To mitigate bypass or overflow of sanitary sewage from the transmission system and treatment plant.

(3) To handle and treat sanitary sewage in a manner that meets or exceeds the requirements of Applicable Law to the extent of the capability of the Utility Facilities.

(4) To treat and provide potable water that meets or exceeds the requirements of Applicable Law to the extent of the capability of the supply and treatment components of the Utility Facilities.

(5) To operate all treatment plants to their optimum capability and efficiency to the extent reasonably practical.

(6) To conserve the capital investment in Utility Facilities and to ensure long-term reliability and efficiency of the Utility Facilities by performing adequate preventative and corrective maintenance, upgrading and replacement consistent with prevailing industry standards.

(7) To provide responsive customer services on all issues relating to the provision of utility services within the control of the Contractor including issues pertaining to meter readings, customer billing and utility usage; and

WHEREAS, the Contractor represents that it currently has, and will have throughout the term of this Agreement, the experience and professional skill to provide the utility services required to operate and maintain the Utility Facilities, to timely and accurately bill for utility service provided and to maintain effective relationships with utility customers.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, the parties to this Sarasota System Utility Operations, Billing and Customer Service Agreement do agree for themselves, their permitted successors and assigns as follows:

ARTICLE I

DEFINITIONS AND CONSTRUCTION

SECTION 1.01. PURPOSE AND DEFINITIONS.

(A) This Agreement is entered into as a condition precedent to the transfer of the assets of the Sarasota System under the Utility System Asset Acquisition Agreement, dated April 1, 1999, between the GUA and Florida Cities Water Company and Poinciana Utilities, Inc. (the "Asset Acquisition Agreement").

(B) As used in this Agreement all capitalized words and terms not otherwise defined

herein shall have the meanings set forth in the Asset Acquisition Agreement unless the context requires otherwise:

"Additional Services" shall mean the provision of the following:

(A) Extra Renewals and Replacements.

(B) Capital Improvements.

(C) Observation and inspection of new pipelines and lift stations.

(D) Installation of Full Tap and Meters and Meter Settings as provided in Appendix H.

(E) Infiltration and inflow investigations and correction programs.

(F) Services not contemplated as a part of the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

"Agreement" shall mean this Sarasota System Utility Operations, Billing and Customer Service Agreement, including any amendments and supplements hereto executed and delivered in accordance with its terms.

"Annual Maintenance Plan" shall mean the annual plan submitted by the Contractor and approved by the GUA documenting the schedule and performance standards to be used in the preventative and operational maintenance of the Utility Facilities as required in Section 3.01.

"Applicable Law" shall mean all of the permits required for the performance by the parties under this Agreement, any State or federal constitution restrictions, any State law, regulation or directive, any County ordinance, law or directive, any federal or State judicial judgment or order and any federal, State or County administrative order, which are in effect during the term of this Agreement, or subsequently enacted, adopted, promulgated, issued or enforced, in any manner relating to the operation and maintenance of the Sarasota System.

"Basic Billing and Customer Service" shall mean the provision and performance by the Contractor of the billing and customer services described in Article IV. To define its scope, the term shall specifically include, by way of example and not limitation, the Basic Billing and Customer Service Performance Standards.

"Basic Billing and Customer Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Billing and Customer Service as provided in Section 4.09.

"Basic Billing and Customer Service Performance Standards" shall mean those specific billing and customer service performance standards provided in Appendix C to guide and define the billing and customer service responsibility of the Contractor in providing the Basic Billing and Customer Service.

"Basic Billing and Customer Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Billing and Customer Service and as provided in Article IV.

"Basic Operation and Maintenance Service" shall generally mean the provision and performance by the Contractor of the operation and maintenance services described in Section 3.01. The term Basic Operation and Maintenance Service excludes: (1) Additional Services; (2) non-routine expenditures that are planned, budgeted, and approved by the GUA; (3) and the acquisition or construction of Capital Improvements and other capital outlays authorized by the GUA. To define its scope, the term "Basic Operation and Maintenance Service" shall specifically include, by way of example and not limitation, the Basic Operation and Maintenance Service Performance Standards.

"Basic Operation and Maintenance Service Fee" shall mean the fixed annual compensation payable monthly to the Contractor by the GUA to compensate the Contractor for the provision of the Basic Operation and Maintenance Service as provided in Section 3.06.

"Basic Operation and Maintenance Service Performance Standards" shall mean those specific operations and maintenance performance standards provided in Appendix B to guide and define the operations and maintenance responsibility of the Contractor in providing the Basic Operation and Maintenance Service.

"Basic Operation and Maintenance Service Reports" shall mean those reports listed in Appendix G required to be prepared by the Contractor for the Basic Operation and Maintenance Service.

"Basic Renewals and Replacements" shall mean the renewal or replacement of a Utility Facility component which is no longer capable of performing the function for which it is intended due to a defect or through examinations, measurements and observations it is apparent that the development of defects to the extent that said component will no longer be capable of performing the function for which it is intended is imminent.

"Board" shall mean the governing body of the GUA.

"Bullhead Meter Setting" shall mean a second complete meter installation connected to an existing service line.

"Capital Improvement" shall mean the planned acquisition or construction of improvements or additions to the Utility Facilities, the acquisition of equipment or other personal property not constituting a Basic Renewal and Replacement or the provision of improvements to increase capacity, modernize or otherwise upgrade Utility Facilities components.

"Capital Improvement Plan" shall mean the annual report of projected Capital Improvements submitted by the Contractor and approved by the GUA in Section 3.01.

"Change in Law" shall mean (a) the enactment, adoption, promulgation, modification or repeal after the Commencement Date of any federal, State, or local law, ordinance, code, rule, regulation or other similar legislation or the change in interpretation after the Commencement Date, of any federal, State, or local law, ordinance, code, rule, regulation, official permit, license or approval by any regulatory entity having jurisdiction with respect to the operation or maintenance of the Utility Facilities, or (b) the imposition, after the Commencement Date, of any material conditions on the issuance, modification or renewal of any official permit, license or approval necessary for the operation and maintenance of the Utility Facilities, which, in either case, necessitates or makes advisable a capital project, increases the Contractor's Costs by establishing requirements with respect to the operation or maintenance of the Utility Facilities which are more burdensome than the most stringent requirements:

(i) in effect on the Commencement Date, or

(ii) agreed to by the GUA in any applications for official permits, licenses or approvals for the water system or wastewater system, other than any requirements set forth in

said applications to comply with future laws, ordinances, codes, rules, regulations or similar legislation.

"Commencement Date" shall mean the day following the payment of the purchase price for the Utility Facilities pursuant to the terms of the Asset Acquisition Agreement.

"Contractor's Cost" shall mean the sum of the Contractor's Labor Cost, the Contractor's Material, Supply and Plant Equipment Cost, and the Contractor's Outsource Cost.

"Contractor's Cost Plus" shall mean the Contractor's Cost plus allowances for profit as follows:

(A) The Contractor's Labor Cost – fifteen percent (15%).

(B) The Contractor's Material, Supply and Plant Equipment Cost – ten percent (10%).

(C) The Contractor's Outsource Cost – five percent (5%).

"Contractor's Labor Cost" shall mean the sum of the following:

(A) The Contractor's direct cost of employee salaries and wages including overtime; and

(B) The Contractor's payroll taxes, the cost of employee benefits, including but not limited to, insurance, paid time off (holidays, vacation, sick and other paid leave), uniforms, employee training, and transportation, and which costs for purposes of this Agreement, shall be calculated and determined as fifty percent (50%) of direct labor cost.

"Contractor's Material, Supply and Plant Equipment Cost" shall mean the Contractor's direct cost of materials, parts, supplies and Plant Equipment, including applicable taxes.

"Contractor's Outsource Cost" shall mean the Contractor's direct cost of subcontracted and hired work, parts, materials, supplies, and construction equipment, and fixture rental, including applicable taxes.

"Contractor Representative" shall mean the person or persons designated by the Contractor to represent the Contractor in interpretations of the performance of the Contractor's duties and responsibilities under this Agreement.

"County" shall mean Sarasota County, Florida.

"Emergency Condition" shall mean a condition which threatens the public health and safety.

"Extra Renewals and Replacements" shall mean Renewals and Replacements of Utility Facilities other than Basic Renewals and Replacements which are undertaken to increase capacity, or as part of a modernization or upgrading program including any meter change-out programs.

"FDEP" shall mean the Florida Department of Environmental Protection.

"Fiscal Year" shall mean the period commencing on October 1 of each year and continuing through the next September 30th.

"Full Tap and Meters" shall mean the tapping of a water main, installation of a service line and setting a new meter and appurtenances where no previous service was provided.

"General Manager" shall mean the person, corporation, or entity under contract with the GUA to provide administrative and financial services. The initial General Manager shall be Government Services Group, Inc., a Florida corporation.

"GUA" shall mean the Florida Governmental Utility Authority, an authority created by interlocal agreement pursuant to section 163.01(7), Florida Statutes.

"GUA Non-Fixed Assets" shall mean the assets to be identified pursuant to the inventory procedure provided in Appendix D.

"GUA Representative" shall mean the person or persons designated by the GUA to represent the GUA in interpretations of the performance of the Contractor of its duties and responsibilities under this Agreement as provided in Section 6.01.

"Interlocal Agreement" shall mean the interlocal agreement entered into by participating counties pursuant to section 163.01(7)(g), Florida Statutes, creating the Florida Governmental Utility Authority (the "GUA").

"Inventory" shall mean the chemicals, diesel fuel used for power generation, spare parts, pipe, fittings, and valves and other GUA Non-Fixed Assets identified pursuant to the inventory procedure listed in Appendix D or subsequently acquired by the Contractor during the term of this Agreement which the Contractor uses or is permitted to use in providing the services

hereunder.

"Meter Replacement Program" shall mean the annual program of small meter replacements approved in the Capital Improvement Plan.

"Meter Setting" shall mean the installation of a new meter and appurtenances on an existing water service line where no prior service was provided.

"Normal Business Hours" shall mean 8:00 a.m. until 5:00 p.m., Monday through Friday except holidays observed by the GUA.

"One-Call Notification System" shall mean the statewide toll-free telephone notification system established by Sunshine State One-Call of Florida, Inc., a not-for-profit corporation created pursuant to Chapter 556, Florida Statutes, for the purpose of notifying underground facility operators of potential excavation activities within the proximity of their facilities so that such facilities may be located and their location marked accordingly.

"Permits" shall mean federal, State and local permits and registrations governing the operation and maintenance of the Utility Facilities.

"Plant Equipment" shall mean machines and devices consisting of various components which by themselves provide a specific function which represents an end function or contributes to a broader function, including operating and processing equipment and special tools in use as of the Commencement Date or procured or provided pursuant to this Agreement for use at or associated with the Utility Facilities (exclusive of equipment owned or leased by the Contractor and used by the Contractor to perform its obligations under this Agreement).

"Renewal" shall mean rehabilitation, overhaul, restoration or improved function of a Utility Facilities component to the extent that it is at or near new condition and its useful life is extended.

"Repair" shall mean correction of defect in a Utility Facilities component without complete overhaul, renewal or replacement.

"Replacement" shall mean the replacement of a Utility Facilities component with a component having similar characteristics and equal quality.

"Sarasota System" shall mean Utility Facilities located in Sarasota County.

"State" shall mean the State of Florida.

"Trustee" shall mean SunTrust Bank, Central Florida, National Banking Association, and any successor banking corporation, banking association or trust company serving as trustee under the indenture providing for the bonds to be issued by the GUA to acquire the Utility Facilities.

"Uncontrollable Circumstance(s)" shall mean any act, event or condition that prevents the Contractor or the GUA from meeting or performing its obligations under this Agreement, if such act, event or condition is beyond the reasonable control of the party relying thereon as justification for not meeting or performing such obligations. Such acts, events or conditions may include, but shall not be limited to, the following:

(A) an act of God (except normal weather conditions for the geographic area of the County), hurricane, tornado, epidemic, landslide, lightning, earthquake, flood, fire or explosion, or similar occurrence, war, strikes, lockouts, blockade, acts of public enemies, insurrection, riot, general unrest, restraint of government and people, civil disturbance, sabotage or similar occurrence;

(B) the order, injunction or judgment of any federal, State or local court, administrative agency or governmental body or officer with jurisdiction of the GUA acting in its governmental capacity, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State and local tax laws; provided, however, that such order, injunction or judgment shall not arise in connection with or be related to the negligent or wrongful action or inaction of the party relying thereon and that neither the contesting in good faith of any such order, injunction, or judgment nor the reasonable failure to so contest shall constitute or be construed as a wrongful or negligent action or inaction of such party;

(C) the suspension, termination, interruption, denial, failure to issue, modification or failure of renewal of any permit, license, consent, authorization or approval necessary for the operation and maintenance of the Utility Facilities, if such act or event shall not arise in connection with or be related to the negligent or willful action or inaction of the party relying

thereon, and that neither the contesting in good faith of any such order nor the reasonable failure to so contest shall be construed as a negligent or willful action or inaction of such party;

(D) a Change in Law; and

(E) the loss or inability to obtain for reasons other than the negligent, willful or wrongful action or inaction of the Contractor, utility services, including sewerage, sludge disposal and standby electric power, necessary for the operation and maintenance of the Utility Facilities directly resulting in a partial or total curtailment of operations at the Utility Facilities.

"Utility Facilities" shall mean all of the property and rights, both tangible and intangible, that the GUA owns or uses or subsequently acquires or uses in conjunction with the operation and maintenance of the Sarasota System, including by way of example and not limitation, the following:

(A) All real property and interests, whether recorded in the public records or not.

(B) All water and wastewater facilities, including reuse and reclaimed water, treatment plants, wells, collection, transmission, distribution, pumping, effluent and disposal facilities of every kind and description, including by way of example and not limitation, all trade fixtures, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities and property installations used in the operation of the Sarasota System.

(C) All equipment, tools, parts, laboratory equipment, and other personal property owned or used by the GUA in connection with the operation of the Sarasota System.

(D) All easements in favor of the GUA or its predecessors in interest.

(E) All customer records and supplier lists, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer models and studies, accounting, budget and business records and all other information controlled by or in the possession of the GUA that relates to the description and operation of the Sarasota System.

(F) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, use and maintain the Sarasota System.

"Utility Services" shall mean collectively, the Basic Operation and Maintenance Service and the Basic Billing and Customer Service.

SECTION 1.02. CONSTRUCTION AND INTERPRETATION.

(A) Words that indicate a singular number shall include the plural in each case and vice versa, and words that indicate a person shall include legal entities, firms and corporations.

(B) The terms "herein," "hereunder," "hereby," "hereof," and any similar terms, shall refer to this Agreement; the term "heretofore" shall mean before the date of execution of this Agreement; and the term "hereafter" shall mean on or after the initial date of execution of this Agreement.

(C) Words that reference only one gender shall include all genders.

(D) This Agreement shall be construed as resulting from ongoing negotiation and authorship. No part of this Agreement shall be construed as the product of any one of the parties hereto.

SECTION 1.03. INCORPORATION. The Appendices hereto and each of the documents referred to therein are incorporated and made a part hereof in their entirety by reference.

SECTION 1.04. SECTION HEADINGS. Any headings preceding the texts of the several Articles, Sections, Appendices, or Exhibits in this Agreement and any table of contents or marginal notes appended to copies hereof, shall be solely for the convenience of reference and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

ARTICLE II

GENERAL

SECTION 2.01. CONTRACTOR'S RESPONSIBILITY. Except as otherwise specified elsewhere herein, the Contractor shall provide required personnel, and associated wages, salaries and benefits, services, materials (including chemicals, electricity and fuel),

vehicles, utilities and other consumables necessary to perform the services specified herein. Furthermore, the Contractor shall provide required tools and equipment, except tools and equipment which are GUA Non-Fixed Assets.

SECTION 2.02. CONTRACTOR STAFFING. To fulfill its obligations under this Agreement, the Contractor contemplates implementing the personnel staffing plan shown in Appendix E. Material changes in the staffing plan for the position of division manager and subordinate operational personnel shall require the consent of the GUA, which consent shall not be unreasonably withheld. Should regulatory requirements dictate a change in staffing level, the Contractor shall be entitled to an adjustment in the Basic Operation and Maintenance Service Fee and the Basic Billing and Customer Service Fee, as applicable . Should the Contractor invest in equipment that allows a reduction in staff, any cost reduction shall be for the Contractor's sole benefit. Should the Contractor and the GUA jointly invest in equipment that results in a staff reduction, then the labor savings shall be shared in amounts equal to the relative investment of each party.

SECTION 2.03. TRAINING PROGRAM. The Contractor shall provide a training program for employees of the Contractor performing the Basic Operation and Maintenance Serviceto insure they have a basic understanding of water and wastewater treatment processes and safety. The Contractor's training program shall place special emphasis on safety procedures and protocols and on those processes that employees will utilize in daily operation of the water and wastewater treatment plants and the water distribution and sewer collection and wastewater disposal systems. Documentation of the scope of the training program required by Applicable Law and participation by employees of the Contractor shall be provided to the GUA.

SECTION 2.04. SAFETY.

(A) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work and services to be provided under this Agreement. The Contractor shall take all necessary precautions for the safety of and to prevent injury to all employees, whether at the Utility Facilities or in the field, and other persons or entities who may be affected by the work and service to be provided under this Agreement.

The Contractor shall also take all necessary precautions to provide the necessary protection to prevent damage or loss to materials or equipment to be provided under this Agreement, whether stored on or off of the property and to all property listed on the Inventory or incorporated into the Utility Facilities.

(B) The Contractor shall designate a representative whose duties shall include the prevention of accidents.

(C) The Contractor shall comply with Applicable Law relating to the safety of persons or property or protection thereof from damage, injury or loss. The Contractor shall at all times erect and maintain all necessary safeguards or barriers for safety and protection.

SECTION 2.05. USE OF GUA NON-FIXED ASSETS AND INVENTORY.

(A) The Contractor shall have the use and control in the provision of the services hereunder, including the use and control of the GUA Non-Fixed Assets and the Inventory. The Contractor shall be responsible for the maintenance or repair of all GUA Non-Fixed Assets used by the Contractor in the provision of services hereunder and shall replenish the Inventory as the Contractor deems appropriate.

(B) The GUA and the Contractor shall jointly determine the value of the Inventory on the Commencement Date and upon termination of this Agreement, based upon initial cost. Should said value at termination be greater than the value on the Commencement Date, the GUA shall pay the Contractor the difference and conversely, should the value upon termination be less than the value on the Commencement Date, the Contractor shall pay the GUA the difference. For purposes of determining the value of the Inventory, the prices paid by Florida Cities Water Company and the Contractor shall be used.

(C) The GUA shall be responsible for the replacement of equipment which is a part of the GUA Non-Fixed Assets that becomes non-usable through normal wear and tear. The Contractor shall be responsible for the replacement of all such equipment which becomes non-usable through damage or misuse.

SECTION 2.06. CONTRACTOR'S VEHICLES. The Contractor's vehicles shall be professionally and safely maintained in a mechanically sound manner. All vehicles must

provide a clean and mechanically sound image. As vehicles are replaced or repainted, the Contractor shall provide uniform signage that is acceptable to the GUA Representative and which reflects the fact that the vehicles are used in the service of the Utility Facilities.

SECTION 2.07. YEAR 2000 COMPLIANCE. Year 2000 compliance relates to the fact that many existing computer programs and embedded computer chips recognize only the last two digits of the year, and are unable to distinguish between the year 1900 and the year 2000. Because of the unprecedented nature of the year 2000 compliance issue, its effects and the success of related remediation efforts will not be fully determined until the year 2000 and thereafter. Although the Contractor is not aware of any material year 2000 compliance issues it has not addressed, the Contractor can provide no assurance the computer systems it owns and will utilize in connection with the services hereunder are or will be year 2000 ready, or that its remediation efforts were or will be successful in whole or in part. Furthermore, the Contractor can provide no assurance that vendors, government agencies, paying agents or other third parties providing services to the Contractor have or are effectively dealing with year 2000 compliance issues in a timely manner.

SECTION 2.08. SUBCONTRACTING.

(A) The Contractor shall not subcontract services or work included in the Basic Operation and Maintenance Service (exclusive of sludge disposal) and the Basic Billing and Customer Service to an extent materially beyond that work and services being subcontracted as of December 18, 1998, without the prior written approval of the GUA Representative, which approval shall not be unreasonably withheld. The Contractor shall have the duty to evaluate all subcontractors and to inspect all the work of subcontractors and make a determination as to the capability of any subcontractors to perform properly under the terms of this Agreement.

(B) The Contractor may subcontract any work or services which are not a part of the Basic Operation and Maintenance Service and Basic Billing and Customer Service without the consent of the GUA.

SECTION 2.09. PURCHASED WATER

(A) The account for the purchase of water from the Sarasota County Utilities

Department shall be transferred to the GUA and the GUA shall be responsible for payment for water delivered. The Contractor shall make a reasonable effort to minimize leakage within the GUA's water distribution system.

(B) At each anniversary of the term of this Agreement and upon its termination, the Contractor shall provide a report to the GUA accounting for the difference between water delivered by the Sarasota County Utilities Department and water delivered to the GUA's customers as follows:

total amount of water delivered,

less the total amount of water sold, and

less the estimated amount of water used as a result of Uncontrollable Circumstances including water used for extinguishing fires by public fire departments, and

less the estimated amount of water used for flushing in response to customer water quality complaints, and

less the estimated amount of water used for the flushing of new Utility Facility components, and

less the estimated amount of water used for special flushing required by governmental authorities, and

amount of the balance.

If said balance is greater than six percent (6%) of the total amount of water delivered, then the Contractor shall reimburse the GUA in an amount equal to the GUA's cost for the amount of the balance in excess of six percent (6%).

ARTICLE III

OPERATION AND MAINTENANCE SERVICE

SECTION 3.01. BASIC OPERATION AND MAINTENANCE SERVICE.

(A) It is contemplated by the parties that the Basic Operation and Maintenance Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The following general operation and maintenance services shall be required of and timely provided by the Contractor in the operation and maintenance of the

Utility Facilities:

(1) The Contractor shall have full responsibility for the daily operation and maintenance of the Utility Facilities in a manner consistent with the specific Basic Operation and Maintenance Service Performance Standards.

(2) The Contractor shall perform Repairs and Basic Renewals and Replacements. Specifically excluded are Extra Renewals and Replacements and Capital Improvements.

(3) The Contractor shall secure and maintain all permits required in the Contractor's name for the performance of the services described in this Agreement. The GUA shall be responsible for acquiring and renewing all Permits required by Applicable Law for the operation and maintenance of the Utility Facilities and for the acquisition and construction of Capital Improvements to be constructed by the Contractor.

(4) The Contractor shall cooperate and facilitate in the acquisition and completion of all approved Capital Improvements.

(5) The Contractor shall maintain responsive working relationships with: the GUA Representative, the General Manager, the County and other local governments within the Sarasota System service area, federal and State regulatory authorities, utility suppliers and vendors, and the public.

(6) The Contractor shall receive and check requests for water and wastewater pipeline locations from the One-Call Notification System and, if necessary, provide on-site location assistance.

(7) The Contractor shall provide prudent maintenance consistent with industry standards, equipment manufacturer's instructions, and standard operation and maintenance manuals so that upon termination of this Agreement, the Utility Facilities are returned to the GUA in the same or better condition than at the Commencement Date, normal wear and tear excepted. Work performed by the Contractor or subcontractors shall be of the quality normally associated with work of the kind in which the Contractor is engaged.

(8) The Contractor shall perform all preventive and corrective maintenance and Repairs in a timely manner. If, in the opinion of the GUA, preventive and corrective

maintenance or Repairs have been unreasonably delayed, the GUA shall so inform the Contractor. The Contractor shall respond within five (5) business days outlining the reason for the delay. If the GUA determines that the delay is within the control of the Contractor, the Contractor shall be so notified, and the Contractor agrees to complete the necessary work within ten (10) business days or by a date certain beyond ten (10) business days of notification if approved by the GUA. If the Contractor fails to complete the work, the GUA may take steps to have the specific items of work which have not been performed completed by a third party. The cost of completing this work by a third party shall be deducted from the monthly payment of the Basic Operation and Maintenance Service Fee otherwise due the Contractor.

(9) The Contractor shall regularly water, mow, fertilize, prune, remove weeds, maintain and repair permanent sprinkler systems and controls, and otherwise maintain landscaping of all buildings and plants.

(10) The Contractor shall maintain the appearance and cleanliness of all buildings and plants in a neat and orderly condition and provide those custodial services normally associated with maintenance of a business office or plant, as applicable, and provide periodic painting of the Utility Facilities as provided in the Annual Maintenance Plan.

(B) The GUA shall be responsible for all laboratory testing required by Applicable Law except those tests listed in Appendix F which shall be performed by the Contractor. The Contractor shall provide access and cooperate with the laboratory testing contractor engaged by the GUA. The Contractor shall collect all samples, except groundwater, surface water and sediment samples.

(C) The Contractor shall operate and maintain all Utility Facilities in such a manner that the water quality is maintained at a level equal to, or better than, the water quality limitations established by Applicable Law to the extent of the capability of the Utility Facilities. In the event the water quality achieved is not in compliance with the Permit, the Contractor shall immediately submit a report to the GUA outlining the proposed corrective action and a schedule to accomplish such corrective action. All such corrective action shall be taken as soon as practical.

(D) The Contractor shall prepare and submit to the GUA an Annual Maintenance Plan for the Utility Facilities.

(1) The Annual Maintenance Plan shall include a schedule incorporating the maintenance activities and services listed in the Basic Operation and Maintenance Service Performance Standards. The performance standards for the preventative maintenance and cleaning of all Utility Facilities shall be consistent with the Basic Operation and Maintenance Service Performance Standards.

(2) The Annual Maintenance Plan for the remainder of the Fiscal Year commencing on October 1, 1998 and for the Fiscal Year commencing on October 1, 1999 shall be submitted by the Contractor to the GUA for approval within sixty (60) days of the Commencement Date. For the remaining Fiscal Years during the term of this Agreement, the Annual Maintenance Plan shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(3) To implement the Annual Maintenance Plan, the Contractor shall continue the use of a computerized maintenance management system.

(E) The Contractor shall prepare a recommended list of Capital Improvements for inclusion in the Capital Improvement Plan for the ensuing Fiscal Year. The Capital Improvement Plan prepared by the Contractor shall include an estimate of the cost to construct or acquire the recommended Capital Improvement and provide a recommendation whether the Capital Improvement should be acquired or constructed by the Contractor or by subcontract to a third party. In addition to the projected or recommended Capital Improvements for the ensuing Fiscal Year, the Capital Improvement list prepared by the Contractor shall contain recommended Capital Improvements for an additional four (4) Fiscal Years for use by the GUA in financial planning for the provision of future Capital Improvements to the Utility Facilities.

(1) The Capital Improvement Plan for the remainder of the initial Fiscal Year commencing on October 1, 1998, shall be the Capital Improvement Plan approved by the GUA prior to the Commencement Date. The Capital Improvement list prepared by the Contractor for the Fiscal Year commencing October 1, 1999, shall be submitted to the GUA within sixty (60)

days subsequent to the Commencement Date. For all remaining Fiscal Years during the term of this Agreement, the Capital Improvement list prepared by the Contractor shall be submitted to the GUA for approval one hundred eighty (180) days prior to the commencement of each Fiscal Year.

(2) The initial Capital Improvement list submitted by the Contractor for the initial Fiscal Year commencing on October 1, 1998, shall contain all Fiscal Year 1998/1999 Capital Improvements to be completed or initiated during Fiscal Year 1998/1999 and shall identify those portions of the Contractor's Costs of Capital Improvements in progress on the Commencement Date required to be funded by the GUA pursuant to this Agreement.

(F) The Contractor shall prepare a recommended Extra Renewals and Replacements list with cost estimates and an estimate of Repairs and Basic Renewals and Replacements costing over twenty five hundred dollars ($2,500.00) for the ensuing Fiscal Year on the same schedule as Capital Improvements as provided in subsection (E)(1) of this Section 3.01.

(G) The Contractor shall submit to the GUA a disaster recovery plan for the Utility Facilities within sixty (60) days subsequent to the Commencement Date. Such plan shall address the Contractor's plan for dealing with a major disaster, by way of example and no limitation, hurricane, flood, tornado, or sabotage.

SECTION 3.02. ADDITIONAL SERVICES AUTHORIZATION.

(A) The Contractor shall perform the Basic Operation and Maintenance Service, Basic Renewals and Replacements and Repairs without prior authorization from the GUA.

(B) Additional Services and Extra Renewals and Replacements will not be initiated by the Contractor without prior approval by the GUA. The Contractor shall notify the County whenever it contemplates that the cost of a Repair or Basic Renewal and Replacement will exceed twenty five hundred dollars ($2,500.00).

(C) The construction or acquisition of a Capital Improvement or Extra Renewals and Replacements in an approved Capital Improvement Plan shall not be commenced by the Contractor until approval by the GUA Representative of a work order documenting the Contractor's Cost, including specifically any Contractor's Outsource Cost. Inclusion of a special

project in an approved Capital Improvement Plan shall not waive said requirement for prior approval.

SECTION 3.03. STANDARDS FOR CAPITAL IMPROVEMENTS, REPAIRS AND RENEWALS AND REPLACEMENTS. The Contractor shall use the "FCWC/PUI Specification Listings" (Revised 5/97) and the Specification Details and Drawings (January 1999 edition) as the minimum standards for use of materials and methods for Capital Improvements, Repairs, and Renewals and Replacements, except as part of the Basic Operation and Maintenance Service, the Contractor shall not be required to replace components of water and wastewater pumping stations to the above-referenced standards unless said pumping stations have components that conform to the referenced standards. Notwithstanding, the replaced components shall be of quality equal to the original.

SECTION 3.04. USE OF FACILITIES; FIELDWORK. The Contractor shall confine all operation, maintenance and construction equipment, shall confine the storage of all materials and equipment, and shall limit the operations and work of all employees and subcontractors to the Utility Facilities and other areas permitted by law, rights-of-way, Permits and easements, and shall not unreasonably encumber the Utility Facilities or such other land areas with materials, equipment, or vehicles of the Contractor. At all times the Contractor shall use and administer the Utility Facilities in a professional, neat and orderly fashion. The Contractor shall assume full responsibility for any damage to the Utility Facilities or real or personal property within areas contiguous to the Utility Facilities resulting from the provision of Basic Operation and Maintenance Service.

SECTION 3.05. GENERAL REPORTING RESPONSIBILITIES.

(A) The Contractor shall prepare and file all reports required by Applicable Law. If requested to do so by the GUA Representative, the Contractor shall timely provide copies to the GUA for review and comment prior to filing.

(B) In addition to the recommended Annual Maintenance Plan, the recommended annual list of Capital Improvements, the recommended annual list of Repairs and Basic Renewals and Replacements estimated to cost more than twenty five hundred dollars ($2,500.00)

and the recommended annual list of Extra Renewals and Replacements, the Contractor shall timely prepare and deliver to the GUA Representative the Basic Operation and Maintenance Service Reports listed in Appendix G.

(C) The Contractor shall provide all reports required under this Article III in an electronic data format and by electronic means capable of remote access by the General Manager and the Trustee to the extent of the Contractor's capability on December 18, 1998.

SECTION 3.06. BASIC OPERATION AND MAINTENANCE SERVICE FEE.

(A) For the provision of the Basic Operation and Maintenance Service, the Contractor shall be paid a fixed annual price of two million one hundred fifteen thousand three hundred forty three dollars ($2,115,343.00). Included in the Basic Operation and Maintenance Service Fee is the first twenty five hundred dollars ($2,500.00) of the Contractor's Material, Supply and Plant Equipment Cost, Contractor's Labor Cost, and the Contractor's Outsource Cost for any Repair or any Basic Renewals and Replacements.

(B) The GUA shall reimburse the Contractor for Contractor's Material, Supply and Plant Equipment Costs, and Contractor's Outsource Costs associated with Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event.

SECTION 3.07. FEES FOR ADDITIONAL SERVICES. Fees for Additional Services shall be paid by one of the following:

(A) fixed fees as set forth in Appendix H, if applicable; or

(B) the Contractor's Cost Plus; or

(C) as otherwise mutually agreed by the parties.

SECTION 3.08. PAYMENT OF BASIC OPERATION AND MAINTENANCE SERVICE FEE. The Basic Operation and Maintenance Service Fee shall be paid by the GUA in twelve equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. The Contractor shall submit a separate itemized invoice and supporting documentation for the Contractor's Material, Supply and Plant Equipment Costs and Contractor's Outsource Costs for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00) per event. The

GUA shall pay the Contractor within twenty (20) days of receipt of the Contractor's invoice for Repairs and Basic Renewals and Replacements in excess of twenty five hundred dollars ($2,500.00). For the first month in which the Commencement Date occurs, the Basic Operation and Maintenance Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 3.09. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's invoice and supporting documentation.

ARTICLE IV

UTILITY BILLING AND CUSTOMER SERVICE

SECTION 4.01. GENERAL BILLING RESPONSIBILITY OF THE CONTRACTOR.

(A) It is contemplated by the parties that the Basic Billing and Customer Service shall be provided and performed at the same standards as provided for the Utility Facilities on December 18, 1998. The general billing, meter reading and customer service shall be required of and timely provided by the Contractor.

(B) The Contractor shall have full responsibility to provide all billing and customer services in a manner consistent with the Basic Billing and Customer Service Performance Standards.

(C) The billing system employed and used by the Contractor shall be organized in a manner that will:

(1) process billing on a monthly basis;

(2) process billing dollar amounts up to $999,999.99;

(3) process multiple meters for each service address with different rate schedules for each meter;

(4) update the rate schedule by date and have the ability to use two different rate schedules within a single billing period;

(5) apply rates as a flat amount or based on usage;

(6) generate delinquent notices prior to a turn-off;

(7) accept a GUA-specified dollar threshold for delinquent mailers;

(8) track turnoffs and delinquency by account;

(9) make adjustments or error corrections;

(10) post messages on bills as requested by the GUA;

(11) provide aging information to the GUA to assist with the GUA's determination of when a lien should be applied to an account; and

(12) make GUA-requested changes to the customer service record format or changes to the billing and remittance processing procedures or programs for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall have the capability to provide the requested data to the GUA in ASCII format. Said interface shall include, but not be limited to:

(1) automated extraction of ledger entry information from monthly billings, final billings and adjustments based on transaction codes in the rate schedule; and

(2) automated extraction of customer information for refunds of deposits or after final billings.

(E) The billing system employed and used by the Contractor shall contain the capacity to allow read only access to customer accounts by the General Manager via on-line access. The GUA shall be responsible for all costs associated with its on-line access including communications link, special hardware and software. Such on-line access shall include, by way of example and not limitation, the following:

(1) interface for on-line hookup by the General Manager;

(2) read only access by the General Manager to all functions of the billing system as determined by security clearance;

(3) provide multiple-line transaction history showing a running account balance;

(4) ability to extract information as requested by the General Manager, including date-specific information;

(5) ability to regularly generate user-specifiable reports including, by way of example and not limitation, billing summary, trial balance, aged trial balance (by date), and transaction audit controls;

(6) ability to review customer charges and payments by account;

(7) ability to review billing history by account;

(8) ability to review usage history by customer account or meter number;

(9) ability to review utility billing system work order status;

(10) ability to review turn on and off history by account;

(11) ability to review customer information by account; and

(12) search by customer number, customer name, meter number and street address.

(F) The Contractor shall provide a business recovery functions plan to the GUA which shall include, by way of example and not limitation, daily off-site storage of all transactions.

SECTION 4.02. PROCESSING UTILITY BILLS; PROBLEM RESOLUTION.

(A) The Contractor shall compose, prepare, print (laser) customer bills, on a single (8.5" x 11") one-colored page bill form prescribed by the GUA, and mail customer bills monthly. Customer bills shall be prepared in such cycles as mutually agreed by the Contractor and the GUA. The cost of first class postage for customer bills shall be at the expense of the Contractor. Any billing error or omission, whether human or mechanical, on the part of the Contractor shall be corrected at no cost to the GUA. Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor by the GUA will be provided for an additional fee not included in the Basic Billing and Customer Service Fee.

(B) The Contractor shall undertake and perform all billing services required to timely and regularly process customer utility bills. Such billing services shall include, by way of example and not limitation, the following:

(1) create a working file of prepared meter readings formatted for the billing system;

(2) review notes or trouble codes from meter readers and issue appropriate work orders to rectify problems;

(3) follow up on notices (e.g., apparent leaks, reasons for high usage, inaccessible meters, broken register, vacant houses, stuck meters) left by meter readers for the customers or owners;

(4) produce consumption reports for the billing process and analyze unusual usage or stuck meters; issue work orders and contact customers as appropriate;

(5) produce a billing from consumption reports, and review the billing for appropriateness of charges and suspected errors;

(6) develop quality assurance procedures to insure, by sample testing and review, the accuracy of bills on a periodic basis;

(7) work with the operation and maintenance field service personnel in verifying any unusual situations found in the billing process that are related to meter or meter reading problems;

(8) issue work orders designed to clarify questions raised during the billing process and categorize and analyze work orders and make recommendations as to how to minimize work orders and gain efficiencies;

(9) mail single page (8.5" x 11") special notices in envelopes to customers separate from the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee; and

(10) insert single page "bill stuffers" (not larger than 8.5" x 11") with the GUA bill for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.03. COMPUTER PROCESSING AND RELATED SERVICES.

(A) The Contractor shall maintain, on its own computer system, the master customer records of the Sarasota System. This information shall be made available to the General Manager and the Trustee via modem. In addition, the Contractor shall transfer data on a daily basis to the computer systems of the General Manager and the Trustee to the extent that said computer systems are compatible with the Contractor's computer system. The GUA may bill

water and wastewater charges and other fees and assessments as separate items on the bills. The Contractor must provide an itemized bill in the same manner currently used. The addition of other fees or assessments, changes in the bill format and bill printing programs in the Contractor's utility billing system are not included in the Basic Billing and Customer Service Fee.

(B) All date-related data shall be formatted as required by the General Manager and shall contain no ambiguous references with respect to century.

(C) The Contractor shall provide the ability within software, to provide the following services:

(1) deposit report - a report that shows all customer deposits including options providing a range of deposit dates and status of refundable accounts;

(2) rate changes - changes to rates and charges applicable to customer billing approved by the GUA will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee;

(3) customer message - adding or changing a special "customer message" on the customer bill form as requested by the General Manager. Such messages shall be limited to four (4) lines of text; and

(4) mailing labels - the Contractor will provide mailing labels from the GUA's master customer records upon request for selected zip codes or class of customer for an additional fee not included in the Basic Billing and Customer Service Fee.

(D) The Contractor shall develop necessary special programming and controls that show customer accounts on a billed versus collected basis and provide a percentage of collection on each of the items. Such special programming and controls which will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee, by way of example and not limitation, shall include water revenues, wastewater revenues, special assessment revenues, connection fee revenues, reuse revenues, and revenues from any other fees approved by the GUA. All revenue reports should list year-to-date totals and compare revenue to the prior year.

SECTION 4.04. BASIC BILLING AND CUSTOMER SERVICE REPORTS. The Contractor shall timely prepare and provide the reports listed in Appendix G. Such reports and all other required reports and information provided to the General Manager and the Trustee shall be available in ASCII format and by electronic means capable of remote access by the General Manager and the Trustee.

SECTION 4.05. GENERAL CUSTOMER SERVICE RESPONSIBILITY OF THE CONTRACTOR. To satisfy the customer service objectives of the GUA as stated in the preamble to this Agreement, the following general customer services shall be required of and timely provided by the Contractor.

(A) The Contractor shall be responsible for the accuracy of all customer information such as deposits, new accounts, file information, and changes to accounts and charges.

(B) Customer accounts shall be closed and finaled upon the request of the customer. No customer account shall be deleted until a new account with a deposit is opened. A work order to discontinue service may be issued to eliminate delinquent customer usage charges.

(C) If at any time a customer account is opened or a meter set without a deposit, the Contractor will notify a field service representative to issue notice to the property that service will be terminated within five (5) business days unless a deposit is provided.

(D) The Contractor shall be responsible for the initial enforcement of delinquent customer accounts including the following:

(1) The Contractor shall be responsible for delivering delinquent notices to each individual customer via the U. S. Postal Service and, if necessary, to issue any work orders for discontinuance of service.

(2) The Contractor shall be responsible for contacting those customers whose accounts contain information relative to special health or guardianship circumstances. The Contractor will determine if there is a valid reason why a bill is unpaid, including by way of example and not limitation, a dispute, a lost bill, vacancy, or change of accounts, and allow a maximum of five (5) business days for the delinquency situation to be corrected by the customer before the Contractor proceeds with discontinuance of service.

(3) If a customer disputes the billed amount and provides the Contractor written notice of the dispute, the Contractor shall hold in abeyance for a maximum of thirty (30) days any discontinuance of service until the dispute has been investigated and resolved. If the dispute has not been resolved and the account remains delinquent for more than thirty (30) days after the customer provides written notice to the Contractor of the dispute, a work order will be issued to discontinue service.

(E) The Contractor shall make reasonable efforts to collect all utility revenues, in an efficient manner, with due consideration to customers, without jeopardizing revenue collections and consistent with the applicable covenants under the indenture applicable to any outstanding bonds.

(F) Whenever customers raise questions, point out billing errors, express concerns, or otherwise dispute any bill, the Contractor shall attempt to resolve them in an expeditious manner. If a resolution requires additional research to respond to a customer's dispute, the Contractor will document each stage of the dispute process and prepare a written record of all customer reports indicating the reporting party, address, nature of the problem, action taken by the Contractor and the final resolution shall be maintained by the Contractor and a copy provided to the GUA Representative. If customer service personnel are working with a customer they must report that fact to field service personnel so that customers will not experience discontinuance of service before dispute resolution.

SECTION 4.06. TELEPHONE AND WALK-IN CUSTOMER SERVICE; REMITTANCE PROCESSING.

(A) The Contractor shall maintain a customer service center at 2112 Gulf Gate Drive, Sarasota, Florida 34231. The location of the customer service center can be moved only with the consent of the GUA, which consent shall not be unreasonably withheld. Should the location of the customer service center be relocated at the request of the GUA, the Contractor shall be compensated the full cost of such relocation as an additional fee not included in the Basic Billing and Customer Service Fee. The customer service center shall be:

(1) open to the public during Normal Business Hours;

(2) during periods when the customer service center is not open, the center shall be equipped with an answering service to take incoming calls or otherwise direct incoming calls to a staffed location; and

(3) staffed with sufficient personnel to take customer and emergency calls, process and dispatch customer service and other work orders, accept customer payments, and process changes to customer accounts.

(B) The Contractor shall respond in a timely manner to all customer inquiries including, by way of example and not limitation, bill inquiries and inquiries pertaining to service initiation and termination, and reports of water breaks, low water pressure, water quality concerns, odors and wastewater discharge. The Contractor's customer service personnel shall also be prepared to answer commonly asked questions without referral to other personnel. Commonly asked questions include, by way of example and not limitation, typical annual usage, account balance, how a bill was calculated, last payment and date, when the last bill was issued, detailed and summary information concerning the customer's account for the current year or within a two year history, the due dates, and mailing and service address.

(C) The Contractor shall be responsible for answering questions regarding delinquent account information. It shall be the responsibility of the Contractor's customer service personnel to respond to these questions and respond how to rectify the delinquent situation.

(D) The Contractor shall be responsible for setting up new accounts, computing necessary deposits in accordance with GUA tariffs, closing accounts, and relaying this information to the General Manager. The Contractor shall immediately enter this information into the Contractor's computer system and verify it for quality assurance.

(E) The Contractor shall provide for walk-in customer service, for setting up temporary meters, or for the collection of fees charged for tapping and connection based on GUA tariffs. In addition to the receipt of payment at the customer service center, the Contractor shall process payments transmitted by mail.

SECTION 4.07. FIELD CUSTOMER SERVICE. The Contractor shall provide field customer service by qualified personnel consistent with the Basic Billing and Customer

Service Performance Standards. Customer service provided in the field shall include, by way of example and not limitation, activation and termination of service during the hours on the days when the customer service center is open and the investigation of customer problem reports. Customer service activation (turn-on) occurring other than Normal Business Hours will be provided by the Contractor for an additional fee not included in the Basic Billing and Customer Service Fee.

SECTION 4.08. REMITTANCE OF FUNDS TO TRUSTEE.

(A) All receipts will be combined daily for deposit to the GUA's designated bank account. These moneys will be deposited within twenty four (24) hours of receipt except for legal holidays, weekends, and disasters beyond the control of the Contractor.

(B) A report by facility of daily receipts will be provided by FAX or electronically to the GUA and the Trustee for verification of deposits made to the GUA account. Such report shall identify receipts by water connection fees, wastewater connection fees, customer deposits, such other receipts or revenues required to be segregated by the GUA and all other receipts. Any discrepancies shall be reported and responded to within forty eight (48) hours.

(C) Mail-in payments must be addressed and be in an acceptable format to the GUA's lock box provider. A computer file containing details of the lock box receipts shall be provided via modem or tape to the Contractor to be used to update customers' accounts.

(D) Any mail-in receipts not provided in accordance with or acceptable to the GUA's lock box provider's specifications shall be considered rejected and must be processed by the Contractor's cashiers in a manner similar to any mail-in receipts that do not go directly to the GUA's lock box provider.

SECTION 4.09. BASIC BILLING AND CUSTOMER SERVICE FEE. For the provision of the Basic Billing and Customer Service, the Contractor shall be paid a fixed annual price of two hundred seventy six thousand six hundred dollars ($276,600.00).

SECTION 4.10. PAYMENT FOR ADDITIONAL SERVICES. For Additional Services not included in the Basic Billing and Customer Service Fee, the Contractor shall be compensated as follows:

(A) Customer service activation (turn-on) occurring other than Normal Business Hours – thirty five dollars ($35.00) per activation.

(B) Make changes in the customer service record format and other changes to customer records, billing and remittance format requested by the GUA – eighty five dollars ($85.00) per hour of programmer time.

(C) Correction of any errors in the tariffs, rates, charges and instructions furnished to the Contractor for implementation – eighty five dollars ($85.00) per hour of programmer time.

(D) Insert single-page "bill stuffers" (not larger than 8.5" x 11") with customer bill form - $0.035 per bill plus any additional postage required.

(E) Print mailing labels from the GUA's master customer records - $0.069 per label.

(F) Change customer bill form format – eighty five dollars ($85.00) per hour of programmer time plus the Contractor's cost of unused bill forms on hand.

(G) Prepare rate analysis reports using historical usage information to analyze past periods of one to twenty four (1-24) months and consolidate totals by rate class and meter size - $0.08 per customer account ($150.00 minimum).

(H) Produce billing registers with proposed rates for comparison with current rates - $0.18 per customer account plus a set-up charge of $170.00.

(I) Change customer rates and charges – eighty five dollars ($85.00) per hour of programmer time.

(J) Special computer programming – eighty five dollars ($85.00) per hour of programmer time.

(K) Mail single-page (8.5" x 11") special customer notices in envelopes to customers separate from bill - $0.447 per notice plus postage.

SECTION 4.11. PAYMENT OF BASIC BILLING AND CUSTOMER SERVICE FEE. The Basic Billing and Customer Service Fee shall be paid in twelve (12) equal monthly installments to the Contractor not later than the fifth (5th) day of the month following the month during which said services were performed. For the first month in which the

Commencement Date occurs, the Basic Billing and Customer Service Fee shall be reduced by a proration based on the number of calendar days preceding the Commencement Date.

SECTION 4.12. PAYMENT FOR ADDITIONAL SERVICES. The GUA shall pay the Contractor for Additional Services within twenty (20) days of receipt of the Contractor's itemized invoice consistent with the authorizations received from the GUA. The Contractor shall document all such fees for Additional Services.

ARTICLE V

TERMS AND TERMINATION

SECTION 5.01. TERM OF AGREEMENT. The initial term of this Agreement shall commence on the Commencement Date and shall expire on May 31, 2000. The initial term of this Agreement may be extended for an additional term of 5 years upon the mutual agreement of the parties.

SECTION 5.02. DEFAULT.

(A) An event of default occurs if the persistent, repeated, or substantial failure or refusal by either the GUA or the Contractor to substantially fulfill any of its material obligations in accordance with this Agreement, provided, however, that no such event shall constitute a default unless and until:

(1) the non-defaulting party has given written notice to the defaulting party that a default or defaults exist which will, unless corrected, constitute an event of default on the part of the defaulting party; and

(2) the defaulting party either has not corrected such default, or has not initiated reasonable steps expeditiously to correct such default within five (5) days from the date of such written notice.

(B) The events by which the Contractor shall be deemed to have failed to fulfill a material obligation of this Agreement shall include, by way of example and not limitation, the following:

(1) failing to begin an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(2) discontinuing prosecution of an element of the Basic Operation and Maintenance Service or the Basic Billing and Customer Service required by this Agreement;

(3) failing to comply with any Applicable Law, whether willfully or negligently;

(4) breaching any material warranty or making any representation in this Agreement that is materially untrue;

(5) failing to pay, when due, any sums owed to a subcontractor for services or materials in a manner approved by the GUA; or

(6) failing to perform the Basic Operation and Maintenance Service or the Basic Billing and Customer Service in a manner consistent with the performance standards or other requirements established or incorporated in this Agreement.

(C) Each of the following also shall be deemed an event of default: (1) written admission by a party that it is bankrupt; (2) filing by a party of a voluntary petition for bankruptcy; (3) consent by a party to the court appointment of a receiver or trustee for all or a substantial portion of its property or business; (4) the making of any arrangement by a party with, or for the benefit of, its creditors or assigning to a trustee, receiver, or similar functionary (regardless of how designated) of all or a substantial portion of a party's property or business; (5) becoming insolvent; or (6) final adjudication of a party as bankrupt under the Federal Bankruptcy Act.

SECTION 5.03. EMERGENCIES. In the event of an emergency affecting the safety or protection of persons, the Utility Facilities, or property adjacent thereto, or to avoid imminent environmental contamination, the Contractor, without special instruction or authorization from the GUA Representative or the General Manager is obligated to act to prevent such threatened damage, injury or loss. The Contractor shall give the GUA Representative oral notice within forty eight (48) hours followed by written notice within five (5) business days after the occurrence of the emergency, if the Contractor believes that any significant changes in the scope of services provided in this Agreement is required and merited. If the GUA determines that a modification of the compensation or scope of services is required because of the action taken in response to an emergency, an amendment shall be issued to document the consequences

of the changes or variations. If the Contractor fails to provide such written notice to the GUA Representative within the forty eight (48) hour period, the Contractor shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the compensation or scope of service provided under this Agreement.

SECTION 5.04. EMERGENCY REPLACEMENT OF CONTRACTOR. In the event of any emergency condition involving the Utility Facilities which is found by the GUA to present a significant, immediate danger to public health, whether the cause of the Contractor or otherwise, and the Contractor is either unable or unwilling to correct such condition, the GUA may replace the Contractor without notice during the emergency condition, provided that at the conclusion of any such condition, the Contractor shall be reinstated by the GUA. Provided further, however, the GUA shall not be obligated to reinstate the Contractor at the conclusion of the emergency condition and may terminate this Agreement if the Contractor's inability or unwillingness to correct such condition itself constitutes grounds for termination of this Agreement or the Contractor is otherwise in default as provided in Section 5.02. The Contractor shall not be entitled to any compensation after the date upon which the GUA replaces the Contractor under this Section 5.04.

SECTION 5.05. OBLIGATIONS EXCUSED.

(A) Notwithstanding any other provision in this Agreement, neither the GUA nor the Contractor shall be liable to the other for any failure or delay in performance of any obligation under this Agreement due to the occurrence of an Uncontrollable Circumstance.

(B) As a condition precedent to the right to claim excuse of performance, the party experiencing an Uncontrollable Circumstance shall:

(1) promptly notify the other party verbally; and

(2) as soon as practical, but in no event more than five (5) business days thereafter, prepare and deliver to the other party a notice with a written description of (a) the commencement of the Uncontrollable Circumstance; (b) its estimated duration and cost impact, if any, on the party's obligations under this Agreement; and (c) its estimated impact (other than cost), if any, on the party's obligations under this Agreement.

SECTION 5.06. DISPUTE RESOLUTION.

(A) Notwithstanding any other provision in this Agreement, any dispute among the parties which arises from the Agreement shall be resolved by binding arbitration conducted in accordance with this Section 5.06. Either party may initiate the dispute resolution process by providing written notice to the other party.

(B) After transmittal and receipt of a written notice specifying the area or areas of disagreement or dispute, the parties agree to meet at reasonable times and places, as mutually agreed upon, to discuss the issues.

(C) If discussions between the parties fail to resolve the dispute within fifteen (15) business days of the receipt by each party of the notice described in subsection (A) of this Section 5.06, a binding arbitration may then be initiated by either party by written notification to the other party of the existence of a dispute. Any and all issues related to the matter addressed by the written notice provided in subsection (A) of Section 5.06 or any response by the other party shall be raised and resolved in a single proceeding.

(D) The arbitrators shall be appointed and act as follows:

(1) The GUA and the Contractor shall each appoint a person as arbitrator within thirty (30) days of the date one of the parties has notified the other of the existence of a dispute.

(2) Each appointment shall be signified in writing to the counter party and the arbitrators so appointed, within ten (10) days of their acceptance of appointment, shall appoint a third arbitrator, who shall chair the panel. If the arbitrators appointed by the parties are unable to agree upon a third arbitrator, the same shall be appointed by the American Arbitration Association from its qualified panel of arbitrators. Each party shall have the right to veto up to two appointments proposed by the American Arbitration Association. If either the GUA or the Contractor fails to appoint an arbitrator within forty (40) days from the date one of the parties has notified the other of the existence of a dispute, then an arbitrator shall be appointed by the American Arbitration Association from its qualified panel of arbitrators as the appointment of the party failing to timely appoint and the two so appointed shall appoint a third arbitrator to chair

the panel. The party on whose behalf an arbitrator is appointed shall have the right to veto up to two of the arbitrators appointed by the American Arbitration Association.

(3) Nothing in this Section 5.06 shall preclude the parties from mutually agreeing to a single arbitrator to resolve the dispute.

(4) No arbitrator shall have a business or other pecuniary relationship with either party, except for payment of arbitrator's fees and expenses without the written consent of both parties.

(E) Arbitrators shall be sworn to perform their duties with impartiality and fidelity. In rendering any decision, the arbitrator shall proceed to consider the Agreement, the dispute identified in the notice and any response and the actions taken and the documentation thereof, conduct, and relative position, knowledge, and the ability of the parties in relation to the dispute.

(F) The arbitration hearing shall convene not earlier than sixty (60) days and not later than one hundred eighty (180) days of the acceptance of appointment of all of the arbitrators chosen by the parties unless the GUA and the Contractor mutually agree to an earlier date. The arbitrators shall render a decision within ten (10) business days of the date on which the arbitration hearing concludes, and such decisions shall be in writing and in duplicate, one counterpart thereof to be delivered simultaneously to each of the parties. The decision shall contain findings of fact and conclusions of law and shall be final and binding upon the GUA and the Contractor.

(G) The arbitrators may at their discretion, and shall upon written request of the Contractor or the GUA, engage experts to provide peer review of any technical, engineering, or scientific issues introduced by the parties. The parties shall be entitled to discovery pursuant to the Florida Rules of Civil Procedure. All discovery requests by a party shall be enforced by the arbitrators. The arbitration hearing shall not proceed until all outstanding discovery requests have been fulfilled.

(H) The fees, charges and expenses of the arbitrators, any experts engaged by the arbitrators, the respective counsel engaged by the parties, and any witnesses called by the parties shall be paid as follows:

(1) If the arbitrators determine that the disputed issues raised or objected to by the Contractor are justified and appropriate, the GUA shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of Contractor's counsel and any witnesses called by the Contractor.

(2) If the arbitrators determine that the disputed issues raised or objected to by the GUA are justified and appropriate, the Contractor shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of the GUA's counsel and any witnesses called by the GUA.

(3) If the determination of the arbitrators does not fall within the parameters of (H)(1) or (H)(2) above, the arbitrators shall order each party to pay their own fees, charges and expenses and, in the sound discretion of the arbitrators, assess the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators between the parties.

(I) The provisions of the Florida Arbitration Code, Chapter 682, Florida Statutes, and the Florida Evidence Code, Chapter 90, Florida Statutes, except to the extent inconsistent with the provisions of this Agreement, shall specifically be deemed to apply to any arbitration proceeding conducted hereunder. Unless the venue is mutually agreed upon otherwise by the parties, the venue for any arbitration commenced pursuant to this Section shall be in Sarasota County, Florida.

SECTION 5.07. VACATING THE PREMISES. Upon vacating the Utility Facilities, the Contractor shall leave all sites, structures, equipment, and improvements in good condition. The Contractor shall properly dispose of any accumulations of waste materials, rubbish, and other debris resulting from the Contractor's activities. The Contractor shall restore to original condition (ordinary wear and tear excepted) any portions of the Utility Facilities that were altered or changed by the Contractor without the GUA's approval.

ARTICLE VI

GENERAL PROVISIONS

SECTION 6.01. DESIGNATION OF GUA REPRESENTATIVE.

(A) The GUA shall designate in writing a GUA Representative to act on its behalf with respect to the Utility Services to be rendered under this Agreement. The GUA Representative may be a designated employee of the General Manager. The Contractor shall be entitled to rely upon any written notice of change of the designated GUA Representative.

(B) The GUA Representative shall have the following responsibilities:

(1) Review and make appropriate recommendations on all requests submitted by the Contractor for payment for services and work provided and performed in accordance with this Agreement.

(2) Provide all criteria and information requested by the Contractor as to the requirements of the GUA for the Utility Services.

(3) Upon request from the Contractor, assist the Contractor by placing at its disposal all available information in the possession of the GUA pertinent to the Utility Services, including by way of example and not limitation, existing drawings, specifications, shop drawings, public literature, previous reports and any other data relative to the provision of the Utility Services of the maintenance, construction, acquisition or improvement of the Utility Facilities.

(4) Provide notice to the Contractor of any deficiencies or defects discovered by the GUA with respect to the services to be rendered by the Contractor under this Agreement.

(C) The GUA Representative is not authorized to issue any verbal or written orders or instructions to the Contractor that would have the effect, or be interpreted to have the effect, of modifying or changing in any way:

(1) the scope of the Utility Services to be provided and performed by the Contractor under this Agreement;

(2) the time the Contractor is obligated to commence and complete all Utility Services; or

(3) the amount of compensation the GUA is obligated or committed to pay the Contractor under this Agreement.

SECTION 6.02. MANNER OF PERFORMANCE.

(A) The Contractor is, and shall be, in the performance of all Utility Services, an independent contractor, and not an employee or agent of the GUA or the General Manager. All persons engaged in the performance or provision of Utility Services shall at all times, and in all places, be subject to the Contractor's sole direction, supervision, and control. The Contractor shall exercise control over all the means and manner in which it and its employees perform or provide the Utility Services.

(B) The Contractor represents that it has, or will secure at its own expense, all necessary personnel required to perform the Utility Services under this Agreement. Personnel of the Contractor shall not be employees of or have any contractual relationship with the GUA or the General Manager, nor shall such personnel or employee of the Contractor be entitled to any benefits of the GUA or the General Manager including, by way of example and not limitation, pension, health and worker's compensation benefits.

(C) All of the services required hereunder shall be performed by the Contractor or under its supervision, and all personnel, employees and subcontractors engaged in performing the Utility Services shall be fully qualified and, if required, authorized or permitted under State and local law to perform the Utility Services undertaken.

(D) The GUA shall at all times comply with the provisions of the Public Records Law, Chapter 119, Florida Statutes.

(E) The Contractor, at its sole expense, shall correct or replace any defective or faulty work.

(F) All non-supervisory employees of the Contractor assigned to the field will shall be required to wear at all times a uniform and identification badge.

(G) The Contractor is responsible for checking its employees for proof of a valid Florida driver's license and insurance a minimum of twice annually in those cases where personal vehicles are used for GUA purposes.

SECTION 6.03. AUTHORITY TO PERFORM. The Contractor shall continuously maintain at all material times all Permits, licenses and approvals required under the Applicable Law to provide the Utility Services. Proof of all such Permits, licenses and approvals shall be submitted to the GUA Representative at least annually and upon request.

SECTION 6.04. ACCESS AND AUDITS. The Contractor shall maintain adequate records to justify all charges, expenses and costs incurred in estimating and performing the Utility Services for at least two (2) years after the termination of this Agreement. The GUA, the General Manager or their contracted representatives shall have access to such books, records and documents as required for the purpose of inspection or audit, during Normal Business Hours, at the place of business of the Contractor within the State. The Contractor shall be subject to an annual independent financial and performance audit on its performance and provision of the Utility Services under this Agreement. Any such audit shall be undertaken by an auditor or auditors selected and paid for by the GUA.

SECTION 6.05. GENERAL INSURANCE REQUIREMENTS.

(A) The Contractor shall purchase at its cost and maintain at all times the insurance coverages listed in Appendix I with insurance companies acceptable to the GUA for limits of liability not less than the amount stated for each coverage in Appendix I.

(B) The GUA and the General Manager are to be additional insureds under the Commercial General Liability and Contractor's Pollution Liability Insurance policies with the Severability of Interest Provision applicable to each policy. If requested by the GUA, the Contractor shall promptly revise the insurance policies to include other local governments using or acquiring the Utility Facilities as additional insureds. All liability insurance shall be on an "occurrence form," except Miscellaneous Errors and Omissions policies and Contractor's Pollution Liability policies, which shall be on a "claims made" form. Each policy shall provide that the Contractor's coverage is primary to any insurance or self-insurance program of the GUA and that the GUA shall not be directly responsible for the payment of any insurance premium due the insurance companies. The insurance coverages and limits required must be evidenced by properly executed certificates of insurance supplied by the Contractor. Policies of insurance

shall be with carriers admitted to do business in the State of Florida. Carriers shall be "A" rated and have a financial rating size of "IX" or better, according to the A.M. Best Key Rating Guide. All certificates of insurance shall reflect thirty (30) days' notice of any cancellation, change or reduction in insurance coverage. All properly executed certificates of insurance shall be received and approved by the GUA prior to the Commencement Date. On renewal at the end of each policy term, properly executed certificates of insurance must be delivered to the GUA at least thirty (30) days before expiration of the insurance policies for review and approval so that there will be no interruption in the Contractor's provision of Utility Services under this Agreement due to the lack of proof of insurance.

(C) To the extent not otherwise stated herein, and in addition to any other requirements set forth herein, the Contractor shall operate and maintain the Utility Facilities in accordance with the following laws and regulations, as applicable:

(1) Chapter 440, Florida Statutes, Workers' Compensation Law, as amended;

(2) Florida Administrative Code Chapters 38F and 38I, as amended, relating to Workers' Compensation;

(3) 29 Code of Federal Regulations 1910 and 29 Code of Federal Regulations 1926, Occupational Safety and Health Act, General Industrial Standards and Construction Industrial Standards, respectively; and

(4) the Florida Toxic Substances Act.

(D) Should the Contractor at any time fail to maintain the insurance coverages required in this Section 6.05, the GUA, at its discretion, shall be authorized to purchase such coverages and charge the Contractor for such coverages purchased or deduct such cost from the monthly payment due for the Basic Operation and Maintenance Service Fee. The GUA shall be under no obligation to purchase such insurance or to be responsible for the coverages purchased or the financial stability of the insurance companies used and failure of the GUA to purchase such insurance shall not lessen or release the Contractor of its obligations as provided in this Section 6.05.

(E) The GUA shall secure and maintain at its expense property damage insurance for

the Utility Facilities.

SECTION 6.06. NOTICE OF CLAIMS. The Contractor shall notify in writing the GUA Representative of all incidents, events or injuries which the Contractor reasonably believes may result in a claim of fifty thousand dollars ($50,000.00) or more, arising out of the Contractor's performance under this Agreement, including, but not limited to, claims relating to workplace injuries. The Contractor shall notify the GUA of any claim established and accepted as a liability under its commercial insurance or self insurance which is paid in an amount equal to or greater than fifty thousand dollars ($50,000.00). The Contractor shall notify the GUA of any death arising out of the Contractor's performance under this Agreement. The Contractor shall notify the GUA of any and all events, accidents, injuries, incidents, suits or claims which name or otherwise may involve or create a liability for the GUA or result from the provision by the Contractor of the Utility Services, including by way of example and not limitation, any events involving pollution at, on, or near the Utility Facilities. The obligation of the Contractor to report under this Section 6.06 is subject to any confidentiality agreement relating to any claim. All notices required under this Section 6.06 shall be provided promptly and within forty eight (48) hours of the Contractor learning of same.

SECTION 6.07. INDEMNIFICATION AND PENALTIES.

(A) Each party shall protect, defend, indemnify and hold the other party and its officers, employees and agents harmless from and against any and all liabilities, claims, losses, and expenses, including attorney's fees and all costs of litigation and judgments arising out of any willful misconduct or negligent act, error or omission of that party, its subcontractors, agents or employees, arising out of or incidental to the performance of this Agreement. This indemnification shall also pertain to any claims brought against a party by the other party, its officers, employees or agents, or any subcontractor, or anyone directly or indirectly employed by any of them.

(B) Each party acknowledges that the general conditions of any construction or subcontractor contract shall include language, satisfactory to the other party's attorney, in which the contracting party agrees to hold harmless and to defend the other party, its agents and

employees from all suits and actions, including attorney's fees, and all costs of litigation and judgments of any name and description arising out of or incidental to the performance of the construction contract or work performed for the Utility Facilities.

(C) The Contractor shall be liable for any fines or civil penalties which may be imposed by any governmental or quasi-governmental agencies or bodies for violations of the effluent guarantees specified herein arising out of, or resulting from the negligent performance of its duties and obligations under this Agreement, including without limitation, negligent acts and omissions of the Contractor, its employees, agents, officers and subcontractors. The GUA will assist the Contractor in any contest of any such fines or civil penalties in administrative or court proceedings. The Contractor shall pay such fines or civil penalties prior to such protest if such payment is required prior to making such protest. The Contractor shall be solely responsible for all costs, including attorney's and accountants' fees, of protesting any such fines or civil penalties. The Contractor shall not be responsible for any fines or civil penalties due to proceedings concluded prior to execution of this Agreement unless such fines or civil penalties are the direct result of an act or omission of the Contractor pursuant to the terms hereof. Notwithstanding the above, the Contractor shall not be liable for fines, civil penalties and judgments or for defending against same, arising from structural and design defects and deficiencies in the Utility Facilities or the capacity limitations of the Utility Facilities for which the Contractor is not responsible for correcting or remedying under this Agreement.

SECTION 6.08. MODIFICATION OF SCOPE OF SERVICES.

(A) The GUA shall at all times during the term of this Agreement have the right to request unilateral changes in the scope of services, including alterations, reductions therein or additions thereto. Upon receipt by the Contractor of the GUA's notification of the contemplated change, the Contractor, shall in writing: (1) timely provide a detailed estimate for the increase or decrease in cost due to the contemplated change, (2) notify the GUA of any changes in work schedules, (3) advise the GUA if the contemplated change shall affect the Contractor's ability to perform or provide the Utility Services in a manner consistent with the requirements and performance standards incorporated into this Agreement, and (4) advise the GUA if the contemplated change is within the capabilities of the Contractor.

(B) If the GUA so instructs in writing, the Contractor shall suspend work on that portion of the Utility Services affected by the contemplated change, pending the GUA's decision to proceed with the change.

(C) If the GUA elects to make a change in this Agreement, the GUA shall initiate an amendment to this Agreement and the Contractor shall not commence work on any such change until such written amendment is agreed to and signed by the Contractor and the GUA Representative.

SECTION 6.09. CONFLICTS.

(A) The Contractor represents that it has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance or provision of the Utility Services. The Contractor shall promptly notify the GUA Representative of all potential conflicts of interest for any prospective business association, interest or other circumstance which may influence or appear to influence the Contractor's judgment or quality of the Utility Services to be provided under this Agreement. Such notification shall be in writing and identify the prospective business association, interest or circumstance, the nature of the work the Contractor may undertake and request a determination from the GUA, as to whether the association, interest or circumstance would, in the opinion of the GUA, constitute a conflict of interest if entered into by the Contractor.

(B) The GUA shall respond to the Contractor in writing within thirty (30) days of receipt of the notice by the Contractor of an actual or potential conflict of interest. If the GUA determines the prospective business association, interest or circumstance does not appear to constitute a conflict of interest by the Contractor, the GUA shall so state in the response and the Contractor may, at its option, enter into said association, interest or circumstance and it shall be deemed not in conflict of interest with respect to Utility Services provided by the Contractor.

SECTION 6.10. RIGHT TO ENTER AND INSPECT. At all times the GUA and the General Manager or its representatives or agents shall have the right, but not the duty, to enter upon the Utility Facilities to inspect and observe the performance or provision of the Utility Services.

SECTION 6.11. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Agreement shall be governed by and construed in accordance with the laws of the State.

(B) The parties to this Agreement expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State, whether state, local or federal, and further agree that venue shall lie in Sarasota County, Florida.

SECTION 6.12. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, to the parties at the following addresses:

To the GUA:

Government Services Group, Inc.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Robert Sheets

with a copy to:

Nabors, Giblin & Nickerson, P.A.
315 South Calhoun Street, Suite 800
Tallahassee, Florida 32301
Attention: Robert L. Nabors, Esq.

To Contractor:

Avatar Utility Services, Inc.
201 Alhambra Circle, 12th Floor
Coral Gables, Florida 33134
Attention: General Counsel

with a copy to:

Avatar Utility Services, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with another copy to:

Greenberg Traurig, P.A.
777 South Flagler Drive, Suite 300E
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan, Esq.

(B) Any written notice given to one person in subsection (A) of this section shall also be provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or five (5) days after the date mailed.

SECTION 6.13. ASSIGNMENT.

(A) The Contractor shall not have the right to assign any of its rights, duties or obligations under this Agreement without the consent of the GUA Board upon a demonstration by the proposed assignee of its general ability to perform the obligations of the Contractor under this Agreement, which consent shall not be unreasonably withheld. A consented to assignee shall be required to assume the obligations of the assigning party by written assignment in a form reasonably satisfactory to the GUA's attorney.

(B) Notwithstanding the provisions of subsections (A) and (C) of this Section 6.13, the Contractor shall have the right to assign this Agreement to the following entities without the consent of the GUA: ST Environmental Services, Enron, OMI, United Water and AquaSource or their affiliates. Such assumption shall be effective upon giving twenty (20) days notice to the GUA and upon execution with such entity of a written assignment in a form satisfactory to the GUA's attorney by which such entity assumes all of the obligations of the Contractor under this Agreement.

(C) Any assignment of this Agreement consented to by the GUA shall be an assignment of the Agreement in its entirety and the Basic Operation and Maintenance Service and the Basic Billing and Customer Service cannot be severed or assigned separately unless specifically consented to by the GUA; provided however, this prohibition shall not apply to an affiliate of the Contractor if such separate assignment shall not, in the judgment of the GUA, interfere with the performance of the duties and the provision of the services provided in this Agreement.

(D) A transfer of a majority of the outstanding stock of the Contractor to another corporate entity or business enterprise shall be deemed an assignment of the Agreement requiring the consent of the GUA under this Section 6.13.

(E) Notwithstanding the provisions of subsection (C) of this Section 6.13, a transfer of the outstanding stock of the Contractor to an affiliated company within Avatar Holdings, Inc. shall not require the consent of the GUA under this Section 6.13.

SECTION 6.14. AMENDMENTS AND WAIVERS. No amendment,

supplement, modification or waiver of this Agreement shall be binding upon any party hereto unless executed in writing by such party. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision of this Agreement, whether or not similar, unless otherwise expressly provided.

SECTION 6.15. ENTIRE AGREEMENT. This Agreement, including the referenced Appendices hereto, is the entire agreement between the parties and supersedes all prior and contemporaneous agreements, understandings, negotiations, and discussions of the agreements, understandings, negotiations, and discussions of the parties, whether oral or written, pertaining to the subject matter hereof. Upon execution by all parties, the GUA shall provide the Contractor three complete, certified copies of this Agreement, together with all appendices hereto. This Agreement shall be construed as solely for the benefit of the GUA and the Contractor, their successors and assigns, and no claim or cause of action shall accrue to or be for the benefit of any third party by reason of the execution of this Agreement.

IN WITNESS WHEREOF, the GUA and the Contractor have caused this Agreement to be duly executed and entered into on the date first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

By: EXHIBIT
Its: Chairman

Attest: EXHIBIT

AVATAR UTILITY SERVICES, INC.

By: EXHIBIT
Its: Treasurer

Attest: EXHIBIT

LIST OF APPENDICES
SARASOTA SYSTEM
UTILITY OPERATIONS, BILLING AND
CUSTOMER SERVICE AGREEMENT

APP.

A. DESCRIPTION OF UTILITY FACILITIES

B. OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

C. BILLING, METER READING AND FIELD CUSTOMER SERVICE STANDARDS

D. INVENTORY

E. STAFFING

F. LABORATORY TESTING

G. REPORTS

H. SCHEDULE OF FIXED-FEES FOR ADDITIONAL SERVICES

I. SCHEDULE OF INSURANCE

APPENDIX A

DESCRIPTION OF UTILITY FACILITIES

The Utility Facilities consist of the following facilities located in Sarasota County:

1. Water system facilities:

   a. Water supply and treatment facilities:

      (1) Water Treatment
         (a) Supply: Water purchased from Sarasota County

   b. Distribution and transmission facilities:

      (1) Mains: Approximately 283,881 feet, 2"-12" in diameter, polyvinyl chloride and asbestos-cement pipe, and appurtenances thereto.

      (2) Fire Hydrants: Approximately 205

      (3) Meters: Approximately 5,656

      (4) Storage: 0.25 MG Steel Elevated Storage Tank

2. Wastewater facilities:

   a. Treatment facilities:

      (1) South Gate Advanced Wastewater Treatment Plant
         (a) Treatment: Activated sludge
            (i) Process: Influent screening, grit removal, flow equalization, aeration, secondary clarification, nitrification, denitrification, final clarification, filtration, chlorination, dechlorination, aerobic digestion and lime stabilization of residuals
            (ii) Standard: Advanced
            (iii) Capacity: 1.36 MGD
         (b) Reclaimed Water Disposal: golf course irrigation/surface water discharge

(2) Gulf gate Advanced Wastewater Treatment Plant
   (a) Treatment: Activated sludge
      (I) Process: Influent screening, grit removal, flow equalization, aeration, secondary clarification, nitrification, denitrification, final clarification, filtration, chlorination, dechlorination, aerobic digestion and lime stabilization of residuals
      (ii) Standard: Advanced
      (iii) Capacity: 1.8 MGD
   (b) Reclaimed Water Disposal: surface water discharge

b. Collection system facilities:

(1) Collection and Interceptor Mains: Approximately 369,194 feet, 4"-10" in diameter, polyvinyl chloride and vitrified clay pipe, and appurtenances thereto.
(2) Force Mains: Approximately 148,793 feet, 4"-12" in diameter, cast iron, ductile iron, asbestos-cement, and polyvinyl chloride pipe, and appurtenances thereto.
(3) Lift and Pumping Stations:
   (a) Master: 1
   (b) Other: 83
(4) Manholes: Approximately 1,069

**All statistics unless otherwise noted were taken from the 1997 Annual Report for the Board of County Commissioners of Sarasota, County, Florida.

APPENDIX B

OPERATION AND MAINTENANCE SERVICE PERFORMANCE STANDARDS

SECTION B.01. TREATMENT FACILITIES.

(A) Operate and maintain the water and wastewater treatment plant facilities, unit processes, and their respective appurtenances including, but not limited to, the following:

- control of treated water corrositivity within the limits of the existing treatment process;
- general housekeeping;
- grounds maintenance;
- maintain Supervisory Control And Data Acquisition (SCADA) system;
- issue public notices of non-compliance with drinking water standards resulting from acts or omissions of the Contractor. The GUA shall issue notices of non-compliance resulting from limitations of the treatment process or equipment failure;
- minimize the generation of noise and odors;
- assist the GUA's laboratory testing contractor with any sampling required by any regulatory agency, including well, soil and distribution system sampling;
- provide necessary coordination with the GUA's construction contractors, engineers, or other consultants or vendors for line tie-ins, process standards and connection of Capital Improvements to the Utility Facilities during Normal Business Hours;
- provide timely submittal of all monthly operating reports required by regulatory agencies;
- maintain equipment, pumps and motors similar to that required for pumping stations in sections B.02 and B.05; and

- procure sludge removal services.

(B) Take immediate action to either prevent environmental incidents or dangerous situations, and endeavor to keep the number and duration of such incidents and situations to a minimum.

SECTION B.02. WATER PUMPING STATIONS AND WELLS.

(A) Operate and maintain the pumping stations and raw water supply well facilities, and their respective appurtenances including, but not limited to the following:

(1) Monitoring of pump stations and wells for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments. A list of activities to be performed at the following minimum intervals shall include, but not be limited to, the following:

- clean sump pumps as needed;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- check and clean filter elements for gas or diesel engines as specified by the Contractor;
- change and maintain the oil level in pumps as specified by the manufacturer;
- lubricate and clean air blowers weekly or as specified by the manufacturer;
- maintain proper belt tension weekly;
- poll the station on a scheduled basis by the telemetry system to the extent of the capability of said system at fifteen (15) minute increments;

- check pump running times twice weekly;
- maintain the station's lights and replace bulbs as needed;
- check motor starter contacts twice annually;
- clean floats quarterly;
- maintain alarm lights and horns weekly;
- remove debris from pumps and check valves as required;
- lubricate pump and motor bearings as specified by the manufacturer;
- clean out pumps as required;
- exercise all station valves twice annually; and
- clean check valves as required.

(4) The Contractor shall repair pump stations and wells in order to maintain their integrity. Such activities to be performed or provided shall include, but not be limited to, the following Repairs, Replacements and Renewals:

- rebuilding or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;

- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;
- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(5) The Contractor shall provide routine repairs to all equipment, including painting of all exposed equipment, and all exposed piping, on a five year rotating basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping.

SECTION B.03. WATER DISTRIBUTION SYSTEMS.

(A) The Contractor shall operate, maintain, and repair the water transmission, distribution piping, treated water storage, meters and other appurtenances including, but not limited to, the following:

- timely repair of any water main breaks, water main leaks;
- service line breaks;
- excavation, backfilling and compaction of such excavations in the course of performing work in the water distribution system;
- regular flushing of dead end system main lines;
- fire hydrant flow testing;

- visual inspection of the hydrant;
- fire hydrant leak checks; and
- fire hydrant lubrication (outlet threads, cap threads and valve stem).

(B) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders such as line leaks, valve breads and damage to appurtenances relating to existing water services or the distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order, unless any delay beyond three (3) working days is due to unavailability of parts, in which case such work will be completed as soon as the parts are obtained.

(C) The Contractor shall respond to emergency conditions without a work order and within two (2) hours of being notified or otherwise learning of such emergency or any unforeseen combination of circumstances or the resulting state that reasonably call for immediate action.

SECTION B.04. STORAGE TANKS. The Contractor shall render preventative maintenance service to the GUA with respect to all the GUA storage tanks. Such preventative maintenance services, at a minimum shall consist of regularly scheduled inspections (inspections by the Contractor, not part of a planned, formal inspection program) and adjustment of electrical and mechanical equipment in each of the GUA's water storage tanks.

SECTION B.05. WASTEWATER PUMPING FACILITIES.

(A) Operate and maintain the wastewater pumping facilities, and their respective appurtenances including, but not limited to, the following:

(1) Monitoring of lift or pumping stations for emergency conditions.

(2) Maintenance, operation and repair of the radio telemetry system.

(3) Regularly scheduled preventative maintenance, inspections and adjustments.

(4) Monitor those wastewater pumping facilities which have the technology for such monitoring for the following parameters:

- pump running times;
- high water level in wet well;
- loss of electrical power; and
- thermal overload.

(5) The Contractor shall provide preventative maintenance service with respect to the wastewater pumping facilities including, but not limited to:

- regularly scheduled inspections;
- adjustment of electrical and mechanical equipment;
- check control panels for proper operation weekly;
- check motor amperage twice yearly;
- change and maintain the oil level in pumps as specified by the Contractor;
- lubricate and clean air blowers weekly or as specified by the Contractor;
- poll the station on a scheduled basis by the telemetry system at five (5) minute increments;
- check pump running times twice weekly;
- clean "wet wells" quarterly or more often if needed;
- check remote telemetry units for proper operation daily;

- maintain the station's alarm lights, lights and replace bulbs as necessary;
- check the wet well levels for proper distance of pumping as necessary;
- check motor starter contacts twice annually;
- clean floats quarterly;
- remove debris from pumps and check valves as necessary;
- clean out pumps as required as necessary;
- exercise all station valves twice annually; and
- clean check valves as necessary as necessary.

(6) Supply all materials as needed for the preventative maintenance program in conformance with Section B.05(A)(5) herein.

(7) Repair and rehabilitate pump stations including, but not limited to, the following:

- repairing or replacing gate, check and plug valves;
- removing and reinstalling pumps and motors for repair;
- repairing motors and pumps;
- furnishing a crane truck, when necessary;
- repairing or replacing rails, supports, or piping;
- replacing flapper valves on pump volutes;
- repairing or replacing electrical panels;
- rewinding motors;
- removing submersible pumps for cleaning, repairs, or gasket replacement;
- repairing and replacing vacuum pumps;

- replacing impellers, wear plates, bearing, and seals;
- cleaning clogged pumps;
- replacing piping on sump pumps;
- replacing circulation lines; and
- repairing and replacing remote telemetry unit components.

(8) Painting of all exposed equipment, and all exposed piping, on a five year rotation basis. Should painting be required more often, the Contractor shall paint as necessary to protect the integrity of the equipment and piping on a three year rotating basis.

SECTION B.06. WASTEWATER COLLECTION SYSTEMS.

(A) The Contractor shall be responsible for procurement of all materials, supplies, chemicals and other consumables that may be necessary for proper operation, maintenance and repair of the system collection facilities (this requirement does not include a planned program of cleaning, television inspection and grouting) including the following:

- cleaning;
- flushing; and
- inspection of main pipelines and manholes.

(B) The Contractor shall respond to any wastewater collection system emergency including, but not limited to, pipeline blockage or potential thereof, or manhole surcharging as may reported by any source with the GUA's service area as soon as possible, but in any event, within two (2) hours of being notified or otherwise learning of such or related condition in the wastewater collection system.

(C) The Contractor shall timely, and properly, maintain and repair the wastewater collection and transmission facilities. The Contractor shall take all necessary measures to remedy conditions in the wastewater collection system facilities resulting from a main pipeline blockage and consequential surcharging of such pipelines or manholes and shall be responsible for clean up and abatement resulting from such conditions which occur within the wastewater collection system facilities.

SECTION B.07. COMPUTERIZED MAINTENANCE RECORDS.

The Contractor shall be responsible for performing routine, preventive, predictive, and corrective maintenance procedures of the Utility Facilities, all in a manner that assures the readiness and availability of equipment, processes, and systems on a consistent basis, and which ensures efficiency, long-term reliability, and conservation of the capital investment in the Utility Facilities. Such procedures shall include preventive maintenance and work order based corrective maintenance program components for the Utility Facilities and shall be capable of providing the following:

- maintain a record of repair and repair history for each piece of equipment or line section;
- schedule preventive and predictive maintenance;
- maintain records of routine transmission and distribution line repairs;
- maintain records of corrective maintenance;
- issue and monitor work orders;
- maintain a spare parts inventory; and
- issue equipment status and repair priority reports.

SECTION B.08 FULL TAP AND METERS AND A METER SETTING. The Contractor shall complete installation of a Full Tap and Meters and a Meter Setting requested by the GUA in a timely manner and in no event later than as follows:

(A) For meter installations where service is already in place, five (5) business days from the date of the installation or meter setting request.

(B) For Full Taps and Meter Settings where a permit from an outside agency is not required, fifteen (15) business days from the date of the installation or meter setting request.

(C) For Full Taps and Meter Settings where a permit from an outside agency is required, twenty (20) business days after the receipt of the permit.

APPENDIX C

BASIC BILLING AND CUSTOMER

SERVICE PERFORMANCE STANDARDS

SECTION C.01. METER READING.

(A) All water meters shall be read on a monthly basis.

(B) Malfunctioning meters, visible leaks or damage to the meter or box shall be reported to the operation and maintenance provider for repairs.

(C) The Contractor shall enter the appropriate codes in the hand held meter reading devices to notify customer service personnel to issue work orders for repairs where needed (e.g., broken or obscured glass, box too high/low, broken lid, cannot find meter).

(D) The Contractor shall reread "suspected" erroneously read meters at the Contractor's earliest convenience. The Contractor shall provide an exception (hi-low audit) report on each business day for a previous days' reading. The Contractor shall review reports and select meters to be rechecked before billing.

(E) Meter readers are required to read every meter in the route. Any instances where a meter reader suspects an illegal hook-up should be reported immediately to the Contractor's office. If a meter is present, the Contractor will have a meter reader note the serial number and reading. Illegal hook-ups will be reported to the GUA for action.

(F) Normal hours of meter reading shall be Monday through Saturday, except GUA holidays, between 7 a.m. and 6 p.m. each day (unless mutually agreed upon between the GUA and the Contractor).

(G) Meter reading must be accurate with an error level of no greater than 1 per 1,000 reads. Errors are defined as misreads found by field audits, investigations, and readings the following month which are lower than reported the previous month as an accurate read or customer requested rechecks which, after investigation, a reading error is confirmed.

(H) All meter reading routes are to be accomplished within two (2) business days of the day scheduled. Weather conditions, excluding conditions associated with hurricanes and floods, must not prevent the accomplishment of meter reading unless otherwise agreed to by the GUA.

- Individual accounts on routes which are "no reads" (skips) will be reviewed daily by the Contractor. If upon further investigation, it is determined that a reading could have been obtained, the Contractor shall take immediate steps to obtain the reading.
- All meter boxes or meter conditions which impose an impediment to readers or citizens must be entered in the hand held devices by the meter readers when observed and promptly reported to the operation and maintenance provider. Other conditions of special interest that may explain high usage, as well as notification made of suspected leaks found, must also be entered.

SECTION C.02. FIELD SERVICES

(A) The Contractor shall provide field personnel to accomplish the following meter service functions:

- turn-on and turn-off of customer meters in response to account changes, delinquent accounts, customer requests, or emergencies;

- verify meter sizes;
- verify meter reading accuracy;
- meet with customer at property to discuss and evaluate disputes and make a report to customer service; and
- review with customers at property, how to read meter, typical usage of water, and conservation measures that customer can implement.

(B) All field service shall be made via work orders with prompt notification of the maintenance service provider when applicable. Information from these work orders shall be summarized on monthly order reports.

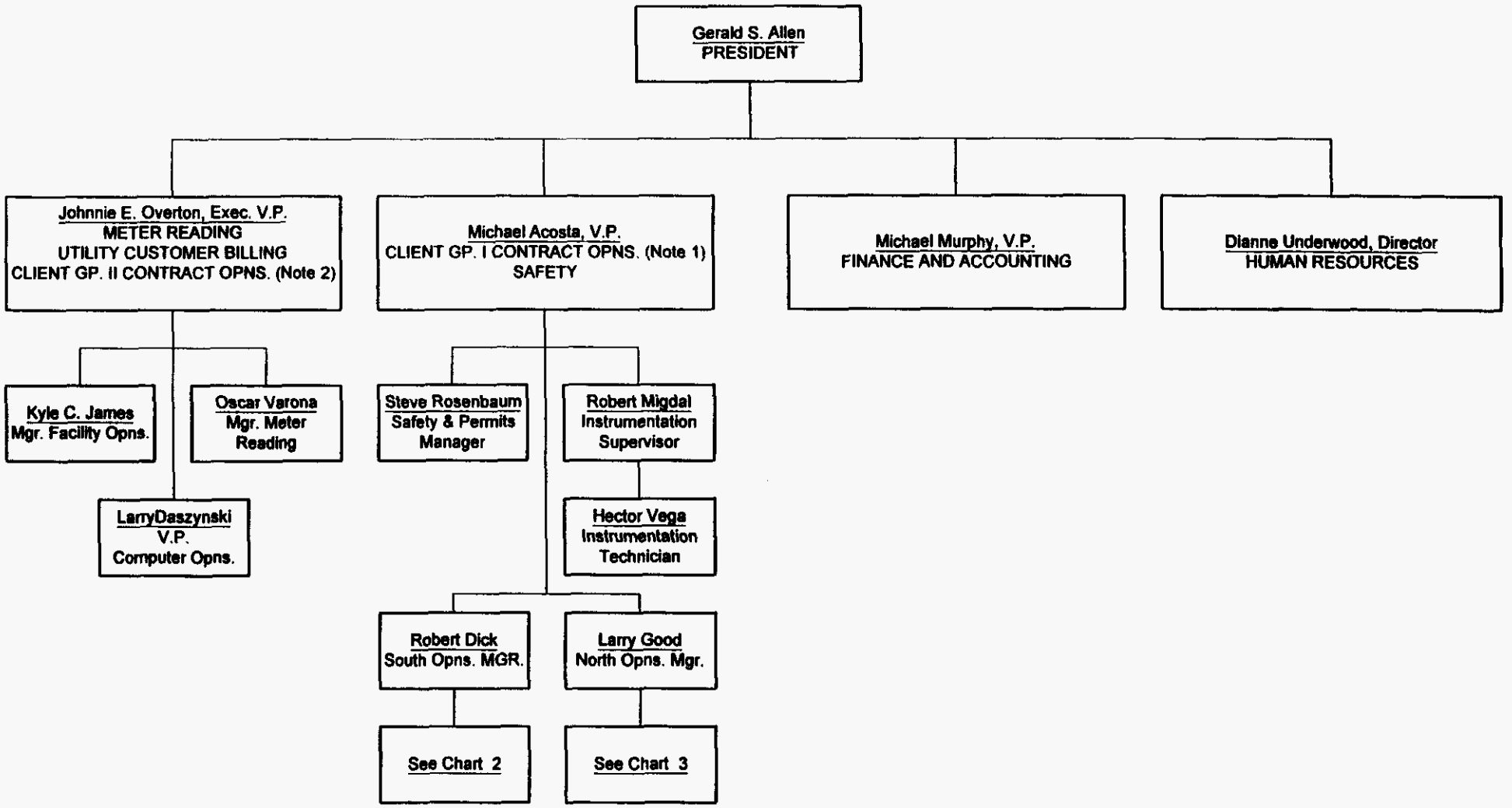
(C) The Contractor agrees to complete work orders for disconnections, reconnections, meter test, and other general work orders relating to existing water services or distribution system in a timely manner and in no event later than the third (3rd) working day after receipt of a work order.

APPENDIX D

INVENTORY

Within five (5) days after the Commencement Date, the parties hereto shall establish the Inventory by a physical inventory of the items on hand or as otherwise mutually agreed.

APP DIX E
STAFFING PLAN
Chart 1
AVATAR UTILITY SERVICES, INC.
Provisional Organizational Chart
Effective 4/1/99



NOTES:

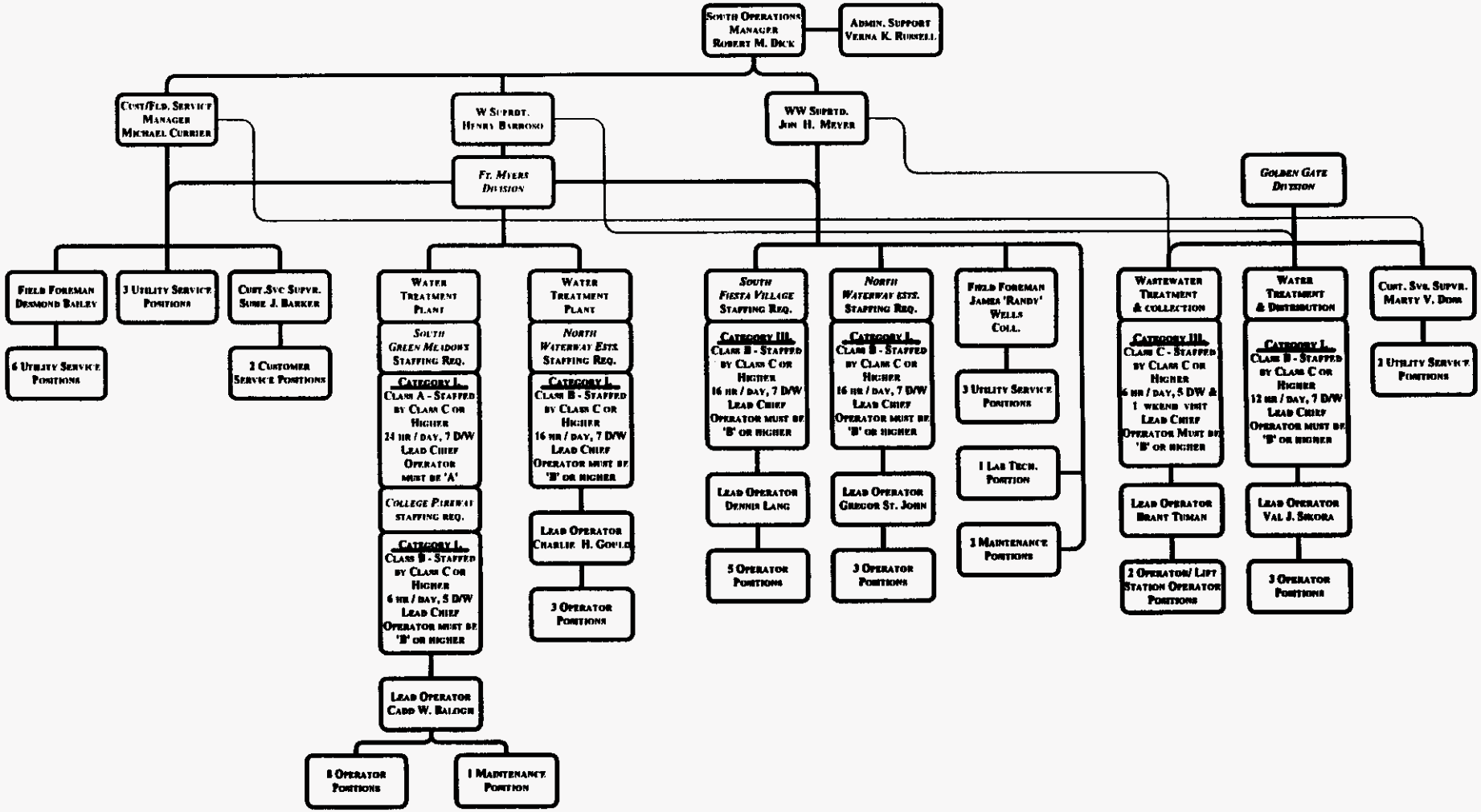
1. Client Group I consists of the GUA or a combination of the GUA and individual counties and pertain to the utility system formerly owned by Poinciana Utilities Inc., and the former Golden Gate, Ft. Myers, Sarasota, Carrollwood and Barefoot Bay Divisions of Florida Cities Water Company.

2. Client Group II consists of all other AUSI contract operations clients.

As of 1/99

CP 2 SOUTH ATIONS

CLIENT GROUP I



NOTES:

(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

As of · 9

NORTH OPERATIONS
CLIENT GROUP 1

North Operations Manager
Larry Good

Barefoot Bay Division

Division Manager
William M. Sansbury

- **Field Foreman** J. Steve Hayes
  - 3 Utility Service Positions
- 2 Customer Service Positions
- **Water Treatment Plant**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 12 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - **Lead Operator** Mark S. Dowe
  - 2 Operator/ Operator Trainee Positions
- **Wastewater Treatment Plant**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 8 hr / day, 7 D/W Lead Chief Operator must be 'B' or higher
  - **Lead Operator** Glen Siler
  - 1 Operator/ Operator Trainee Position
  - 1 Maintenance Position

Punctana Division

Division Manager
Larry Good

- **Field Foreman** Victor Winkler
  - 8 Utility Service Positions
- **Cust. Svs. Supvr.** Lorilee F. Miller
  - 2.5 Customer Service Positions
- **Wastewater Treatment Plant**
  - W.W.T.P. # 1 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 2 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
  - W.W.T.P. # 3 Staffing Req.
  - Category III, Class C - Staffed by Class C or Higher 3 hr / day, 5 D/W - one wkend visit
  - W.W.T.P. # 5 Staffing Req.
  - Category II, Class C - Staffed by Class C or Higher 6 hr / day, 5 D/W - one visit each wkend day -
- **Water Treatment Plant**
  - W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 1 hr / day, 5 D/W - one visit each wkend day -
  - W.T.P. # 4 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
  - W.T.P. # 5 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit

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Carrollwood Division

- W.T.P. # 1 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 2 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- W.T.P. # 3 Staffing Req.
  - Category IV, Class C - Staffed by Class C or Higher 5 visits per wk - one wkend visit
- **Lead Operator** Brian Southwell
- 1 Customer Service Position
- 2 Utility Service Positions

- **Field Foreman** Chet VanHorn
  - 7 Utility Service Operator Positions
- 2 Customer Service Positions

Sarasota Division

WW Superit. Wm. Randy Musgrove

- **South Gate A.W.T.P.**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
  - **Lead Operator** William (Bill) Dymek
  - 3 Operator Positions
- **Gulf Gate A.W.T.P.**
  - Staffing Req. Category I, Class B - Staffed by Class C or Higher 16 hr / day, 7 D/W Lead Chief Operator Must be 'B' or higher
  - **Lead Operator** E. S. 'Charlie' Garrett
  - 3 Operator Positions
- 1 Lab. Technician Position
- 1 Maintenance Position

- **Chief Operator** Keith S. Keenan
  - 5 Operator Positions
  - 1 Maintenance / Truck Driver Position

Solid Lines = Direct Supervision
Dotted Lines = Indirect Supervision

NOTES:
(1) OPERATOR POSITIONS MAY TEMPORARILY BE OCCUPIED BY OPERATOR TRAINEES.

APPENDIX F

LABORATORY TESTING

SECTION F.01. LABORATORY BY THE GUA. The GUA shall be responsible for employing a laboratory, certified by the FDEP to perform all laboratory testing required for regulatory reports except those tests listed in Section F.02. The Contractor shall coordinate with the GUA and the laboratory employed by the GUA for all such testing.

SECTION F.02. LABORATORY TESTING BY THE CONTRACTOR. The Contractor shall perform laboratory testing to the extent necessary for treatment process control. In addition, the Contractor shall perform the following tests required for regulatory reports:

(A) Ammonia;

(B) Carbonaceous Biochemical Oxygen Demand (CBOD);

(C) Dissolved Oxygen;

(D) Fecal Coliform;

(E) Nitrate as Nitrogen;

(F) Nitrite as Nitrogen;

(G) Organic Nitrogen;

(H) Percent Total Solids;

(I) pH;

(J) Specific Oxygen Uptake Rate;

(K) Temperature;

(L) Total Phosphorous;

(M) Total Chlorine Residual;

(N) Total Kjeldahl Nitrogen;

(O) Total Suspended Solids;

(P) Turbidity; and

(Q) Volatile Suspended Solids.

APPENDIX G

REPORTS

SECTION G.01. BASIC BILLING AND CUSTOMER SERVICES. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Billing and Customer Services, the Contractor shall submit or make available to the GUA electronically, the following reports:

REPORT	CONTENT	REPORTING PERIOD
Daily Transaction Journal	A documentation of all monetary and non-monetary transactions that have been posted to a customer's account	available daily
Preliminary Meter Reading Report	A report indicating the meter readings entered for each account prior to billing. Error in readings and/or consumption will be indicated for correction	
Account Balance Report	A report indicating each customer's current and past due balance	
Alpha-Cross Reference	A report listed in alphabetic order by customer's last name with a cross index to the customer's account number	
Aged Trial Balance	A report listing each customer's account with total balance, current, 30, 60, 90, and 120 day balances	available once monthly
Delete Report	A report listing all accounts which should be deleted from GUA's file	available once monthly
Past Due Report	A report indicating all delinquent accounts that have a balance other than current	

Meter Aging Report	A report that lists every account that had a meter installed between a range of dates selected by the GUA	
Consumption History Report	A report listing meter usages for up to 24 months past by rate classification and meter size.	
Billing Register	A report indicating each customer account billed with all pertinent information contained on the customer bill	
Monthly Activity Report	A report indicating a summary of all billings, adjustments and payments recorded during a particular calendar month Specifically, it indicates: (a) billing by rate class by service; (b) charges/adjustments by rate class; (c) total payments received; and (d) total bills printed	
Other reports commonly available at the time of acquisition		as requested and available

SECTION G.02. BASIC OPERATION AND MAINTENANCE SERVICE REPORTS. In addition to the reports required as described elsewhere in the Agreement pertaining to Basic Operation and Maintenance Service, the Contractor shall submit to the GUA, not later than the fifteenth (15th) day of each month, a report consisting of the following:

(A) Reclaimed and potable water produced at each treatment facility:

(1) monthly operating reports for each facility;

(2) total and average-day for the month; and

(3) average-day, maximum-day, minimum-day and average of the maximum-month for the ended 12-month period.

(B) Description of any emergencies and incidents occurring during the month including, but not limited to:

(1) operational anomalies or other emergencies which had a material adverse impact on customer service or the public;

(2) environmental incidents;

(3) Utility Facilities stress situations;

(4) work order log detailing when work orders were received and completed, location of event, work performed, equipment and resources used; and

(5) quality assurance reports and resolutions.

(C) Description of regulatory matters including, but not limited to:

(1) regulatory notices and responses thereto;

(2) requirement for any public notices;

(3) inspections or visits to Utility Facilities by regulatory agencies; and

(4) implementation of new regulatory requirements.

(D) Progress report including, but not limited to:

(1) material operational changes;

(2) major maintenance and repair activities; and

(3) Replacement and Renewal activities.

(E) Summary of new customers connected.

(F) Events and situations described in (B)(1), (B)(2), (C)(1), and (D)(2) by telephone within twenty four (24) hours after the Contractor becomes aware of the event or situation and makes an assessment of impacts thereof followed by a written report within five (5) business days thereafter.

APPENDIX H

Meter Setting Cost (3)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	20.00	48.22
1	77.22	20.00	97.22
1½	196.02	40.00	236.02
2	267.30	40.00	307.30
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Short Side) (5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	265.82	226.00	491.82
1	314.82	226.00	540.83
1½	683.32	226.00	909.32
2	754.60	226.00	980.60
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Full Tap and Meters Cost (Long Side)(5)

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	499.02	226.00	725.02
1	548.02	226.00	774.02
1½	927.52	226.00	1153.52
2	998.80	226.00	1224.80
3 and Larger	Contractor Cost Plus	Contractor Cost Plus	Contractor Cost Plus

Bullhead Service Installation Cost

Meter Size (inches)	Material Cost ($) (2)	Labor Cost ($)	Total Cost ($)
5/8	225.12	100.00	325.12
1	274.12	100.00	374.12

Replacement Meter Costs (4)

Meter Size (inches)	Material Cost ($) (1)	Labor Cost ($)	Total Cost ($)
5/8	28.22	15.00	43.22
1	77.22	15.00	92.22
1½	196.02	30.00	226.02
2	267.30	30.00	297.30
3	815.66	50.00	865.66
4	1276.72	50.00	1326.72
6	2012.67	50.00	2062.67
8	1461.83	50.00	1511.83

(1) Does not include the meter box or backflow prevention device.

(2) Material costs include the meter or meter head assembly costs, service piping, corporation stops, stops, meter boxes, casing under the roadway for long services and appurtenances excluding the backflow prevention device.

(3) ⅝, 1, 1½ and 2" material prices based on Neptune T-10, bronze body, cast iron bottom, with polymer register housing and lid.

(4) ⅝, 1, 1½ and 2" meters will be replaced entirely; only the meter head assembly will be replaced on 3, 4, 6, and 8" meters, 3, 4, 6" meter cost are for Tru/Flo meter heads, the 8" price is for a turbine meter head.

(5) Short side means service to property on the same side of the road as the water main. Long side means service to property on the opposite side of the road as the water main. Long side costs include installation of casing under the roadway, casing length not greater than twenty four (24') feet.

APPENDIX I

Schedule of Insurance

The following is an outline of the insurance coverages the Contractor shall obtain and maintain as provided herein, and in the type, amounts and in conformance with the following minimum requirements and is subject to the terms and conditions of each insurance policy:

Worker's Compensation
Statutory benefits as defined by Chapter 440, Florida Statutes, encompassing all operations contemplated by this Agreement to apply to all owners, officers, and employees regardless of number of employees. Individual employees may be exempted per State Law. Employers Liability will have minimum limits of $1,000,000.00 per accident.

Commercial General Liability
Coverage shall apply to premises and/or operations, products and/or completed operations, independent contractors, contractual liability, and broad form property damage exposures with minimum limits of $1,000,000.00 per occurrence. Said policy shall be insured by an insurance company, or companies, with a current minimum rating by the A.M. Best Agency of A.

Commercial Automobile Liability
Coverage shall apply to owned vehicles and/or hired and non-owned vehicles and employee non-ownership use with minimum limits of $1,000,000.00 CSL (combined single limit).

Umbrella/Excess Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep umbrella/excess liability insurance in minimum amount of $30,000,000.00.

Certificate of Insurance
The GUA shall be listed as a certificate holder and additional insured with respects to Commercial General Liability. An original hand signed certificate shall be on file with and approved by the GUA prior to the operation date. Said certificate shall evidence the required coverages and amounts as contained herein and provide a thirty (30) day notice of cancellation for non-renewal or material change in coverage.

Commercial Crime/Employee Dishonesty
Coverage shall apply to employees and include coverage for faithful performance of duty, depositors forgery, money-securities (in and out), and counterfeit papers with a minimum limit of $5,000,000.00 per occurrence.

Contractor's Pollution Liability Insurance
At all times during the term of this Agreement, the Contractor shall keep contractor's pollution liability insurance in minimum amounts of $2,000,000.00.

Miscellaneous Errors and Omissions Insurance
At all times during the term of this Agreement, the Contractor shall keep miscellaneous errors and omissions insurance in minimum amounts of $2,000,000.00.

APPENDIX T

FORM OF WATER AND WASTEWATER FACILITY AND CAPACITY EXPANSION AGREEMENT

POINCIANA UTILITY SYSTEM
WATER AND WASTEWATER
CAPACITY EXPANSION AGREEMENT

By and Between

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

and

AVATAR PROPERTIES INC.

April 1, 1999

POINCIANA SYSTEM WATER AND WASTEWATER CAPACITY EXPANSION AGREEMENT

THIS WATER AND WASTEWATER CAPACITY EXPANSION AGREEMENT, is made and entered into as of this 1st day of April, 1999, between the Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7)(g), Florida Statutes (the "GUA"), and Avatar Properties Inc., a Florida corporation ("API").

W I T N E S S E T H:

WHEREAS, this Poinciana System Water and Wastewater Capacity Expansion Agreement is entered into as part of the consideration for the transfer of the assets of the Poinciana System under the Utility System Asset Acquisition Agreement, dated as of April 1, 1999, between the GUA and Florida Cities Water Company and Poinciana Utilities, Inc. (the "Asset Acquisition Agreement"), and

WHEREAS, it is the common desire of both the GUA and API that timely initiatives for the provision of water production and treatment capacity and wastewater treatment and disposal capacity be commenced so that there is always present within the Poinciana System sufficient water production and treatment capacity and wastewater treatment and disposal capacity to permit new connections for water and wastewater services to occur in conformance with applicable ordinances, laws and regulations regardless of the growth experienced within the Poinciana System;

NOW, THEREFORE, in consideration of the following mutual promises, representations and agreements the parties agree for themselves or their permitted successors and assigns as follows:

SECTION 1. PURPOSE AND DEFINITION. All capitalized words and terms not otherwise defined herein shall have the meaning set forth in the Asset Acquisition Agreement unless the content implies or infers a contrary or different meaning. The following terms shall have the meanings as defined herein unless the context requires otherwise:

"Annual Report" means the annual report required to be supplied to the GUA by API projecting the capacity requirement for development within API Property for the subsequent Fiscal Year as more particularly described in Section 3.

"API Active Adult Community" means a predominately residential project designed for retired or active adults included in the API Development Plan for the API Property.

"API Development Plan" means the plan prepared by API describing the proposed number of connections needed for the API Property and the anticipated time schedule for construction thereof and the level (expressed in gallons per day by type of use) of Utility Service that will be required for the affected API Property, as set forth in the initial Annual Report and as amended in subsequent Annual Reports.

"API Facilities" shall mean those Local Distribution and Collection Facilities that will be used, from time to time, to provide Utility Service to API Property and the Deferred Extensions.

"API Guaranty Capacity" means that portion of the capacity in Plant Facilities to be provided by Initial Future or Future Capacity Expansion Projects required to provide Utility Service to API Property determined as provided in Section 5.

"API Property" means lots, parcels and other lands owned by API.

"Capacity Expansion Agreement" shall mean this Poinciana System Water and Wastewater Capacity Expansion Agreement, including any amendments and supplements executed and delivered in accordance with its terms.

"Commencement Date" shall mean the day following the payment of the purchase price for the Utility Facilities pursuant to the term of the Asset Acquisition Agreement.

"*Construction* Costs" means the actual and verifiable costs of construction financing, labor, materials and professional and design services specifically and directly associated with the design, permitting, construction, installation, inspection and testing of an Initial Future or Future Capacity Expansion Project. The term shall not include any mark-up, rebate, surcharge, or any overhead charge, administrative fee, construction management or supervisor fee, or other charge, other than reasonable construction financing costs, and the contract price for the labor, materials, and services due the professional or contractor who actually provided the engineering or design services or installed the Initial Future or Future Capacity Expansion Project.

"Contractor" means a qualified utility contractor.

"County" means Osceola County and Polk County, Florida, collectively and individually.

"Current Expansion Projects" means the following wastewater capacity and disposal or water production and treatment Capacity Expansion Projects to be completed by API:

(A) the 0.29 million gallons per day first phase capacity expansion of wastewater treatment plant 5 located in the southern portion of the Poinciana Division in Section 11, Township 28 South, Range 28 East in Polk County, Florida, completed and placed in service in September, 1998 and the 0.25 million gallons per day second phase capacity expansion which is scheduled for completion by the end of 1999;

(B) the 0.15 million gallons per day capacity expansion of the wastewater treatment plant 1 located in the northern portion of the Poinciana Division in Section 10, Township 26 South, Range 28 East in Osceola County, Florida, which is scheduled for completion during 1999; and

(C) the 1.33 million gallons per day combined capacity expansion of water production plants 2 & 3 located in the central portion of the Poinciana Division in Section 34, Township 26 South, Range 28 East in Osceola County, Florida, and the water production plants located in the central portion of the Poinciana Division in Section 13, Township 27 South, Range 29 East in Polk County, Florida, which are scheduled for completion during 1999.

"Customer Installation" means all of the facilities that are necessary to provide Utility Service to the Customer's premises and which are located on the customer's side of the Point of Delivery. With respect to water service, the Customer Installation includes a back-flow prevention device meeting GUA Utility Standards.

"Customer Installation Fees" shall mean charges for the installation of full tap and meter and meter settings as provided in Appendix H of the Operations Agreement.

"Deferred Extensions" means certain obligations which API has or may have with third parties to extend water and wastewater mains, at API's expense without reimbursement from the GUA, to certain lands previously sold by API, but to which water and wastewater mains have not been extended.

"DEP" shall mean the Florida Department of Environmental Protection or any successor thereto.

"Domestic Wastewater" shall have the meaning found in Rule 62-600.200(25), Florida Administrative Code, as it may be amended from time to time.

"Equivalent Residential Connection" or **"ERC"** means, notwithstanding any other definition of the term used by the GUA, the standard unit used in this Capacity Expansion Agreement to calculate the API Guaranty Capacity determined in the manner provided in Section 8.

"Fiscal Year" shall mean the period commencing on October 1 of each year and continuing through the next September 30th.

"Future Capacity Expansion Project" means a project, program, upgrade or improvement to acquire, improve, expand or construct incremental capacity increases in the Plant Facilities required to provide Utility Service within Poinciana and planned, designed and constructed by API pursuant to the provisions of this Capacity Expansion Agreement.

"GUA Capacity Requirement" shall mean the additional capacity to be included in any Initial Future or Future Capacity Expansion Project required by the GUA, within its discretion, to serve Non-API Property as provided in Section 5(B).

"Initial Future Capacity Expansion Projects" shall mean the following wastewater capacity and disposal projects to be acquired and constructed by API pursuant to the provisions of this Capacity Expansion Agreement:

(A) A 0.5 million gallons per day capacity expansion of wastewater treatment plant 3 located in Section 24, Township 27 South, Range 28 East in Polk County, Florida, scheduled to be completed and placed in service in calendar year 2002.

(B) A 1.0 million gallons per day capacity expansion, constructed in one or two increments, of wastewater treatment plant 2 located in Section 10, Township 27 South, Range 28 East in Osceola County, Florida, scheduled to be completed and placed in service in calendar year 2003.

"Local Distribution and Collection Facilities" shall mean, by way of example and not limitation, water, wastewater and reuse distribution mains, collection mains, force mains, lift or pump stations and service lines required to provide Water, Wastewater and Reuse Service to an individual development or subdivision within the Poinciana System and which primarily serve such individual development or subdivision. The term Local Distribution and Collection Facilities shall not include Plant Facilities.

"MGD" is an abbreviation for the term "million gallons per day."

"Non-API Property" shall mean lots, parcels an other lands in Poinciana that are not owned by API.

"Operating Policies and Procedures" shall mean such policies and procedures, as may be adopted by the GUA, from time to time, to govern the provision of Water, Wastewater and Reuse Water Service to properties within the Poinciana System, which policies and procedures shall be subordinate to the provisions of this Capacity Expansion Agreement and the Asset Acquisition Agreement in the event of a conflict between the terms of the Operating Policies and Procedures and this Capacity Expansion Agreement and the Asset Acquisition Agreement, unless previously agreed to in writing by API.

"Operations Agreement" shall mean the Poinciana System Utility Operations, Billing and Customer Service Agreement, dated as of April 1, 1999, between the GUA and Avatar Utility Services, Inc.

"Permit Criteria Manual" shall mean the construction, engineering and technical standards and guidelines for the construction, acquisition and design of improvements and additions to the Utility Facilities as provided in the Permit Criteria Manual referenced in Exhibit B, as amended from time to time with the mutual agreement of the GUA and API, and which shall be incorporated herein by reference.

"Plant Facilities" shall mean, by way of example and not limitation, water supply wells, water and wastewater treatment plants and expansions thereto, major pumping facilities, water, wastewater and reuse water transmission and trunk mains, and production, treatment and disposal facilities which provide water supply, water and wastewater treatment, distribution and

transmission of water, wastewater and reuse water to the Poinciana System. The term Plant Facilities shall not include Local Distribution and Collection Facilities.

"Poinciana" means the subdivision known as Poinciana New Township located in Osceola County and Polk County, Florida.

"Poinciana System" shall mean Utility Facilities located in Polk County and Osceola County, Florida.

"Point of Delivery" shall mean the point at the end of the Service Line opposite the main at or near the customer's property line within the public right-of-way or an easement. Unless otherwise indicated, the Point of Delivery for Domestic Wastewater service shall be at the upstream connection of the cleanout. In the absence of a cleanout, the Point of Delivery shall be at the wastewater lateral connection to the wastewater main unless circumstances dictate otherwise.

"Potable Water" shall mean water which meets all applicable federal, State and local laws, regulations and standards regarding domestic water quality and which is intended for human consumption, as such term is defined in Rule 62-550, Florida Administrative Code, as it may be amended from time to time.

"Reuse Water" shall mean treated Domestic Wastewater, which is intended for "reuse," as such term is defined by Rule 62-610.200(49), Florida Administrative Code, as it may be amended from time to time.

"Reuse Water Service" shall mean Reuse Water transmission service to be provided by the GUA.

"Service Line" shall mean the pipe between the GUA's water main and the water meter.

"State" shall mean the State of Florida.

"Term" shall mean 15 years from the Commencement Date or the completion of the API Development Plan as documented in an Annual Report, whichever event occurs first.

"Utility Facilities" means all of the property and rights, both tangible and intangible, that the GUA owns or uses or subsequently acquires or uses in conjunction with the operation and maintenance of the Poinciana System, including by way of example and not limitation, the following:

(A) All real property and interests, whether recorded in the public records or not.

(B) All water and wastewater facilities, including reuse and reclaimed water, treatment plants, wells, collection, transmission, distribution, pumping, effluent and disposal facilities of every kind and description, including by way of example and not limitation, all trade fixtures, leasehold improvements, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities and property installations used in the operation of the Poinciana System.

(C) All equipment, tools, laboratory equipment, and other personal property owned or used by the GUA in connection with the operation of the Poinciana System.

(D) All easements in favor of the GUA or its predecessors in interest.

(E) All customer records and supplier lists, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer models and

studies, accounting, budget and business records and all other information controlled by or in the possession of the GUA that relates to the description and operation of the Poinciana System.

(F) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, use and maintain the Poinciana System.

"Utility Service" means Water, Wastewater and Reuse Service, as a combined or individual service, requested by API Property or Non-API Property or required by the GUA under its Operating Policies and Procedures.

"Utility Standards" shall mean the Permit Criteria Manual and such other construction, engineering and technical standards and guidelines for the design and construction, acquisition and installation of the Utility Facilities agreed to in writing between API and the GUA subsequent to the Commencement Date.

"Water, Wastewater and Reuse Water Service" shall mean the potable water production, treatment and supply service; wastewater treatment, transmission and disposal service; and reuse water transmission and distribution service, provided within the Poinciana System.

SECTION 2. AGREEMENT TO PROVIDE SERVICE.

(A) Except for Reuse Water, which shall be provided to API Property as set forth in Section 19 of the Capacity Expansion Agreement, the GUA shall sell and deliver Utility Service to API Property and, after connection to the Poinciana System, the GUA shall sell and deliver to the utility customers located within the API Property which customer shall pay for such Utility

Services at the rates and charges adopted by the GUA from time to time, in a manner consistent with the terms and conditions of this Capacity Expansion Agreement.

(B) The GUA acknowledges that the API's timely and orderly development of the API Property requires that adequate supplies of Potable Water, Reuse Water and Domestic Wastewater treatment and disposal capacity be available to API in accordance with the projected demands set forth specifically in each Annual Report. The parties acknowledge that adequate lead time substantially in advance of anticipated demand is required for suitable planning, financing, engineering, permitting and construction of the Plant Facilities to meet such demands in a timely fashion. The parties shall consult and cooperate with each other with the aim of determining the appropriate times when both existing flow demands and committed capacities are such so as to require the initiation of planning, financing, engineering, permitting and construction activities.

SECTION 3. RESPONSIBILITY TO PROVIDE API FACILITIES; DEVELOPMENT OF THE API PROPERTY.

(A) API shall have the responsibility for the planning, design, construction and installation of all API Facilities and all Initial Future and Future Capacity Expansion Projects for which API seeks to secure an API Guaranty Capacity. All API Facilities and Initial Future or Future Capacity Expansion Projects shall be planned, designed and constructed in compliance with applicable DEP rules and regulations and the Utility Standards. API may engage Avatar Utilities Services, Inc. ("AUSI"), an API affiliated company, together with any other API

affiliated company to perform services in connection with meeting API's obligations under this Capacity Agreement without the approval of the GUA.

(B) Notwithstanding the obligation to plan, construct and install all API Facilities as provided in subsection (A) of this Section 3, API's obligation to plan, construct and install Deferred Extensions shall be governed solely by written agreement directly between API and the buyer of lots and parcels directly from API, and nothing in this Capacity Expansion Agreement shall, in any manner, further obligate API with respect to Deferred Extensions nor obligate the GUA with respect to Deferred Extensions.

(C) To assist in planning for the expansion and financing of the Utility System to provide Water, Wastewater or Reuse Water Service as required in this Capacity Expansion Agreement, API has provided to the GUA the initial Annual Report setting forth the anticipated five year (by Fiscal Year) flows and capacity required to service the API Property, attached hereto as Exhibit A, which also incorporates the initial API Development Plan.

(D) Prior to April 1, 2000, and the 1st of April of each year during the Term, API shall supply the GUA with an updated Annual Report setting forth the API Development Plan for the next year of projected development within the API Property, the anticipated flows and capacity that will be required to serve the API Property during the remainder of the Term and the proposed specific Future Capacity Expansion Projects required to accommodate the API Development Plan and the anticipated required flows and capacity within the ensuing Fiscal Year commencing October 1st. If required by changes or updates contained in any Annual Report or a

consequence of changes in the API Development Plan, API shall supply the GUA with a revised and updated long term forecast consistent with the revised and updated Annual Report.

(E) Notwithstanding existing or future commitments to other customers, but subject to the provisions of this Capacity Expansion Agreement, the GUA and API shall be responsible to use all reasonable efforts to provide adequate water supply, treatment plant, master transmission, collection system and disposal facilities as contemplated in the Annual Reports so that the orderly and planned development of the API Property, in the time frames set forth in the Annual Reports, may continue without delay, hindrance or interruption as a result of any extended lack of adequate Water, Wastewater and Reuse Water Service.

(F) At API's request, the GUA shall timely certify to API whether or not the Plant Facilities that serve the API Property have sufficient capacity to provide Water, Wastewater and Reuse Water Service to the API Property in accordance with the current Annual Report.

SECTION 4. CURRENT EXPANSION PROJECTS.

(A) API shall complete the Current Expansion Projects at its expense, with an anticipated target completion date by the end of calendar year 1999.

(B) After the completion of construction, API shall furnish to the GUA one (1) set of Mylar "record" drawings and all appropriate manuals for the operation of any facilities and equipment installed by API in the Current Expansion Projects, and any warranties on the installed equipment as more particularly required in Section 7.

(C) API shall give the GUA notice that API is connecting the Current Expansion Projects to the Utility Facilities not less than seven (7) days prior to their conveyance to the GUA

and API shall convey all Utility Facilities comprising the Current Expansion Project and the required easements and real property to the GUA by bills of sale, recordable non-exclusive easements and other instruments reasonably required and acceptable to the GUA as more particularly required in Section 7.

(D) After API has satisfied the requirements of Subsections (A), (B) and (C) of this Section, upon the conveyance of the Utility Facilities comprising each Current Expansion Project to, and acceptance of same by the GUA, API shall be entitled to the following API Guaranty Capacity with the rights and privileges provided in Section 8:

(1) for the wastewater plant 5 expansion project, 2,160 ERCs;

(2) for the wastewater plant 1 expansion project, 600 ERCs; and

(3) for the water plants 2 and 3 expansion project, 2,533 ERCs. __

(E) To the extent the capacity provided in the Current Expansion Projects is used to provide utility service to Non-API Property, the subsequent specific water or wastewater Future Capacity Expansion Project shall include, at no cost to the API, a restoration of such water or wastewater capacity as a consequence of the prior provision of utility service to Non-API Property from the capacity provided in the Current Expansion Projects. Notwithstanding the above, none of the capacity provided in the Current Expansion Projects shall be used by the GUA to provide Utility Service to customers located outside the service area of the Poinciana System as described in the tariff of the Poinciana Utilities, Inc. on the Commencement Date. In the event API provides the construction of such Future Capacity Project, API shall be compensated by the GUA for the cost of the restoration of such water or wastewater capacity in

the manner provided in Section 8(E) for the acquisition, construction and provision of a GUA Capacity Requirement. In such event, API shall not be entitled to any relief from the payment of uniform and non-discriminatory fees or charges for those ERCs attributable to the water or wastewater capacity restored in such specific Future Capacity Expansion Project notwithstanding the provisions of subsections (A) and (F) of Section 8 nor shall the amount of the ERCs to which API is otherwise entitled be reduced by the use of the GUA of a portion of the API Guaranty Capacity to serve Non-API Property.

SECTION 5. INITIAL FUTURE CAPACITY EXPANSION PROJECTS AND FUTURE CAPACITY EXPANSION PROJECTS.

(A) API shall identify and propose in each Annual Report the specific Future Capacity Expansion Projects and the required project construction commencement date for each project in the ensuing Fiscal Year commencing October 1st or otherwise during the Term. The parties shall jointly consider the most recent Annual Report including the most recent API Development Plan and other relevant information in finalizing the size, scope, configuration, location and timing of any proposed Future Capacity Expansion Project.

(B) That percentage of the capacity to be provided in a proposed specific Future Capacity Expansion Project contained in an Annual Report that is required to provide Utility Service to the API Property in implementation of the API Development Plan incorporated into each Annual Report shall be identified as API Guaranty Capacity. The GUA in its sole discretion shall have the right, at no cost to API, to upsize, expand or reconfigure any proposed

specific Future Capacity Expansion Project to additionally provide the GUA Capacity Requirement necessary to serve Non-API Property within Poinciana.

(C) Unless otherwise agreed to by the parties, the API Guaranty Capacity shall be established by a determination of capacity of the Plant Facilities expressed in Equivalent Residential Connections for each Initial Future or Future Capacity Expansion Project.

(D) API shall coordinate in advance with the GUA in all matters relating to the preliminary design, location, permitting and final design and estimated Construction Costs prior to commencing construction on any Future Capacity Expansion Project as provided in Section 6.

(E) API shall design and construct the Initial Future Expansion Projects in the same manner and subject to the same conditions as provided in this Capacity Expansion Agreement for Future Capacity Expansion Projects. The API Guaranty Capacity and the GUA Capacity Requirement for each Initial Future Capacity Expansion Project shall be agreed to by the parties prior to the commencement of the construction of the Project.

(F) API shall timely complete the construction of each Initial Future and Future Capacity Expansion Project and shall be reimbursed as provided in Section 8.

(G) The GUA may plan, design, permit and construct any Plant Facilities or Local Distribution and Collection Facilities that it chooses at no cost to API; provided such activity is done upon advance notification and good faith consultation with API, and such activity is reasonably consistent with and does not unreasonably interfere with the most recent API Development Plan and further provided that the reservation of this right does not release API of

its responsibility to plan and install all API Facilities as provided in Section 3(A) or to timely complete each Initial Future and Future Capacity Expansion Project as provided in this Section 5.

(H) The GUA and API may collaborate and enter into one or more agreements to provide for planning, designing, permitting or constructing any Plant Facilities or Local Distribution and Collection Facilities, whether or not such activity benefits API Property.

SECTION 6. DESIGN, CONSTRUCTION AND CONVEYANCE OF INITIAL FUTURE AND FUTURE CAPACITY EXPANSION PROJECTS AND API FACILITIES.

(A) API shall, at its sole cost and expense, submit in writing to the GUA, for its review for consistency with the Utility Standards and approval prior to the commencement of construction, all drawings, plans and specifications required for the construction of any Initial Future and Future Capacity Expansion Project and API Facilities, and such approval shall not be unreasonably withheld. The GUA shall review such drawings, plans and specifications and provide API with a list of changes and deficiencies within 30 days of submittal. Any items not set forth on the list shall be deemed approved by the GUA. Failure of the GUA to provide API a list of changes and deficiencies identified to such drawings, plans and specifications within such 30 day period shall be deemed approval by the GUA of the drawings, plans and specifications submitted by API. Upon the receipt by the GUA of revised drawings, plans and specifications by API to correct the list of changes and deficiencies, the GUA shall have ten days to review and approve such revised drawings, plans and specifications and provide API with a list of changes and deficiencies. Failure of the GUA to provide API a list of changes and deficiencies identified

to the revised drawings, plans and specifications within such 10 day period shall be deemed approval by the GUA of the drawings, plans and specifications submitted by API. All such Initial Future and Future Capacity Expansion Projects and API Facilities shall be designed, permitted, constructed and installed in accordance with all applicable federal, State, and local laws and regulations, and the Utility Standards.

(B) As the API Property will be developed in phases, API may initially submit plans and specifications for the API Facilities for the first phase of development. API shall submit plans and specifications for the API Facilities for subsequent phases, prior to the commencement of the construction of each subsequent phase; provided, however, that each such phase shall conform to the API Development Plan. Upon prior written notice to the GUA, API may at any time modify the API Development Plan.

(C) API shall coordinate in advance with the GUA on all matters relating to preliminary or final design prior to commencing construction on any Initial Future and Future Capacity Expansion Project. API shall submit to and receive approval from the GUA for the Contractor's final bid price for the Construction Costs for each Initial Future and Future Capacity Expansion Project. The GUA shall review such bid price and provide API with a list of changes and deficiencies within 30 days of submittal. Any items not set forth on the list shall be deemed approved by the GUA. Failure of the GUA to provide API a list of changes and deficiencies within such 30 day period shall be deemed approval by the GUA of the bid price. Upon the receipt by the GUA of a revised bid price from API, the GUA shall have ten days to review and approve such revised bid price. Failure of the GUA to provide API a list of changes and

deficiencies within such 10 day period shall be deemed approval by the GUA. API shall make corrections and modifications to any portion of the design, plans and specifications which the GUA and API agree are prudent and shall resubmit the corrected or modified design, plans and specifications to the GUA for approval, which approval shall not unreasonably be withheld or delayed. Any change order or modification to the Contractor's final bid price for the Construction Costs related to the GUA Capacity Requirement shall be subject to the approval of the GUA within the time frame submitted by API. If the GUA does not approve the change order or modification within the time frame submitted by API, then API can implement the change order or modification and the economic consequences of API implementing the change order or modification shall be submitted to the dispute resolution process set forth in Section 18. API shall have a continuing good faith obligation to reasonably minimize Construction Costs of each Initial Future and Future Capacity Expansion Project.

(D) API shall obtain all necessary federal, State and local permits or approvals required for the construction of each Initial Future and Future Capacity Expansion Project or API Facility pursuant to this Capacity Expansion Agreement. If required by the issuing authority or if necessary for API to expedite permit processing, API may make any such applications jointly or with the written consent of the GUA, in the name of the GUA, thereupon the GUA shall execute any and all documents reasonably required in order to seek any such approvals or permits. In the event of a submittal of an application by API to a permitting authority for a permit for the construction of the API Facilities or an Initial Future and Future Capacity Expansion Project, API shall promptly deliver to the GUA a copy of the application, the design

drawings and a certificate from API's engineer of record as evidence of API's compliance with the design requirements for the connection of each Initial Future and Future Capacity Expansion Project or API Facility to the Poinciana System. API shall provide the GUA with copies of all written permits and approvals received by API.

(E) After the GUA or API has received all required federal, State and local permits and approvals, API shall, at its own cost and expense, construct and install each Initial Future and Future Capacity Expansion Project and API Facilities as depicted in the approved plans and specifications. API will require its Contractors to warrant to the GUA that all Initial Future and Future Capacity Expansion Projects and API Facilities to be constructed by API pursuant to this Capacity Expansion Agreement shall be constructed in accordance with the approved plans and specifications, and also in accordance with all other applicable federal, State and local laws. Upon completion and before acceptance by the GUA, API shall provide such Contractor warranty to the GUA.

(F) During the construction of each Current Expansion Project, Initial Future and Future Capacity Expansion Project and API Facility, the GUA shall have the right, but not the duty, to inspect such installations to determine compliance with the plans and specifications, permits and approvals for said facilities and projects. In the event the GUA undertakes inspection thereof, API shall not be required to pay inspection fees. The GUA shall have the right to include in the Construction Costs for the GUA Capacity Requirement in any Initial Future and Future Capacity Expansion Project the cost of inspection by the GUA.

(G) API shall not be required to pay review fees set by the GUA for development

review of the Initial Future Capacity Expansion Project, any Future Capacity Expansion Project and the API Facilities.

SECTION 7. CONVEYANCE AND ACCEPTANCE OF FACILITIES AND EASEMENTS.

(A) Upon completion of construction by API of any Utility Facilities, API shall furnish to the GUA one (1) set of Mylar "record" drawings accurately showing the facilities as finally constructed and other appropriate details as certified by the engineer of record. In addition, API shall provide the GUA with three (3) sets of all appropriate manuals for the operation of any pumping facilities, treatment plants and other mechanical and electrical equipment installed by API and any warranties on the equipment, as applicable. In addition, API shall provide to the GUA with a schedule of the verifiable and actual Construction Costs of the facilities constructed or installed by API.

(B) API shall give the GUA advance notice of API's desire to make connection to the Poinciana System of not less than seven (7) days; provided however that no connection shall be permitted prior to conveyance of the Utility Facilities to the GUA as provided in this Section 7.

(C) API shall convey the API Facilities and required easements and real property to the GUA by bill of sale, recordable nonexclusive easements and other instruments reasonably required and acceptable to the GUA.

(D) Upon the conveyance to the GUA of any of the Plant Facilities or API Facility, the conveyed facilities shall become part of the Poinciana System, and API shall surrender control of said facilities and execute and deliver to the GUA any documents or instruments

reasonably necessary for that purpose, or as specified in the Utility Standards. If API should fail or refuse to do so, then the GUA shall, in addition to any other remedies set forth herein or which are available, as a matter of law, be entitled to specifically enforce the provisions of this Capacity Expansion Agreement against API.

SECTION 8. COMPENSATION TO API FOR ACQUISITION AND CONSTRUCTION OF INITIAL FUTURE AND FUTURE CAPACITY EXPANSION PROJECTS.

(A) After API has completed the acquisition, construction, or provision of Plant Facilities included in any Initial Future or Future Capacity Expansion Project, API shall be entitled to the API Guaranty Capacity within the Poinciana System without the payment of plant or line connection fees, capacity fees, impact fees, assessments or special assessments, readiness-to-serve charges, application fees or guaranteed or accrued guaranteed revenues fees or any such like fees now or hereafter enacted or associated with the provision or construction of capacity, the holding of capacity or the expansion of capacity. Provided however, nothing in this subsection (A) of this Section 8 shall be considered or interpreted to relieve a customer from the obligation to pay a uniform and nondiscriminatory fee for the cost of the Customer Installation. The number of Equivalent Residential Connections represented by the API Guaranty Capacity constructed by API at its expense computed in the manner set forth below:

(1) On the Commencement Date an ERC for wastewater shall be 250 gallons per day calculated based on the annual average daily flow within the Poinciana system for the past 36 months.

(2) On the Commencement Date an ERC for water shall be 525 gallons per day calculated based on the maximum daily flow within the Poinciana System for the past 36 months.

(3) Each dwelling unit within an API Active Adult Community shall be considered eight tenths (8/10) of a water or wastewater ERC.

(B) The ERCs calculation assumptions assumed in subsection (A) of this Section 8 shall be adjusted as follows:

(1) The annual average daily flow per ERC for wastewater shall be recalculated five (5) years from the date of this Capacity Expansion Agreement using the annual average daily flow during the most recent three (3) year period per single-family residential customer exclusive of an API Active Adult Community. The flows from an API Active Adult Community shall be master metered and the average annual daily flow per single-family residential customer in an API Active Adult Community shall be determined by dividing the annual average daily flow attributable to individual residential customers by the average number of individual residential customers. For purposes of said recalculations, the flow attributable to non-residential customers shall be reasonably estimated based on water usage records by assuming wastewater use is equal to water use in the absence of a specific sewer meter. All recalculations of annual average daily flows per ERC shall be rounded to the nearest ten (10) gallons per customer per day.

(2) The maximum daily flow per ERC for water shall be recalculated five (5) years from the date of this Capacity Expansion agreement using the second highest flow during any calendar day per single-family residential customer for each of the three preceding years

exclusive of the flow from an API Active Adult Community. For purposes of said recalculation, the flow attributable to non-single family residential customers shall be reasonably estimated based on water usage records. For purposes of determining the total second highest flow from all water treatment plants during any 24-hour period, water treatment plants which are interconnected shall be considered a single plant. The average usage per single-family residential customer shall also be determined, exclusive of those customers located within an API Active Adult Community and the ratio of maximum day usage to average day usage shall be determined "Maximum/Average Ratio." The flows from an API Active Adult Community shall be based on average annual monthly flows per individual residential unit based on water meter readings. The maximum day usage for an API Active Adult Community customers who do not have reclaimed water available shall be determined by multiplying the average maximum monthly day usage by the Maximum/Average Ratio. The maximum day usage for API Active Adult Community customers who have reclaimed water available shall be determined by multiplying the maximum month usage by 1.1. The recalculated number of ERCs per single-family residential customer located within an API Active Adult Community shall be the maximum day usage for customers located within an API Active Adult Community as determined above. All recalculations of flows per ERC shall be rounded up to the nearest ten (10) gallons per customer per day.

(C) The ERC adjustments provided in subsection (B) shall be prospective only and thus shall apply only to any unused or future API Guaranty Capacity.

(D) To assign available ERCs for the API Guaranty Capacity, API shall provide a written notice in a form specified by the GUA identifying an assignment of a stated number of ERCs for the API Guaranty Capacity. API shall designate in writing the names of those persons authorized to provide notice to the GUA of an assignment of ERCs for an API Capacity Guaranty.

(E) API shall be compensated for the acquisition, construction, and provision of the GUA Capacity Requirement within any Initial Future or Future Capacity Expansion Project by the payment by the GUA of that percentage of the final Construction Cost of such Plant Facilities that the GUA Capacity Requirement represents of the total capacity acquired, constructed or provided by the API at its expense. Such payments by the GUA shall be made to API in accordance with the draw schedules established for each Initial Future or Future Capacity Expansion Project, to be made concurrent with Construction Cost payments by API to its Contractors.

(F) Nothing contained herein shall be construed or interpreted to exempt utility customers located within the API Property from the duty and obligation to pay all uniform fees and charges, including Customer Installation Fees, imposed by the GUA for Utility Services, to acquire and construct Utility Facilities or to provide a recurring revenue source in substitution for the line maintenance charges authorized in the rate tariff approved by the Florida Public Service Commission in existence on the Commencement Date or to exempt API Property from the duty or obligation to pay special assessments imposed by the GUA on benefited property to provide Local Distribution and Collection Facilities required to serve Non-API Property where: API

Property receives a special benefit from the acquisition or construction of such Local Distribution and Collection Facilities; at least 30% of the assessable parcels within the assessment area contains improved structures capable of occupancy or use based upon their intended use; and the number of assessable parcels of API Property within the assessment area is less than 50% of the total number of assessable parcels. Provided, however, no plant or line connection fees, capacity fees, impact fees, assessments or special assessments, readiness-to-serve charges, application fees or guaranteed or accrued guaranteed revenues fees or any such like fees now or hereafter enacted or associated with the provision or construction of capacity, the holding of capacity or the expansion of capacity shall be imposed by the GUA against API, the API Property or customers located within the API Property connecting to the Poinciana System to the extent of any outstanding API Guaranty Capacity.

SECTION 9. FINANCING OF FUTURE CAPACITY EXPANSION PROJECT BY SPECIAL ASSESSMENT. Subject to the mutual consent of the parties, Plant Facilities may be funded by special assessments imposed on the benefited property as an alternative to the design, permitting and construction of such Future Capacity Expansion Project by the API as provided in Section 5. In such event, the Construction Costs of said Future Capacity Expansion Project shall be paid to the GUA from the proceeds of bonds payable from such special assessments or other available Poinciana System revenues.

SECTION 10. EASEMENTS.

(A) Upon request by the GUA, API shall execute, or cause to be executed in favor of the GUA, specific nonexclusive easements to the GUA, but only to the extent needed for each

Initial Future and Future Capacity Expansion Project or API Facility, which do not unreasonably interfere with the then existing or proposed use of the API Property. Each grant or dedication, together with appropriate subordinations from any lien holder, shall be in a form acceptable to the GUA and shall be provided without cost to or reimbursement by the GUA. Each grant or dedication shall provide that the land underlying the easement or dedication shall not be subject to, nor subjected in the future to, other inconsistent uses.

(B) The foregoing grants shall include the necessary right of ingress and egress to any part of the API Property upon which the GUA will be constructing, owning, operating or maintaining the API Facilities or any Future Capacity Expansion Project. The foregoing grants shall be for such period of time as and to the fullest extent that the GUA or its successors or assigns shall reasonably require such rights, privileges or easements in the construction, ownership, maintenance, operation, and repair of said API Facilities. Any such easements and grants shall not unreasonably prevent API's use and utilization of the API Property, or portion thereof, pursuant to the API Development Plan.

(C) All easement grants shall be utilized only in accordance with the established and generally accepted practices of the water, wastewater and reuse water utility industry with respect to the installation, operation and maintenance of all such facilities in any of the easement areas to serve the Initial Future or Future Capacity Expansion Project or API Property and the property of others; and that API and its successors or assigns in granting any easement herein, or pursuant to the terms of this Future Capacity Expansion Agreement, shall have the right to grant rights, privileges and easements to other persons, firms or corporations to provide any utility or other

services, consistent with Water, Wastewater and Reuse Water Service, to the Initial Future or Future Capacity Expansion Project or API Property. API shall furnish to the GUA at least one (1) copy of any final plans or engineering drawings to show the location of any proposed easements for buried power cables and facilities (if applicable), television and telephone cables, and gas lines. In addition, the GUA agrees that the easements granted to the GUA may be used by other entities, for their intended purpose, upon prior written approval by the GUA, which approval shall not be unreasonably withheld, delayed or conditioned.

(D) The GUA shall have the right to clear and keep clear from all easements granted pursuant to this Capacity Expansion Agreement all trees, plants and shrubs, undergrowth, and other obstructions that may interfere with the normal operation or maintenance of the Utility Facilities placed thereon, and the grantor, including its successors and assigns of the underlying land, agrees not to plant or allow to be planted trees, plants or shrubs, build, construct or create any buildings or any other structures upon said easements that may interfere with the normal operation or maintenance of such Utility Facilities.

SECTION 11. ALLOCATION AND PROVISION OF CAPACITY.

(A) Subject to API's compliance with the terms and conditions of this Agreement, the GUA shall at all times have available capacity necessary for the use by API based on the API Guaranty Capacity attributable to Plant Facilities within each Initial Future or Future Capacity Expansion Project constructed by API hereunder.

(B) The GUA shall make available a written monthly accounting of unused API Guaranty Capacity. As API directs an assignment of the API Guaranty Capacity, the GUA shall

reduce the number of available ERCs for the API Guaranty Capacity. In providing the monthly accounting of unused ERCs for the API Guaranty Capacity, the GUA shall have the right to rely on the accuracy and completeness of the assignment form provided to the GUA pursuant to subsection (D) of Section 8. This procedure to reduce the number of unused ERCs for the API Guaranty Capacity shall continue until there are no remaining API Guaranty Capacity.

SECTION 12. PROVISION OF SERVICE.

(A) Upon the completion and conveyance of the API Facilities to the GUA and the physical connection of a given customer installation thereto, the GUA agrees to continuously provide the service afforded by said facilities to said customer installation in accordance with the terms and conditions of this Capacity Expansion Agreement, the Operating Policies and Procedures and applicable laws, rules and the regulations of any affected governmental agency.

(B) The GUA agrees to furnish Potable Water at a reasonable constant normal pressure in accordance with applicable public health requirements and the Operating Policies and Procedures.

(C) The GUA at all times, agrees to operate and maintain its collection and transmission facilities in an efficient manner and to take such action as may be necessary to provide the capacities required. Circumstances resulting in the temporary or partial failure to deliver Potable Water, Reuse Water or in the inability to handle Domestic Wastewater as required by this Capacity Expansion Agreement shall be remedied with all reasonable dispatch. In the event of an extended shortage of Potable Water, or if the supply of Potable Water or Reuse Water available to the GUA for distribution to its customers~~,~~ or ~~if~~ the ability of the GUA to

process Domestic Wastewater is otherwise diminished over an extended period of time, the provision of Water, Wastewater, and Reuse Water Service to the API Property shall be reduced or diminished in the ratio or proportion as service to other GUA's customers is reduced or diminished.

(D) API and the GUA acknowledge, however, that circumstances outside of the GUA's control may exist in the future that would render the GUA unable to perform its obligations to provide or allocate Water, Wastewater and Reuse Water Service with respect to the customers within the API Property. In the event that, and for so long as, such inability exists, the GUA shall be excused from performing its obligations hereunder, and such nonperformance shall not constitute a breach of this Capacity Expansion Agreement or subject the GUA to any liability therefor. Circumstances which constitute an excused inability to perform with respect to the API Property include, by way of example and not limitation, the failure or refusal of applicable governmental agencies to grant such permits as are necessary in order to provide API's required capacity or service, upon due and proper request of the GUA, the emergency failure of pressure or supply of water due to breaks in the main water supply line and/or sewage force main equipment, power failures, floods, fires and use of water to fight fires, Acts of God or of the public enemy or governmental authorities, wars, national emergencies, and other circumstances beyond the control of the GUA.

SECTION 13. CUSTOMER SERVICE INITIATION.

(A) All customers shall make written application to the GUA for the opening of an account for service with the GUA. At the time of making said application for service, the

applicant shall pay all service charges as set forth in the Operating Policies and Procedures of the GUA except as provided in Section 8. Said application for service shall occur at the time a building permit is requested.

(B) The customer shall be responsible, at its expense, for assuring that the Customer Installation conforms to the Utility Standards and the cost of installing the appropriate meter for Water and Reuse Water Service.

SECTION 14. INCORPORATION OF LAWS, RULES AND POLICIES.

This Capacity Expansion Agreement shall be read in conjunction with and be subject to all existing and future federal, State and local laws, rules and policies applicable to governmental water or wastewater utilities in Florida in any manner or form, and all existing and future rules, policies, and Operating Policies and Procedures of the GUA, provided however, the terms of this Capacity Expansion Agreement shall control in the event of any current or future conflicts with such laws, rules, policies and procedures, as such terms form an essential consideration of this Capacity Expansion Agreement and the Asset Acquisition Agreement.

SECTION 15. FORCE MAJEURE.

(A) API and the GUA shall not be liable or responsible to each other by reason of the failure or inability of one of the parties to take any action either it is required to take or to comply with the requirements imposed hereby, or any injury to or by those claiming by or through the parties hereto, which failure, inability or injury is caused directly or indirectly by force majeure as hereinafter set forth. The term "force majeure" as employed herein shall mean Acts of God, acts of governmental authorities (other than the GUA and the County), strikes, lockouts, or other

industrial disturbance; acts of public enemies, war, blockades, riots, acts of armed forces, militia, or public authority; epidemics; break down of or damage to machinery, pumps, or pipelines; landslides, earthquakes, sinkholes, fires, storms, floods, or washouts; arrests; governmental restraints of any nature (other than by the GUA and the County), whether federal, State, county, municipal or otherwise, civil or military; civil disturbances; explosions; failure or inability to obtain necessary materials, supplies, labor or permits or governmental approvals (other than as requested by the GUA and the County), whether resulting from or pursuant to existing or future rules, regulations, orders, laws or proclamations, whether federal, State, county, municipal or otherwise, civil or military; or by any other causes, whether or not of the same kind as enumerated herein, not within the sole control of the parties hereto, as the case may be, and which by exercise of due diligence the parties are unable to overcome.

(B) To the extent reasonably practicable, any party believing that its performance hereunder will be materially delayed by such an unexpected or uncontrollable event shall notify the other parties hereto in writing of such an event within 5 days after learning of its occurrence. Nothing contained herein shall be construed as requiring either party hereto to accede to any demands of, or to settle any litigation or other disputes with, labor or labor unions, suppliers or any other persons that such party considers unreasonable.

SECTION 16. DISCLAIMER OF THIRD PARTY BENEFICIARIES. This Capacity Expansion Agreement is solely for the benefit of and shall be binding upon the parties hereto and their respective permitted successors and assigns, and no right or cause of action shall accrue upon or by reason hereof, to or for the benefit of any third party not a party to this

Capacity Expansion Agreement or a permitted successor or assignee thereof.

SECTION 17. TERMINATION AND OTHER REMEDIES. The GUA shall have the right to refuse to provide or to terminate Water, Wastewater and Reuse Water service to API in the event that API fails to comply, after reasonable notice and sufficient opportunity to cure following final resolution of a dispute resolution process, with any material terms and conditions of this Future Capacity Expansion Agreement, provided, however, the GUA may not terminate API's rights under this Future Capacity Expansion Agreement for such material violations. The exercise of the GUA's refusal rights under this Section 17, shall not be made arbitrarily or capriciously and shall be subject to the notice and default provisions of this Capacity Expansion Agreement. Notwithstanding the above, the GUA may not refuse to provide or terminate Water, Wastewater and Reuse Water service to API with respect to any API Guaranty Capacity that has already been provided or placed into service.

SECTION 18. DISPUTE RESOLUTION.

(A) Notwithstanding any other provision in this Capacity Expansion Agreement, any dispute amongst the parties which arises from the Capacity Expansion Agreement shall be resolved by binding arbitration conducted in accordance with this Section 18. Either party may initiate the dispute resolution process by providing written notice to the other party.

(B) After transmittal and receipt of a written notice specifying the area or areas of disagreement or dispute the parties agree to meet at reasonable times and places, as mutually agreed upon, to discuss the issues.

(C) If discussions between the parties fail to resolve the dispute within 30 days of the

receipt by each party of the notice described in subsection (A) of this Section 18, a binding arbitration may then be initiated by either party by written notification to the other party of the existence of a dispute. Any and all issues related to the matter addressed by the written notice provided in subsection (A) of this Section 18 or any response by the other party shall be raised and resolved in a single proceeding.

(D) The arbitrators shall be appointed and act as follows:

(1) The GUA and API shall each appoint a person as arbitrator within 30 days of the date one of the parties has notified the other of the existence of a dispute.

(2) Each appointment shall be signified in writing to the counter party and the arbitrators so appointed, within 10 days of their acceptance of appointment, shall appoint a third arbitrator, who shall chair the panel. If the arbitrators appointed by the parties are unable to agree upon a third arbitrator, the same shall be appointed by the American Arbitration Association from its qualified panel of arbitrators. Each party shall have the right to veto up to two appointments proposed by the American Arbitration Association. If either the GUA or API fails to appoint an arbitrator within 40 days from the date one of the parties has notified the other of the existence of a dispute, then an arbitrator shall be appointed by the American Arbitration Association from its qualified panel of arbitrators as the appointment of the party failing to timely appoint and the two so appointed shall appoint a third arbitrator to chair the panel. The party on whose behalf an arbitrator is appointed shall have the right to veto up to two of the arbitrators appointed by the American Arbitration Association.

(3) Nothing in this Section 18 shall preclude the parties from mutually agreeing to a

single arbitrator to resolve the dispute.

(4) No arbitrator shall have a business or other pecuniary relationship with either party, except for payment of arbitrator's fees and expenses without the written consent of both parties.

(E) Each arbitrator shall be sworn to perform its duties with impartiality and fidelity. In rendering any decision, the arbitrators shall proceed to consider the Capacity Expansion Agreement, the dispute identified in the notice and any response and the actions taken and the documentation thereof, conduct, and relative position, knowledge, and the ability of the parties in relation to the dispute.

(F) The arbitration hearing shall convene not earlier than 60 days and not later than 180 days of the acceptance of appointment of all of the arbitrators chosen by the parties unless the GUA and API mutually agree to an earlier date. The arbitrators shall render a decision within 10 business days of the date on which the arbitration hearing concludes, and such decisions shall be in writing and in duplicate, one counterpart thereof to be delivered simultaneously to each of the parties. The decision shall contain findings of fact and conclusions of law and shall be final and binding upon the GUA and API.

(G) The arbitrators may at their discretion, and shall upon written request of API or the GUA, engage experts to provide peer review of any technical, engineering, or scientific issues introduced by the parties. The parties shall be entitled to discovery pursuant to the Florida Rules of Civil Procedure. All discovery requests by a party shall be enforced by the arbitrators. The arbitration hearing shall not proceed until all outstanding discovery requests have been

complied with by the parties or determined unauthorized by the arbitrators.

(H) The fees, charges and expenses of the arbitrators, any experts engaged by the arbitrators, the respective counsel engaged by the parties, and any witnesses called by the parties shall be paid as follows:

(1) If the arbitrators determine that the disputed issues raised or objected to by API are justified and appropriate, the GUA shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of API's counsel and any witnesses called by API.

(2) If the arbitrators determine that the disputed issues raised or objected to by the GUA are justified and appropriate, API shall pay or reimburse (a) the fees, charges and expenses of its own counsel and witnesses; (b) the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators; and (c) the fees, charges and expenses of the GUA's counsel and any witnesses called by the GUA.

(3) If the determination of the arbitrators does not fall within the parameters of (H)(1) or (H)(2) above, the arbitrators shall order each party to pay their own fees, charges and expenses and, in the sound discretion of the arbitrators, assess the fees, charges and expenses of the arbitrators and any experts engaged by the arbitrators between the parties with their discretion.

(I) The provisions of the Florida Arbitration Code, Chapter 682, Florida Statutes, and the Florida Evidence Code, Chapter 90, Florida Statutes, except to the extent inconsistent with the provisions of this Capacity Expansion Agreement, shall specifically be deemed to apply to

any arbitration proceeding conducted hereunder. Unless the venue is mutually agreed upon otherwise by the parties, the venue for any action commenced under this section shall be in either Osceola County or Polk County, Florida.

SECTION 19. REUSE WATER SERVICE.

(A) In accordance with applicable law and this Capacity Expansion Agreement, API shall make available to the GUA common areas, golf courses or easement areas throughout the API Property for the disposal by the GUA of Reuse Water. The application of Reuse Water in such areas shall be subject to all applicable laws and regulations, including, but not limited to, the applicable provisions of Rule 62, Florida Administrative Code, as it may be amended from time to time. Notwithstanding anything in the GUA's Operating Policies to the contrary, and in consideration of the lower cost of effluent disposal to the GUA which will result from the availability of the API Property for the land application of Reuse Water, the GUA shall provide to the API Property at no cost, fee or charge, such amounts of Reuse Water, on a monthly basis, equal to the amount of Domestic Wastewater generated by customers within the API Property. The GUA shall only deliver Reuse Water to the API Property for land application and other permitted uses. The GUA shall not discharge on the API Property any wastewater, fluids or other substances or material that contains any hazardous, inflammable, or toxic wastes or material as defined by applicable federal, State or local statutes, regulations, rules or ordinances and/or industrial constituents, in whole or in part, regardless of the concentrations (i.e., strengths) of said constituents. If requested by either party, the GUA and API shall enter into a written agreement for the provision of Reuse Water Service to such open space properties in the

Poinciana System upon terms, and conditions essentially as specified in this Section 19.

(B) API and its successors and assigns shall receive available Reuse Water Service to its Active Adult Communities, golf courses, common areas and for agricultural use (the "API Reuse Water Area") during the Term of this Capacity Agreement without the payment of the fees or charges established by the GUA for such Reuse Water Service in consideration of:

(1) The design, construction and permitting of the required Reuse Water lines to the API Reuse Water Areas and the dedication of the ownership of such lines to the GUA.

(2) The continued permitted use of the biosolids disposal site located on API Property on the approximately 175 acre parcel of land described as Office and Industrial Park No. 7, Poinciana New Township, in Plat Book 61, Page 4, Polk County, Florida at no cost to the GUA or its Contractor under its Operations and Maintenance Agreement for a period of five years from the Commencement Date for the disposal of wastewater treatment plant biosolids provided the GUA maintains the applicable DEP permits for said disposal and complies with its requirements. API does not guarantee the continued permitting of such disposal site, the sustainability of the site for the disposal of biosolids or the amount of biosolids that can be disposed on such site. Notwithstanding this consideration, API shall have the right to withdraw the use of such biosolid disposal site upon giving the GUA notice of at least 180 days prior to the withdrawal of such use. In the event API exercises such right of withdrawal, the extent of such authorized 15 year period of time within which API pays no charge for reclaimed water would be reduced in proportion to the reduction of the period that this disposal site remains available. (i.e., if the disposal site was available for only 3 years rather than 5 years, such 15 year period would be reduced to 12 years).

SECTION 20. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, to the parties at the following addresses:

To the GUA:

In the Care of General Manager
Government Services Group, Inc.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301

with a copy to:
Nabors, Giblin, & Nickerson, P.A.
315 South Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Robert L. Nabors, Esq.

To API

201 Alhambra Circle, 12th Floor
Coral Gables, Florida 33134
Attention: General Counsel

with a copy to:
Avatar Utility Services, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with a copy to:
Greenberg Traurig, P.A.
777 So. Flagler Drive, Suite 300 East
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan, Esq.

(B) Any written notice given to one person in subsection (A) of this section shall also be copied and provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or 5 days after the date mailed.

SECTION 21. FAILURE OF PERFORMANCE.

(A) A breach of this Capacity Expansion Agreement shall mean a material failure to comply with any of the provisions hereof. If any party breaches any obligation herein, then, upon receipt of written notice by the non-breaching party, the breaching party shall proceed diligently and in good faith to take all reasonable actions to cure such breach and shall continue to take all such actions until such breach is cured and thereafter notify the other party of the actual care of any such breach.

(B) Unless otherwise provide herein, the parties to this Capacity Expansion Agreement may proceed at law or in equity to enforce their rights.

SECTION 22. ASSIGNMENTS.

(A) This Capacity Expansion Agreement shall not run with or benefit any parcel of land. API shall have the power and authority to assign, in good faith, all of its rights, duties and obligations hereunder. No such assignment shall be effective unless and until API provides a notice of assignment to the GUA executed by API and any assignee. Such assignee shall also have the right to subsequently assign all of its rights, duties and obligations hereunder to another person or entity in a manner which conforms to the provisions of this Section.

(B) The obligations of this Capacity Expansion Agreement shall run and remain with

the ownership of the Poinciana System and shall not be severed therefrom. As such it shall be binding upon any assignee of or successor in interest to the GUA.

(C) This Capacity Expansion Agreement shall be binding upon and shall inure to the benefit of successors and assigns to the parties hereto

SECTION 23. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Capacity Expansion Agreement shall be governed by and construed in accordance with the laws of the State of Florida.

(B) The parties hereto expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State of Florida, whether state, local or federal, and further agree that venue shall lie in either Osceola County or Polk County, Florida.

(C) The rights, privileges, obligations and covenants of API and the GUA shall survive the completion of the work of API with respect to any phase and to the API Property as a whole.

SECTION 24. SEVERABILITY.

(A) If any part of this Capacity Expansion Agreement is found invalid or unenforceable by any court, such invalidity or unenforceability shall not affect the other part of this Capacity Expansion Agreement if the rights and obligations of the parties contained herein are not materially prejudiced and if the intentions of the parties can continue to be effected if the substance of the term or provision so reconstrued by the judicial authority has not been materially altered.

(B) In the event any term or provision of this Capacity Expansion Agreement is

determined by appropriate judicial authority to be illegal or otherwise invalid, such provision shall be given its nearest legal meaning or be construed as deleted as such authority determines, and the remainder of this Capacity Expansion Agreement shall be construed to be in full force and effect if the substance of the term or provision so reconstrued by the judicial authority has not been materially altered. Each party has participated fully in the negotiation and preparation of this Capacity Expansion Agreement with full benefit of counsel. Accordingly, this Capacity Expansion Agreement shall not be more strictly construed against either party.

SECTION 25. RECOVERY OF COSTS AND FEES. In the event any party is required to enforce this Capacity Expansion Agreement by court proceedings, then the prevailing party shall be entitled to recover from the other party all costs incurred, including reasonable attorneys' fees, whether prior, during or subsequent to such court proceedings or on appeal.

SECTION 26. TIME OF PERFORMANCE. Time periods specified in this Capacity Expansion Agreement shall expire at midnight on the date stated unless the parties agree in writing to a different date or time. Any time period provided for herein which ends on Saturday, Sunday or a legal holiday shall extend to 5:00 p.m. on the next business day.

SECTION 27. TERM. This Capacity Expansion Agreement shall begin on the Commencement Date and shall terminate upon the end of the Term. API's rights, benefits and privileges with respect to API Guaranty Capacity and the provisions of Section 23 (C) above shall survive termination or expiration of this Capacity Expansion Agreement.

SECTION 28. ENTIRE AGREEMENT. This Capacity Expansion Agreement contains the entire agreement between the parties hereto and shall not be modified or altered

except by another written agreement executed by the GUA and API, or their permitted successors in interest.

IN WITNESS WHEREOF, the parties have executed or have caused this Capacity Expansion Agreement with the named Exhibits attached to be duly executed the day and year first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

EXHIBIT

By: LeeAnn Thomas
Its: Chairman

Attest:

EXHIBIT

AVATAR PROPERTIES, INC.

EXHIBIT

By: Charles McCrary
Its: EXECUTIVE VICE PRESIDENT

Attest:

EXHIBIT

Secretary

EXHIBIT A

INITIAL ANNUAL REPORT

Growth Projections	
Year	**Additional ERCs**
1999	600
2000	1,050
2001	1,450
2002	1,525
2003	1,575
Total	6,200

Capacity Additions		
Water		
Year	**WTP**	**Additional Capacity (mgd)**
1999	2	0.500
	3	0.500
2001	1	0.360
2002	2	1.000
Wastewater		
Year	**WWTP**	**Additional Capacity (mgd)**
1999	1	0.150
	5	0.250
2000	2	0.500
2002	2	0.500
2003	3	0.500

API DEVELOPMENT BUILDOUT PROJECTION	
Year	**Water & Wastewater ERCs**
2018	38,094

EXHIBIT B

PERMIT MANUAL

FCWC/PUI SPECIFICATION LISTINGS

SPECIFICATION	SECTION	DATE	PAGES
Observation/Piezometer Wells	00200	01/96	11
Measurement and Payment	01152	01/96	1
FCWC General Construction Guide	01175	01/96	4
PUI General Construction Guide	01180	01/96	4
Project Meetings	01200	01/96	2
Demolition	02050	01/96	3
Site Clearing	02110	01/96	2
Excavating, Trenching and Backfilling for Water and Wastewater Utilities	02202	01/96	8
Rock Blasting	02205	01/96	2
Earthwork and Site Grading	02210	01/96	4
Steel Fence and Gates, Galvanized	02447	01/96	6
Steel Fence and Gates,PVC Coated	02449	01/96	5
Grass Seeding, Mulching and Sodding	02487	01/96	5
Asphalt Concrete Paving	02513	01/96	2
Concrete Walks and Paving	02529	01/96	3
Concrete Work	03010	01/96	5
Miscellaneous Metal	05504	01/96	2
Handrails and Railings	05520	01/96	2
Grating	05530	01/96	2
Crack Sealing/High Pressure Injection	07901	01/96	2
Painting and Coating	09900	01/96	25
100% Solids Epoxy Protective Coating for Manholes and Lift Stations	09950	04/97	6
Color Audio-Video Preconstruction Record	10101	01/96	3
Aboveground Double Wall Steel Tanks	11095	01/96	2
Electrical Work, General	16101	01/96	4
Alterations and Additions to Existing Work	16105	01/96	1
Raceway Systems	16120	01/96	2
Conduit, Rigid Steel	16121	01/96	1
Conduit, PVC	16126	01/96	2
600 V Cable, Wire and Connections	16132	01/96	2
Grounding-Secondary Voltage Systems	16136	01/96	3
Safety Switches	16156	01/96	1
Motors, General Service	16157	01/96	1
Motor Control Equpment	16158	01/96	4
Remote Pump Control Panel	16159	01/96	2
Wastewater Lift Station Control Panel	16160	05/97	5
Limit Switches	16164	01/96	1
Underground Electrical Work (600 Volts and Below)	16301	01/96	5
Water Supply Wells	17010	01/96	13

FCWC/PUI SPECIFICATION LISTINGS

SPECIFICATION	SECTION	DATE	PAGES
Potable Water Piping-General	17120	01/96	8
Piping Supports	17122	01/96	2
Ductile Iron Pipe and Fittings for Potable Water	17124	01/96	5
Polyvinyl Chloride (PVC) Pipe For Potable Water	17128	01/96	4
Water Service and Meter Boxes	17129	01/96	2
Polyvinyl Chloride (PVC) Pipe For Raw Potable Water Mains	17130	01/96	4
Polyvinyl Chloride (PVC) Pipe 2-inch and Smaller in Diameter	17132	01/96	1
Polyethylene Plastic Pipe	17133	01/96	1
Identification Tape For Buried Pipe	17161	01/96	2
Gate and Butterfly Valves and Appurtenances For Potable Water Service	17190	01/96	5
Check Valves	17194	01/96	2
Backflow Preventers	17196	01/96	3
Air and Vacuum Valve for Deep Well Turbine Pumps	17200	01/96	2
Fire Hydrants	17205	01/96	3
Piping Couplings	17233	01/96	1
Steel Casing Pipe	17310	01/96	3
Vertical Deep Shaft Turbine Well Pump Installation	17330	01/96	10
Submersible Turbine Well Pump Installation	17340	01/96	10
Wastewater Force Mains-General	17400	01/96	5
Gravity Wastewater Sewers-General	17402	01/96	3
Deformed - Pipe Lining Installation	17403	01/96	3
TV, Videotape and Inspection of Wastewater Collection Systems	17405	01/96	3
Smoke Testing for Wastewater Collection Systems	17406	01/96	3
Ductile Iron Pipe and Fittings For Wastewater	17407	01/96	5
Pressure (Chemical) Grouting Gravity Systems for Repair of Wastewater Collection Systems	17408	01/96	3
Ductile Iron Pipe and Fittings For Treated Wastewater Effluent Pipelines	17409	01/96	5
Polyvinyl Chloride (PVC) Pipe and Fittings for Wastewater Gravity Sewers	17410	01/96	4
Cleaning of Wastewater Collection Systems	17411	01/96	2
Cured in Place Sectional Pipe Lining	17412	01/96	4
Pressure Cleaning of Manholes and Pump Stations	17413	01/96	2
Polyvinyl Chloride (PVC) Pipe For Wastewater Force Mains	17414	01/96	4
Manholes	17418	01/96	4
Wastewater Pumping Station Valve Vault Concrete Structure	17419	01/96	2
Hydraulic Cement Patching and Waterproof Coating For Wet Wells and Manholes	17422	01/96	4
Fiberglass Wetwell Liner	17425	04/97	3

FCWC/PUI SPECIFICATION LISTINGS

SPECIFICATION	SECTION	DATE	PAGES
Fiberglass Manhole Liner	17427	01/96	5
Plug Valves For Wastewater Service	17431	05/97	4
Automatic Air Release Valves for Wastewater Force Mains	17440	01/96	2
Renovation of Existing SubmersibleType Wastewater Pumping Stations	17455	01/96	8
Instrumentation and Control-General	18600	01/96	1
Instruments and Controls	18601	01/96	3
Testing, Calibrating and Commissioning	18602	01/96	1

END

SECTION 00200
OBSERVATION/PIEZOMETER WELLS

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work described in this section encompasses all work required for the drilling, developing and completion of observation/piezometer wells constructed as shown on the attached drawings and as specified herein. The Contractor shall base his bid on data given hereafter.

1-02 SCOPE

A. The Contractor shall furnish all labor, equipment and material, and shall provide all operations required for the completion of the observation/piezometer wells. All labor, material, equipment and operations included in this section shall be in accordance with American Water Works Association (AWWA) Standards for Deep Wells (AWWA A100-66) latest revisions which the present specifications supplement or modify to fit the particular needs or conditions to be encountered in the proposed work.

1-03 PERMITS

A. Upon notice of award, the Contractor shall apply for construction permits required to drill the observation/piezometer wells from all appropriate agencies. No drilling operations shall commence until these permits have been obtained. The Contractor shall submit copies of the permits to the Engineer prior to commencement of drilling.

1-04 GENERAL

A. Preparation: Contractor shall provide suitable preparations at the site for the drainage and disposal of water, mud and drill cuttings. All plans shall be approved by the Owner or Owners representative before implementing. Contractor shall protect adjacent property from damage by water, mud and drill cuttings resulting from well drilling operations.

B. Well Location: Each observation/piezometer well shall be located as shown on the attached drawings. However, the Owner reserves the right to change the location of any well to another site with similar characteristics and conditions to those of the original site. Unit prices included in the Proposal Schedule will remain the same regardless of the new location.

C. Well Depth: The exact depth of each observation/piezometer well shall be as indicated in the Proposal Schedule and shall not go beyond the estimated depth unless mutually agreed upon by the Engineer and the Contractor, in which case adjustment will be made to the contract bid price based on the contracted unit prices submitted by the Contractor.

D. Drilling Method: The observation wells in unconsolidated formations shall be drilled by the hydraulic rotary drilling method using either standard or reverse circulation. Observation wells in consolidated formations shall be drilled by the air rotary drilling method.

E. Bore: Regardless of the method of drilling the bore hole shall be drilled large enough to receive the size of the casing and screen freely without bumping or driving. The bore hole shall be drilled straight and plumb without offsets and bends in alignment.

F. Well Development: Each well shall be developed using the horizontal high velocity jetting method or by any other method deemed appropriate by the Contractor to develop the wells to meet their intended use. The method of well development shall be approved by the Engineer prior to commencement of development operations.

1-05 EQUIPMENT AND PERSONNEL

A. The Contractor shall furnish capable personnel and equipment to construct the wells by rotary drilling with either standard or reverse circulation or by air rotary drilling. The Contractor's drilling rigs, tools, equipment, and personnel shall be subject to the Engineer's approval.

B. The Bidder shall submit with his bid, information on the equipment he plans to use in this project as follows:

1. Manufacturer's name, type, and model of each drilling rig, power engine, circulation pump and air compressor;

2. Manufacturer's name, type, model, discharge pressure and pumping capacity of the high pressure pump and power engine to be used for well development;

3. The outside diameter of the horizontal jetting tool to be used for well development, together with the number of nozzles per tool and the nozzle orifice size;

4. Manufacturer's name, type and model of test pump, including number of stages, impeller model, diameter, discharge pressure, pumping capacity and length of column and discharge piping together with manufacturer's name, type and model of gear drive and power engine.

C. The Bidder shall submit with the above information a statement indicating ownership of or lease agreement on this equipment and the location or locations of each one of them during the ten days following the bid opening. If requested by the Engineer or his representative, the Bidder shall facilitate the inspection by the Engineer or his representative of the equipment described, together with proof of ownership or lease agreement. Failure on the part of the Bidder to fulfill any of the above requirements shall be grounds to reject his bid.

D. The Contractor in addition to furnishing the services of skilled and experienced drillers in the type of formations to be encountered, shall also furnish an adequate number of competent helpers. The drillers shall be capable of keeping good and clean well logs and reports of the drilling, developing and test-pumping operations as instructed by the Engineer. They shall also be capable of recognizing and making lithologic classifications of the formations to be encountered during the work.

1-06 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall be responsible for performing all work required in the construction of the observation wells in strict accordance with these specifications. If evidence indicates that a well is not constructed in accordance with these specifications, the Contractor shall perform any work required, at his own expense. If the problem cannot be corrected the Contractor shall abandon such well and drill a new well without additional cost to the Owner.

1-07 SUBMITTALS

A. The Contractor shall submit six (6) sets of shop drawings, from the well screen manufacturer, to the Engineer for approval prior to shipment of the screen by the manufacturer. The well screen shop drawings shall indicate: the diameter, length and unit weight of the screen; the screen materials; the recommended slot size; the opening area/square foot of screen; the type and material of fittings; information regarding any recommended extra column strength or extra collapse strength required for the intended screen installation; and recommendations for the effective size and uniformity coefficient for filter gravel packing around the well screen.

B. The Contractor shall submit six (6) copies of mill certificates, from the well casing manufacturer, to the Engineer for approval prior to delivering casing to the job site. The certificates shall verify that the casing furnished under this contract complies with the requirements set forth in these specifications.

C. Following completion of well construction, the Contractor shall submit to the Engineer six (6) copies of a report for each well including drilling logs, test data and all other pertinent data and information.

1-08 PRODUCT HANDLING

A. The Contractor shall exercise care in transporting and handling well screens to prevent damage or deformation. The Contractor shall verify that the screen manufacturer has properly crated the screens prior to shipment from the factory in order to decrease the possibility of damage to the screens during shipment to the job site.

PART 2 - MATERIALS

2-01 GENERAL

A. All materials specified herein shall be new and free from objectionable defects. No used or old material will be accepted. However, if the Contractor deems it necessary or desirable to use temporary surface casing to facilitate the construction of each well, temporary casing may be used, subject to the approval of the Engineer.

2-02 WELL CASING

A. PVC

1. The well casing for each 4-inch observation piezometer well, shall be constructed of new and unused 4-inch nominal size, ASA Schedule 40, SDR 21, or stronger classification PVC pipe. All PVC casing used to construct the wells shall have been marked by the manufacturer, under a method specified by the National Sanitation Foundation as suitable for use in potable water systems. The PVC casing shall be joined by solvent-cemented PVC couplings. The PVC couplings and solvent cement shall conform to AWWA Standards for PVC Water Pressure Pipe (AWWA C900-75) latest revisions.

B. Black Steel Casing

1. Black steel well casing shall be new and unused Grade A, black steel pipe with welded or screwed couplings and shall conform to AWWA Standards for Mill-Type Water Pipe (AWWA C202-64 latest revision) as follows:

Nominal Size In.	Diameter In Inches External	Internal	Thickness Inches	Weight Foot
3	3.500	3.068	0.216	7.58
4	4.500	4.026	0.237	10.79
5	5.563	5.047	0.258	14.62
6	6.625	6.065	0.280	18.97
8	8.625	7.981	0.322	28.55
10	10.750	10.020	0.365	40.48
12	12.750	12.000	0.375	49.56
14	14.000	13.250	0.375	54.57
16	16.000	15.250	0.375	62.58
18	18.000	19.250	0.375	70.59
20	20.000	19.250	0.375	78.60
24	24.000	23.250	0.375	94.62

2. Casings shall be equal to those manufactured by Bethlehem Steel Company, 1170 8th Ave. Bethlehem Pa. 18016 (215) 694-2424, or Tubular Products Division of the U.S. Steel Group, 600 Grant St. Rm. 2001, Pittsburgh, Pa. 15219-2749 (412) 433-1121. Casings shall be

furnished with an approved rust-inhibitive coating, inside and outside, applied at the mill prior to shipment.

3. Whenever casing is to be driven, the bottom of the casing shall be protected with a seamless forged steel drive shoe manufactured by the Rampp Company, 111-T 3rd. St. Marietta, Ohio, 45750, (614) 373-7886, or an equal approved by the Engineer.

2-03 WELL SCREENS

A. 4-Inch and Smaller Observation/Piezometer Wells

1. The well screen and attached end fittings for each 4-inch and smaller observation/piezometer well shall be completely fabricated of PVC material. The screen shall have a solid plate bottom. The well screen shall be of the continuous slot, wire-wound design in order to provide maximum inlet area consistent with strength requirements. It shall be fabricated by circumferentially wrapping a triangularly shaped wire around a circular array of internal rods. The wire configuration must produce inlet slots with sharp outer edges, widening inwardly so as to minimize clogging. For maximum collapse strength each juncture between the horizontal wire and the vertical rods will be made by sonic welding. The well screen shall be manufactured by Johnson Screen Division of Wheelabrator Water Technologies, Inc., P.O. Box 64118, St. Paul, Minnesota, 55164, (800) 833-9473 or approved equal.

2. Each well screen shall have a nameplate indicating its diameter, length, width, type of screen material, and slot size. The PVC well screens shall be designed to have adequate strength to resist compressive and crushing loads after installation and to resist damage during installation. The screen slot size for 4-inch observation/piezometer wells shall be a number 10.

B. Greater Than 4 Inch Observation/Piezometer Wells

1. The well screen for each observation piezometer well greater than 4 inch shall be of the continuous slot, wire-wound design in order to provide maximum inlet area consistent with strength requirements. It shall be fabricated by circumferentially wrapping a triangularly shaped wire around a circular array of internal rods. The wire configuration must produce inlet slots with sharp outer edges widening inwardly so as to minimize clogging. For maximum collapse strength each juncture between the horizontal wire and the vertical rods will be fusion welded under water by the electrical resistance method. End fittings shall be welded to the screen body. The well screen shall be manufactured by Johnson Division, UOP, St. Paul, Minnesota, or an equal approved by the Engineer. The screen for each well shall have a nameplate indicating its diameter, length, weight, type of screen material, and slot size.

2. Well screens and attached end fittings shall be fabricated from a corrosion-resistant Type 304 stainless steel. End fittings provided with the screen will be selected on the basis of the well design parameters and the drilling method. The screens shall be designed to have adequate strength to resist damage during installation..

3. The screen slot size shall be determined in accordance with the effective size and uniformity coefficient of the material found in the natural water bearing formation and of the artificially introduced gravel pack material. The Contractor shall collect sufficient cutting samples for each well during drilling operations in the water bearing formation. The Contractor shall submit these samples together with a copy of the well drilling log for each well to the screen manufacturer. The slot size of the screen to be installed in each well shall be recommended by joint agreement of the Contractor and the screen manufacturer based on the analysis of the formation samples and on the recommended filter gravel material. The screen slot openings shall be designed to prevent clogging and to be free of jagged edges, irregularities and other defects.

2-04 FILTER GRAVEL FOR 6-INCH AND LARGER OBSERVATION/PIEZOMETER WELLS

A. Filter gravel to be used for the artificial gravel pack shall conform with AWWA Standards for Filtering Material (AWWA B100-72) latest revisions. However, the effective size and uniformity coefficient for the filter gravel shall be recommended, together with the slot size of the screen submitted to the Engineer by Contractor in accordance with the analysis of the natural formation samples and the test boring logs from the corresponding test well location.

PART 3 - EXECUTION

3-01 DRILLING LOG

A. The Contractor shall record all materials passed through during drilling and the depths at which the changes in formations occur, together with such other information as may be called for by the Engineer. The log of the well shall show all material penetrated and full descriptive notes made of everything found by the drill and of all difficulties or unusual conditions met in drilling. All water-bearing strata shall be described in special details as to whether the material is loose, compact, its color and, if gravel, whether it is water worn or angular. Resistivity and gamma ray logging will not be required for observation/piezometer wells unless specified on the Bid Form. If electronic logging is specified, the Contractor shall arrange for electronic logging of each water supply test prior to ordering the well screen. The electronic logging shall serve as a basis for determining screen ordering lengths and the depths at which the screens shall be set.

3-02 STATE REPORTS AND FORMATION SAMPLES

A. The Contractor shall submit a well completion report including a drilling log and a detailed "as built" drawing to the Owner and appropriate agencies. A well completion report shall be completed by the Contractor for each well constructed and shall be submitted to the Owner and appropriate agencies within thirty days after completion of the drilling operation. Blank well completion report shall be secured at the Contractor's expense from the FDEP.

B. During the drilling operations the Contractor shall collect cutting samples for each well beginning at the ground surface and at regular intervals thereafter, not exceeding five feet and at every change in formation. These samples shall be submitted by the Contractor together with the well log, the well completion report and other data as required to appropriate regulatory agencies. Samples shall be kept in containers which will be secured at the Contractor's expense. After being put in their containers, they shall be properly labeled and delivered by the Contractor to the appropriate regulatory agencies upon completion of each well.

3-03 WELDED JOINTS - WELDING FOR STEEL CASING

A. Welding in shop and field shall be done by operators who have been previously qualified in tests as prescribed in the American Welding Society Standard Qualification Procedure to perform the type of work required. Welding of well casing shall be done in accordance with AWWA Standards for Mill-Type Steel Water Pipe (AWWA C202, latest revision). Field welding of stainless steel well screens shall be done in accordance with recommendations of the screen manufacturer.

3-04 SOLVENT WELDING PVC JOINTS

A. PVC well casing shall be delivered to the site in unbroken bundles or rolls, packaged in such a manner as to provide adequate protection for the pipe ends. The PVC well casing shall be cut square with the assistance of a square-in sawing vise using a fine tooth saw or other cutter or knife designed for use with PVC pipe. Burrs at cut ends shall be removed prior to jointing by smoothing edges with a knife, file or sandpaper. All plastic to plastic joints shall be an NSF approved solvent-cement welded joints using a solvent recommended by the pipe manufacturer. The Contractor shall take care so as not to use an excess amount of solvent, thereby causing a burr or obstruction to form on the inside of the pipe. The solvent cemented joints shall be allowed to set for at least 24 hours before developing the well. The solvent-cement welded joints shall be made in the manner specified hereinbelow.

1. Thoroughly clean the mating pipe and coupling with a clean dry cloth.

2. Apply a uniform coat of solvent to the outside of the pipe with a non-synthetic bristle brush.

3. Apply solvent to the coupling in a similar manner.

4. Reapply a light coat of solvent to the pipe and quickly insert it into the coupling.

5. Give the pipe or the coupling a quarter turn to insure even distribution of the solvent and make sure the pipe is inserted to the full depth of the fitting socket.

6. Hold in position for 15 seconds.

7. Wipe off excess solvent that appears at the outer shoulder of the coupling.

8. Solvent-cement welded joints shall be given at least 15 minutes setup curing time before moving or handling. No pipe shall be joined when temperature is below 25° F or above 90° F, unless the method is specifically approved by the Engineer.

9. All plastic to metal joints shall be made with heavy-duty reinforced Schedule 80 PVC male adapters. When joining the metal pipe to the PVC adapter, a PVC thread sealant recommended by the PVC pipe manufacturer shall be used.

3-05 WELL CONSTRUCTION

A. GENERAL

1. The wells are to be of the type and characteristics described in "PART 1 - GENERAL" in this section of the specifications. Well construction shall be as shown on the attached generalized test well details and as specified hereinafter.

2. The cost of furnishing and installing, or installing and pulling out, any surface casing or pit casing which might be needed temporarily for the drilling operations of any well shall be included in the unit price for drilling and setting the permanent outer casing.

3. The well shall be constructed and all permanent casing set round, plumb, and true to line throughout and shall be within two degrees of plumb, in order to demonstrate that each well is plumb and aligned, it shall be tested in accordance with paragraph 3-07 "PLUMBNESS AND ALIGNMENT TEST," prior to acceptance.

4. The well casing shall be installed without excessive bumping or driving to prevent damage to welded joints or threaded couplings. The Contractor shall keep an accurate record, as assembled, of the order, number, size, and lengths of the individual pieces of casing installed in the well. Permanent casings in the water wells shall be paid at the unit price of the Contract. Casing length shall be measured from top of the permanent casing to its bottom.

5. The Contractor shall take all necessary precautions to reduce to a minimum the nuisances of well drilling. In all those cases where necessary or where requested by the Engineer, the Contractor will use mud tanks and all the necessary equipment to avoid the use of a mud pit. Location of Contractor's equipment and tools shall be such as to not interrupt access to any private property or to road traffic.

6. The casing interior shall be cleaned of all foreign matter before lowering into the well. Any section of casing found to be defective or damaged shall be replaced at the Contractor's expense with new acceptable casing. The Contractor shall handle PVC casing carefully to prevent gouging or scratching. Any length of PVC casing having a gouge, scratch, or other permanent indentation with a depth of more than 10 percent of the casing wall thickness shall be rejected and replaced at the Contractor's expense. The PVC well casing and screen shall

be installed without bumping or driving to prevent damage to the casing, solvent-cement welded joints and the screens.

B. 4-Inch and Smaller Observation Wells in Unconsolidated Formations

1. The 4-inch and smaller observation wells shall be constructed by drilling to the depth where the bottom of the screen is to be set. The bore hole shall have a diameter of at least four (4) inches greater than the outside diameter of the well casing and screen. Drilling fluid used to keep the hole open shall consist of only water and an organic drilling fluid additive such as Revert, X-6, Gen Gel or approved equal. No bentonite or clay shall be used.

2. No well screen shall be lowered into a well until the Engineer or his representative has verified that its dimensions and characteristics correspond with those approved for that particular well. Screens not meeting the approved conditions or showing any appreciable damage or deformation shall be rejected. Due precautions shall be taken during handling and lowering of the screens into the wells to prevent any damage or deformation. The screen shall have no change of alignment after installation. For the payment basis, the length of the screen shall be that indicated in the nameplate and checked by the Engineer.

3. The depth at which the screen is set shall be approved by the Engineer. The screen and casing shall then be lowered to the approved depth and set within plus or minus three (3) inches of that depth. The screen and casing shall be installed with suitable centering guides so as to insure that the screen and casing are perfectly concentric in the bore hole.

4. After the screen and casing assembly have been properly installed in the bore hole, clean builders sand shall be pumped in the annular space between the screen and casing, and the bore hole through a separate and temporary pipe. A complete and homogeneous sand layer shall then be built around the screen and casing, starting from the bottom of the well screen upward to a level of ten (10) feet above the top of the well screen. However, the upward level of the sand layer shall terminate below any water bearing formation above that in which the well screen is set. Prior to grouting, the Contractor shall preliminarily develop the well to ensure that the sand packing has consolidated and compacted to its maximum settlement to prevent voids occurring between the top of the sand pack and the cement grout.

5. The Contractor shall grout the annular space between the casing and the bore hole, from the top of the sand layer to the ground surface, with a neat cement grout. The grout shall be proportioned of cement and the minimum quantity of water (not over 6 gallons per cubic foot of cement) required to give a mixture of such consistency that it can be forced through grouting pipes. Bentonite or approved equal may be used up to three percent (3%) by volume to reduce shrinkage. Water used to make grout shall be fresh, clean and potable. The grout mixture, method of mixing and consistency of the grout shall be approved by the Engineer. The top of the casing to be grouted shall be left with not less than twelve (12) inches above the ground.

6. The grout shall be placed in such a manner that surface water and other impurities will be prevented from entering the well by infiltration along the bore and casing. Grouting of the casing shall be accomplished in the presence of the Engineer or his representative, in one continuous operation. The method of grouting shall be by pumping the grout under pressure from the top of the sand filling to the ground surface through a separate and temporary pipeline, completely filling the annular space between the bore hole and the casing. Spacers used to center the casing in the bore hole shall be clean and of a curable material. The grout shall be allowed to set for 72 hours before any work may be done which would disturb it or allow it to crack. If quick-setting cement is used, the setting period may be reduced to 24 hours. The Contractor shall take care to protect the grout from damage and insure proper curing during the setting period.

C. 6-Inch and Larger Observation Wells in Unconsolidated Formations

1. Artificially gravel packed wells to be constructed by rotary drilling shall be drilled to the depth where the outer permanent casing is to be seated with a hole of a diameter at least four (4) inches greater than the outside diameter of the casing. The hole shall be drilled to the required depth to receive casing and permit grouting. Outer casing shall then be lowered to the exact depth determined in the field, centered in the hole and held in place with sufficient spacers to maintain true alignment and then grouted with a neat cement grout. The grout shall be pumped under pressure from the bottom of the outside permanent casing to the ground surface through a separate and temporary pipeline, completely filling the annular space between the bore hole and the casing. The cement grout mixture and procedure for grouting shall be as specified above in Section 3-05B.

2. Drilling operations shall continue, after the 24 hour or longer waiting period required for setting up the cement grout, with rotary drilling to the depth determined to set the bottom of the screen. Diameter of this part of the hole shall be at least (6) inches greater than the outside diameter of the screen. Rotary drilling through the section where the screen is to be set, shall be done only with water and an organic drilling fluid additive such as Revert, X-6, Gen Gel, or approved equal. No bentonite or clay shall be used through that section.

3. No screen shall be lowered into a well until the Engineer or his representative has verified that its dimensions and characteristics correspond with those approved for that particular well. Screens not meeting the approved conditions or showing any appreciable damage or deformation shall be rejected. Due precautions shall be taken during handling and lowering of the screens into the wells to prevent any damage or deformation. The screen shall have no change of alignment after installation. Payment for the screen shall be for the length indicated on the nameplate, as checked by the Engineer, at the unit price shown in the Bid Proposal.

4. The depth at which the screen is set shall be approved by the Engineer. The screen and inner casing shall then be lowered to the approved depth and set within plus or minus three (3) inches of that depth. The screen and inner casing shall be installed with suitable heavy steel stave-type centering guides so as to insure that the inner casing is perfectly concentric with the outer casing and that the screen is also concentric with the hole below the outer casing. The centering guides shall be manufactured by Johnson Screen Division of Wheelabrator Water Technologies Inc. P.O. Box 64118, St. Paul, Minnesota, (800) 833-9473 or an equal approved by the Engineer.

5. After the screen and inner casing assembly have been properly installed, filter gravel shall be pumped to the bottom of the well through a separate and temporary pipe. A complete and homogenous artificial gravel packing shall then be built all around the screen and inner casing, starting from the bottom of the well upward to a level not less than ten feet above the bottom of the outside casing. Under no conditions shall the Contractor attempt to build the artificial gravel packing by dumping the filter gravel around the inner casing from the surface of the ground. The Contractor shall keep a record of the amount of gravel added to each well and this information shall be contained in the driller's report and log.

D. Observation Wells in Consolidated Formations

1. The hydraulic rotary well drilling process shall be used for unconsolidated materials above the consolidated water bearing lime rock formation. Unconsolidated material above the water bearing lime rock formation shall be completely cased and grouted to prevent corrosion of the casing. The well shall be drilled to the top of the consolidated lime rock formation with a bore hole of a diameter of at least four (4) inches greater than the outside diameter of the casing.

2. The casing shall then be lowered to the exact depth determined in the field centered in the hole and held in place with sufficient spacers to maintain true alignment and plumbness. The

two (2) inch annular space between the bore hole wall and the casing shall then be completely filled with a neat cement grout. The grout shall be pumped under pressure from the bottom of the casing to the ground surface through a separate and temporary pipeline. The cement grout mixture and procedure for grouting shall be as specified above in Section 3-05B.

3. Following the required curing time for the cement grout, drilling operations into the consolidated water bearing lime rock formation may continue. The air rotary drilling method shall be used in the consolidated formation. In order to allow maximum development of the lime rock formation, no drilling mud or fluid shall be used in that formation. The diameter of the hole drilled in the lime rock formation shall not be more than five-eighths (5/8) inch smaller than the inside diameter of the surface casing. The open hole portion of the well shall maintain true alignment, plumbness and concentricity with the surface casing as is practical with the construction method employed. The open hole shall be drilled to the bottom of the consolidated water bearing lime rock formation. Measurement for the open hole section of the well shall be from the bottom of the permanent surface casing to the bottom of the open hole. Payment shall be at the Contract Unit Price for the open hole section.

3-06 WELL CAPPING

A. Whenever there is an interruption in work on a well, the Contractor shall protect the well in such a manner as to effectively prevent either tampering with the well or the entrance of foreign matter into it. After each observation well has been completed, the Contractor shall furnish and install suitable connections and materials for permanently capping each well, as shown on the attached drawings.

B. The steel flanges used to fabricate each permanent well cover shall meet AWWA Standards for Steel Pipe Flanges, Class D, (AWWA C207, latest revision). The flanges shall be gasketed with a cloth inserted rubber gasket. The gasket shall extend from the inside diameter of the flange to at least the outside edge of the bolt holes. The flanges shall be bolted with 304 stainless steel bolts and nuts meeting ASTM A-304 Grades A or B. All bolt heads and nuts shall have American Standard Regular hexagonal dimensions as specified in American Standard for Wrench Head Bolts and Nuts and Wrench Openings (ASA B18.2). All bolts and nuts shall be threaded in accordance with American Standard for Screw Threads (ASA B1.1), Course Thread Series, Class 2A and 2B fit.

C. The top of the observation well casing shall not be less than twelve (12) inches above ground level. Following the installation of the permanent well cap, all exposed well casing exposed above ground and the well cap shall be painted as indicated on the attached drawings. The Contractor is responsible for any objectionable material that may fall into the observation wells and its consequences until the completion and acceptance by the Engineer of all the work described in these specifications. The unit prices set in the Contract shall cover all the necessary work and material to cap each well.

3-07 PLUMBNESS AND ALIGNMENT TEST

A. Required to Test: The well boring shall be constructed and all casing and liners set round, plumb and true to line as defined herein. To demonstrate the compliance of the work with this requirement, the Contractor shall furnish all labor, tools and equipment and shall make the test described herein. Test for plumbness and alignment must be made after the complete construction of the well and before its acceptance. The cost of accomplishing one plumbness and alignment test for both the outside and inside casings for each well shall be included in the contract unit prices for drilling and setting casing. No additional payments will be made for making any additional tests.

B. Description of Test: For screened wells plumbness and alignment shall be tested for the entire length of the outside casing prior to grouting and for the inside casing from the bottom of the screen to the ground surface prior to gravel packing. For open hole wells plumbness and alignment shall be tested from the bottom of the hole to the ground surface. Each casing or open hole shall be tested by lowering into the casing or open hole a section of pipe 40 feet long or a dummy of the same length. The outer diameter of the pipe shall be not more than ½-inch smaller than the diameter of the part of

the casing or open hole being tested. If a dummy is used, it shall consist of rigid spindle with three rings. The rings shall be truly cylindrical and shall be placed at each end of the dummy and one ring in the middle thereof. The central member of the dummy shall be rigid so that it will maintain the alignment of the axis of the rings.

C. Requirement for Plumbness and Alignment: Should the dummy, or pipe, fail to move freely through the length of the casing or open hole to the required depth or should the well vary from the vertical in excess of two-thirds of the smallest inside diameter of that part of the well being tested per 100 feet of depth, or beyond limitations of this test, the plumbness and alignment of the well shall be corrected by the Contractor at his own expense, to the satisfaction of the Engineer.

3-08 WELL DEVELOPMENT

A. Following the construction of each observation well, the Contractor shall develop and clean out each well. The purpose of the development work is to remove effectively from the well, well walls, well screen, and from the formation immediately adjacent to the well, material like mud, clay, fine particles of sand and/or of shell and any other type of fine material. The Contractor shall develop each observation well using the horizontal, high-velocity jetting method or by any other method deemed appropriate by the Contractor to develop each well to perform its intended function. The method of well development shall be approved by the Engineer prior to commencement of development operations.

B. The Contractor shall furnish all necessary pumps, compressors, tools, piping, hoses and any other equipment needed to develop each well. The Contractor shall conduct the well development of each observation well to provide maximum performance for its intended purpose, and to extract from the water bearing formation the practical maximum quantity of such fine materials that may, during the life of the well, pass through the well screen and settle out in the well. Well development for each observation well, regardless of the method used, shall be conducted for a time period of between three to four hours.

C. At the conclusion of the development, the well shall be cleared of all accumulations of sediment to the full depth of the well. The well development must be done in a manner that will not cause undue settlement and disturbance of the strata above the water bearing formation or disturb the seal effected around the well casing which provides the natural sanitary protection against vertical seepage along the casing.

3-09 WELL DISINFECTION

A. After each well has been completely constructed and developed, it shall be thoroughly cleaned of all foreign substances including tools, timbers, rope, debris of any kind, cement, oil, grease, joint dope and scum. The casing pipe shall be thoroughly swabbed, using alkalies, if necessary, to remove oil, grease, or joint dope. The well shall then be disinfected with a chlorine solution.

B. The chlorine solution used for disinfecting the well shall be of such volume and strength and shall be so applied that a minimum concentration of 50 ppm shall be obtained in all parts of the well at static conditions. The chlorine solution shall be forced into the water bearing formation by creating a hydraulic head in the well with the disinfecting solution. The chlorine solution shall be introduced into the well in such a manner that the well surfaces above the static level will be completely flushed with the solution. The chlorine solution shall be prepared and applied in a manner approved by the Engineer. The chlorine solution shall remain in the well for a minimum time period of two hours. Contractor shall pump well, then run standard bacteriological tests on two consecutive days with coliform counts of minus 1 to prove bacteriological clearance of well. In the event well fails to pass bacteriological tests, Contractor is responsible for redisinfection/chlorination of well until bacteriological clearance of well is made at no additional cost to the Owner.

3-10 CONCRETE SLAB

A. Following well development for each observation well, a concrete slab shall be constructed around the well casing of each well, as shown on the attached drawings.

3-11 PROTECTION OF PROPERTY AND NUISANCES

A. The Contractor shall take special precautions to reduce to a minimum the nuisances and damage to property which could result during execution of the work. Special attention is called to the "General Conditions" of these specifications. Any damage to public or private property shall be immediately repaired or paid for by the Contractor at no expense to the Owner. Equipment, tools, and materials shall be located in places where they will produce a minimum of nuisance. Wherever necessary or requested by the Engineer, the Contractor will use mud tanks and all the necessary equipment to substitute for mud pits. Any water or fluid resulting from any of the operations, or excess water from the well development works or the pumping test operations shall be conveyed out by piping, ditches, or any other means at the Contractor's expense to places where it may be disposed of without any detrimental effect to public or private interests.

3-12 PROTECTING WATER SUPPLY

A. The Contractor shall take precautions to prevent contaminated water or water having undesirable physical or chemical characteristics from entering the bore hole made by the Contractor in drilling the well.

B. He shall also take all necessary precautions during the construction period to prevent contaminated water, gasoline, etc., from entering the well by seepage through the ground surface.

3-13 CORRECTIVE WORK

A. In the event that the well becomes contaminated, or that water having undesirable physical or chemical characteristics does enter the well due to the neglect of the Contractor, he shall, at his own expense, perform such work or supply such casings, seals, disinfecting agents or other materials as may be necessary to eliminate the contamination or shut off the undesirable water.

3-14 WELL ABANDONMENT

A. If a well fails to conform to these specifications and the Contractor is unable to correct the faulty condition(s) at his own expense, the well shall be abandoned and the Contractor shall immediately begin drilling a new well at a nearby location specified by the Owner. The abandoned well shall be completely filled with cement grout to prevent accidents and possible groundwater contamination. All wells so abandoned shall be sealed and plugged as per all concerned regulatory agency requirements. All costs resulting from the abandonment of any well not conforming to these specifications or caused by the negligence or fault of the Contractor shall be borne by the Contractor.

3-15 GUARANTEE

A. The Contractor shall guarantee that all materials, equipment, structures, and work performed are free from defects in workmanship, design, or materials for a period of one (1) year after installation and acceptance by the Owner, and if any part of the work shall fail within this period, it shall be replaced and unit restored to operation at no cost to the Owner. Undue reduction in yield, cavings, or settlement around the wells, pumping sand from a finished well after being put into service, or clogging of well screens will be considered a defect to be covered by this guarantee. The Contract Bond shall cover this guarantee as defined in the General Conditions of these specifications.

END

SECTION 01152

MEASUREMENT AND PAYMENT

1-01 GENERAL

A. Measurement will be in the unit listed in the Schedule of Bid Prices in the Bid Form. Unless otherwise specified, measurement will be made by methods customary in construction, engineering, and surveying practice.

1. The quantity paid for will be the actual quantity of each item furnished and installed, complete and acceptable.

B. Payment:

1. Payment for each item will be made at the Contract Unit Price and shall be full compensation for all labor, materials, equipment, tools and all incidental and related work required to complete the item and shall include the work specified shown on drawings and indicated herein for each item.

2. The work included in each item shall be in accordance with the drawings and specifications for the item.

3. Contractor's overhead, profit, insurance, permits, fees and the like shall be distributed proportionally in each item, except where indicated to be included in the item.

END

FLORIDA CITIES WATER COMPANY
GENERAL CONSTRUCTION GUIDE

WATER MAIN CONSTRUCTION

1. General Use:

   a. PVC - ASTM D-1785 for 2" and smaller
   b. PVC - ASTM D-2241 - DR 21 Class 200 for 3"
   c. PVC - AWWA C900, DR 18 for 4" to 12"
   d. DIP - AWWA C151, Class 52 for 3" and larger

2. Areas that are unpaved which may have less than 3' of cover or which may have vehicle traffic.

   a. PVC - Schedule 80 for 2" and smaller placed in Schedule 80 PVC casing a minimum of twice the nominal outside diameter of the carrier pipe.
   b. PVC - Schedule 80 - ASTM D-1785 for 3"
   c. PVC - AWWA C900, DR 14 Class 200 for 4" and larger.
   d. DIP - AWWA C151, Class 52 for 3" and larger.

3. Paved Areas:

   a. PVC - Schedule 80 for 2" and smaller placed in Schedule 80 PVC casing a minimum of twice the nominal outside diameter of the carrier pipe, casing pipe shall be restrained.
   b. DIP - AWWA C151, Class 52 and extended a minimum of 8' beyond pavement for 3" and larger.
   c. PVC - AWWA C900, DR14, CL200 installed at the discretion of the FCWC engineer.
   d. Casings may be required under major roads at discretion of Owner.

4. Storm Drain Crossings:

   a. Use DIP - AWWA C151, Class 52 - and extend a minimum of 10' each side of storm drain center and 15' each side of a storm drainage structure center.

WATER SERVICE LINE CONSTRUCTION

1. General Use:

   a. Polyethylene Piping - PE 3408 ASTM D-3350, SDR 9, Class 200 for 2" and smaller may be used when approved by FCWC Engineer. All other piping shall be as shown above under WATER MAIN CONSTRUCTION - 1. General Use.

2. Unpaved or Paved:

   a. Polyethylene Piping - PE 3408 ASTM D-3350, SDR 9, Class 200 for 2" and smaller in Schedule 80 PVC casing a minimum of twice the nominal outside diameter of the carrier pipe may be used when approved by FCWC Engineer. All other piping shall be as shown above under WATER MAIN CONSTRUCTION - 2. Unpaved and 3. Paved.

NOTE: 1) All flange DIP shall be Class 53. However, flanged piping shall not be used for buried applications.

2) Heavier grades of piping may be used for any of the above items.
3) Piping policy subject to change without notice.

FORCE MAINS

1. General Use:

   a. PVC - AWWA C900, DR-25, Class 100 for 4" to 12" - color to be green
   b. DIP - AWWA C151, Class 53 epoxy lined for 4" and larger

2. Unpaved - As Above Reasons:

   a. PVC - AWWA C900, DR 18 CL150 for 4" to 12"

3. Paved Areas and Storm Drain Crossings:

   a. PVC - AWWA C900, DR 14 CL200 for piping 4" and larger. Piping shall also extend a minimum of 10' on each side of storm drain center and 15' on each side of storm drainage structure center or edge of pavement.

NOTE:
1) All flange DIP shall be Class 53. However, flanged piping shall not be used for buried applications.
2) Heavier grades of piping may be used for any of the above items.
3) Piping policy subject to change without notice.
4) Color of pipe shall be green.

GRAVITY LINE CONSTRUCTION

1. General Use:

   a. PVC - ASTM 3034, SDR-26 for 4" to 15" (includes all fittings and services)
   b. PVC - AWWA C900, DR-25 for 4" to 12" (includes all fittings and services)

2. Unpaved - When lines are less than 4' from the surface or which may have vehicle traffic.

   a. PVC - AWWA C900, DR-18 for 4" and larger

3. Paved Areas - When lines are less than 4' from the Surface.

   a. PVC - AWWA C900, DR-14 for 4" and larger

GENERAL CONSTRUCTION POLICIES

1. Manholes and wastewater mains/lines shall be a minimum of 10' lateral distance/clearance from water mains.

2. Wastewater mains/lines and services shall have a minimum of 18" vertical distance/ clearance from water main crossings.

3. Proposed utility easements shall be shown on construction drawings. Final easements shall be determined after installation of utilities but before acceptance by utility company.

4. Air release valves shall be located and required at the discretion of the utility company engineering staff.

5. New water services and temporary construction connections/services shall have an approved cross connection control device installed, inspected and certified by a backflow prevention technician.

6. All utility construction shall meet the standards of the water utility or county utility whichever is more stringent.[1]

7. Where utility lines cross storm drain lines, a 12" minimum of vertical clearance shall be maintained. Utility mains/lines shall also be constructed of DIP for water mains and PVC DR 14 for wastewater mains and shall be extended a minimum of 10' to each side of the drain line center and 15' each side of storm drainage structure center. A sand cushion may be required at discretion of company engineer (Owner).

8. Contractor shall be responsible for field verification of size and location of all existing utilities and related construction prior to commencement of work and excavation.

9. The contractor shall obtain copies of all permits secured by the owner and engineer and shall be knowledgeable of and comply with the provisions and conditions of such permits.

10. The contractor shall protect all existing facilities and structures from damage and disruption of service. He shall comply with all directives from the engineer and the owners of the facilities and structures to provide shoring or other means of protection that are deemed required. Contractor shall also be responsible for informing and implementing other protective measures associated with the construction.

11. Contractor shall maintain safe pedestrian and vehicular traffic conditions at all times during construction. He shall coordinate his construction procedures with the county public works department, the County, State Department of Transportation, fire district and other emergency services.

12. The contractor shall be responsible for obtaining all temporary construction easements that are required for completion of the work, including, but not limited to, the jack and bore pits. The contractor shall not encroach onto private property with materials and equipment unless such easements are obtained.

13. In addition to certified record drawings from the Project Engineer of Record, there shall be provided "As Built" drawings and engineering surveys as taken from engineering inspections of construction while in progress. (Information provided by the contractor shall not be used). Such certified drawings and "As Built" information must be obtained by and certified by the Engineer of Record.

14. The construction site shall be returned to a minimum of its preconstruction condition after the work has been installed. All structures and features that are necessary to disturb shall be replaced in kind and returned, completed, to their original operating condition.

15. Approved restrained joint fittings shall be used under and on both sides/ends of piping under roadways when piping is direct buried and/or installed in casing.

16. A master manhole shall be required when constructing a wastewater pumping/lift station. This manhole shall have only one effluent pipe to the pumping/lift station and be within 20 LF of the center of pumping/lift station.

17. Gravity wastewater collection systems shall have manholes located where required, but not with greater than 400 LF (distance) of gravity pipe between manholes (center to center of manhole).

18. The following shall be observed when a decision is required on tapping or cutting a tee into a main:

    When the existing pipe is AC or PVC, the new pipe being installed/connected must be at least two nominal pipe sizes smaller in order

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[1] Delete for Lee and Collier Counties

to tap the existing main. When the main can be tapped, an approved stainless steel wrap around tapping sleeve (Cascade or Ford; must be approved by FCWC Engineer) shall be used. Cutting of AC pipe is not acceptable. The couplings (joint to joint) on the AC pipe shall be removed and a M.J. tee and appropriate pipe shall be installed/connected to the AC pipe using appropriate/approved M.J. couplings.

The Contractor shall be responsible for the proper disposal of all AC pipe/couplings and shall comply with all regulatory agencies accordingly.

When the existing pipe is ductile iron or C900 PVC, the pipe being installed/connected must be at least one nominal pipe size smaller in order to tap the existing main. Otherwise a M.J. tee shall be cut into the existing line/main. When the main can be tapped, an approved mechanical joint tapping sleeve shall be used.

19. Contractor shall arrange a Pre-Construction Meeting with the Division Manager prior to beginning construction.

20. Parallel storm drainage lines and water/wastewater mains shall have a five foot (5') *minimum* horizontal separation.

END

POINCIANA UTILITIES, INC.
GENERAL CONSTRUCTION GUIDE

WATER MAIN CONSTRUCTION

1. General Use:
   a. PVC - ASTM D-1785 for 2" and smaller
   b. PVC - ASTM D-2241 - DR 21 Class 200 for 3"
   c. PVC - AWWA C900, DR 18 for 4" to 12"
   d. DIP - AWWA C151, Class 52 for 3" and larger

2. Areas that are unpaved which may have less than 3' of cover or which may have vehicle traffic.
   a. PVC - Schedule 80 for 2" and smaller placed in Schedule 80 PVC casing a minimum of twice the nominal outside diameter of the carrier pipe.
   b. PVC - Schedule 80 - ASTM D-1785 for 3"
   c. PVC - AWWA C900, DR 14 Class 200 for 4" and larger
   d. DIP - AWWA C151, Class 52 for 3" and larger

3. Paved Areas:
   a. PVC - Schedule 80 for 2" and smaller placed in Schedule 80 PVC casing a minimum of twice the nominal outside diameter of the carrier pipe, casing pipe shall be restrained.
   b. DIP - AWWA C151, Class 52 and extended a minimum of 8' beyond pavement for 3" and larger.
   c. PVC - AWWA C900, DR14, CL200 installed at the discretion of the FCWC engineer.
   d. Casings may be required under major roads at discretion of Owner.

4. Storm Drain Crossings:
   a. Use DIP - AWWA C151, Class 52 - and extended a minimum of 10' each side of storm drain center and 15' each side of a storm drainage structure center.

WATER SERVICE LINE CONSTRUCTION

1. General Use:
   a. Polyethylene Piping - PE 3408 ASTM D-3350, SDR 9, Class 200 for 2" and smaller may be used when approved by FCWC Engineer. All other piping shall be as shown above under WATER MAIN CONSTRUCTION - 1. General Use.

2. Unpaved or Paved:
   a. Polyethylene Piping - PE 3408 ASTM D-3350, SDR 9, Class 200 for 2" and smaller in Schedule 80 PVC casing a minimum of twice the nominal outside diameter of the carrier pipe may be used when approved by FCWC Engineer. All other piping shall be as shown above under WATER MAIN CONSTRUCTION - 2. Unpaved and 3. Paved.

NOTE:
1) All flange DIP shall be Class 53. However, flanged piping shall not be used for buried applications.
2) Heavier grades of piping may be used for any of the above items.

3) Piping policy subject to change without notice.

FORCE MAINS

1. **General Use:**

   a. PVC - AWWA C900, DR-25, Class 100 for 4" to 12" - color to be green.
   b. DIP - AWWA C151, Class 53 epoxy lined for 4" and larger

2. Unpaved - As Above Reasons:

   a. PVC - AWWA C900, DR 18, CL150, for 4" to 12"

3. Paved Areas and Storm Drain Crossings:

   a. PVC - AWWA C900, DR14, CL200, for piping 4" and larger. Piping shall also extend a minimum of 10' on each side of storm drain center and 15' on each side of storm drainage structure center or edge of pavement.

NOTE:
1) All flange DIP shall be Class 53. However, flanged piping shall not be used for buried applications.
2) Heavier grades of piping may be used for any of the above items.
3) Piping policy subject to change without notice.
4) Color of pipe shall be green.

GRAVITY LINE CONSTRUCTION

1. General Use:

   a. PVC - ASTM 3034, SDR-35 for 4" to 15" (includes all fittings and services)
   b. PVC - AWWA C900, DR-25 for 4" to 12" (includes all fittings and services)

2. Unpaved - When lines are less than 4' from the surface or which may have vehicle traffic.

   a. PVC - AWWA C900, DR-18 for 4" and larger

3. Paved Areas - When lines are less than 4' from the Surface.

   a. PVC - AWWA C900, DR-14 for 4" and larger

GENERAL CONSTRUCTION POLICIES

1. Manholes and wastewater mains/lines shall be a minimum of 10' lateral distance/clearance from water mains.

2. Wastewater mains/lines and services shall have a minimum of 18" vertical distance/ clearance from water main crossings.

3. Proposed utility easements shall be shown on construction drawings. Final easements shall be determined after installation of utilities but before acceptance by utility company.

4. Air release valves shall be located and required at the discretion of the utility company engineering staff.

5. New water services and temporary construction connections/services shall have an approved cross connection control device installed, inspected and certified by a backflow prevention technician.

6. All utility construction shall meet the standards of the water utility or county utility whichever is more stringent.[1]

7. Where utility lines cross storm drain lines, a 12" minimum of vertical clearance shall be maintained. Utility mains/lines shall also be constructed of DIP for water mains and PVC DR14 for wastewaqter mains and shall be extended a minimum of 10' to each side of the drain line center and 15' each side of storm drainage structure center. A sand cushion may be required at discretion of company engineer (Owner).

8. Contractor shall be responsible for field verification of size and location of all existing utilities and related construction prior to commencement of work and excavation.

9. The contractor shall obtain copies of all permits secured by the owner and engineer and shall be knowledgeable of and comply with the provisions and conditions of such permits.

10. The contractor shall protect all existing facilities and structures from damage and disruption of service. He shall comply with all directives from the engineer and the owners of the facilities and structures to provide shoring or other means of protection that are deemed required. Contractor shall also be responsible for informing and implementing other protective measures associated with the construction.

11. Contractor shall maintain safe pedestrian and vehicular traffic conditions at all times during construction. He shall coordinate his construction procedures with the county public works department, the County, State Department of Transportation, fire district and other emergency services.

12. The contractor shall be responsible for obtaining all temporary construction easements that are required for completion of the work, including, but not limited to, the jack and bore pits. The contractor shall not encroach onto private property with materials and equipment unless such easements are obtained.

13. In addition to certified record drawings from the Project Engineer of Record, there shall be provided "As Built" drawings and engineering surveys as taken from engineering inspections of construction while in progress. (Information provided by the contractor shall not be used). Such certified drawings and "As Built" information must be obtained by and certified by the Engineer of Record.

14. The construction site shall be returned to a minimum of its preconstruction condition after the work has been installed. All structures and features that are necessary to disturb shall be replaced in kind and returne, completed, to their original operating condition.

15. Approved restrained joint fittings shall be used under and on both sides/ends of piping under roadways when piping is direct buried and/or installed in casing.

16. A master manhole shall be required when constructing a wastewater pumping/lift station. This manhole shall have only one effluent pipe to the pumping/lift station and be within 20 LF of the center of pumping/lift station.

17. Gravity wastewater collection systems shall have manholes located where required, but not with greater than 400 LF (distance) of gravity pipe between manholes (center to center of manhole).

18. The following shall be observed when a decision is required on tapping or cutting a tee into a main:

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[1] Delete for Lee and Collier Counties

When the existing pipe is AC or PVC, the new pipe being installed/connected must be at least two nominal pipe sizes smaller in order to tap the existing main. When the main can be tapped, an approved stainless steel wrap around tapping sleeve (Cascade or Ford; must be approved by FCWC Engineer) shall be used. Cutting of AC pipe is not acceptable. The couplings (joint to joint) on the AC pipe shall be removed and a M.J. tee and appropriate pipe shall be installed/connected to the AC pipe using appropriate/approved M.J. couplings.

The Contractor shall be responsible for the proper disposal of all AC pipe/couplings and shall comply with all regulatory agencies accordingly.

When the existing pipe is ductile iron or C900 PVC, the pipe being installed/connected must be at least one nominal pipe size smaller in order to tap the existing main. Otherwise a M.J. tee shall be cut into the existing line/main. When the main can be tapped, an approved mechanical joint tapping sleeve shall be used.

19. Contractor shall arrange a Pre-Construction Meeting with the Division Manager prior to beginning construction.

20. Parallel storm drainage lines and water/wastewater mains shall have a five foot (5') minimum horizontal separation.

END

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1-01 REQUIREMENTS INCLUDED

A. Owner's representative shall schedule the pre-construction meeting, periodic progress meetings and specially-called meetings throughout progress of the work.

Owner representative shall:

1. Prepare agenda for meetings.
2. Distribute written notice of each meeting four days in advance of meeting date.
3. Make physical arrangements for meetings.
4. Preside at meetings.
5. Record the minutes including significant proceedings and decisions.
6. Reproduce and distribute copies of minutes within three days after each meeting:
   a. To all parties/participants in the meetings.
   b. To parties affected by decisions made at the meeting.

B. Representatives of Contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

C. Engineer may attend meetings to ascertain that work is expedited consistently with Contract Documents and construction schedules.

1-02 RELATED REQUIREMENTS

A. Instructions to Bidders: Pre-Bid Conferences.

1-03 PRE-CONSTRUCTION MEETING

A. Schedule within 15 days after date of Notice to Proceed.

B. Location: A central site, convenient for all parties, acceptable to OWNER and ENGINEER.

C. Attendance:

1. Owner's Representative.
2. Engineer and his professional consultants when applicable.
3. Resident Project Representative when applicable.
4. Contractor's Superintendent.
5. Major subcontractors.
6. Major suppliers.
7. Others as appropriate.

D. Suggested Agenda:

1. Discussion of:
   a. Major subcontractors and suppliers;
   b. Projected construction schedules.
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
4. Project coordination.
   a. Designation of responsible personnel.
5. Procedures and processing of:
   a. Field decisions;
   b. Proposal requests;
   c. Submittals;

d. Change orders;
e. Applications for payment.

6. Adequacy of distribution of contract documents.
7. Procedures for maintaining record documents.
   a. Construction photos/video.
8. Use of premises:
   a. Office, work and storage areas;
   b. Owner's requirement.
9. Construction facilities, controls and construction aids.
10. Temporary utilities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.
    a. Construction photos/videos
14. Lock out, tag out procedures.

1-04 PROGRESS MEETINGS

A. Owner's representative shall schedule regular periodic meetings, as required, and at frequency acceptable to CONTRACTOR and ENGINEER when applicable.

B. Owner's representative shall call meetings as required by progress of the work.

C. Location of meetings shall be the field office of the ENGINEER, field office of CONTRACTOR or utility division office.

D. Attendance:

1. OWNER'S Representative.
2. ENGINEER, and his professional consultants as needed.
3. Subcontractors as appropriate to the agenda.
4. Suppliers as appropriate to the agenda.
5. Others.

E. Suggested Agenda:

1. Review, approval of minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Field observations, problems, conflicts.
4. Problems which impede construction schedule.
5. Review of off-site fabrication delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to construction schedule.
8. Progress schedule during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
    a. Impact on construction schedule and on completion date;
    b. Impact on other contracts of the project.
14. Other business.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END

SECTION 02050

DEMOLITION

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work includes the complete wrecking of structures as shown on the drawings specified. Removal and disposal of demolished materials shall be in accordance with all applicable regulations.

1-02 SUBMITTALS

A. Submit schedule of demolition to the Engineer for information prior to the start of work. Include in the schedule the coordination for shut-off, capping and continuation of utility services as required.

1. Include a detailed sequence of demolition and removal work to ensure the uninterrupted progress of the Owner's operations.

B. Permits: All applicable permits shall be secured by the contractor prior to, and submitted to Owner's representative, at pre-construction meeting.

1-03 JOB CONDITIONS

A. Occupancy: Buildings and other structures to be demolished will be vacated and discontinued in use prior to the start of the work.

B. Condition of Structures: The Owner assumes no responsibility for the actual condition of structures to be demolished.

1. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner in so far as practicable. However, variations within the structure may occur by Owner's removal and salvage operations prior to the start of the demolition work.

C. Partial Removal: Salvaged equipment and materials are the property of the Owner and shall be stored as directed by the Owner.

D. Explosives: The use of explosives will not be permitted.

E. Traffic: Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

F. Protections: Ensure the safe passage of persons around the area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.

1. Erect temporary covered passageways as required by authorities having jurisdiction.

2. Provide interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain.

G. Damages: Notify Owner of any damages to adjacent facilities within 24 hours. Promptly repair damages caused to adjacent facilities by demolition operations at no additional cost to the Owner. Obtain a liability release from Owner of damaged facility prior to final payment.

H. Utility Services: Maintain existing utilities indicated to remain in service and protect against damage during demolition operations.

1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities.

2. The Owner will shut off utilities serving each structure and disconnect and seal indicated utilities before starting demolition operations.

I. Extermination: Employ a certified exterminator and treat the entire building in accordance with governing health regulations.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3-01 POLLUTION CONTROLS

A. Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection. Do not use water when it may create hazardous or objectionable conditions such as flooding and pollution.

B. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations, as required by the governing authorities. Return adjacent areas to condition existing prior to the start of work.

3-02 DEMOLITION

A. Proceed with demolition in a systematic manner, from the top of the structure to the ground. Complete demolition work above each floor or tier before disturbing supporting members on lower levels.

B. Demolish concrete and masonry in small sections.

C. Remove structural framing members and lower to the ground by means of hoists, derricks, or other suitable methods.

D. Break up and remove concrete slabs-on-grade, unless otherwise shown to remain.

E. Locate demolition equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors or framing.

3-03 BELOW-GRADE CONSTRUCTION

A. Below-Grade Construction: Demolish and remove below-grade construction and concrete slabs-on-grade as indicated on the plans.

3-04 FILLING BASEMENTS AND VOIDS

A. Completely fill below-grade areas and voids resulting from the demolition of structures.

B. Use satisfactory soil materials consisting of stone, gravel, and sand, free from debris, trash, frozen materials, roots and other organic matter, and stones larger than 2" in diameter.

C. Prior to placement of fill materials, ensure that areas to be filled are free of standing water, frost, frozen material, trash and debris.

D. Place fill materials in horizontal layers not exceeding 6" in loose depth. Compact each layer at optimum moisture content of the fill material to a density equal to the original adjacent ground, unless subsequent excavation for new work is required or specified elsewhere.

E. After fill placement and compaction, grade the surface to meet adjacent contours and to provide flow to surface drainage structures or ditches.

3-05 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Remove from the site debris, rubbish, and other materials resulting from demolition operations. Burning of removed materials from demolished structures will not be permitted on the site.

B. Removal: Transport materials removed from demolished structures and dispose of off site. Disposal shall be in accordance with all applicable regulations.

END

SECTION 02110

SITE CLEARING

PART 1 - GENERAL

1-01 DESCRIPTION

A. The extent of site clearing is shown on the drawings.

B. Site clearing work includes but is not limited to, the following:

1. Protection of existing trees and root structure identified to remain
2. Removal of trees and other vegetation
3. Topsoil stripping
4. Clearing and grubbing
5. Removing above-grade improvements
6. Removing below-grade improvements
7. Removing existing debris and other waste

1-02 JOB CONDITIONS

A. Salvable Improvements: Carefully remove items indicated to be salvaged and store on the Owner's premises where indicated. unless otherwise directed.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3-01 GENERAL

A. Remove vegetation, improvements, or obstructions interfering with installation of new construction. Remove such items elsewhere on the site or premises as specifically indicated. Removal includes stumps and roots.

B. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where roots and branches obstruct new construction.

3-02 TOPSOIL

A. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with the underlying subsoil or other objectionable material.

1. Topsoil is defined as friable clay loam surface soil found in depth of 6 to 12 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectionable material.

B. Remove heavy growths of grass from areas before stripping.

1. Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to the main root system at drip line of tree.

C. Stockpile topsoil in storage piles in areas shown, or where otherwise directed. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent windblown dust.

3-03 CLEARING AND GRUBBING

A. Clear the site of trees, shrubs and other vegetation, except for that indicated to be left standing.

B. Completely remove stumps, roots, and other debris protruding through the ground surface.

C. Use only hand methods for grubbing inside the drip line of trees indicated to be left standing.

D. Remove existing debris and other waste.

E. Fill depressions caused by clearing and grubbing operations with satisfactory soil materials and compact and grade in accordance with Section 02210, EARTHWORK AND SITE GRADING.

3-04 REMOVAL OF IMPROVEMENTS

A. Remove above-grade and below-grade improvements necessary to permit construction, and other work as indicated.

B. Remove abandoned underground piping and conduit which interfere with construction.

3-05 DISPOSAL OF WASTE MATERIALS

A. Burning on Owner's Property: Burning is not permitted on the Owner's property.

B. Removal from Owner's Property: Remove waste materials and unsuitable topsoil from the Owner's property and dispose of in a legal manner.

END

SECTION 02202

EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work includes excavating, trenching, and backfilling for the construction of fire water, potable water, reuse, and wastewater utility systems.

B. Excavation will be open cut unless otherwise shown on the drawings.

C. Include clearing and grubbing, sheeting and shoring, construction of cribbing and cofferdams, dewatering, and incidental work.

D. Whenever any piping, cable, telephone lines or other utility is encountered, in excavation or other work, the Contractor shall notify the Owner, the Engineer and applicable utility company immediately.

1-02 JOB CONDITIONS

A. Obtain all required approvals, permits, and licenses prior to installation of pipelines in accordance to all the rules and requirements of the authority having jurisdiction.

B. If unauthorized over excavation occurs, repair the area by backfilling with approved select backfill material and compacting to required density.

C. Existing Utilities:

1. Contact all applicable utilities 72 hours in advance for locating existing underground utilities in the area of work. Provide 72 hours notice to existing utility companies prior to construction. If utilities are to remain in place, provide adequate means of protecting during excavation operations.

2. If unforeseen site conditions are encountered during excavation, consult the utility owner immediately for directions. Cooperate with the Owner, and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility owner.

3. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the owner of the utility and then only after acceptable temporary utility services have been provided.

4. Demolish and completely remove from the site existing underground utilities indicated to be removed. Coordinate with local utility companies for shut-off of services if lines are active.

D. Use of explosives will not be permitted on this project unless written approval is obtained from the Engineer.

E. Protection:

1. Protect structures, utilities, sidewalks, pavements, and other facilities from damages caused by settlement, lateral movement, undermining, washout and other hazards created by excavation operations.

2. Provide barricades, warning signs and lights required by authorities having jurisdiction.

1-03 QUALITY ASSURANCE

A. Codes and Standards: Perform excavating, trenching and backfilling in compliance with applicable requirements of governing authorities having jurisdiction.

1-04 TESTING AND INSPECTION SERVICE

A. The Contractor will engage a geotechnical testing and inspection service, to provide services including testing soil materials proposed for use in the work and field facilities for quality control testing during filling and backfilling operations. Samples of soil materials shall be furnished to the testing service by the Contractor. Costs of all testing will be paid for by the Contractor. Geotechnical testing service shall be approved by the Engineer.

B. Laboratory will transmit:

1. One copy of test reports to Contractor and one copy to the FDOT representative if applicable.

2. Two copies of the test reports directly from the laboratory to the Engineer and one copy to the owner's representative..

3. Identify test reports by project title, Engineers File Number, project location and location of each on-site test submitted.

1-05 REFERENCED DOCUMENTS

A. AASHTO: American Asscciation of State Highway and Transportation Officials.

B. ASTM: American Society for Testing and Materials.

C. ANSI: American National Standards Institute.

D. AWWA: American Water Works Association.

E. ASCE: American Society of Civil Engineers.

PART 2 - PRODUCTS

2-01 SOIL MATERIALS FOR TRENCH BACKFILLING

A. Definitions:

1. Satisfactory trench backfill materials are defined as those soils complying with American Association of State Highway and Transportation Officials (AASHTO) soil classification Groups A-1, A-2, A-3, A-4, A-5, A-6, A-7-5 or A-7-6 providing such materials have a liquid limit not greater than 50, nor a plastic index not less than 7, nor greater than 20. Satisfactory soil materials shall be free of rock or gravel larger than 4 inches in any dimension, debris, waste, frozen materials, vegetation or other deleterious matter.

2. Select backfill materials are defined as those materials meeting the requirements for satisfactory trench backfill materials in paragraph 2-01 A. 1. above except that the material shall be free of rock or gravel larger than 2 inches in any dimension.

3. Satisfactory backfill materials for pumping stations and wet wells are defined as those complying with AASHTO soil classification Groups A-1, A-2, A-3 and A-4 providing such materials have a liquid limit not greater than 50 nor a plastic index not less than 7 nor greater than 20. Satisfactory soil materials shall be free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation or other deleterious matter.

4. Unsatisfactory soil materials are defined as rock greater than 4 inches in any dimension, organic materials or soil materials with a liquid limit greater than 50 and/or a plastic index less than 7 or greater than 20.

5. Granular Pipe Bedding Material: Granular pipe bedding material shall be well graded crushed stone or crushed gravel meeting the requirements of ASTM Designation C 33, Gradation No. 67 (3/4 inches to No. 4 Sieve).

PART 3 - EXECUTION

3-01 EXCAVATION

A. Excavation consists of removal and disposal of material encountered when establishing required grade elevations.

B. Excavation Classifications: The following classifications of excavation will be made. Do not perform rock excavation until material to be excavated has been cross-sectioned and classified by the Engineer.

1. Earth excavation includes removal and disposal of obstructions visible on ground surface, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not classified as rock excavation or unauthorized excavation. No separate payment will be made for unclassified earth excavation.

2. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.

a. Under footings or foundation bases, fill unauthorized excavation by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering required top elevation or crushed rock bedding may be used to bring elevations to proper position.

b. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.

3. Additional Excavation: When excavation has reached required subgrade elevations, notify the Engineer who will make an inspection of conditions.

a. If unsuitable bearing materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material.

b. Compensation for removal and replacement of unsuitable material as directed shall be at the contract unit price for the item, Removal of Unsuitable Material.

3-02 STABILITY OF EXCAVATIONS

A. Slope sides of excavations to comply with the Code of Federal Regulations 29CFR 1926.651 and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

1. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

B. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.

1. Establish requirements for trench shoring and bracing to comply with 29 CFR 1926.651 and authorities having jurisdiction and the "Florida Trench Safety Act".

2. Maintain shoring and bracing in excavations regardless of time period excavation will be open. Carry down shoring and bracing as excavation progresses.

3. Provide permanent steel sheet piling or pressure creosoted timber sheet piling wherever subsequent removal of sheet piling might permit lateral movement of soil under adjacent pipelines or structures. Cut off tops as required and leave permanently in place.

4. Do not brace sheeting against the pipe being laid. Sheeting shall be braced so that no concentrated load of horizontal thrust is transmitted to the pipe.

C. Excavation Boxes: If portable excavation boxes are used for trench bracing, take care not to disturb the pipe foundation and the pipe when moving the excavation box along the trench and when removing the box from the trench.

3-03 DEWATERING

A. Prevent surface water and subsurface or ground water from flowing into excavations.

1. Do not allow water to accumulate in excavations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

2. Convey water removed from excavations and rain water to storm drains or natural drainage channels.

3. If subsurface water is encountered, the Contractor shall use approved means to dewater the excavation. A well point system or other approved equipment shall be installed, if necessary to maintain the excavation in a dry condition for placing of concrete and laying pipe lines.

4. If a well point system is used, it shall be installed so that the header does not block access to private property. This may require that the headers be placed in trenches and backfilled to existing grade with suitable brace material or providing acceptable ramps for the crossing. Well points shall not be removed until the entire trench has been backfilled. Well point holes shall be filled with clean, compacted sand.

5. The Contractor shall perform all dewatering operations so as not to cause injury to public or private property or cause a nuisance or menace to the public and he shall be solely responsible for obtaining any approvals or permits required for the disposal of water removed from the excavations.

3-04 MATERIAL STORAGE

A. Stockpile satisfactory excavated materials until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

B. Locate and retain soil materials away from edge of excavations per OSHA standards.

C. Dispose of excess soil material and waste materials as herein specified.

3-05 STRUCTURE EXCAVATION

A. Excavation Dimensions: Provide 18 inches of clear working space between the exterior lines of the structure and the face of the excavation or shoring. In all cases, extend to solid bearing.

B. Dewatering: Remove all water from excavation before placing concrete and maintain the excavations free of water until concrete is placed. Provide dewatering equipment as necessary to conform to this requirement.

3-06 TRENCH EXCAVATION

A. General: Excavate trenches to the lines, grades and elevations indicated on the drawings. Trenches shall be excavated a sufficient distance below the pipe invert to provide a space for pipe bedding. The excavation shall proceed in advance of the pipe laying operation no more than necessary to expedite the work.

B. Trenching Width: The trench width may vary with the depth of the trench and stability of the excavated material. The trench shall be of ample width to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted properly. The minimum width of unsheeted trench shall be 20 inches, but in no case shall the trench width be less than 12 inches greater nor more than 24 inches greater than the nominal diameter of the pipe unless approval is obtained from the Engineer. The trench walls shall be constructed vertically to an elevation of 12 inches above the top of the pipe. Above this elevation the trench walls may be sloped as required.

C. Thrust Block Excavations: Areas where thrust blocks are to be placed shall be hand excavated. Excavation for thrust blocks shall be completed following installation of the pipe and fitting to be restrained. For thrust blocks, hand excavate to undisturbed soil and to the sizes and configurations shown on drawings. Use extreme care following excavation not to disturb soil thrust block area, prior to pouring concrete.

D. Wet Trenches: Where subgrade of trench is unstable or water is present in sufficient quantities to make uniform bedding of pipe impossible, trench bottom shall be stabilized as required with crushed rock.

E. Rock in Trench: Where ledge rock, compact rocky or gravelly soil or other unyielding materials are encountered, carry the excavation 6 inches below the required elevation and backfill with a 6 inch layer of crushed rock or gravel prior to installing pipe. Compensation for replacing rock with backfill materials and for furnishing and placing crushed rock bedding in rock excavation shall be included in the unit bid price for Rock Excavation.

3-07 BLASTING

A. No blasting will be permitted on this project without prior written approval from the Engineer.

3-08 PIPE BEDDING

A. Pipe Foundations: Shall be constructed so that pipe rests uniformly along its entire barrel length in pipe bedding. Bell holes shall be excavated to allow barrel of pipe to uniformly distribute trench loads and to prevent point bearing on bells. Any part of the trench excavated below required grade shall be corrected with approved backfill material compacted as herein specified prior to laying pipe.

B. Bedding for Ductile Iron Pipe: Minimum laying requirements shall be Type 2 as defined in ANSI/AWWA C 600-77. Provide proper bedding required, in accordance with thickness class of pipe being laid and depth of cover. Proper pipe laying conditions shall be in accordance with ANSI/AWWA C 151- 76 and ANSI/AWWA C 600-77.

C. Bedding for Polyvinyl Chloride (PVC) Pipe: Bedding requirements shall be as shown on the Standard Details using select backfill material.

D. Bedding and Backfill Around Pipe: After each pipe has been brought to grade, aligned and placed in final position, sufficient bedding or select backfill material shall be deposited and compacted under pipe haunches and on each side of pipe to hold pipe in proper position during subsequent pipe jointing, bedding and backfilling operations. Bedding or select backfill material shall be deposited

uniformly and simultaneously on each side of pipe to prevent lateral displacement. After pipe has been checked, tested, and approved, deposit select backfill around and above pipe in uniform 6-inch layers to a point at least 1 foot above barrel of pipe. Each layer shall be compacted to a minimum of 100 percent of maximum density as determined by AASHTO - T 99, method C. Compaction shall be accomplished by hand or mechanical tampers. No puddling or flooding of trench for compaction shall be used. Bedding and backfill material shall be as hereinbefore defined as crushed rock bedding and select backfill. Excavated rock shall not be used for backfill material.

3-09 TRENCH BACKFILL

A. Backfill of trenches from 1-foot above top of pipe to top of trench in uniform 12-inch layers. Material used shall be as hereinbefore defined as satisfactory trench backfill. Backfill material shall be used to replace excavated rock.

B. Compaction: Each layer of backfill for trench backfill shall be compacted to 100 percent maximum density at optimum moisture in all areas. Each backfill layer shall be placed, moistened and then uniformly compacted. Compaction to 3 feet above the top of the pipe shall be accomplished by hand or mechanical tampers. Pneumatic or other approved compaction equipment may be used from 3 feet above the top of the pipe to the top of the trench. Wheel rolling by construction equipment shall not be considered as approved compaction equipment. Puddling or flooding of the trench for consolidation of backfill shall not be used.

3-10 BACKFILL FOR STRUCTURES

A. Place backfill material under and around slabs and structures in horizontal uniform 8-inch layers. Bring each layer up uniformly and thoroughly compact using pneumatic or other approved compaction. Moisten backfill prior to placing to insure maximum compaction. Puddling or water flooding for consolidation of the backfill shall not be used. Compact each layer of backfill to 95 percent maximum density at optimum moisture.

3-11 COMPACTION

A. Control soil compaction during construction to provide a minimum percentage of density as specified for each area of classification.

B. Percentage of maximum density requirements: Soils shall be compacted to not less than the percentages of maximum density at optimum moisture, stated in this section, for soils that exhibit a well-defined moisture density relationship determined in accordance with AASHTO T 99.

C. Moisture control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

2. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

3-12 FIELD QUALITY CONTROL

A. Quality control Testing During Construction: The Owner's testing service must inspect and approve subgrades and backfill layers before further construction work is performed.

1. Number of Tests: One test will be made in accordance with AASHTO T 99, method C for each class of material. Field density tests shall be in accordance with ASTM D 2937 (drive

cylinder method). Tests will be made as the fill and backfill work progress, in locations designated by the Engineer.

2. The Contractor's testing service shall make field density tests in accordance with the following schedule:

WORK AREA	TESTING TO BE PROVIDED
1. For each continuous 500' length of trench or part thereof, backfilling in a single working day.	One in place density test in each 12" lift of compacted backfill.
2. For each discreet excavation and backfill location (i.e. individual structures, pipe repair sites, pipe relocation sites, etc.).	One in place density test in each 12" lift of compacted backfill at each individual site.

Examples:
1. 300 feet of continuous trench backfilled in a single day requires one set of tests.

2. 700 feet of continuous trench backfilled in a single day requires two sets of tests (one for the first 500' of trench and one for the remaining 200' of trench).

3. 400 feet of continuous trench backfilled in a single working day and two pipe repairs done during the same working day at separate locations requires three sets of tests (one for the continuous trench and one for each separate pipe repair locations).

B. If in the opinion of the Engineer, based on testing service reports and inspection, subgrade or backfill which has been placed is below specified density, the Contractor shall provide all additional compaction and testing required to bring the deficient areas into compliance with this specification.

C. Work on Non-Tested Areas: Placing permanent construction over backfill that has not been tested and approved may require removal of permanent work, recompacting the backfill and replacing the work at no additional cost to the Owner.

3-13 MAINTENANCE OF TRAFFIC

A. The Contractor shall perform all construction activity so that accesses to business can be maintained at all times and access to occupied homes can be maintained during non-working hours. Prior to access blockage, written notice will be given to the blocked resident a minimum of 48 hours in advance, either mailed or hand delivered with a copy of each furnished to the Engineer. Written notice must be in a form approved by the Owner.

3-14 MAINTENANCE

A. Cleanup: Finish grade all disturbed areas with no abrupt changes in grade or irregularities that will hold water. Prior to final inspection and acceptance, remove all rubbish and excess material and leave area in a neat, satisfactory condition.

B. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

C. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

D. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

E. Restoration of areas disturbed during excavating trenching or backfilling:

1. Paved areas shall be restored in accordance with the appropriate details shown on the construction plans.

2. Sodded or grassed areas shall not be resodded or seeded and mulched unless shown on the construction drawings or directed by the Engineer. The Engineer may require resodding or seeding and mulching to control erosion or in areas where additional construction I snot anticipated.

3-15 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Unless otherwise specified, transport acceptable excess excavated material to designated soil storage areas on the Owner's property. Stockpile soil or spread as directed by the Engineer.

B. Waste materials, including unacceptable excavated material, trash and debris shall become the property of the Contractor and shall be removed from the Project.

END

SECTION 02205

ROCK BLASTING

PART 1 - GENERAL

1-01 DESCRIPTION

A. The requirements of this section shall apply to any blasting operations required for the removal of rock that cannot be excavated with a 1.0 cubic yard capacity excavator.

1-02 LEGAL REQUIREMENTS

A. The Contractor shall indicate his ability and willingness to comply with all applicable ordinances and regulations related to explosives and blasting operations.

B. The Contractor shall employ the services of an experienced and licensed Blaster and/or Demolition Expert with experience to use explosives for the type of work planned and in similar situations to those indicated on the Drawings. Submit qualifications and experience record of the Blaster to the Engineer for approval prior to commencement of operations. No blasting operations shall be started until the Engineer has approved the Blaster in writing.

1-03 INDEMNIFICATION AND INSURANCE

A. The Contractor shall be responsible for all damage resulting from the use of explosives and he shall indemnify and save the Owner and Engineer harmless against all claims for damages to property and/or injuries to persons caused in any manner whatsoever as a result of explosions or blasting and handling or storage of explosives for the work. Permission given by the Owner and Engineer to blast shall in no way relieve the Contractor of liability for any blasting operations.

B. The Contractor shall obtain additional umbrella form liability insurance for blasting operations. The minimum insurance coverage is indicated in the Supplementary Conditions; however, the Contractor may wish to obtain insurance coverage greater than the minimum required to ensure adequate protection. The Contractor shall submit insurance certificates indicating the minimum required additional liability insurance for blasting operations. Insurance certificates shall be submitted to the Owner prior to commencement of blasting operations.

1-04 NOTIFICATION

A. The Contractor shall obtain the approval of the Owner, the Engineer, and any applicable regulatory agency before any blasting is performed. The use of explosives of any kind or type and under any conditions shall be subject to the specific previous approval of both the Owner and the Engineer. The Owner may fix the hours of blasting. The Owner and the Engineer shall be notified at least 72 hours in advance of blasting operations.

B. The Contractor shall notify all owners or occupants of buildings and all public and private utility owners, within a minimum 1,000 foot radius or approved by the Owner of the work, of his intention to use explosives for rock excavation. Notice shall be given a minimum of 72 hours prior to blasting operations.

C. The Contractor shall notify the County Sheriff's Department and the local Fire Department regarding the location of proposed blasting operations at least 72 hours prior to actual blasting.

D. Contractor shall video tape all areas impacted by blast and tapes shall be provided to Owner.

1-05 SAFETY

A. When blasting is necessary to remove rock, the Contractor and his Blaster shall exercise the utmost care and take all necessary precautions so as not to endanger life or property, including new work.

B. The Contractor shall provide all necessary and required safety precautions to protect the public during the setting of charges and all blasting operations, including the maintenance of barricades, warning signs, danger signals, flagmen and the like.

1-06 BLASTING PROCEDURES

A. All explosive materials shall be stored in specially constructed boxes provided with locks and which shall be in compliance with all applicable laws and ordinances. Storage boxes shall be painted red and clearly marked " DANGER-EXPLOSIVES." Explosives shall not be stored permanently on the job site. While on the job site, explosives shall be in the care of and continuously supervised by the licensed blasting contractor. Failure of the Contractor to conform to these requirements will be grounds for suspension of blasting operations until compliance is made.

B. A galvanometer shall be kept on the job at all times to check cap circuits. Failure to have a galvanometer on the job shall be cause for the Engineer or the Owner to require the Contractor to cease blasting operations.

C. The Contractor shall use approved blasting mats or other approved methods to prevent flying rock or overburden during blasting operations.

D. A blasting log shall be kept where blasting takes place within a 1,000 foot radius of a utility, structure or property which could be damaged by vibration, concussion or falling rock. Copies of the blasting log shall be submitted to the Engineer and the Owner and shall be sufficient, neat and orderly so as to be acceptable in a court of law. The blasting log shall contain the following information for each shot.

1. Date and time
2. Contractor's name
3. Licensed blaster's name
4. Weather
5. Type of caps used (instant or delay)
6. Number and depth of holes
7. Approximate depth of overburden
8. Amount and type of explosive used in each hole

END

SECTION 02210
EARTHWORK AND SITE GRADING

PART 1 - GENERAL

1-01 DESCRIPTION

A. The extent of earthwork and site grading is shown on the drawings, including preparation of subgrade for walks and pavement.

1-02 QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork and site grading in compliance with all applicable regulations.

B. Testing and Inspection Service:

1. The Contractor will engage a testing and inspection service approved by the owner, to include testing soil materials proposed for use in the work and field facilities for quality control testing during earthwork and site grading operations. Soil survey for satisfactory soil materials and samples or soil materials shall be furnished to the testing service by the Contractor.

1-03 JOB CONDITIONS

A. Site Information: Refer to the GENERAL CONDITIONS for below ground conditions.

B. Existing Utilities: Notify existing utilities 72 hours in advance of digging. Locate existing underground utilities in the areas of work before starting earthwork operations. Where utilities are to remain in place, provide adequate means of protection during earthwork operations.

1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the utility owner or engineer immediately for directions. Cooperate with the Owner, and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility Owner.

2. Do not interrupt existing utilities serving facilities occupied and used by the Owner or other, except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided.

3. Demolish and completely remove from the site underground utilities indicated to be removed. Coordinate with local utility companies for shut-off of services if lines are active.

C. No blasting will be permitted on this project without prior written approval from the regulatory agencies and engineer or owner

D. Temporary Protection: Protect structures, utilities, sidewalks, pavements, and other facilities from damages caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

PART 2 - MATERIALS

2-01 DEFINITIONS

A. Satisfactory soil materials are defined as those complying with the American Association of State Highway and with the American Association of State Highway and Transportation Officials (AASHTO) Designation M145, soil classification Groups A-1, A-2-5 and A-3. (Excluding gravel or stone fragments larger than ½ inch in diameter).

B. Unsatisfactory soil materials are defined as those described in AASHTO M145 for soil classification Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7; also, peat and other highly organic soils unless otherwise acceptable to the Engineer.

C. Cohesionless Soil Materials: Cohesionless soil materials include gravels, sand-gravel mixtures, sands and gravelly-sands.

D. Cohesive soil materials include clayey and silty gravels, sand-clay mixtures, gravel-silt mixtures, clayey and silty sands, sand-silt mixtures, clays, silts, and very fine sands.

2-02 SOIL MATERIALS

A. Backfill and fill materials shall be satisfactory soil materials for backfill and fill, free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, and other deleterious matter. Use excavated or organic material that has been sampled, tested, and certified as satisfactory soil material.

PART 3 - EXECUTION

3-01 INSPECTION

A. Examine the areas and conditions under which earthwork and site grading are to be performed and do not proceed with the work until unsatisfactory conditions have been corrected.

3-02 EXCAVATION

A. Excavation consists of the removal and disposal of materials encountered when establishing the required grade elevations.

B. Excavation Classifications: The following classifications of excavation will be made when unanticipated rock excavation is encountered in the work. Do not perform work until material to be excavated has been cross-sectioned and classified by the Engineer. Excavation will be paid for on the basis of applicable contract conditions relative to changes in the work.

1. Earth excavation includes the removal and disposal of pavements and other obstructions visible on the ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and all other materials encountered that are not classified as rock excavation or unauthorized excavation.

2. Rock excavation consists of the removal and disposal of materials encountered that cannot be excavated with a 3/4 cubic yard capacity power shovel without drilling and blasting, or continuous use of a ripper or other special equipment, except materials that are classified as earth excavation.

   a. Typical of materials classified as rock are boulders ½ cubic yard or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.

   b. Intermittent drilling that may be performed to increase production and is not necessary to permit excavation of the material encountered will be classified as earth excavation.

3. Unauthorized excavation consists of removal of materials beyond indicated elevations without the specific direction of the Engineer. Replace unauthorized excavation by backfilling and compacting as specified for authorized excavations of the same classification, unless otherwise directed by the Engineer.

C. Additional Excavation: When excavation has reached required subgrade elevations, notify the Engineer. If unsuitable materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material as directed by the Engineer. Removal of

unsuitable material and its replacement as directed will be paid on the basis of contract conditions relative to changes in the work.

D. Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations, and flooding the project site and surrounding area.

1. Do not allow water to accumulate in excavations. Remove water from excavations to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey the water away from the site.

2. Convey water removed from excavations and rain water to collecting or run-off areas. Do not use trench excavations for site utilities as temporary drainage ditches.

E. Material Storage: Stockpile excavated materials classified as satisfactory soil material where directed, until required for fill. Place, grade, and shape stockpiles for proper drainage. Dispose of excess unsatisfactory soil material, trash and debris, off the site.

3-03 COMPACTION

A. General: Control soil compaction during construction, providing the minimum percentage of density specified for each area classification.

B. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship determined in accordance with ASTM D1557; and not less than the following percentages of relative density, determined in accordance with ASTM D2049, for soils which will not exhibit a well-defined moisture-density relationship: Compact to 12 inches of subgrade and each layer of backfill or fill material at 95 percent maximum dry density or 90 percent relative dry density.

C. Moisture Control: Where the subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to the surface of subgrade, or layer of soil material, to prevent free water appearing on the surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

3-04 BACKFILL AND FILL

A. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface. When the existing ground surface has a density less than that specified under "Compaction" for the particular area classification, break-up the ground surface, pulverize, moisture-condition to the optimum moisture content, and compact to the required depth and percentage of maximum density.

B. Placement and Compaction: Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches loose depth for material compacted by hand-operated compactors.

1. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the soil material. Compact each layer to the required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

2. Backfill excavations as promptly as the work permits, but not until completion of inspection, testing, approval, and recording location of underground utilities, as required.

3-05 GRADING

A. General: Uniformly grade areas within the limits of site grading including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades. The degree of finish required will be that ordinarily obtainable from eight blade-grader or scraper operations.

B. Ditches: Finish ditches to ensure proper flow and drainage. Conduct final rolling operations to produce a hard, uniform and smooth cross-section.

C. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below the required subgrade elevations, compacted as specified, and free from irregular surface changes.

3-06 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction: Testing service must inspect and approve subgrades and fill layers before further construction work is performed.

B. Perform field density tests in accordance with ASTM D1556 (sand cone method) or ASTM D2167 (rubber balloon method).

C. Make at least one field density test of the subgrade for every 2000 sq. ft., but in no case less than three tests.

D. In each compacted fill layer, make one field density test for every 2000 sq. ft., but in no case less than three tests.

E. If, in the opinion of the Engineer, based on reports of the testing service and inspection, the subgrade or fills which have been placed are below the specified density, additional compaction and testing will be required until satisfactory results are obtained.

F. The results of density tests of soil-in-place will be considered satisfactory if the average of any four consecutive density tests which may be selected are in each instance equal to or greater than the specified density, and if not more than one density test out of five has a value more than two percent below the required density.

3-07 MAINTENANCE

A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to the specified tolerances.

B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, re-shape, and compact to the required density prior to further construction.

3-08 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Removal to Designated Areas on Owner's Property: Transport excess excavated material classified as satisfactory soil material to designated soil storage areas on the Owner's property. Stockpile soil or spread across the ground, as directed.

B. When designated spoil areas are provided; transport waste material, including excavated material classified as unsatisfactory soil material, trash, and debris; to designated spoil areas on the Owner's property and dispose of as directed.

C. Removal from Owner's Property: Remove waste materials, including excavated material classified as unsatisfactory soil material, trash and debris, and dispose of it off the Owner's property in a legal manner.

END

SECTION 02447

STEEL FENCES AND GATES, GALVANIZED

PART 1 - GENERAL

1-01 DESCRIPTION

A. Provide galvanized steel fences and gates where shown on the drawings.

B. The types of steel fences and gates include the following:

1. Galvanized steel systems.
2. Swing gates.
3. Sliding gates.

1-02 QUALITY ASSURANCE

A. Standards of Manufacture: Comply with the standards of the Chain Link Fence Manufacturer's Institute of "Galvanized Steel Chain Link Fence Fabric" and as herein specified.

B. Provide each type of steel fence and gates as a complete unit produced by a single manufacturer, including necessary erection accessories, fittings and fastenings.

1-03 SUBMITTALS

A. Product Data: Submit copies of manufacturer's technical data and installation instructions of steel fences and gates.

B. Shop Drawings: Submit shop drawings for steel fences and gates, including plan layout and details illustrating fence height, location and sizes of posts, rails, braces, gates and footings, hardware list and erection procedures.

PART 2 - PRODUCTS

2-01 GENERAL

A. Pipe sizes indicated are commercial pipe sizes. Furnish Schedule 40 pipe or SS-40 as manufactured by Allied Pipe and Conduit Corporation, or approved equal.

B. Tube sizes indicated are nominal outside dimensions.

C. Roll-formed section sizes are the nominal outside dimensions.

D. H-section sizes are nominal flange dimensions.

2-02 FINISH FOR FRAMEWORK AND APPURTENANCES

A. Provide galvanized finish with not less than minimum weight of coating complying with the following:

1. Pipe: Schedule 40 (ASTM A120), 1.8 oz. zinc psf.

2. Pipe: SS-40, 1.0 oz. per sq. ft. hot-dip galvanized zinc plus 30 micrograms per sq. inch chromate conversion coating plus 0.0005 inch thick electrostatically sprayed polyurethane coating.

3. Square tubing: ASTM A123, 2.0 oz. zinc psf.

4. H-sections: ASTM A123, 2.0 oz. zinc psf.

5. Hardware and Accessories: ASTM A153, zinc weight in accordance with Table 1 thereof.

2-03 FABRIC

A. Furnish chain link fabric, one-piece, for fence heights up to 12', as follows:

1. No. 9 ga., 2" mesh.

2. Top selvages twisted and barbed and bottom selvages knuckled.

B. Galvanized Finish: Not less than 2.0 oz. zinc per sq. ft., complying with ASTM A392, Class 2.

2-04 POSTS, RAILS AND BRACES

A. End, Corner, and Pull Posts: Minimum sizes and weights as follows:

1. Up to 6' fabric height:

a. 2.375" OD Schedule 40 pipe, 3.65 lbs. per lin. ft., or
b. 2.375" OD SS-40 pipe, 3.11 lbs. per lin. ft., or
c. 2.00" square tubing, 2.60 lbs. per lin. ft., or
d. 3.50" x 3.50" roll-formed section, 5.10 lbs. per lin. ft.

B. Line Posts: Minimum sizes and weights as follows. Space posts 10' o.c., maximum, unless otherwise indicated.

1. Up to 6' fabric height:

a. 1.90" OD Schedule 40 pipe, 2.72 lbs. per lin. ft., or
b. 1.90" OD SS-40 pipe, 2.28 lbs. per lin. ft., or
c. 1.875" x 1.625" roll-formed section, 2.40 lbs. per lin. ft.

C. Gate Posts: For supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths, minimum weights and sizes as follows:

1. Up to 6' wide:

a. 2.875" OD Schedule 40 pipe, 5.79 lbs. per lin. ft., or
b. 2.875" OD SS-40 pipe, 4.64 lbs. per lin. ft., or
c. 2.50" square tubing, 5.10 lbs. per lin. ft., or
d. 3.50" x 3.50" roll-formed section, 5.10 lbs. per lin. ft.

2. Over 6' and up to 13' wide: 4.00" OD Schedule 40 pipe, 9.11 lbs. per lin. ft.

3. Over 13' and up to 18' wide: 6.625" OD Schedule 40 pipe, 18.97 lbs. per lin. ft.

4. Over 18' wide: 8.625" OD Schedule 40 pipe, 24.70 lbs. per lin. ft.

D. Top Rail: Minimum weights and sizes as follows:

1. 1.660" OD Schedule 40 pipe, 2.27 lbs. per lin. ft., or

2. 1.660" OD SS-40 pipe, 1.84 lbs. per lin. ft., or

3. 1.65" x 1.25" roll-formed section, 1.35 lbs. per lin. ft.

4. Furnish in manufacturer's longest lengths, with expansion type couplings, approximately 6" long, for each joint. Provide means for attaching the top rail securely to each gate, corner, pull, and end post.

E. Post Brace Assembly: For fencing over 6' high, furnish bracing assemblies at end and gate posts and at both sides of corner and pull posts, with horizontal brace located at mid-height of the fabric. Use 1.660" OD Schedule 40 pipe weighing 2.27 lbs. per lin. ft. or 1.660" OD SS-40 pipe weighing 1.84 lbs. per lin. ft. for horizontal brace and 3/8" diameter rod with turnbuckle for diagonal truss.

F. Tension Wire: Furnish tension wire consisting of galvanized 7 gauge coiled spring wire. Locate at bottom of fabric only where top rail is specified. Locate at bottom and top of fabric where no top rail is specified.

G. Barbed Wire Supporting Arms: Furnish pressed steel, wrought iron, or malleable iron barbed wire supporting arms, complete with provision for anchorage to posts and attaching three rows of barbed wire to each arm. Supporting arms may be either attached to posts or integral with post top weather cap. Provide the following type:

1. Single 45 degree arm, one for each post where indicated.

H. Barbed Wire: Two strand, 12-1/2 ga. galvanized steel wire with 14 ga., 4-point barbs spaced 5" o.c. galvanized, complying with ASTM A121, Class 3.

I. Post Tops: Pressed steel, wrought iron, or malleable iron, designed as a weather tight closure cap for tubular posts. Furnish one cap for each post unless equal protection is afforded by combination post top cap and barbed wire supporting arm, where barbed wire is required. Where top rail is specified, furnish caps with openings to permit through passage of the top rail.

J. Stretcher Bars: One-piece lengths equal to full height of fabric, with a minimum cross-section of 3/16" x 3/4". Provide one stretcher bar for each gate and end post, and two for each corner and pull post, except where fabric is integrally woven into the post.

K. Stretcher Bar Bands: Steel, wrought iron, or malleable iron, spaced not over 15" o.c. to secure stretcher bars to end, corner, pull, and gate posts. Where rails are specified, bands may also be used with special fittings for securing rails to end, corner, pull and gate posts.

2-05 GATES

A. Fabricate gate perimeter frames of tubular members. Provide additional horizontal and vertical members to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Provide center upright for gate leaf 8 feet and wider. Provide center rail for gate leaf 10 feet and higher. Fabricate as follows:

1. Up to 6' high, or leaf width 8' or less:

   a. 1.660" OD Schedule 40 pipe weighing 2.27 lbs. per lin. ft., or
   b. 1.660" OD SS-40 pipe, weighing 1.84 lbs. per lin. ft., or
   c. 1-1/2" square tubing weighing 1.90 lbs. per lin. ft.

2. Over 6' high, or leaf width exceeding 8':

   a. 1.90" OD Schedule 40 pipe weighing 2.72 lbs. per lin. ft., or
   b. 1.90" OD SS-40 pipe weighing 2.28 lbs. per lin. ft., or
   c. 2" square tubing weighing 2.60 lbs. per lin. ft.

3. Interior bracing:

   a. 1.660" OD Schedule 40 pipe weighing 2.27 lbs. per lin. ft., or

b. 1.660" OD SS-40 pipe weighing 1.84 lbs. per lin. ft., or
c. 1.50" square tubing weighing 1.90 lbs. per lin. ft.

B. Assemble gate frames by welding or with special malleable or pressed steel fittings and rivets for rigid connections. Use same fabric as for fence, unless otherwise indicated. Install fabric with stretcher bars at vertical edges. Bars may also be used at top and bottom edges. Attach stretchers to gate frame on all sides at not more than 15" o.c. Attach hardware with rivets or by other means which will provide security against removal or breakage.

C. Install diagonal cross-bracing consisting of 3/8" diameter adjustable length truss rods on gates where necessary to ensure frame rigidity without sag or twist. Where barbed wire is indicated above gates, extend the end members of gate frames 1'-0" above the top member and prepare to receive three strands of wire. Provide necessary clips for securing wire to extensions.

D. Gate Hardware: Furnish the following hardware and accessories for each gate.

1. Hinges: Pressed or forged steel or malleable iron to suit gate size, non-lift-off type, offset to permit 180 degrees gate opening. Provide 1-1/2 pair of hinges for each leaf over 6' nominal height.

2. Latch: Forked type or plunger-bar type to permit operation from either side of gate, with padlock eye as integral part of latch.

3. Keeper for Vehicle Gates: Provide keeper for vehicle gates, which automatically engages the gate leaf and holds it in open position until manually released.

4. Double Gates: Provide gate stops for double gates, consisting of mushroom type or flush plate with anchors. Set in concrete to engage the center drop rod or plunger bar. Include locking device and padlock eyes as an integral part of the latch, using one padlock for locking both gate leaves.

5. Sliding Gates: Provide manufacturer's standard heavy-duty track, ball-bearing hanger sheaves, overhead framing and supports, guides, stays, bracing, double wheel gate end support and accessories as required.

2-06 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Wire Ties: For tying fabric to line posts, use 9 ga. wire ties spaced 12" o.c. For tying fabric to rails and braces, use 9 ga. wire ties spaced 24" o.c. For tying fabric to tension wires, use 11 ga. hog rings spaced 24" o.c. Finish of ties to match fabric finish. Manufacturer's standard procedure will be accepted if of equal strength and durability.

B. Concrete: Provide concrete consisting of portland cement complying with ASTM C150, aggregates complying with ASTM C33, and clean water. Mix materials to obtain concrete with a minimum twenty-eight day compressive strength of 2500 psi, using at least four sacks of cement per cu. yd., 1" maximum size aggregate, maximum 3" slump, and 2 percent to 4 percent entrained air.

PART 3 - EXECUTION

3-01 INSPECTION

A. Examine the conditions under which the fence and gates are to be installed and correct unsatisfactory conditions before proceeding with the work.

3-02 INSTALLATION

A. General: Do not begin fence installation and erection before the final grading is completed, with finish elevations established, unless otherwise permitted.

B. Excavation:

1. Excavate or drill holes, of diameters and spacings shown for post footings in firm, undisturbed or compacted soil. If not shown on the drawings, excavate holes to the minimum diameters as recommended by fence manufacturer.

2. Unless otherwise indicated, excavate hole depths approximately 3" lower than the post bottom, with bottom of posts set not less than 36" below the surface when in firm, undisturbed soil.

   a. Spread soil from excavations uniformly adjacent to the fence line, or on adjacent areas of the site, as directed.

3. When solid rock is encountered near the surface, drill into rock at least 12" for line posts and at least 18" for end, pull, corner, and gate posts. Drill hole at least 1" greater diameter than the largest dimension of the post to be placed. If solid rock is below soil overburden, drill to full depth required, except penetration into rock need not exceed the minimum depths specified above.

C. Setting Posts:

1. Remove loose and foreign materials from sides and bottoms of holes, and moisten soil prior to placing concrete.

2. Center and align posts in holes 3" above bottom of excavation.

3. Place concrete around posts in a continuous pour, and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.

4. Trowel finish tops of footings, and slope or dome to direct water away from posts. Extend footings for gate posts to the underside of bottom hinge. Set keeps, stops, sleeves and other accessories into concrete as required.

5. Keep exposed concrete surfaces moist for at least seven days after placement, or cure with membrane curing material, or other acceptable curing material.

6. Grout-in posts set into sleeved holes, concrete constructions, or rock excavations with non-shrink portland cement grout, or other acceptable grouting material.

D. Concrete Strength: Allow concrete to attain at least 75% of its minimum twenty-eight day compressive strength, but in no case sconer than seven days after placement, before rails, tension wires, barbed wire, or fabric is installed. Do not stretch and tension fabric and wires, and do not hang gates until the concrete has attained its full design strength. Take samples and test concrete to determine strength as specified in concrete sections of Division 3.

E. Top Rails: Run rail continuously through post caps or extension arms, bending to radius for curved runs. Provide expansion couplings as recommended by fencing manufacturer.

F. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

G. Tension Wire: Install tension wires by weaving through the fabric and tying to each post with not less than 6 ga. galvanized wire, or by securing the wire to the fabric.

H. Fabric: Leave approximately 2" between finish grade and bottom selvage, except where bottom of fabric extends into concrete. Pull fabric taut and tie to posts, rails and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.

I. Repair damaged coatings in the shop or during field erection by recoating with manufacturer's recommended repair compound, applied per manufacturer's directions.

J. Stretcher Bars: Thread through or clamp to fabric 4" o.c. and secure to posts with metal bands spaced 15" o.c.

K. Barbed Wire: Install three parallel wires on each extension arm; on security side of fence, unless otherwise indicated. Pull wire taut and fasten securely to each extension arm.

L. Gates: Install gates plumb, level, and secure, for full opening without interference. Install ground-set items in concrete for anchorage, as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricate where necessary.

M. Tie Wires: Use U-shaped wires, conforming to diameter of post to which attached, clasping pipe and fabric firmly with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

N. Fasteners: Install nuts for tension band and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

END

SECTION 02449

STEEL FENCES AND GATES, PVC COATED

PART 1 - GENERAL

1-01 DESCRIPTION

A. Provide PVC coated galvanized steel fences and gates for the well pump and motor installations where shown on the drawings.

B. The types of steel fences and gates include the following:

1. Galvanized steel systems with PVC (polyvinyl chloride finish).
2. Swing gates with PVC finish.

1-02 QUALITY ASSURANCE

A. Standards of Manufacture: Comply with the standards of the Chain Link Fence Manufacturer's Institute of "Galvanized Steel Chain Link Fence Fabric" and as herein specified.

B. Provide each type of steel fence and gates as a complete unit produced by a single manufacturer, including necessary erection accessories, fittings and fastenings.

1-03 SUBMITTALS

A. Product Data: Submit copies of manufacturer's technical data and installation instructions of steel fences and gates.

B. Samples: Submit two samples approximately 6" square of fabric material.

C. Shop Drawings: Submit for steel fences and gates, including plan layout and details illustrating fence height, location and sizes of posts, rails, braces, gates and footings, hardware list and erection procedures.

PART 2 - PRODUCTS

2-01 GENERAL

A. Pipe sizes indicated are commercial pipe sizes. Furnish Schedule 40 pipe or SS-40 as manufactured by Allied Pipe and Conduit Corporation, or approved equal.

B. Tube sizes indicated are nominal outside dimensions.

C. Roll-formed section sizes are the nominal outside dimensions.

2-02 FINISH FOR FRAMEWORK AND APPURTENANCES

A. Provide galvanized finish prior to application of PVC finish with not less than minimum weight of coating complying with the following:

1. Pipe: Schedule 40 (ASTM A120), 1.8 oz. zinc psf.
2. Pipe: SS-40, 1.0 oz. per sq. ft. hot-dip galvanized zinc plus 30 micrograms per sq. inch chromate conversion coating plus 0.0005 inch thick electrostatically sprayed polyurethane coating.
3. Square tubing: ASTM A123, 2.0 oz, zinc psf.
4. Hardware and Accessories: ASTM A153, zinc weight in accordance with Table I thereof.

B. Polyvinyl Chloride, PVC, epoxy modified plastic resin finish, fusion bonded to galvanized finish, minimum 10-mil thickness. Color shall be black.

2-03 FABRIC

A. Furnish chain link fabric, one-piece, as follows:

1. No. 9 ga., 2" mesh.
2. Top selvages twisted and barbed and bottom selvages knuckled.

B. Galvanized Finish: Not less than 2.0 oz. zinc per sq. ft,. complying with ASTM A392, Class 2 prior to application of PVC finish.

C. PVC Finish: Polyvinyl chloride plastic resin finish over galvanized steel wire, not less than 15 mils thick. Color shall be green or as directed by Owner.

2-04 POSTS, RAILS AND BRACES

A. End, Corner, and Pull Posts: Minimum sizes and weights as follows:

1. Up to 6' fabric height:

a. 2.375" OD Schedule 40 pipe, 3.65 lbs. per lin. ft,. or
b. 2.375" OD SS-40 pipe, 3.11 lbs. per lin. ft., or
c. 2.00" square tubing, 2.60 lbs. per lin. ft., or
d. 3.50" X 3.50" roll-formed section, 5.10 lbs. per lin. ft.

B. Line Posts: Minimum sizes and weights as follows. Space posts 10' o.c., maximum, unless otherwise indicated.

1. Up to 6' fabric height:

a. 1.90" OD Schedule 40 pipe, 2.72 lbs. per lin. ft., or
b. 1.90" OD SS-40 pipe, 2.28 lbs. per lin. ft., or
c. 1.875" X 1.625" roll-formed section, 2.40 lbs. per lin. ft.

C. Gate Posts: For supporting single gate leaf. or one leaf of a double gate installation, for nominal gate widths, minimum weights and sizes as follows:

1. Over 6' and up to 13' wide: 4.00" OD Schedule 40 pipe, 9.11 lbs. per lin. ft.

D. Top Rail: Minimum weights and sizes as follows:

1. 1.660" OD Schedule 40 pipe, 2.27 lbs. per lin. ft., or
2. 1.660" OD SS-40 pipe, 1.84 lbs. per lin. ft., or
3. 1.65" X 1.25" roll-formed section, 1.35 lbs. per lin. ft.
4. Furnish in manufacturer's longest lengths, with expansion type couplings, approximately 6" long, for each joint. Provide means for attaching the top rail securely to each gate, corner, pull, and end post.

E. Post Brace Assembly: For fencing over 6' high, furnish bracing assemblies at end and gate posts and at both sides of corner and pull posts, with the horizontal brace located at min-height of the fabric. Use 1.660" OD Schedule 40 pipe weighing 2.27 lbs. per lin. ft. or 1.660" OD SS-40 pipe weighing 1.84 lbs. per lin. ft. for horizontal brace and 3/8" diameter rod with turnbuckle for diagonal truss.

F. Tension Wire: Furnish tension wire consisting of galvanized 7 gauge coiled spring wire. Locate at bottom of fabric only where top rail is specified. Locate at bottom and top of fabric where no top rail is specified.

supporting arms, complete with provision for [illegible] wire to each arm. Supporting arms may be either attached to posts or integral with post top weather cap. Provide following type:

1. Single 45 degree arm, one for each post where indicated.

H. Barbed Wire: Two strand, 12-1/2 ga. galvanized steel wire with 14 ga., 4-point barbs spaced 5" o.c. galvanized, complying with ASTM A121, Class 3 and then PVC coated, per manufacturer's standards. Color shall be black.

I. Post Tops: Pressed steel, wrought iron, or malleable iron, designed as a weather tight closure cap for tubular posts. Furnish one cap for each post unless equal protection is afforded by combination post top cap and barbed wire supporting arm, where barbed wire is required. Where top rail is specified, furnish caps with openings to permit through passage of the top rail.

J. Stretcher Bars: One-piece lengths equal to full height of fabric, with a minimum cross-section of 3/16" X 3/4". Provide one stretcher bar for each gate and end post, and two for each corner and pull post, except where fabric is integrally woven into the post.

K. Stretcher Bar Bands: Steel, wrought iron, or malleable iron, spaced not over 15" o.c. to secure stretcher bars to end, corner, pull, and gate posts. Where rails are specified, bands may also be used with special fittings for securing rails to end, corner, pull and gate posts.

2-05 GATES

A. Fabricate gate perimeter frames of tubular members. Provide an additional horizontal and vertical member to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Provide center upright for gate leaf 8 feet

1. Up to 6' high, or leaf width 8' or less:

   a. 1.660" OD Schedule 40 pipe weighing 2.27 lbs. per lin. ft., or
   b. 1.660" OD SS-40 pipe, weighing 1.84 lbs. per lin. ft., or
   c. 1-1/2" square tubing weighing 1.90 lbs. per lin. ft.

2. Over 6" high, or leaf width exceeding 8':

   a. 1.90" OD Schedule 40 pipe weighing 2.72 lbs. per lin. ft., or
   b. 1.90" OD SS-40 pipe weighing 2.28 lbs. per lin. ft., or
   c. 2" square tubing weighing 2.60 lbs. per lin. ft.

3. Interior bracing

   a. 1.660" OD Schedule 40 pipe weighing 2.27 lbs. per lin. ft., or
   b. 1.660" OD SS-40 pipe weighing 1.84 lbs. per lin. ft., or
   c. 1.50" square tubing weighing 1.90 lbs. per lin. ft.

B. Assemble gate frames by welding or with special malleable or pressed steel fittings and rivets for rigid connections. Use same fabric as for fence, unless otherwise indicted. Install fabric with stretcher bars at vertical edges. Bars may also be used at top and bottom edges. Attach stretchers to get frame on all sides at not more than 15" o.c. Attach hardware with rivets or by other means which will provide security against removal or breakage.

C. Install diagonal cross-bracing consisting of 3/8" diameter adjustable length truss rods on gates where necessary to ensure frame rigidity without sag or twist. Where barbed wire is indicated able gates, extend the end members of gate frames 1'-0" above the top member and prepare to receive three strands of wire. Provide necessary clips for securing wire to extensions.

D. Gate Hardware: Furnish the following hardware and accessories for each gate.

1. Hinges: Pressed or forged steel or malleable iron to suit gate size, non-lift-off type, offset to permit 180 degrees gate opening. Provide 1-1/2" pair of hinges for each leaf over 6' nominal height.
2. Latch: Forked type or plunger-bar type to permit operation from either side of gate, with padlock eye as integral part of latch.
3. Keeper for Vehicle Gates: Provide keeper for vehicle gates, which automatically engages the gate leaf and holds it in open position until manually released.
4. Double Gates: Provide gate stops for double gates, consisting of mushroom type or flush plate with anchors. Set in concrete to engage the center drop rod or plunger bar. Include locking device and padlock eyes as an integral part of the latch, using one padlock for locking both gate leaves.

2-06 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Wire Ties: For tieing fabric to line posts, use 9 ga. wire ties spaced 12" o.c. For tying fabric rails and braces, use 9 ga. wire ties spaced 24" o.c. For tying fabric to tension wire, use 11 ga. hog rings spaced 24" o.c. Finish of ties to match fabric finish. Manufacturer's standard procedure will be accepted if of equal strength and durability.

B. Concrete: Provide concrete consisting of portland cement complying with ASIM C150, aggregates complying with ASTM C33, and clean water. Mix materials to obtain concrete with a minimum twenty-eight day compressive strength of 2500 psi, using at least four sacks of cement per cu. yard., 1" maximum size aggregate, maximum 3" slump, and 2 percent to 4 percent entrained air.

PART 3 - INSTALLATION

A. General: Do not begin fence installation and erection before the final grading is completed, with finish elevations established, unless otherwise permitted.

B. Excavation:

1. Excavate holes, of diameters and spacings shown for post footings in firm, undisturbed or compacted soil. If not shown on the drawings, excavate holes to the minimum diameters as recommended by fence manufacturer.
2. Unless otherwise indicated, excavate hole depths approximately 3" lower than the post bottom, with bottom of posts set not less than 36" below the surface when in firm, undisturbed soil.

    a. Spread soil from excavations uniformly adjacent to the fence line, or on adjacent areas of the site, as directed.

3. When solid rock is encountered near the surface, drill into rock at least 12" for line posts and at least 18" for end, pull, corner, and gate posts. Drill hole at least 1" greater diameter than the largest dimension of the post to be placed. If solid rock is below soil overburden, drill to full depth required, except penetration into rock need not exceed the minimum depths specified above.

C. Setting Post:

1. Remove loose and foreign materials from sides and bottoms of holes, and moisten soil prior to placing concrete.
2. Center and align posts in holes 3" above bottom of excavation.
3. Place concrete around posts in a continuous pour, and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.

4. Trowel finish tops of footings, and slope or dome to direct water away from posts. Extend footings for gate posts to the underside of bottom hinge. Set keeps, stops, sleeves and other accessories into concrete as required.
5. Keep exposed concrete surfaces moist for at least seven days after placement, or cure with membrane curing material, or other acceptable curing method.
6. Grout-in posts set into sleeved holes, concrete constructions, or rock excavations with non-shrink portland cement grout, or other acceptable grouting material.

D. Concrete Strength: Allow concrete to attain at least 75% of its minimum twenty-eight day compressive strength, but in no case sooner than seven days after placement, before rails, tension wires, barbed wires, or fabric is installed. Do not stretch and tension fabric and wires, and do not hang gates until the concrete has attained its full design strength. Take samples and test concrete to determine strength.

E. Top Rails: Run rail continuously through post caps or extension arms, bending to radius for curved runs. Provide expansion couplings as recommended by fencing manufacturer.

F. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

G. Tension Wire: Install tension wires by weaving though the fabric and typing to each post with not less than 6 ga. galvanized wire, or by securing the wire to the fabric.

H. Fabric: Leave approximately 2" between finish grade and bottom selvage, except where bottom of fabric extends into concrete. Pull fabric taut and tie to posts, rails and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.

I. Repair damaged coatings in the shop or during field erection by recoating with manufacturer's recommended repair compound, applied per manufacturer's directions.

J. Stretcher Bars: Thread through or clamp to fabric 4" o.c. and secure to posts with metal bands spaced 15" o.c.

K. Barbed Wire: Install three parallel wires on each extension arm; on security side of fence, unless otherwise indicated. Pull wire taut and fasten securely to each extension arm.

L. Gates: Install gates plumb, level, and secure, for full opening without interference. Install ground-set items in concrete for anchorage, as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricate where necessary.

M. Tie Wires: Use U-shaped wires, conforming to diameter of post to which attached, clasping pipe and fabric firmly with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

N. Fasteners: Install nuts for tension band and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

END

SECTION 02487

GRASS SEEDING, MULCHING AND SODDING

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work specified in this section consists of the establishing of a stand of grass within the areas disturbed or damaged by construction and maintaining such areas until completion and final acceptance of project. The methods specified herein are grassing by seeding and grassing by sodding.

B. The Contractor shall solid sod, seed, or spot sod and over-seed unpaved non-traffic areas affected by his work within the Construction Limits as shown on the Drawings. The Contractor shall be responsible for a good stand of grass as specified, free of weed and foreign growth.

C. All lawns, well grassed areas within or adjacent to the right-of-way and slopes steeper than 3:1 that are disturbed or damaged by the construction operations shall be restored by resodding. Sod shall be the same type of grass to match contiguous undisturbed areas. In rural areas within or adjacent to the right-of-way, or at other points along the construction route, disturbed areas of grass other than lawns may be restored by seeding and mulching where this procedure will satisfy the requirements pertaining to remedying or restoring such areas.

D. Grassing will not be required along pipe line locations falling within areas not covered by a stand of grass or other suitable growth at the time of construction. Such areas shall be established as shown in bid documents.

E. Planted areas including seeded, spot and solid sodded areas, shall be kept sufficiently watered until full coverage of grass is obtained or until accepted by the Owner.

1-02 SUBMITTALS

A. Fertilizer: Submit manufacturers data.

B. Seed: Submit a certification tag for each type of seed used, prior to sowing the seed. The certification tag shall have the following information: Grass type and variety; percent of inert matter; germination percentage; and percent of weed seed.

C. Sod: Submit a certification tag for each type of sod used, prior to placement of sod. The certification tag shall state the type and variety of sod and the date of cutting.

PART 2 - PRODUCTS

2-01 FERTILIZER

A. Fertilizer shall be a standard commercial grade designated as 8-8-8 which has a chemical analysis as follows: Total nitrogen not less than 8 percent; available phosphoric acid not less than 8 percent; and, water soluble potash not less than 8 percent.

B. All fertilizer shall comply with applicable regulations and shall be fully labeled at the time of delivery to the job site.

C. The Fertilizer shall be furnished in standard containers with name, weight and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizer.

D. The fertilizers may be supplied in one of the following forms:

1. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

2. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

3. A granular or pellet form suitable for application by blower equipment.

2-02 GRASS SEED

A. During the period between February 15 and October 15 (spring and summer) the seed mixture shall be 175 lbs. Argentina Bahia per acre and 45 lbs. hulled Bermuda per acre.

B. During the period between October 15 and February 15 (fall and winter) the seed mixture shall be 175 lbs. Argentina Bahia per acre and 45 lbs. hulled Bermuda per acre and 45 lbs. Winter Rye per acre.

C. All grass seed shall have a minimum of 85% pure live seed and a maximum of 6% weed seed.

D. Seed shall be furnished separately or in mixtures in standard containers with the seed name, lot number, net weight, percentages of purity and of germination and hard seed and percentage of maximum weed seed content clearly marked for each kind of seed.

E. All seed shall meet the requirements of the State Department of Agriculture and Consumer Services and all applicable Federal, State and local laws and regulations.

F. Seed which has become wet or moldy shall not be used.

2-03 MULCH

A. Mulch Material: Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Low grade, musty, spoiled, partially rotted hay, straw, or other materials, which contain matured seed of hay species which would volunteer and be detrimental to the proposed overseeding, or to surrounding farm land, will not be acceptable. Straw of other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

B. Straw: Straw shall be threshed plant residue of oats, wheat, barley, rye or rice from which the grain has been removed, or coastal Bermuda or Bahia grass hay.

C. Manufactured Mulch: Cellulose-fiber or wood-pulp mulch shall be products commercially available for use in spray application.

D. Asphalt Binder: Asphalt binder material shall conform to the requirements of AASHTO M140, Type SS-1 or RS-1, as appropriate.

2-04 GRASS SOD

A. The sod shall be taken up on commercial-size rectangles, preferably 12-inch by 24-inch or larger, except where 6-inch strip sodding is called for. The sod shall be sufficiently thick to secure a dense stand of live grass. The sod shall be live, fresh, and uninjured, at the time of planting and shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. It shall be reasonably free to weeds and other grasses. It shall be planted as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted. The source of the sod may be inspected and approved by the Engineer prior to being cut for use in the work. After approval, the area for which the sod is to be harvested shall be closely mowed and raked as necessary to remove excessive top growth and debris.

B. Comply with all current restrictions in regard to the movement of sod, as issued by the Division of Plant Industry, Florida Department of Agriculture and the Animal and Plant Health Inspection Service, U.S. Department of Agriculture.

2-05 TOPSOIL

A. Soil for top soiling prior to grassing and for repair of eroded or washed out areas shall be topsoil which is fertile, friable, natural loam, surface soil, reasonably free to subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than 2" in any dimension, and other extraneous or toxic matter that will interfere with subsequent sowing of seed, compacting and establishing turf. Topsoil shall be approved by the Engineer before being placed.

1. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at project site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4"; do not obtain from bogs or marshes.

PART 3 - EXECUTION

3-01 PREPARATION OF GROUND

A. Final grading and cleaning of the area to be seeded or sodded shall be completed prior to preparation of the ground for grassing. If any damage by erosion or other causes has occurred after the completion of grading, the Contractor shall repair said damage. This may include filling gullies, smoothing irregularities and repairing other incidental damage.

B. In areas where soil types are used for subgrade fill that are not conducive to the growth of a healthy, well established stand of grass, a 4-inch layer of topsoil shall be spread over the subgrade fill prior to grassing. Topsoil used shall be as specified hereinbefore.

C. The areas to be grassed shall be scarified and loosened to a depth of at least 5 inches. All areas shall be smooth and raked or otherwise cleared of large clods, stones larger than 2 inches in any dimension, sticks, roots, stumps and other debris which may interfere with grassing operations, the growth of grasses or subsequent maintenance of grass covered areas.

D. No subsequent operations shall commence until the Engineer has approved the condition of prepared areas.

3-02 FERTILIZATION

A. Following advance preparations and cleanup, commercial fertilizer shall be spread uniformly over the area to be grassed by machine spreading at the rate of 800 pounds per acre.

B. Immediately after the fertilizer is spread, it shall be raked in and thoroughly mixed with the soil to a depth of approximately two inches.

3-03 GRASS SEEDING

A. Dry Application Method:

1. Seeding: Grass seed shall be sown, at the rate specified, immediately after fertilization, while the soil is still loose and moist. The seed shall be scattered uniformly over the area to be grassed by a mechanical hand spreader or other approved type of spreader. The seed shall be raked into the soil to a depth not to exceed 1/4 of an inch.

2. Rolling: After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot of width for sandy or light soils.

B. Wet Application Method:

1. General: Contractor may apply seed and fertilizer by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified.

2. Spray Equipment: Shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. Container or tank shall be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

3. Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds. The mixtures shall be applied by means of a high pressure spray which shall always be directed upward into the air so that the mixture will fall to the ground like rain in a uniform spray. Nozzles or spray shall never be directed toward the ground in such a manner as might produce erosion or runoff.

4. Particular care shall be exercised to insure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area. Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing tests sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

5. On surfaces which are to be mulched, seed and fertilizer applied by the spray method need not be raked into the soil or rolled.

3-04 MULCHING

A. Applying Mulch:

1. Mulch shall be applied immediately after seeding. Mulch may be spread by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

2. Mulch material shall be evenly applied on the area that has been seeded at the rate of 1-1/2 to 2 tons per acre to provide a loose depth of not less than 1-1/2 inches nor more than 3 inches. Mulch may be blown on the slopes and the use of cutters in the equipment for this purpose will be permitted to the extent that at least 95% of the mulch in place on the slopes shall be 6 inches or more in length. When mulches applied by the blowing method are cut, the loose depth in place shall be not less than one inch nor more than 2 inches.

B. Holding Mulch:

1. Mulch shall be held in place by light discing, a very thin covering of topsoil, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the Engineer. Where mulches have been secured by either of the asphalt binder methods, it will not be permissible to walk on the slopes after the binder has been applied. The Contractor is warned that in the application of asphalt binder material, he must take every precaution to guard against damaging or disfiguring structures or property on or adjacent to the areas worked and that he will be held responsible for any such damage resulting from his operations.

2. If the "Peg and String" method is used, the mulch shall be secured by the use of stakes or wire pins driven into the ground on 5-foot centers or less. Binder twine shall be strung between adjacent stakes in straight lines and criss-crossed diagonally over the mulch, after which the stakes shall be firmly driven nearly flush to the ground to draw the twine down tight onto the mulch.

3. If the "Asphalt Spray" method is used, all mulched surfaces shall be sprayed with asphalt binder material so that the surface has a uniform appearance. The binder shall be uniformly applied to the mulch at the rate of approximately 8.0 gallons per 1,000 square feet, with a minimum of 6.0 and a maximum of 10.0 gallons per 1,000 square feet depending on the type of mulch and the effectiveness of the binder securing it. Bituminous binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet from the surface of the mulch and uniform distribution of the bituminous material

shall be required. A pump or an air compressor of adequate capacity shall be used to insure uniform distribution of the bituminous material.

4. If the "Asphalt Mix" method is used, the mulch shall be applied by blowing, and the asphalt binder material shall be sprayed into the mulch as it leaves the blower. The asphalt binder material shall be applied at the same rates as specified above.

3-05 GRASS SODDING

A. Sodding shall be incorporated into the project at the earliest practical time in the life of the contract. No sod which has been cut for more than 72 hours shall be used unless specifically authorized by the Engineer after his careful inspection thereof. Any sod which is not planted within 24 hours after cutting shall be stacked in an approved manner and maintained properly moistened.

B. Sodding shall not be performed when weather and soil conditions are, in the Engineer's opinion, unsuitable for proper results.

C. The sod shall be placed on the prepared surface, with edges in close contact, and shall be firmly and smoothly embedded by light tamping with appropriate tools or rolled with approved rollers.

D. Where sodding is used in drainage ditches, the setting of the pieces shall be staggered, so as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas the offsets of individual strips shall not exceed six inches. In order to prevent erosion caused by vertical edges at the outer limits, the out pieces of sod shall be tamped so as to produce a featheredge effect.

E. On areas where the sod may slide, due to steepness of the slope, the sod shall be pegged. Pegs shall be driven through the sod blocks into firm earth, at suitable intervals.

F. Approved devices, such as sod cutters, shall be used for cutting the sod and due care shall be exercised to retain the native root intact.

G. Any pieces of sod which, after placing, show an appearance of extreme dryness shall be removed from the work and replaced with healthy sod.

3-06 MAINTENANCE OF GRASSED AREAS

A. The Contractor shall, at his expense, protect and maintain the planted areas in a satisfactory condition until final inspection and acceptance of the project.

B. Maintenance shall include the filling, leveling, repairing and replanting of any washed or eroded areas, as may be necessary. The Engineer, at any time, may require replanting of any areas in which the establishment of the grass stand does not appear to be developing satisfactorily. If a planted area must be replanted due to the Contractor's negligence, carelessness or failure to provide routine maintenance of such area, such replacement shall be at the Contractor's expense.

C. Maintenance shall continue until a uniform turf is established composed of the grass or grasses specified and until acceptance. For the purpose of establishing an acceptable standard, scattered bare spots, none of which is larger than two sq. ft., will be allowed up to a maximum of five percent of any grassing area.

END

SECTION 02513

ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work includes base course, prime coat, tack coat and surface course.

B. The extent of the paving work as shown on the drawings.

C. All work within a right of way shall meet or exceed the requirements set by the regulatory agencies.

1-02 REFERENCE

A. The Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition, is referred to hereafter as the Standard Specifications.

1-03 QUALITY ASSURANCE

A. The Contractor shall furnish certification from suppliers that materials are as specified.

1-04 TESTING

A. The Contractor shall employ an approved independent testing laboratory to do all testing. All testing charges shall be paid to the laboratory.

B. The number of tests required by the applicable sections of the Standard Specifications shall be completed by the Contractor.

C. Placing additional work over material that has not been tested and approved may require the Contractor to remove permanent work, provide approved tests and replace the work at no additional cost to the Owner.

1-05 TEST REPORTS

A. The required number of copies of the test reports shall be transmitted directly from the laboratory to the Engineer.

B. Test reports shall be identified by project title, project location and location of each on-site test submitted.

PART 2 - PRODUCTS

2-01 BASE COURSE

A. Limerock Base shall be used in accordance with Section 200 of the Standard Specifications.

2-02 PRIME AND TACK COAT

A. Prime and tack coat shall be used in accordance with Section 300 of the Standard Specifications.

2-03 SURFACE COURSE

A. Type S-1 or S-3 Asphaltic Concrete (as specified by the engineer) shall be used in accordance with Section 331 of the Standard Specifications.

PART 3 - EXECUTION

3-01 EQUIPMENT AND PLANT

A. Equipment and plant shall be in accordance with the applicable sections of the Standard Specifications.

B. Spreading and screening equipment for asphaltic concrete that is not self-propelled may be used with prior written approval of the Engineer.

3-02 PROCEDURES

A. Construction procedures shall be in accordance with the applicable sections of the Standard Specifications.

3-03 PAVEMENT REPLACEMENT

A. All pavement that is removed during construction shall be replaced. When the pavement remaining after excavation is less than 6 feet wide, the entire width of paving shall be replaced.

B. The thickness of subgrade, base, and surface shall be equal to existing but not less than as shown on the drawings.

C. The type of base and surface shall match the existing.

D. Pavement shall be saw cut 6 inches minimum outside base excavation limits to provide a vertical joint for the pavement patch.

E. The pavement replacement shall be maintained for six months and any areas that settle more than 3/4 inch below normal pavement template shall be replaced. Settlement of less than 3/4 inch below normal pavement template shall require leveling. Settlement of less than 3/4 inch below normal pavement template shall require leveling.

END

SECTION 02529

CONCRETE WALKS AND PAVING

PART 1 - GENERAL

1-01 DESCRIPTION

A. The extent of concrete walks and paving as shown on the drawings.

B. All work within the right of way shall meet or exceed the requirements set by the regulating agency.

PART 2 - PRODUCTS

2-01 MATERIALS

A. Forms: Forms shall be made of steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Straight forms that are free of distortion and defects shall be used.

1. Flexible spring steel forms or laminated boards shall be used to form radius bends as required.

2. Forms shall be coated with a non-staining form release agent that will not discolor or deface the surface of the concrete.

B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A185.

C. Concrete Materials: Concrete materials shall comply with requirements of applicable Division 3 sections for concrete materials, admixtures, bonding materials, curing materials, and other as required.

PART 3 - EXECUTION

3-01 SURFACE PREPARATION

A. Loose material shall be removed from the compacted sub-base surface immediately before placing concrete.

3-02 FORM CONSTRUCTION

A. Forms shall be set to the required grades and lines, rigidly braced and secured. A sufficient quantity of forms shall be installed to allow continuous progress of the work and to allow forms to remain in place at least 24 hours after concrete placement.

B. The completed form work shall be checked for grade and alignment to the following tolerances:

1. The top of forms shall not be more than 1/8 inch in 10 feet.
2. The vertical face on longitudinal axis shall not be more than 1/4 inch in 10 feet.

C. Forms shall be cleaned after each use and coated with form release agent as often as required to ensure separation from concrete without damage.

3-03 CONCRETE PLACEMENT

A. General: Concrete placement shall comply with the requirements of Section 03010, Concrete Work, for mixing and placing concrete, and as herein specified.

B. Do not place concrete until sub-base and forms have been checked for line and grade. Sub-base may be moistened if a uniform dampened condition is required at the time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

C. Concrete shall be placed using methods which prevent segregation of the mix. Concrete shall be consolidated along the face of forms and adjacent to transverse joints with an internal vibrator. Vibrator shall be kept away from joint assemblies or side forms. Only square-faced shovels shall be used for hand-spreading and consolidation.

D. Concrete shall be deposited and spread in a continuous operation between transverse joints, as far as possible. If operation is interrupted for more than ½ hour, a construction joint shall be placed.

3-04 JOINTS

A. General: Construction expansion, contraction, and construction joints true-to-line shall be constructed with face perpendicular to the surface of the concrete, unless otherwise indicated. Transverse joints shall be constructed at right angles to the centerline, unless otherwise indicated.

B. Contraction Joints: Contraction joints shall be provided by sectioning concrete into areas as shown on the drawings. Joints shall be constructed for a depth equal to at least 1/4 concrete thickness as follows:

1. Tooled Joints: Joints shall be formed in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.

2. Sawed Joints: Joints shall be formed using powered saws that are equipped with shatterproof abrasive or diamond-rimmed blades. Joints shall be cut into hardened concrete as soon as the surface will not be torn, abraded, or otherwise damaged by cutting action.

C. Construction Joints: Construction joints shall be placed at the end of all pours and at locations where placement operations are stopped for a period of more than ½ hour, except where such pours terminate at expansion joints. Joints shall be constructed as shown or, if not shown, standard metal keyway-section forms shall be used.

D. Expansion Joints: Premolded joint filler shall be provided for expansion joints abutting concrete curbs, walks, and other fixed objects, unless otherwise indicated.

1. Joint fillers shall be extended the full width and depth of joint and not less than ½ or more than 1 inch below finished surface where joint sealer is indicated. If there is no joint sealer, the top of joint filler shall be placed flush with the finished concrete surface.

2. Joint fillers shall be furnished in one piece lengths for the full width being placed whenever possible. Where more than one length is required, joint filler sections shall be laced or clipped together.

3. The top edge of the joint filler shall be protected during concrete placement with a metal cap of temporary material. This protection shall be removed after the concrete has been placed on both sides of joint.

3-05 CONCRETE FINISHING

A. After striking-off and consolidating concrete, the surface shall be smoothed by screeding and floating. Hand methods shall be used only where mechanical floating is not possible. The floating shall be adjusted to compact the surface and produce a uniform texture.

B. After floating, contractor shall test surface for trueness with a 10 foot straight edge. Concrete shall be distributed as required to remove surface irregularities and repaired areas shall be refloated to provide a continuous smooth finish.

C. The edges of formed joints shall be worked with an edging tool, and rounded to ½ inch radius, unless otherwise indicated. Any tool marks on the concrete surface shall be removed.

D. After the completion of floating and when excess moisture or surface sheen has disappeared, the surface finishing shall be completed as follows:

1. A broom finish shall be attained by drawing a fine-hair broom across the concrete surface, perpendicular to the line of traffic. The operation shall be repeated if required to provide a fine line texture.

E. Forms shall not be removed for 24 hours after the concrete has been placed. After the form removal, the ends of joints shall be cleaned and any minor honeycombed areas shall be pointed up. Areas or sections with major defects shall be removed and replaced.

3-06 CURING

A. Finished concrete paving shall be protected and cured , complying with applicable requirements of Section 03010, Concrete Work. Moist curing methods shall be used for initial curing whenever possible.

3-07 REPAIRS AND PROTECTIONS

A. Contractor shall repair or replace broken or defective concrete at no additional cost to the Owner.

B. Concrete shall be protected from damage until acceptance of work. Traffic shall be excluded from pavement for at least 14 days after placement of concrete. When construction traffic is permitted, pavement shall be maintained as clean as possible by removing surface stains and spillage of materials as they occur. Concrete pavement shall be swept and washed free of stains, discolcrations, dirt and other foreign material just prior to final inspection.

END

SECTION 03010

CONCRETE WORK

PART 1 - GENERAL

1-01 DESCRIPTION

All cast in place and precast concrete work shown on the drawings is governed by this section.

1-02 QUALITY ASSURANCE

A. Codes and Standards: The contractor shall comply with the provisions of the following codes, specifications and standards, except as otherwise shown or specified. Where provisions of these codes and standards are in conflict with the building code in force for this project, the building code shall govern.

1. ACI 301 "Specifications for Structural Concrete for Buildings".
2. ACI 302 "Guide For Concrete Floor and Slab Construction".
3. ACI 318 "Building Code Requirements for Reinforced Concrete".
4. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".
5. ACI 311 "Recommended Practice for Concrete Inspection".
6. ACI 347 "Recommended Practice for Concrete Formwork".
7. AWS D12.1 "Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction".
8. CRSI "Manual of Standard Practice".

B. Workmanship: The Contractor is responsible for correction of concrete work which does not conform to the specified requirements, including strength, tolerances, and finishes. Deficient concrete shall be corrected as directed by the Engineer. If cylinders and cores indicate unacceptable concrete, load testing or removal and replacement of the concrete may be required at no cost to the Owner.

C. Concrete Testing Service: The Contractor shall employ, at his own expense, a testing laboratory experienced in design and testing of concrete materials and mixes to perform material evaluation tests, to design concrete mixes, and to perform strength tests associated with form removal. The testing agency shall meet the requirements of ASTM E329.

PART 2 - PRODUCTS

2-01 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Unless otherwise specified, formwork for exposed concrete surfaces shall be constructed with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth; exposed surfaces. The form shall be furnished in the largest practicable sizes to minimize the number of joints and to conform to the joint system shown on drawings. Form material shall be sufficiently thick to withstand pressure of newly-placed concrete without bow or deflection. Forms shall be constructed true to line and grade. Arrange forms so that reinforcing steel will not be more than 1-1/2" from finished surface.

B. Forms for Unexposed Finished Concrete: Concrete surfaces which will be unexposed in finished structure shall be formed with plywood, lumber, metal or other acceptable material. Lumber shall be dressed on at least two edges and one side for tight fit.

C. Form Coatings: Commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces shall be used. These compounds also shall not impair subsequent treatments of concrete surfaces to be cured with water or curing compound.

D. All forms shall conform to the tolerances rated in ACI 347 and shall not be removed until after the concrete has cured a minimum of 24 hours.

2-02 REINFORCMENT

A. Design: The reinforcement design indicated on the contract drawings show only the necessary information for detailing the reinforcement and preparing, placing and bending details. Prior to starting the concrete work, the Contractor shall prepare detailed drawings complying with the requirements of ACI 318, detailed in accordance with ACI 315, and adapted to his own selected pouring schedule showing bending, placing and construction joint details. These drawings shall be approved prior to bending or placing of reinforcement.

B. Reinforcing Bar shall be ASTM A 615, Grade 60.

C. Galvanized Reinforcing Bar shall be ASTM A 153, hot-dip galvanized after fabrication and bending.

D. Steel Wire shall be ASTM A 82, plain, cold-drawn, steel.

E. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.

F. Bending: All bends of bars shall be made cold around a pin having a diameter of 3".

G. Placement: Placing of reinforcement shall be done accurately in accordance with the drawings. Metal reinforcement shall be adequately secured in position by concrete spacers. In no case shall the clear space between parallel bars be less than one inch or the distance between the steel and the surface of the concrete be less than 1-1/2" or as shown on the plans. Tolerances for placing shall conform to ACI 318.

H. Supports for Reinforcement: Contractor shall provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Wire bar type supports complying with CRSI recommendations shall be used unless otherwise indicated. Wood, brick and other devices are not acceptable.

I. Slabs-on Grade: Supports or horizontal runners shall be used where wetted base material will not support chair legs.

J. Exposed-to-view Concrete Surfaces: Where legs of supports are in contact with forms, supports with legs which are hot-dip galvanized, plastic protected, or stainless steel protected shall be used.

K. Inspection: After reinforcement has been placed, it shall be inspected and approved by the Engineer prior to placing the concrete. This inspection shall be scheduled at least 48 hours prior to proposed concrete placement.

L. Condition of Surfaces: At time concrete is placed, all metal reinforcement shall be free from rust, scale, frost or other coating that will destroy or reduce the bond.

2-03 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, as follows:

1. Provide Type II cement, except as otherwise indicated.

2. Type III cement for High-Early Strength concrete may be used for prestressed concrete.

3. Use only one brand of cement for each required type throughout the project unless otherwise accepted by the Engineer.

B. Aggregates:

1. General: Aggregates from one source of supply shall be used to ensure uniformity in color, size and shape.

2. Normal Weight Aggregates: Complying with ASTM C 33, and as herein specified.

   a. Fine Aggregate: Clean, sharp, natural sand, free from loam, clay, lumps or other deleterious substances.

   b. Coarse Aggregate: Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:

      1) Crushed stone, processed from natural rock or stone.

      2) Washed gravel, either natural or crushed. Pit or bank run gravel is not permitted.

C. Water: Mixing water shall be clean, fresh, and drinkable.

D. Proportioning and Control: Concrete shall contain no less than 5 bags of cement per cubic yard of concrete.

1. Consistency may be requested by the owner or engineer in the field by the slump test in accordance with ASTM C 143, latest edition. Slump for all concrete shall be 2 to 5 inches. All concrete shall have 4-1/2 percent entrained air with a tolerance in either direction from this optimum of 1-1/2 percent.

2. The air entrainment admixture to be used shall be subject to the approval of the Engineer. Use of a retarding admixture is acceptable if approved when included with the mix designs.

3. The concrete shall be mixed using cement from the same manufacturing run, and coarse and fine aggregate, each from the same processed batch.

E. Mixing Small Quantities: Furnish ready-mixed concrete unless otherwise approved. Conform to ASTM C 94, except as modified herein. Hand mixing may be permitted upon approval of the Engineer. When a portable mixer is used, the entire contents shall be removed from the drum before materials for a succeeding batch are placed therein. Mix concrete only in quantities required for immediate use. Retempering of concrete will not be permitted.

F. Admixtures: When specified provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed directions. Admixtures which have not been incorporated and tested in accepted mixes shall not be used unless otherwise authorized in writing by the Engineer.

1. Air-Entraining Admixture: ASTM C 260.
2. Water-Reducing Admixture: ASTM C 494, Type A.
3. Set-Control Admixture: ASTM C 494, as follows:

   a. Type D, Water-reducing and Retarding.
   b. Type E, Water-reducing and Accelerating.

4. Chloride Ions: Calcium chloride shall not be used in concrete. Admixtures containing chloride ions in excess of amount found in municipal potable water are unacceptable.

G. Placing Concrete:

1. Remove water from excavations before placing. Dry earth shall be wet thoroughly just prior to placing.

2. Place concrete before initial set has occurred and in no case after the mix has contained the water content for more than one hour.

3. Use concrete forks or spades to work concrete into all angles.

4. Use mechanical vibrators for placement of all concrete. Provide standby vibrator on the job while placing. Do not vibrate or tamp forms for compaction of concrete unless specifically approved by the Engineer.

5. Coordinate the work with all sections of the specifications to insure that built-in items are installed as the work progresses. Cutting and patching that will impair the strength or appearance will not be permitted.

H. Curing: Prevent rapid drying by covering all concrete surfaces with waterproof kraft paper, mats, wet burlap, polyethylene film or an approved membrane curing compound for at least 7 days.

I. Testing: All concrete walls and load bearing concrete structures shall be tested as follows:

1. Laboratory: The Contractor shall employ an approved independent testing laboratory to prepare test cylinders and do all testing. Have test reports transmitted directly to the Engineer. Furnish shovels, mixing board, work space, wheelbarrows, to laboratory personnel as needed for molding the cylinders.

2. Cylinders: Make one test set of six cylinders from a sample of the pour in accordance with ASTM C 31.

3. Testing: Test one cylinder at 7 days, one at 14 days, and two cylinders at 28 days for evaluation purposes. The remaining two cylinders shall be held in reserve. Conform to ASTM C 39.

4. Payment: Pay all charges to the laboratory for testing.

5. Evaluation:

   a. If average strength of 28 day test fails to equal or exceed the specified concrete strength, the reserve cylinders will be tested. If the strength of either of the reserve cylinders equals or exceeds the specified concrete strength the concrete represented by these tests will be considered acceptable.

   b. If the reserve cylinders require cylinders require testing and neither cylinder achieves the specified concrete strength, core tests may be required. The core test will be evaluated in accordance with Section 4.8, ACI 318-77.

   c. Should the core testing fail to show acceptability of the concrete, load testing or removal of the concrete may be required at no cost to the Owner.

J. Finishing:

1. Finishes (Surfaces Covered with Forms): Immediately after stripping forms, patch all defective areas with mortar similar to the concrete mix except that all aggregate shall be small. Bulges, minor honeycomb and other minor defects, as designated by the Engineer shall be patched only where exposed to view. After patching, trim remaining bulges and offsets to proper plane. Rub all surfaces with carborundum and water to provide the

hereinafter specified results. Wood grain pattern from wood forms need not be removed but shall be rubbed provide uniformity of surface. Smooth surfaces resulting from overlayed plywood and metal forms rubbed to remove the glaze. Result: Solid concrete surfaces to true and accurate plane, having a uniformly rubbed finish and free of glazed areas. Provide this finish for all exposed surfaces not otherwise specified.

2. Finished (Surfaces Not Covered with Forms): Finish the surface with a wood or machine float to a true and uniform plane with no coarse aggregate visible and then steel trowel the surface to produce a smooth, hard, glassy, polished impervious surface free from trowel marks. Provide this finish for all exposed wearing surfaces. Tolerance 1/8 inch in 10 feet.

2-04 RELATED MATERIALS

A. Preformed Expansion Joint Fillers: Fiber type conforming to ASTM D 1751 or Cork, ASTM D 1752, Type II.

B. Non-Shrink Grout: Non-metallic, Corps of Engineers Spec. CRD-C-621-80.

C. Curing Materials:

1. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 3.

2. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.

a. Waterproof paper.
b. Polyethylene film.
c. Polyethylene-coated burlap.

3. Membrane-Forming Curing Compound: ASTM C 309, Type I.

END

SECTION 05504

MISCELLANEOUS METAL

PART 1 - GENERAL

1-01 DESCRIPTION

A. Miscellaneous metal is as shown on the drawings.

1-02 CODES AND STANDARDS

A. The installation of miscellaneous metal items shall comply with the applicable provisions in the AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings"; and the AWS "Structural Welding Code" unless otherwise indicated.

1-03 SHOP DRAWINGS AND DATA

A. Contractor shall show complete details and instructions for fabrication, assembly, and installation of miscellaneous metal items. Anchor bolts that are required for installation and templates that are used for bolt installation shall be furnished by the contractor.

1-04 INSERTS AND ANCHORAGES

A. Contractor shall furnish inserts and anchoring devices to be built into other work for the installation of miscellaneous metal items. Delivery to job site shall be coordinated to avoid delay.

PART 2 - PRODUCTS

20-1 GENERAL

A. Steel plates, shapes, bars: ASTM A 36.

B. Anchor bolts and nuts: Regular hexagon head Type ASTM A307, Grade A, galvanized.

C. Cold-formed steel tubing: ASTM A 500, Grade B.

D. Steel pipe: ASTM A 53, Type E or S, Grade B.

E. Cold-rolled steel sheets: ASTM A 366.

F. Galvanized steel sheets: ASTM A 526, with ASTM A 525, Grade G90 zinc coating.

G. Concrete inserts: Malleable iron, ASTM A 47, or cast steel, ASTM A 27, inserts, with steel bolts, washers and shims, hot dip galvanized.

2-02 SHOP PAINT

A. The paint for this application shall be FS TT-86, Type II or SSPC Paint 14. Paint shall be applied to cleaned and degreased steel surfaces at a rate which will provide a 2.0 mil dry film thickness.

2-03 GALVANIZING

A. ASTM A 386 for assembled products; A 153 for iron and steel hardware.

PART 3 - EXECUTION

3-01 FABRICATION

A. Materials that are used shall be of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in the finished product. All items that are not specified to be galvanized after fabrication shall be shop-painted.

B. Corners and seams shall be welded continuously. Exposed welds shall be ground smooth and flush.

C. Exposed connections shall be formed with hairline, flush joints and concealed fasteners shall be used where possible.

D. Rough hardware: Contractor shall furnish custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes for framing, supporting, and anchoring woodwork. Materials shall be galvanized, unless otherwise indicated.

3-02 INSTALLATION

A. Contractor shall perform cutting, drilling and fitting required for installation. The work shall be set accurately in location, alignment and elevation, measured from established lines and levels. Anchorage devices and fasteners shall be provided where necessary for installation to other work.

B. Loose items shall be set on cleaned bearing surfaces, using wedges or other adjustments as required. Open spaces shall be solidly packed with commercial non-shrink grout material.

C. Shop paint shall be touched-up after installation. Field welds, bolted connections, and abraded areas shall be cleaned and the same type paint as used in shop shall be applied. Galvanizing repair paint shall be used on damaged galvanized surfaces.

END

SECTION 05520

HANDRAILS AND RAILINGS

PART 1 - GENERAL

1-01 DESCRIPTION

The extent of handrails and railings is shown on the drawings and includes miscellaneous handrails and railings not included in other sections of these specifications.

1-02 SUBMITTALS

Samples, handrails, and railings: Contractor shall submit samples of each type of metal finish including typical welded connections not less than 6" long. Samples will be reviewed for color and texture only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

PART 2 - PRODUCTS

2-01 MATERIALS

A. Aluminum extrusions: ASTM B 221; alloy 6063-T6.

B. Aluminum sheet or plate: ASTM B 209; alloy 6061-T6, unless otherwise indicated. Mill finish.

C. Aluminum castings: ASTM B 108; alloy 214, unless otherwise shown.

D. Stainless steel castings: ASTM A 296, CF8 or CF20.

E. Fasteners: ASTM A 314, Type 316.

F. Non-shrink, nonferrous grout: Sauereisen F-100, Sonneborn Sonogrout, Meadows Sealtight V-3 or Thoroset.

G. Aluminum handrails: 6063-T6, 1-1/2" diameter Schedule 40 (actual OD 1.9"). Clear anodized finish.

H. Aluminum posts: 6061-T6, 1-1/2" diameter Schedule 80. Clear anodized finish.

2-02 FABRICATION

A. General: Exposed work shall be formed true to line and level with accurate angles and surfaces and straight, sharp edges. Exposed edges shall be eased to a radius of approximately 1/32", unless otherwise shown. Bent metal corners shall be formed to the smallest radius possible without causing grain separation or otherwise impairing the work.

B. Non-welded connections: Intermediate post-to-rail connections may be made using internal pipe sleeve locks and Allen screw fasteners. Locking devices which do not produce flush, smooth, rigid, hairline joints will not be acceptable. All other connections shall be welded.

C. Welded connections: Intersections of rails and posts shall be coped. Joints shall be welded and ground smooth. End-to-end joints or railings shall be butt welded or welding connectors may be used at fabricator's option. At connections to supports, post shall be welded directly to aluminum supports, unless otherwise indicated.

D. Corners and seams shall be welded continuously and in accordance with the recommendations of AWS. Contractor shall grind exposed welds smooth and flush to match and blend with adjoining surfaces. Discoloration of finished surfaces will not be acceptable. Welding rods shall be of same material to be welded.

E. Contractor shall form exposed connections with flush, smooth, hairline joints using concealed fasteners wherever possible. Exposed fasteners of the type shown on the drawings shall be used,

or if not shown, use Phillips flathead, countersunk screws or bolts. Contractor shall provide for anchorage coordinated with the supporting structure of the type shown in the drawings. Anchoring devices shall be fabricated and spaced as required to provide adequate support.

F. Toe boards: Contractor shall provide toe boards and fabricate to the dimensions and details shown or, if not shown, use a 4" high x 1/4" plate welded to the inside of each post of railing.

G. Brackets, flanges, and anchors: Contractor shall provide brackets, flanges, and exposed anchors of the same material and finish as supported rails, unless otherwise indicated. Provide bitumastic under bases.

PART 3 - EXECUTION

3-01 The areas and conditions in which the handrails are to be installed shall be examined. Contractor shall not proceed with the work until unsatisfactory conditions have been corrected.

3-02 PREPARATION

Contractor shall furnish setting drawings, diagrams, templates, instructions and directions for the installation of anchorages. Anchorages are items such as concrete inserts, anchor bolts, sleeves, and miscellaneous objects having integral anchors, which are to be embedded in concrete or masonry construction. The delivery of such items shall be coordinated to the project site.

3-03 INSTALLATION

A. Fastening to in-place construction: Stainless steel anchorage devices and fasteners shall be provided where necessary for securing handrails and railing items to in-place construction. The devices shall include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, and connectors as required.

B. Cutting, fitting and placement:

1. Contractor shall perform cutting, drilling and fitting as required for installation. The work shall be set accurately in location, alignment and elevation, plumb, level, true, and free of rack, measured from established lines and levels.

2. Exposed connections shall be fit accurately together to form tight hairline joints. Contractor may not weld, cut, or abrade the surfaces of units which have been coated or finished after fabrication and are intended for field connections.

C. Contractor shall adjust railings prior to securing them in place to ensure proper matching at butting joints and correct alignment throughout their length. Posts shall be spaced not more than 6 feet on center, unless otherwise shown and shall be plumb in each direction. Posts and rail ends sahll be secured to building construction as follows:

1. Posts shall be anccred using pipe sleeves set and anchored into the concrete. Sleeves shall be made of galvanized steel pipe, not less than 4" long and having an inside diameter not less than 1/2" greater than the outside diameter of the inserted pipe post. A steel plate closure secured to the bottom of the sleeve and of width and length not less than 1" greater than the outside diameter of the sleeve shall be used. After the posts have been inserted into the sleeves, the annular space between post and sleeve shall be filled solid with Nito Bond 881-42, manufactured by FOSROC, Inc., or approved equal.

2. Rail ends shall be anchored into concrete and masonry by welding round flanges to rail ends and anchoring them into the wall construction with stainless steel expansion shields and stainless steel bolts.

3. All aluminum surfaces which may contact concrete shall be painted with bitumastic.

END

SECTION 05530

GRATING

PART 1 - GENERAL

1-01 DESCRIPTION

Contractor shalll provide aluminum bar grating work as shown on the drawings. The grating which is not a part of other metal systems in other sections of these specifications is governed by this section.

1-02 SHOP DRAWINGS

Shop drawings will be submitted in accordance with the "General Conditions".

PART 2 - PRODUCTS

2-01 MATERIALS

Aluminum bar grating: ASTM B 221, Alloy 6061 or 6063, -T6 for bearing bars; ASTM B 221 or B 210 for cross bars or bent connecting bars.

2-02 FABRICATION, GENERAL

Contractor shall use materials of the size and thickness shown, or if not shown, of the size recommended by product manufacturer. Work shall be done to the dimensions shown or accepted on final shop drawings, using proven details of fabrication and support. The type of materials shown or specified for the various components of the work shall be used.

2-03 ALUMINUM BAR GRATING

A. Aluminum bar grating shall be provided by Contractor as shown on the drawings, complying with the NAAMM "Aluminum Bar Grating Manual", and as herein specified.

1. Cross bars: Perpendicular to bearing bars, secured by welding or forging.
2. Traffic surface: plain.
3. Aluminum finish: Mill, as fabricated.

B. Contractor shall provide removable grating sections with end-banding bars for each panel, four saddle clip anchors designed to fit over two bearing bars, and four stud bolts with washers and nuts, unless otherwise indicated. Notch gratings for penetrations will be used as indicated. The layout of units should allow grating removal without disturbing items penetrating grating.

1. Openings in grating separated by mour than four bearing bars will be banded of the same material and size as bearing bars, unless otherwise indicated.

2. Notching of bearing bars at supports to maintain elevations will not be permitted.

3. Galvanized steel stud bolts shall be welded to supporting steel members to receive aluminum saddle clip anchors.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Fastening to in-place construction: Provide anchorage devices and fasteners where required for securing and grating to supporting members or prepared openings.

B. Cutting, fitting, and placement: Perform all cutting, drilling and fitting required for installation. Set the work accurately in location, alignment and elevation, plumb, level, true and free of rack.

1. Wherever bar gratings are pierced by pipes, ducts and structural members, cut openings neatly and accurately to size and weld a strap collar not less than 1/8" thick to the cut ends of the bars.

2. The panels shall be divided into sections only to the extent required for installation wherever bar grating platforms and runways are to be placed around previously installed pipe, ducts and structural members.

3. Exposed connections will be accurately fit together to form tight hairline joints.

4. Removable units will be secured to supporting members or framework with manufacturer's standard saddle or clip units.

END

SECTION 07901

CRACK SEALING
HIGH PRESSURE INJECTION

PART 1 - GENERAL

1-01 DESCRIPTION

A. The contractor shall supply all equipment, materials, and labor required for the successful application of sealants, per manufacturer's instructions.

B. The required applications are to be determined in the field.

C. The words "caulk" and "seal" are synonymous and they are defined as follows: to effectively secure the indicated or specified joint with material to make it water and air tight under its normal operating circumstances.

1-02 SUBMITTAL

A. Product data: Submit manufacturer's specifications, recommendations and installation instructions for each type of material required. Include manufacturer's published data, or certified test laboratory report indicating that each material complies with the requirements and is intended generally for the applications shown.

1-03 JOB CONDITIONS

A. Examine the joint surfaces, backing and anchorage to the structure, and the conditions under which the joint sealing work is to be performed. Do not proceed with the joint sealing work until unsatisfactory conditions have been corrected.

B. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions, or when temperatures are above or below manufacturer's recommended limits for installation.

PART 2 - PRODUCTS

2-01 MATERIALS, GENERAL

A. Grade of Sealant: Sealant shall be single component, moisture reactive/cure designed specifically for high pressure injection into concrete cracks and joints.

2-02 SEALANTS

A. Provide a high pressure crack sealant specifically designed for conditions. Sealant shall be "Scotch-Seal" - 5600 (foam) sealant or equivalent.

PART 3 - EXECUTION

3-01 MANUFACTURER'S INSTRUCTIONS

A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise with written instructions.

3-02 JOINT PREPARATION

A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise with written instructions.

B. Prime or seal the joint surfaces whenever shown or recommended by the sealant manufacturer. Do not allow primer-sealer to spill or migrate onto adjoining surfaces.

C. Where cracks have been previously covered with patching material (hydraulic cement, paint, etc.), such material shall be removed so as to reveal the entire crack for visual inspection.

3-03 INSTALLATION

A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise with written instructions.

B. All injection holes shall be drilled directly into the cracks on a 6" spacing. Injection holes shall be drilled to a depth equal to 50% of wall thickness.

C. After injection process is complete and injectors removed, all injection holes shall be filled with hydraulic cement such as PRECO PLUG as manufactured by Preco Industries Ltd., or approved equal.

3-04 CURE AND PROTECTION

A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise with written instructions.

END

SECTION 09900
PAINTING AND COATING

PART 1 - GENERAL

1-01 INTENT

The intent of this Specifications is to provide the material and workmanship necessary to produce complete protection of the surfaces to be coated. This includes all surface preparation, pre-treatment, coating application, touch-up of factory coated surfaces, protection of surfaces not to be coated, clean-up, and appurtenant work, all in accordance with the requirements of the Contract Documents.

1-02 PURPOSE

The purpose of this Specification is to generally outline the work contemplated for the painting and protective coating work as defined under Scope below; together with the General Conditions, Special Provisions and all other Technical Specifications included herewith. All paints and materials used on interior tank or treatment unit surfaces shall conform to AWWA and/or Florida Department of Environmental Protection (FDEP) regulations as they may apply to potable water or wastewater service. The manufacturer furnishing the coating material may be required to furnish certification to the Engineer/Owner that the materials meet these provisions.

1-03 DESCRIPTION

A. The extent of painting work is shown on the drawings and schedules, and as specified herein.

B. The work includes painting and finishing of interior and exterior exposed items and surfaces throughout the project, except as otherwise specified or shown on the drawings.

1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of the work.

C. The work includes field painting of exposed bare and covered pipes and ducts including color coding, and of hangers, exposed steel and iron work, tanks, vessels, and primed metal surfaces of equipment installed under the mechanical and electrical work, except as otherwise indicated.

D. Paint all exposed surfaces normally painted in the execution of a building project whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, or are not specifically excluded from the painting work, paint these the same as adjacent similar materials or areas. If color or finish is not designated, the Owner will select these from standard colors available for the materials systems specified.

1-04 PAINTING NOT INCLUDED

A. The following categories of work are not included as part of the field-applied finish work, unless otherwise noted on the drawings or in the Contract Documents.

1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metal, metal fabrications, hollow metal work, and similar items. Also, for fabricated components such as shop-fabricated or factory-built mechanical and electrical equipment or accessories.

2. Pre-Finished Items: Unless otherwise shown or specified, do not include painting when factory-finishing or installer finishing is specified for such items as, but not limited to, finished electrical equipment including light fixtures, switchgear and distribution cabinets.

3. Concealed Surfaces: Unless otherwise shown or specified, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas. Painting of galvanized work that will be concealed in the completed work is not required. Do not paint structural steel to be encased in concrete, nor structural steel specified not to be painted under Division 5. Except for touch-up as specified in Part 3, painting of shop primed structural steel and ferrous metals that will be concealed in the completed work is not required.

4. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plating, copper, bronze and similar finished materials will not require finish painting, unless otherwise specified.

5. Operating and Machined Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, machined surfaces, grease fittings, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting unless otherwise specified.

   a. Do not paint over any code-requiring labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

6. Other Surfaces: Do not apply to glass, manhole frames and covers, aluminum platform gratings, stair treads, door thresholds, concrete wearing surfaces, or other walking surfaces unless otherwise specified.

1-05 CODES, STANDARDS AND REGULATIONS

A. The work herein specified shall be performed in a legally acceptable manner, and it shall be the responsibility of the Contractor to obtain any and all licenses, permits, and legal approvals required to perform the work specified.

B. All material and work covered by this specification shall comply with all currently approved or accepted provisions of applicable codes and standards published by the following organizations:

ANSI - American National Standards Institute
11 West 42nd
New York, NY 10036
212-642-4900

API - American Petroleum Institute
1220 L Street N.W.
Washington, DC 20005
202-682-8000

ASTM - American Society for Testing and Materials
100 Barr Harbor Dr.
West Conshohocken, PA. 19428
610-832-9500

AWS - American Welding Society
550 N.W. LeJeune Rd.
Miami, FL 33126
305-443-9353

AWWA - American Water Works Association
6666 West Quincy Avenue
Denver, CO. 80235
303-794-7711

FM	-	**Factory Mutual Research** **1151 Boston-Providence Turnpike** **Norwood, MA 02062** **617-762-4300**
NACE	-	**National Association of Corrosion Engineers** PO Box 218340 Houston, TX 77218 1440 South Creek Dr. Houston, TX. 77084-4906 713-492-0535
NEMA	-	National Electrical Manufacturer's Association 2101 L Street N.W. Ste. 300 Washington DC 20037 202-457-8400
NFPA	-	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02269-9101 617-770-3000
OSHA	-	Occupational Safety and Health Act U.S. Department of Labor Occupational Safety & Health Administration 8040 Peters Rd. Bldg. H-100 Fort Lauderdale, FL 33324 954-424-0242
SAE	-	Society of Automotive Engineers 400 Commonwealth Dr. Warrendale PA. 15096-0001 412-776-4841
SSPC	-	Steel Structures Painting Council 40 24th Street Pittsburgh, PA 15222 412-281-2331
SSPWC	-	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034 310-202-7775
UBC	-	Uniform Building Code Published by ICBO
UL	-	Underwriters Laboratories Inc. 333Psingsten Rd. Northbrool IL. 67062 312-273-4255

C. The Contractor shall comply with all applicable Federal, state, and local laws and ordinances.

1-06 ACCEPTABLE COATING MANUFACTURERS

A. Except as otherwise indicated herein, materials specified are from the catalog of the Kop-Coat Inc. listed below. Materials by other manufacturers approved by the Engineer are acceptable provided that they are established to the satisfaction of the Engineer as being compatible with and of equal quality to the coatings of the company listed. The Contractor shall provide satisfactory documentation from the firm manufacturing the proposed material that the material meets the specified requirements and is equivalent or better than the listed materials in the following properties:

1. Quality
2. Durability
3. Resistance to abrasion and physical damage
4. Life expectancy
5. Ability to recoat in future
6. Solids content by volume
7. Dry film thickness per coat
8. Compatibility with other coatings
9. Suitability for the intended service
10. Resistance to chemical attack
11. Temperature limitations in service and during application
12. Type and quality of recommended undercoats and topcoats
13. Ease of application
14. Ease of repairing damaged areas
15. Stability of colors

B. The cost of all testing and analyzing of the proposed substitute materials that may be required by the Engineer, shall be paid by the Contractor. If the proposed substitution requires changes in the contract work, the Contractor shall bear all such costs involved and the costs of allied trades affected by the substitution. These substitutions for other manufacturers must be made and approved prior to the bid date opening.

C. Material Sources: Kop-Coat Inc. is the standard of quality for the industrial coating materials specified in this Section. Where paint numbers are listed, it is to show the type and quality of coatings that are required. For convenience of reference, this specification includes product designations for coatings and coating colors as manufactured by the Kop-Coat Inc., St. Louis, MO. 800-547-2468. Other acceptable manufacturers are, Keeler and Long, Watertown, CT. 203-274-6701, and Tnemec Co., Kansas City, MO. 816-483-3400 , and Porter International, Louisville, Ky. 502-588-9769. Proposed substitute materials must be shown to satisfy the material descriptions and to equal or exceed the properties of the listed materials as required above in Paragraph 1-06 A.

1-07 SUBMITTALS

A. Coating Materials List: The Contractor shall provide six (6) copies of a coating materials list which indicates the manufacturer and the coating number, keyed to the coating schedule herein, for approval of the Engineer. The submittals shall be made sufficiently in advance of the coating operations to allow ample time for checking, correcting, resubmitting and rechecking.

B. Paint Manufacturer's Information: For each paint system to be used, the Contractor shall submit the following listed data prior to beginning painting operations.

1. Paint manufacturer's data sheet for each product used.
2. Paint manufacturer's instructions and recommendations on surface preparation and application.
3. Colors available for each product (where applicable).
4. Compatibility of shop and field applied coatings (where applicable).
5. Material safety data sheet for each product used.

C. Manufacturer's Certificate: Submit a written certification from the paint manufacturer that materials furnished for the work meet or exceed specified requirements.

1-08 DELIVERY AND STORAGE

A. Deliver all coating materials to the job site in original, new and unbroken, sealed packages and containers bearing manufacturer's name and label, and the following information, all of which shall be plainly legible at the time of use:

1. Name or title of material.
2. Fed. Spec. number, if applicable.
3. Manufacturer's stock number and date of manufacturer.
4. Manufacturer's formula or specification number.
5. Manufacturer's batch number.
6. Manufacturer's name.
7. Contents by volume, for major pigment and vehicle constituents.
8. Thinning instructions.
9. Application instructions.
10. Color name and number.

B. Store paint materials and painting tools and equipment, including solvents and cleaning materials, in a well ventilated, dry area and away from high heat. Do not store in building or structure being painted, nor leave overnight therein. Follow manufacturer's recommendations for the safe storage of paints and solvents. Contractor shall store materials in compliance with all local, state, and federal regulations.

1-09 QUALITY ASSURANCE

A. The Contractor shall give the Engineer a minimum of 3 days advance notice of the start of any field surface preparation work or coating application work, and a minimum of 7 days advance notice of the start of any shop surface preparation work.

B. All such work shall be performed only in the presence of the Engineer, unless the Engineer has granted prior approval to perform such work in his absence.

C. Inspection by the Engineer, or the waiver of inspection of any particular portion of the work, shall not relieve the Contractor of his responsibility to perform the work in accordance with these Specifications.

D. Where protective coatings are to be performed by a subcontractor, said subcontractor must provide five (5) references which show that the painting subcontractor has previous successful experience with the specified or comparable coating systems. Include the name, address, and telephone number for the owner of each installation for which the painting subcontractor provided the protective coating.

E. Inspection Devices: The Contractor shall furnish, until final acceptance of the work, inspection devices in good working condition for the detection of holidays, measurement of surface profile, and measurement of dry film thicknesses of the protective coatings. Surface preparation comparison visual standards, profile and dry film thickness devices shall be made available for the Engineer's use at all times while coating is being done. The Contractor shall provide the services of a trained operator of the holiday detection devices until the final acceptance of such coatings. Holiday detection devices shall be operated only in the presence of the Engineer.

F. Surface Cleanliness: Preparation of metallic surfaces shall be based upon comparison with SSPC-VIS 1 (ASTM D2200), and as described herein. The Contractor shall furnish the photographic standards. To facilitate inspection, the Contractor shall, on the first day of abrasive blasting operations, abrasive blast metal panels to the standards specified. Plates shall measure a minimum of 8.5 inches by 11 inches. Panels meeting the requirements of the Specifications shall be initialed by the Contractor and the Owner's representative and coated with a clear non-yellowing finish. One of these panels shall

be prepared for each type of abrasive blasting and shall be used as a comparison standard throughout the project. The Contractor shall provide SSPC-VIS 1 Surface Preparation Standards for use during the abrasive blasting operations.

G. Surface Profile: The blast abrasive shall be suitable to achieve the blast profile as required for the coating system used. The Contractor shall furnish for the Engineer's use, a Keane-Tator Surface Comparator No. 372 or approved equal.

H. Film Thickness Testing: On ferrous metals, the dry film coating thickness shall be measured in accordance with the SSPC "Paint Application Specification No. 2" (SSPC-PA2), using a magnetic-type dry film thickness gauge such as Mikrotest Model FM, Elcometer Model 111/1EZ, Positector 2000 or approved equal. Each coat shall be tested for the correct thickness. No measurements shall be made until at least eight (8) hours after application of the coating. On non-ferrous metals and other substrates, the coating thicknesses shall be measured at the time of application using a wet film gauge.

I. Holiday Testing: The Contractor shall holiday test all coated ferrous surfaces inside a steel reservoir, or other surfaces which will be submerged in water or other liquids, or surfaces which are enclosed in a vapor space in such structures. Areas which contain holidays shall be marked and repaired, or recoated in accordance with the coating manufacturer's printed instructions and then retested.

1. Coatings With Thickness Exceeding 20 Mils: For surfaces having a total dry film coating thickness exceeding 20 mils: Pulse-type holiday detector such as Tinker & Rasor Model AP-W, D.E. Steams Co. Model 14/20, or approved equal shall be used. The unit shall be adjusted to operate at the voltage required to cause a spark jump across an air gap equal to twice the specified coating thickness.

2. Coatings With Thickness of 20 Mils or Less: For surfaces having a total dry film coating thickness of 20 mils or less: Tinker & Rasor Model M-1 non-destructive type holiday detector, K-D Bird Dog or approved equal shall be used. The unit shall operate at less than 75-volts. For thicknesses between 10 and 20 mils, a non-sudsing type wetting agent, such as Kodak Photo-Flo, or equal shall be added to the water prior to wetting the detector sponge.

1-10 MANUFACTURER'S REPRESENTATIVE

A. The Contractor shall require the protective coating manufacturer to furnish a qualified technical representative to visit the project site for technical support and as may be necessary to resolve field problems attributable or associated with the manufacturer's products furnished under this contract or the application thereof.

1-11 SAFETY AND HEALTH REQUIREMENTS

A. General: The Contractor shall provide and require use of personal protective and safety equipment for persons working in or about the project site, in accordance with requirements of OSHA Safety and Health Standards for Construction (29CFR 1910, 1915, and 1926) its revisions, and all other applicable regulations. The Contractor shall also comply with the coating manufacturer's printed instructions, appropriate technical bulletins, manuals, and material safety data sheets in the handling of potentially hazardous or harmful materials.

B. Head and Face Protection and Respiratory Devices: The Contractor shall require all persons to wear protective helmets while in the vicinity of the work. In additions, workers engaged in or near the work during sandblasting shall wear eye and face protection devices and air purifying, half-mask or mouthpiece respirators with appropriate filters. Barrier creams shall be used on any exposed areas of skin.

C. Ventilation: Where ventilation is used to control hazardous exposure, all equipment shall be explosion proof. Forced air ventilation shall be provided to reduce the concentration of air contaminants to the degree such that a hazard does not exist and to assist in the proper curing of coatings applied in a

confined area. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured.

D. Sound Levels: Whenever the occupational noise exposure exceeds maximum allowable sound levels permitted under OSHA regulations, the Contractor shall provide and require the use of approved hearing protection devices.

E. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Engineer, the Contractor shall provide additional illumination to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the Engineer.

F. Temporary Access: All temporary ladders and scaffolding shall conform to applicable safety requirements. Scaffolding shall be erected where requested by the Engineer to facilitate inspection and shall be moved by the Contractor to locations as requested by the Engineer.

G. Cloths and cotton waste that might constitute a fire hazard shall be placed in fire resistant closed metal containers until removed from the project site or destroyed at the end of each work day.

1-12 WARRANTY

A. All work covered under the Contract shall be guaranteed against defective workmanship and materials for a period of one (1) year after completion and acceptance of the work. A first anniversary inspection will be scheduled by the Contractor during the eleventh (11th) month following acceptance of the work. A report shall be furnished to the Owner describing the condition of the paint system and other work covered under the Contract. Tank draining shall be coordinated with the Owner. Any latent defects found during this inspection shall be promptly repaired by the Contractor at no additional cost to the Owner. Any location where coats of paint have peeled off, bubbled or cracked, and any location where rusting is evident, shall be considered a failure of the paint system. The Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surfaces and recoating with the same paint system. Any such repair work shall be completed by the Contractor within thirty (30) days after written notice of such defects unless otherwise negotiated.

B. Failure on the part of the Contractor to schedule this warranty inspection will not relieve him of warranty responsibility and any defects found by the Owner after the normal warranty period will be assumed to have occurred during the one (1) year while the warranty was in effect.

PART 2 - PRODUCTS AND COATING SYSTEMS

2-01 GENERAL

A. Definitions: The term "paint", "coatings", or "finishes" as used herein, shall include surface treatments, emulsions, enamels, paints, epoxy resins, and all other protective coatings, excepting galvanizing or anodizing, whether used as a pre-treatment, primer, intermediate coat, or finish coat. The term "DFT" means minimum dry film thickness.

B. Compatibility: In any coating system, only compatible materials from a single manufacturer shall be used in the work. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, subject to the approval of the Engineer, a barrier coat shall be applied between all existing prime coats and subsequent field coats to insure compatibility.

2-02 COLORS AND FINISHES

A. All colors and shades of colors for all coats of paint shall be as selected or specified. Paint colors, surface treatment, gloss, and finishes, are indicated or specified in the "schedules" of the contract documents. Color and gloss not indicated or specified will be selected by the Owner.

B. Each coat shall be of a slightly different shade, as directed by the Engineer, to facilitate inspection of surface coverage of each coat. Finish colors shall be as selected from the manufacturer's standard color samples or shall be customer mixed to match color samples furnished by the Engineer. Final acceptance of colors will be from samples applied on the job.

C. Color Pigments: Pure, non-fading, applicable types to suit the substrates and service indicated.

D. Paint Coordination: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Furnish information to manufacturers, fabricators, suppliers and others where necessary on the characteristics of the finish materials to be used, to ensure compatible prime coats of use. Provide barrier coats over incompatible primers or remove and re-prime as required.

E. Color Coding: All exposed piping in structures, aboveground or in pipe trenches, shall be color code painted in strict accordance with the color code chart presented in Paragraph 3-15 of this section. All colors shall be as specified or as selected by the Owner.

2-03 UNDERCOATS AND THINNERS

A. Undercoats: Provide undercoat paint produced by the same manufacturer as the finish coats.

B. Thinners: Use only thinners approved by the paint manufacturer and use only within recommended limits.

2-04 INDUSTRIAL COATING SYSTEMS

A. The Contractor shall use coating materials suitable for the intended use and recommended by their manufacturer for the intended service.

B. Protective Coating Materials: Products shall be standard coatings produced by recognized manufacturers regularly engaged in production of such materials for application on essentially identical facilities to those proposed in this project. Where requested, the Contractor shall provide the Engineer with the names of not less than ten (10) successful applications of the proposed manufacturer's products, which have been proven over a three (3) year period of time, demonstrating compliance with this specification requirement.

C. System 1 - Alkyd Enamel: High quality gloss or semi-gloss, long oil alkyd finish with a minimum solids content of 57% by volume. Primer as recommended by manufacturer.

1. Painting New Construction

a. Prime coat except wood surfaces (DFT = 3.0 mils) Kop-Coat 622-LCF Primer.

b. Prime coat for wood surfaces (DFT = 1.5 mils) Kop-Coat Rustarmor 500 enamel thinned 15% with Kop-Coat 4000 Thinner.

c. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat Rustarmor 500 Enamel.

d. Total system DFT except wood surfaces = 6.0 mils
Total system DFT for wood surfaces = 4.5 mils

2. Repainting Existing Surfaces

a. The cleaned steel is to be hand brushed twice with (DFT = 4.0 mils) Kop-Coat 622-LCF Primer. Completely work the primer into all the irregular surface faces of the steel.

b. Finish coats, two (total DFT = 3.0 mils) Kop-Coat Rustarmor 500 Enamel.

c. Total millage shall be at least 7.0 mils.

D. System 2 - Silicone Alkyd Enamel: High quality gloss alkyd, medium long oil alkyd finish. Minimum solids content of 48% by volume. Prime coat to be as recommended by manufacturer.

1. Painting New Construction

a. Prime coat (DFT = 3.0 mils) Kop-Coat 622-LCF Primer.

b. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat Sub-Sil B

c. Total system DFT = 6.0 mils.

2. Repainting Existing Surfaces

a. The cleaned steel is to be hand brushed twice with (DFT = 4.0 mils) Kop-Coat 622-LCF Primer.

b. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat 1515 Silicone Alkyd.

c. Total millage shall be at least 7.0 mils.

E. System 3 - High Build Epoxy: High build polyamide epoxy coating, resistant to splash, spillage and fumes of dilute acids, bases and salts, and with high resistance to weathering. Coating material shall have a minimum solids content of 56% by volume. Prime coat to be a rust inhibitive epoxy primer as recommended by manufacturer.

1. Prime coat (DFT = 1.5 mils) Kop-Coat 294 Epoxy Primer.

2. Finish coats, two (Total DFT = 10.0 mils) Kop-Coat Hi-Gard Epoxy Coating.

3. Total system DFT = 11.5 mils.

F. System 4 Acrylic Latex (High Sheen): Single component, water based acrylic latex with a fungicide additive and minimum solids content of 35% by volume. Prime coat to be as recommended by manufacturer.

1. Prime coat (DFT = 2.0 mils) as recommended by manufacturer, if needed.

2. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat 620 Acrylic Emulsion.

3. Total system DFT = 5.0 mils (with prime coat).
3.0 mils (without prime coat).

G. System 5 - Acrylic, Concrete and Masonry (Flat): High molecular weight acrylic coating material with a minimum solids content of 41% by volume. Prime coat shall be an acrylic filler and sealer for concrete surfaces.

1. Painting New Construction

a. Prime coat (filler/sealer) Kop-Coat Concrete and Masonry Filler.

b. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat 600 Interior-Exterior Acrylic Emulsion.

c. Total system DFT = 3.0 mils.

2. Repainting Existing Surfaces

a. Spot prime if needed with Kop-Coat Concrete and Masonry Filler to insure a consistent total finish appearance.

b. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat 600 Interior-Exterior Acrylic Emulsion.

c. Total millage shall be at least 3.0 mils.

H. System 6 - Coal Tar Epoxy, Steel: High build, 2-component amine or polyamide cured coal tar epoxy, solids content of at least 74% by volume, suitable for long term immersion in wastewater and for coating of buried surfaces, and conforming to or exceeding Corps of Engineers Specification C-200, or SSPC Paint 16. Prime coats are for use as a shop primer only. Prime coat shall be omitted when both surface preparation and coating are to be performed in the field.

1. Prime coat (DFT = 1.5 mils) Kop-Coat 654 Epoxy Primer.

2. Finish coats, two (Total DFT = 20.0 mils) Kop-Coat Bitumastic No. 300-M.

Note: Time between coats is critical and maximum times as stated by the manufacturer must not be exceeded.

3. Total system DFT = 21.5 mils (with prime coat). 20.0 mils (without prime coat).

Notes: a. Spot sandblast to SSPC-SP10 all areas damaged during erection, or areas not precoated before application of coating.

b. All edges, nuts, bolts, lap joints, weld seams and the roof rim angle shall receive one brush-applied coat prior to the application of the complete spray coat.

I. System 7 - Coal Tar Epoxy, Concrete: High build, 2-component amine or polyamide cured coal tar epoxy, solids content of at least 74% by volume, suitable for long term immersion in wastewater and for coating of buried surfaces and conforming to or exceeding Corps. of Engineers Specification C-200, or SSPC Paint 16. Filler compound shall be a 2-component epoxy material used to fill voids and provide a suitable surface for the application of the coal tar epoxy. Filler is worked into the concrete surface with a wide blade putty knife or a squeegee.

1. First coat - Kop-Coat Bitumastic No. 300-M, thinned 33 percent with Thinner 2000 and apply at the rate of 200-300 sq. ft. per gallon. Allow not more than 24 hours before applying additional coats at the normal, unthinned rate.

2. Finish coats, two (Total DFT = 20.0 mils) Kop-Coat Bitumastic No. 300-M.

Note: Time between coats is critical and maximum times as stated by the manufacturer must not be exceeded.

3. Total system DFT = 20.0 mils.

J. System 8-Polyamide Cured Epoxy for Steel or Concrete Potable Water Storage Tanks or Treatment Units: High build polyamide cured epoxy coating with solids contents of at least 56% by volume and a finish coat color of white. The material shall be capable of achieving at least 5 mils dry film thickness per coat. The epoxy coating material shall be suitable for long-term immersion service in potable water. The materials used shall appear on the latest published list of approved coatings for use in potable water issued by the Florida Department of Environmental Protection. Submit a written certification that the proposed materials meet the above regulatory agency standards and policies. Apply the material with a primer if recommended by the coating manufacturer. Thinners and additives shall also be in compliance with this paragraph.

1. Steel Tanks or Treatment Units

   a. First coat (DFT = 5.0 mils) Kop-Coat Hi-Gard Epoxy. See notes (1), (2) and (3)

   b. Finish coat (DFT = 5.0 mils) Kop-Coat Hi-Gard Epoxy

   c. Total system DFT = 10.0 mils

   d. Notes:

      (1) All sharp edges, weld burrs, weld spatter and surface irregularities shall be ground smooth before applying coating.

      (2) Touch-up coating to be done for areas damaged during erection, or areas not pre-coated. Spot sandblast to SSPC-SP10 before application of coating.

      (3) All edges, nuts, bolts, lap joints, weld seams and the roof rim angle shall receive one brush-applied coat prior to the application of the complete spray coat.

2. Concrete Tanks or Treatment Units

   a. First coat (DFT = 4.0 mils) Kop-Coat Hi-Gard Epoxy thinned 20% with Kop-Coat 2,000 Thinner.

   b. Finish coat (DFT = 6.0 mils) Kop-Coat Hi-Gard Epoxy.

   c. Total system DFT = 10.0 mils.

3. Curing Period: Prior to immersion, subject the completed system to at least 7 days of curing time with the substrate temperature at a minimum of 70 degrees F, or 10 days at a minimum of 60 degrees F. More curing time or a higher temperature shall be provided if recommended by the manufacturer. If the environmental conditions do not provide the necessary minimum temperature, use heated air to provide the necessary heat for curing. Other combinations of curing time and temperature may be used if the coating manufacturer presents satisfactory documentation and test results to substantiate that the degree of curing is equal or greater than curing for 7 days at 70 degrees F.

K. System 9 - Polyurethane: High gloss, 2 - component aliphatic polyurethane for use on steel, fiberglass and PVC. Coating material shall have a minimum solids content of 56% by volume. Prep surface as recommended by manufacture. Product is not recommended for interior building surfaces or continuous immersion.

   1. Prime coat (DFT = 3.0 mils) Hi-GARD Epoxy

   2. Finish coats, two (total DFT = 3.0 mils) Kop-Coat 1122 BRS Linear Polyurethane

   3. Total system = 6.0 mils minimum

PART 3 - EXECUTION

3-01 STORAGE, MIXING AND THINNING OF MATERIALS

A. Manufacturer's Recommendations: Unless otherwise specified herein, the coating manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protecting its coating materials, for preparation of surfaces for coating, and for all other procedures relative to coating shall be strictly observed. No substitutes or other deviations will be permitted without written permission of the Engineer. The Contractor shall supply the Engineer with copies of each manufacturer's instructions in accordance with the requirements of Paragraph 1-07, "SUBMITTALS".

B. All protective coating materials shall be used within the manufacturer's recommended shelf life.

C. Storage and mixing of paint or other coating materials shall be performed only in those areas designated by the Engineer.

3-02 PREPARATION FOR COATING

A. General: All surfaces to receive protective coatings shall be cleaned as specified herein prior to application of said coatings. The Contractor shall examine all surfaces to be coated, and shall correct all surface defects before application of any coating material. All marred or abraded spots on shop-primed and on factory-finished surfaces shall receive touch-up restoration prior to any coating application. Do not paint over dirt, rust, scale, oil, grease, moisture, scuffed surfaces or other foreign material or in conditions otherwise detrimental to the formation of a durable paint bond and film.

B. Protection of Surfaces Not to be Coated: Surfaces which are not to receive protective coatings shall be protected during surface preparation, cleaning, and coating operations. All hardware, lighting fixtures, switch plates, machined surfaces, couplings, shafts, bearings, nameplates on machinery and other surfaces not to be painted shall be removed, masked or otherwise protected. Drop cloths shall be provided to prevent coating materials from falling on or marring adjacent surfaces. The working parts of all mechanical and electrical equipment shall be protected from damage during surface preparation and coating operations. Openings in motors shall be masked to prevent entry of coating or other materials.

C. Protection of Adjacent Work and Areas: Care shall be exercised not to damage adjacent work during blast cleaning operations. Spray painting shall be conducted under carefully controlled conditions. The Contractor shall be fully responsible for and shall promptly repair to the satisfaction of te owner any and all damage to adjacent work or adjoining property occurring from blast cleaning or coating operations.

D. Protection of Painted Surfaces: Cleaning and coating shall be so programmed that dust and other contaminants from the cleaning process will not fall on wet, newly-coated surfaces.

3-03 SURFACE PREPARATION STANDARDS

A. The following referenced surface preparation specifications of the Steel Structures Painting Council shall form a part of this Specification:

1. Solvent Cleaning (SSPC-SP1): The method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from steel surfaces through the use of solvent, vapor, emulsion, alkaline, and/or steam.

2. Hand Tool Cleaning (SSPC-SP2): The method for removing all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter through the use of non-power hand tools.

3. Power Tool Cleaning (SSPC-SP3): The method for removing all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter through the use of power assisted hand tools.

4. White Metal Blast Cleaning (SSPC-SP5): The method of preparing steel surfaces which, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, and paint.

5. Commercial Blast Cleaning (SSPC-SP6): The method of preparing steel surfaces which, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, and paint. Evenly dispersed very light shadows, streaks, and discolorations caused by stains of rust, mill scale, and previously applied paint may remain on no more than 33% of the surface.

6. Brush-off Blast Cleaning (SSPC-SP7): The method of preparing steel surfaces which, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface.

7. Near-White Blast Cleaning (SSPC-SP10): The method of preparing steel surfaces which, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, and paint. Evenly dispersed very light shadows, streaks, and discolorations caused by stains of rust, mill scale, and previously applied paint may remain on no more than 5% of the surface.

3-04 SURFACE PREPARATION

A. General: Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.

1. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, reinstall the removed items by workmen skilled in the trades involved.

2. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program the cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly painted surfaces.

3. Remove mildew in accordance with the paint manufacturer's recommendations.

3-05 NEW FERROUS METAL SURFACE PREPARATION (UNGALVANIZED)

A. The minimum abrasive blasting surface preparation shall be as specified in the coating system schedules included at the end of this section. Where there is a conflict between these Specifications and the coating manufacturer's printed recommendations for the intended service, the higher degree of cleaning shall apply.

B. Workmanship for metal surface preparation shall be in conformance with the current SSPC Standards and this section. Blast cleaned surfaces shall match the standard samples available from the National Association of Corrosion Engineers (NACE) Standard TM-01-70.

C. All oil, grease, welding fluxes and other surface contaminants shall be removed by alkaline cleaning per SSPC-SP1 prior to blast cleaning.

D. All sharp edges shall be rounded or chamfered and all burrs, surface defects and weld splatter shall be ground smooth prior to blast cleaning.

E. The type and size of abrasive shall be selected to produce a surface profile that meets the coating manufacturer's recommendation for the particular coating and service conditions. Contractor shall submit data and samples for approval on abrasives to be used on the Project. Abrasives that are used shall be designed for the specific purpose of blast cleaning. Abrasives shall be free of contaminants and chlorides. Ordinary builder's sand shall not be considered to be approved abrasive material. Engineer will periodically sample abrasives used at the job site for comparison with approved submitted materials.

F. The abrasive shall not be reused unless otherwise approved by the Engineer. For automated shop blasting systems, clean oil and moisture-free abrasives shall be maintained.

G. The Contractor shall comply with the applicable federal, state, and local air pollution control regulations for blast cleaning.

H. Compressed air for air blast cleaning shall be supplied at adequate pressure from well maintained compressors equipped with oil/moisture separators which remove all contaminants.

I. Surfaces shall be cleaned of all dust and residual particles of the cleaning operation by dry air blast cleaning, vacuuming or other approved method prior to painting.

J. Enclosed areas and other areas where dust settling is a problem shall be vacuum cleaned and wiped with a tack cloth.

K. Damaged or defective coating shall be removed by the specified blast cleaning to meet the clean surface requirements before recoating.

L. If the specified abrasive blast cleaning will damage adjacent work, the area to be cleaned is less than 100 square feet, and the coated surface will not be submerged in service, the SSPC-SP2, Hand Tool Cleaning, or SSPC-SP3, Power Tool Cleaning, will be permitted.

M. Shop applied coatings of unknown composition shall be completely removed before the specified coatings are applied. Valves, castings, ductile iron pipe, and fabricated pipe or equipment shall be examined for the presence of shop-applied temporary coatings. Temporary coatings shall be completely removed by Solvent Cleaning per SSPC-SP1 before the abrasive blast cleaning work has been started.

N. Shop primed equipment shall be alkaline cleaned in the field before finish coats are applied.

3-06 FERROUS METAL SURFACE PREPARATION (GALVANIZED)

A. All installation and erection caused blemishes to galvanized surfaces shall be touched up in accordance with ASTM A780 prior to coating.

B. Galvanized ferrous metal shall be alkaline cleaned per SSPC-SP1 to remove oil, grease, and other contaminants detrimental to adhesion of the protective coating system to be used.

C. Surfaces shall be pretreated with Kop-Coat 40 Passivator, one coat 0.4 mil DFT, prior to finish coating, in accordance with the printed recommendations of the coating manufacturer.

3-07 SURFACE PREPARATION OF FERROUS SURFACES WITH EXISTING COATINGS, EXCLUDING STEEL TANK OR TREATMENT UNIT INTERIORS (In addition to requirements in Paragraphs 3-05 and 3-06).

A. General: All grease, oil, heavy chalk, dirt, or other contaminants shall be removed by solvent or detergent cleaning prior to abrasive blast cleaning. The Contractor shall determine the generic type of the existing coatings by laboratory testing, at no additional cost to the Owner.

B. Abrasive Blast Cleaning: The Contractor shall provide the degree of cleaning specified in the coating system schedule for the entire surface to be coated. If the degree of cleaning is not specified in the schedule, deteriorated coatings shall be removed by abrasive blast cleaning to SSPC-SP6, Commercial Blast Cleaning. Areas of tightly adhering coatings shall be cleaned to SSPC-SP7, Brush-Off Blast Cleaning, with the remaining thickness of existing coating not to exceed 3 mils.

C. Incompatible Coatings: If coatings to be applied are not compatible with existing coatings, the Contractor shall apply intermediate coatings per the paint manufacturer's recommendation for the specified abrasive blast cleaning. A small trial application shall be conducted for compatibility prior to painting large areas.

D. Unknown Coatings: Coatings of unknown composition shall be completely removed prior to application of new coatings.

3-08 SURFACE PREPARATION FOR REPAINTING EXISTING STEEL

A. The entire structure is to be completely pressure washed at 3,000 to 5,000 psi with potable water.

B. All areas shall be cleaned/sandblasted to the surface preparation standards as specified herin, or superceded by the bid form.

C. All cleaned areas are to be primed the same work day that they are cleaned and blasted.

3-09 PRESSURE WASH CLEANING FOR REPAINTING EXISTING CONCRETE

A. The entire structure is to be pressure washed at 3,000 to 5,000 psi with a solution of 50% water and bleach to yield a mixture with a minimum concentration of 2-1/2% sodium hypochlorite.

B. The entire structure is to be completely rinsed by pressure washing at 3,000 to 5,000 psi with potable water.

3-10 CONCRETE AND CONCRETE BLOCK MASONRY SURFACE PREPARATION

A. Surface preparation shall not begin until at least 30 days after the concrete has been placed.

B. All efflorescence, chalk, dust, dirt, oil and grease shall be removed by Detergent Cleaning per SSPC-SP1 before abrasive blast cleaning.

C. Concrete, concrete block masonry surfaces, previously painted concrete and masonry and deteriorated concrete and masonry surfaces to be coated shall be abrasive blast cleaned to remove laitance, paint, deteriorated concrete, and roughen the entire surface equivalent to the surface of the No. 80 grit flint sandpaper. Concrete shall have a consistent, even texture (void free) and shall be patched where needed.

D. Determine the alkalinity and moisture content of the surfaces to be painted by performing appropriate tests. If the surfaces are found to be sufficiently alkaline to cause blistering and burning of the finish paint, correct this condition before application of paint. Do not paint over surfaces where the moisture content exceeds that permitted in the manufacturer's printed directions.

E. If acid etching is required by the coating application instructions, the treatment shall be made after sandblasting. After acid etching, rinse surfaces with clean water to neutralize the acid and test the pH. The pH shall be between 7.0 and 8.0.

F. Surfaces shall be clean and dry and as recommended by the coating manufacturer before coating is started.

G. Unless required for proper adhesion, surfaces shall be dry prior to coating. The presence of moisture shall be determined with a moisture detection device such as Delmhors Model DB, or approved equal.

3-11 PLASTIC, FIBERGLASS AND NONFERROUS METALS SURFACE PREPARATION

A. Plastic and Fiberglass surfaces shall be sanded or Brush Off Blast Cleaned, SSPC-SP7, prior to solvent cleaning with a chemical compatible with the coating system primer. If blast cleaned, use 60-80 mesh abrasive.

B. Non-ferrous metal surfaces shall be Solvent Cleaned, SSPC-SP1, followed by sanding or Brush Off Blast Cleaning, SSPC-SP7.

C. All surfaces shall be clean and dry prior to coating application.

3-12 WOOD SURFACE PREPARATION

A. Clean wood surfaces to be painted of all dust, dirt, grease, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, with either manual or mechanical means, as applicable, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of the priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic woodfiller. Sandpaper smooth when dried and dust off.

B. Prime or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood.

3-13 WORKMANSHIP

A. Skilled craftsmen and experienced supervision shall be used on all work.

B. Clean drop cloths shall be used. All damage to surfaces resulting from the work hereunder shall be leaned, repaired, and refinished to the complete satisfaction of the Engineer, at no cost to the Owner.

C. All coatings shall be applied under dry and dust-free conditions. Coating shall be done in a workmanlike manner so as to produce an even film of uniform thickness. Edges, corners, crevices, and joints shall receive special attention to insure that they have been thoroughly cleaned and that they receive an adequate thickness of coating material. The finished surfaces shall be free from runs, drops, ridges, waves, laps, alligatoring, brush marks, and variations in color, texture, and finish. The hiding shall be so complete that the addition of another coat would not increase the hiding. Special attention shall be given to insure that edges, corners, crevices, welds, and similar areas receive a film thickness equivalent to adjacent areas, and installations shall be protected by the use of drop cloths or other approved precautionary measures.

3-14 SHOP COATING REQUIREMENTS

A. All items of equipment, or parts of equipment which are not submerged in service, shall be shop primed and then finish coated in the field after installation with the specified or approved color. The methods, materials, application, equipment and all other details of shop painting shall comply with these Specifications. If the shop primer requires top- coating within a specified period of time, the equipment shall be finish coated in the shop and then touch-up painted after installation.

B. All items of equipment, or parts and surfaces of equipment which are submerged when in service, with the exception of pumps and valves shall have all surface preparation and coating work performed in the field.

C. The interior surfaces of steel water reservoirs shall have all surface preparation and coating work performed in the field.

D. For certain pieces of equipment it may be undesirable or impractical to apply finish coatings in the field. Such equipment may include engine generator sets, equipment such as electrical control panels, switch-gear or main control boards, submerged parts of the pumps, ferrous metal passages in valves, or other items where it is not possible to obtain the specified quality in the field. Such equipment shall be shop primed and finish coated in the field with the identical material after installation. The Contractor shall require the manufacturer of each such piece of equipment to certify as part of its shop drawings that the surface preparation is in accordance with these Specifications. The coating material data sheet shall be submitted with the shop drawings for the equipment.

E. For certain small pieces of equipment the manufacturer may have a standard coating system which is suitable for the intended service conditions. In such cases, the final determination of suitability will be made during review of the shop drawing submittals. Equipment of this type generally includes only indoor equipment such as instruments, small compressors, and chemical metering pumps.

F. Shop painted surfaces shall be protected during shipment and handling by suitable provisions including padding, blocking, and the use of canvas or nylon slings. Primed surfaces shall not be exposed to the weather for more than 6 months before finish coating, or less time if recommended by the coating manufacturer.

G. Damage to shop-applied coatings shall be repaired in accordance with this section and the coating manufacturer's printed instructions prior to finish painting.

H. The Contractor shall make certain that the shop primers and field topcoats are compatible and meet the requirements of this section. Copies of applicable coating manufacturer's data sheets shall be submitted with equipment shop drawings.

3-15 APPLICATION OF COATINGS

A. The application of protective coatings to steel substrates shall be in accordance with "Paint Application Specification No. 1", (SSPC-A-1), Steel Structures Painting Council.

B. Cleaned surfaces and all coats shall be inspected prior to each succeeding coat. The Contractor shall schedule such inspection with the Engineer in advance.

C. Blast cleaned ferrous metal surfaces shall be painted before any rusting or other deterioration of the surface occurs. Blast cleaning shall be limited to only those surfaces that can be painted in the same working day.

D. Coatings shall be prepared, mixed and applied in accordance with the manufacturer's instructions and recommendations, and these Specifications. If directions differ, the most stringent requirements shall be followed.

E. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.

F. Stir materials before application to produce a mixture of uniform density, and stir as required during the application of the materials. Do not stir surface film into the coating materials. Remove the film, and if necessary, strain the material before using.

G. Special attention shall be given to edges, angles, weld seams, flanges, nuts and bolts, and other places where insufficient film thicknesses are likely to be present. Use stripe (brushed or gloved) painting for these areas.

H. Finish coats, including touch-up and damage repair coats shall be applied in a manner which will present a uniform texture and color matched appearance.

I. Job Conditions: The following job conditions will be strictly enforced during the application of coatings for the project.

1. Apply water-base coatings only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F and 90 degrees F unless otherwise permitted by the paint manufacturer's printed instructions.

2. Apply solvent-thinned coatings only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F and 95 degrees F unless otherwise permitted by the paint manufacturer's printed instructions.

3. Do not apply paint in dust or smoke laden atmosphere, high winds, rain, fog or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.

4. Do not apply coatings when the temperature is less than 5 degrees F above the dewpoint. Dewpoint shall be determined by use of a sling psychrometer in conjunction with U.S. Weather Bureau psychometric tables.

5. Do not apply coatings when the outside air temperature is expected to drop below 45 degrees F or less than 5 degrees F above the dewpoint, within 8 hours after application of the coating.

6. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

J. The finish coat on all work shall be applied after all concrete, masonry, and equipment installation is complete and the work areas are clean and dust-free.

K. General Considerations:

1. Apply paint as specified and in accordance with the manufacturer's directions. Use brushes for applying first coat on wood and on metals other than steel and sheetmetal and items fabricated from steel and sheetmetal. For other coats on wood, metal and other substrates, use applicators and techniques best suited for the type of material being applied.

2. Apply additional coats when undercoats, stains or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

3. Paint surfaces behind movable equipment the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment with prime coat only before final installation of equipment.

4. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.

5. Paint the back sides of removable or hinged covers to match the exposed surfaces.

6. Finish exterior doors on tops, bottoms and side edges the same as the exterior faces, unless otherwise indicated or specified.

7. Sand lightly between each succeeding enamel coat.

8. Omit the field prime coat on shop-primed surfaces and touch up painted metal surfaces which are not to be finished painted and which will not be exposed to view in the completed work. Do not omit primer on metal surfaces specified to be finish coated or on metal surfaces that will be exposed to view in the completed work.

L. Scheduled Painting:

1. Apply the first coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

2. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

M. Minimum Coating Thickness: Apply each material at not less than the manufacturer's recommended spreading rate, to establish a total dry film thickness as specified or, if not specified, as recommended by coating manufacturer.

N. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to those items exposed in mechanical equipment rooms and in occupied spaces, and on the outside or exterior of buildings or structures:

1. Mechanical items to be painted include, but are not limited to, the following:

   a. Piping, valves, pipe hangers, and supports.
   b. Pumps
   c. Tanks
   d. Duct work, insulation
   e. Motors, mechanical equipment, and supports
   f. Accessory items

2. Electrical items to be painted include, but are not limited to, the following:

   a. Conduit and fittings
   b. Switchgear

O. Prime Coats: Apply a prime coat to material, equipment and surfaces which are required to be painted or finished, and which have not been prime coated by others. Clean and prime unprimed ferrous metals as soon as possible after delivery of the metals to the job site. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

P. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surfaces imperfections.

Q. Pigmented, Opaque Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

R. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3-16 CURING OF COATINGS

A. The Contractor shall provide curing conditions in accordance with the conditions recommended by the coating material manufacturer or by these Specifications, whichever is the more stringent requirement, prior to placing the completed coating system into service.

B. Forced Air Ventilation of Steel Reservoirs and Enclosed Hydraulic Structures: Forced air ventilation is required for the application and curing of coatings on the interior surfaces of steel reservoirs and enclosed hydraulic structures. During curing periods, continuously exhaust air from a manhole in the lowest shell ring or in the case of an enclosed hydraulic structure, from the lowest level of the structure using portable ducting. After all interior coating operations have been completed, provide a final curing period for a minimum of 10 days, during which time the forced air ventilation system shall operate continuously. For additional requirements, refer to the specific written instructions of the manufacturer for the coating system being applied.

3-17 COLOR CODING

A. All exposed piping shall be color coded. After the finish coat has been applied, label each line with stenciled legends identifying the nature of the pipe contents and the direction of flow. This stenciled identification shall appear in one or more places in the line as deemed necessary by the Engineer.

Stencil legends shall be white for all pipe except white color coded pipe, which shall have black legends. Labels shall occur a minimum of every 15 feet of straight piping and at all bends. Minimum stencil size shall be two-inch letters for 4-inch and larger diameter piping and one-inch letters for 2-inch to 3-1/2-inch diameter piping. Piping 1-1/2-inch diameter and smaller shall be identified using plastic wrap-around pipe markers.

B. Items to be coded but not specifically mentioned shall be coated in a color selected by the Engineer or Owner.

C. All paints/coatings used in potable water contact areas must have AWWA and EPA classification and approvals.

D. All requirements of the Occupational Safety and Health Act (OSHA) concerning color coding and safety markings shall be considered part of these Specifications unless specifically excluded.

E. Any paint/coating requirements/specifications not specifically addressed in the foregoing shall be decided upon as required by the Engineer.

F. Every valve or connection, where it may be possible for a worker to be exposed to a hazardous substance, shall be labelled per General Industry Safety Orders, Article 112, OSHA Occupational Safety and Health Standards 29CFR1910.

G. Color Code Chart

APPLICATION	COLOR
Dangerous machine parts, equipment and guards	Orange - Kop-Coat OSHA Safety Orange #J498
Water Lines/Piping	
Raw	Olive Green - Kop-Coat OSHA Safety Green #2383
Settled or Clarified	Aqua - Kop-Coat Marine Green #7333
Finished or Potable	Dark Blue - Kop-Coat OSHA Safety Blue A#183
Reuse Water	Dark Blue/Red Band - Kop-Coat OSHA Safety Blue A#183 with 6" Bands Kop-Coat OSHA Safety Red #0508
Chemical Lines/Piping	
Alum or Sodium Aluminate	Orange - Kop-Coat OSHA Safety Orange #J498
Ammonia	White - Kop-Coat #0800
Carbon Slurry	Black - Kop-Coat #C900
Chlorine (Gas/Solution)	Yellow - Kop-Coat OSHA Safety Yellow #625
Fluoride	Light Blue w/Red Band - Kop-Coat Dawn Blue #8155 with 6" bands of Kop-Coat OSHA Safety Red #0508
Methanol	Red w/Yellow Band - Kop-Coat OSHA Safety Red #0508 with 6" bands of Kop-Coat OSHA Safety Yellow #S625
Lime Slurry	Light Green - Kop-Coat Eye-Rest Green #2369
Odophos	Violet - Kop-Coat OSHA Safety Purple #S585
Sulfuric Acid or Sulfur Dioxide	Light Green w/Yellow Band, Kop-Coat Eye-Rest Green #2369 with 6" bands of Kop-Coat OSHA Safety Yellow #S625

APPLICATION	COLOR	
Waste Lines/Piping		
Backwash Waste	Light Brown - Kop-Coat French Grey #G243	
Return Sludge	Dark Brown - Kop-Coat Dark Brown #G241	
Waste Sludge	Dark Red - Kop-Coat Tile Red #0516	
Untreated Wastewater (Sanitary/Other)	Dark Grey - Kop-Coat Battleship Grey #0761	
Other Lines/Piping		
Compressed Air	Dark Green - Kop-Coat Olive Green #9379	
Gasoline, propane or Diesel	Red - Kop-Coat OSHA Safety Red #0508	
Other	Light Grey - Kop-Coat Light Grey #0746	
Traffic Operations and Housekeeping Marking	White - Kop-Coat White #0800	
Fire Protection Eqp. and Flammable Materials	Red - Kop-Coat OSHA Safety Red #0508	
Pumps, Equipment and Motors	Grey - Kop-Coat Light Grey #0746	
Couplings Guards	Orange - Kop-Coat OSHA Safety Orange #J498	
Chlorine Equipment, Cylinder Lifting Bars and Related Equipment	Yellow - Kop-Coat OSHA Safety Yellow #S625	Bars &
Header Guards & Cylinder Trunnions	Yellow - Kop-Coat OSHA Safety Yellow #S625	
Cranes, Crane Bridges, Hoist and Related Equipment	Yellow - Kop-Coat OSHA Safety Yellow #S625	
Structures Exterior		
All Buildings Exterior	Ivory - Kop-Coat Ivory #0855	
Exterior Doors and and Door Trim	Dark Brown - Kop-Coat Dark Brown #G241	
Ground Storage Tanks and Resevoirs	Ivory - Kop-Coat Ivory #0855	
Filter Tanks	Ivory - Kop-Coat Ivory #0855	
Treatment Tanks	Ivory - Kop-Coat Ivory #0855	
Chemical Storage Tanks w/required chemical color coding by using 3" striping on tank and stencil legend (See above under chemical lines.)	Ivory - Kop-Coat Ivory #0855	
Concreete Floors Interior & Exterior		
Stairways,Steps. Landings & Sidewalks	Wol-Stain	

3-18 COATING SYSTEM SCHEDULES

A. COATING SYSTEM SCHEDULE, FERROUS METAL - NOT GALVANIZED (FM):

Schedule No.	Item	Surface Prep.	System No.
FM-1	All exposed surfaces outdoors, exposed to normal industrial exposure	Commercial Blast Cleaning, SSPC-SP6	Urethane #9
FM-2	All exposed surfaces indoors and outdoors, exposed to moderate and severe industrial exposure	Commercial Blast Cleaning, SSPC-SP6	(2b) Urethane #9

Schedule No.	Item	Surface Prep.	System No.
FM-3	Surfaces in chlorination room, chlorine gas exposure	Commercial Blast Cleaning, SSPC-SP6	(3) High Build Epoxy
FM-4	Surfaces submerged or intermittently submerged in potable water, including all surfaces lower than 2' above high water level and all surfaces inside enclosed hydraulic structures, tanks and treatment units, and all surfaces of valves, couplings and pumps	Near White Metal Blast Cleaning, SSPC-SP10	(3) or (8) High Build Epoxy
FM-5	Surfaces submerged or intermittently submerged in wastewater, including all surfaces lower than 2' above high water level and all surfaces inside enclosed hydraulic structures, tanks and treatment units and all surfaces of valves, couplings and pumps	Near White Metal Blast Cleaning, SSPC-SP10	(6) Coal Tar Epoxy or (3) High Build Epoxy (if color desired)
FM-6	Buried surfaces that are not specified to be coated elsewhere	Near White Metal Blast Cleaning SSPC-SP10	(6) Coal Tar Epoxy
FM-7	Indoor architectural sheet metal, flashings, door frames, and exposed ducts	Commercial Blast Cleaning, SSPC-SP6	(1) Alkyd Enamel
FM-8	Surfaces of indoor equipment	Commercial Blast Cleaning, SSPC-SP6	(1) Alkyd Enamel

B. COATING SYSTEM SCHEDULE, FERROUS METAL - GALVANIZED (FMG):

All galvanized surfaces except for the following items shall be coated unless required by other Sections: (1) Floor gratings and frames, (2) Handrails, (3) Stair treads, (4) Chain link fencing and appurtenances.

Schedule No.	Item	Surface Prep.	System No.
FMG-1	All exposed surfaces indoors and outdoors, except those included below	Solvent Cleaning per Paragraph 3-06	(1) Alkyd Enamel
FMG-2	All exposed surfaces indoors and outdoors, including surfaces in chlorinator room and chlorine storage room, except those included below	Solvent Cleaning per Paragraph 3-06	(3) or (8) High Build Epoxy

Schedule No.	Item	Surface Prep.	System No.
FMG-3	Surfaces buried or submerged in wastewater	Solvent Cleaning per Paragraph 3-06 or Brush Off Grade Blast Cleaning SSPC-SP7	(6) Coal Tar Epoxy
FMG-4	Indoor architectural sheet metal, flashings, doors, frames, and exposed ducts	Solvent Cleaning per Paragraph 3-06	(1) Alkyd Enamel

C. COATING SYSTEM SCHEDULE, STEEL DIGESTER FLOATING COVERS AND DIGESTER GASHOLDERS (SD):

Schedule No.	Item	Surface Prep.	System No.
SD-1	All ferrous surfaces submerged in water or sludge, including rim plate	White Metal Blast Cleaning, SSPC-SP5	(6) Coal Tar Epoxy
SD-2	All ferrous surfaces exposed to digester gas	White Metal Blast Cleaning, SSPC-SP5	(6) Coal Tar Epoxy
SD-3	All interior ferrous surfaces of gasholder shell, including top angle	White Metal Blast Cleaning, SSPC-SP5	(6) Coal Tar Epoxy
SD-4	Exposed, outdoors	Commercial Blast Cleaning, SSPC-SP6	(2) Silicone Alkyd Enamel or Urethane 9

D. COATING SYSTEM SCHEDULE, NON-FERROUS METAL, PLASTIC, FIBERGLASS (NFM):

Where isolated non-ferrous parts are associated with equipment or piping, the Contractor shall use the coating system for the adjacent connected surfaces. Do not coat handrails, gratings, frames or hatches. Only primers recommended by the coating manufacturer shall be used.

Schedule No.	Item	Surface Prep.	System No.
NFM-1	All exposed surfaces indoors and outdoors, except those included below	Solvent Cleaning per Paragraph 3-09	(1) Alkyd Enamel

Schedule No.	Item	Surface Prep.	System No.
NFM-2	Chlorination room and chlorine storage room	Solvent Cleaning per Paragraph 3-09	(3) or (8) High Build Epoxy
NFM-3	Polyvinyl chloride plaastic piping, and fiberglass surfaces, indoors and outdoors, or in structures, not submerged	Solvent Cleaning per Paragraph 3-09	(4) Acrylic Latex

E. COATING SYSTEM SCHEDULE - CONCRETE AND CONCRETE BLOCK MASONRY (C):

Schedule No.	Item	Surface Prep.	System No.
C-1	Exposed, indoors and outdoors, as indicated on the plans	Per Paragraph 3-09	(5b) Acrylic-Concrete Repainting
C-2	Submerged in wastewater as indicated on the plans	Per Paragraph 3-10	(7) Coal Tar Epoxy-Concrete
C-3	Interior surfaces of sewer manholes, including sidewalls, bottom, and metal appurtenances, for manholes and L/S's indicated on the plans	Per Paragraph 3-10	See Specification 09950
C-4	Exterior walls, exposed to chemical splash, washdown etc. as indicated on the plans	Per Paragraph 3-10	(8) High Build Epoxy
C-5	Interior surfaces of potable potable water tanks and treatment units	Per Paragraph 3-10	(8) High Build Epoxy

F. COATING SYSTEM SCHEDULE - WOOD (W):

Schedule No.	Item	Surface Prep.	System No.
W-1	Exposed indoors and outdoors as indicated on the plans	Per Paragraph 3-12	(1) Alkyd Enaml
W-2	Exposed indoors and outdoors as indicated on the plans	Per Paragraph 3-12	(4) Acrylic Latex

3-19 CLEAN-UP AND PROTECTION

A. Clean Up: During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day. Upon completion of painting work, clean window glass and other paint-spattered surfaces located on site and off site. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protection: Protect work of other trades located on site and off site, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting.

1. Provide "Wet Paint" signs, as required, to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

2. At the completion of work of other trades, touch up and restore all damaged or defaced painted surfaces.

3-20 APPEARANCE AND INSPECTION

A. All painting shall be accomplished in a workmanlike manner and shall be free of unsightly sags, runs, bubbles, drips, waves, laps, alligatoring, unnecessary brush marks and overspray or other physical defects and shall be uniform in color.

B. The Contractor shall provide all rigging, scaffolding and other equipment necessary for a satisfactory inspection of a complete paint system and acceptance by the Engineer/Owner.

C. Inspection shall be conducted by an inspector selected by the Engineer/Owner in the presence of the Owner's representative and the Contractor or his representative. Provisions for calibrated and functional test equipment is the responsibility of the Contractor.

D. The paint film shall be free of pinholes and holidays as determined by the use of an approved holiday detector as defined in Paragraph 1-09 of this Section.

E. The paint film shall be randomly checked for dry film thickness as stipulated in the "Coating System" sections of these specifications. Thicknesses shall be checked with a properly calibrated and approved magnetic gauge as defined in Paragraph 1-09 of this Section.

3-21 REPAIR OF DEFECTS IN PAINT

A. Any defects discovered during inspection, such as low film millage, holidays or pinholes, shall be repaired with the same materials as used for the original finish coat(s). Excessive low millage could require extra full coat(s) of paint.

B. A final inspection will be conducted by the Engineer/Owner or his representative after any necessary repairs and prior to final acceptance of the job.

3-22 DISINFECTION OF POTABLE WATER STORAGE TANKS

A. Description: This paragraph specifies disinfection procedures for potable water storage tanks.

B. Quality Assurance: The following documents are a part of this section as specified and modified. In case of conflict between the requirements of this paragraph and those of the listed documents, the requirements of this paragraph shall prevail.

Reference	Title
AWWA D105, latest revision	Disinfection of Water Storage Facilities

C. Information to be Provided: Affidavit of Compliance as described in AWWA D105.

D. After the tank has been painted and the interior surfaces have thoroughly dried, the Contractor shall remove all visible dirt and contaminating materials. The interior of the tank shall be disinfected in accordance with Chlorination Method 2 of AWWA D105. The Contractor shall furnish all of the chlorine required.

E. The Contractor shall be responsible for obtaining proper disinfection as determined by bacteriological testing. Samples for bacterial analyses will be taken and analyzed by the Owner. Two consecutive samples are required to pass the bacteriological tests for the tank to comply with these disinfection requirements.

F. Water for filling the tank after the initial disinfection will be provided by the Owner. If bacteriological testing shows the presence of coliform bacteria, the tank shall be redisinfected. The Contractor shall pay the Owner for water required to fill the tank after the first filling at currently approved General Service water rates for the Owner.

END

SECTION 09950

100% SOLIDS EPOXY PROTECTIVE COATING FOR MANHOLES AND LIFT STATIONS

PART 1 - GENERAL

1-01 INTENT

The intent of this Specification is to provide the material and workmanship necessary to produce complete protection of the surfaces to be coated. This includes all surface preparation, pre-treatment, coating application, touch-up, protection of surfaces not to be coated, clean-up, and appurtenant work all in accordance with the requirements of the Contract Documents.

1-02 SCOPE

This specification shall govern the sealing and corrosion protection of interior concrete surfaces by application of a 100% solids epoxy protective coating. The specification shall include all labor, equipment, tools and materials necessary to provide the protection in accordance with the contract plans.

PART 2 - MATERIALS

2-01 PROPERTIES OF PRIMARY COATING

A. The coating shall be a high build, anti-corrosive, anti-abrasive, and solvent-free epoxy.

B. The coating material shall be resistant to sulfuric acid, nitric acid, chromic acid, phosphoric acid, ferric chloride, magnesium chloride, vegetable fats, animal fats, petroleum oils, petroleum greases, and soaps. It shall be impervious to sewer gases and liquids and shall be non-conducive to bacterial or fungus growth.

2-02 PRODUCT DESCRIPTION

A. The product shall be a 100% solids epoxy build-up coating system designed for high build vertical and overhead applications. Product shall be Aquatapoxy System A-6 supplied by American Chemical Corp., St. Louis, MO (314) 664-2403, Ceilcote #663 supplied by Master Builders, Cleveland, Ohio (800) 227-3350, or WE-613 modified epoxy supplied by Protective Liner Systems,Inc., Oldsmar, FL (813)-855-6550 or approved equal for 30 and 60 mil coating applications.

All 90 and 120 mil build-up coating systems using a 100% solid epoxy, shall incorporate a completely saturated reinforcing fabric. System provided by Protective Liner Systems,Inc., of Florida, Oldsmar, FL.(813)855-6550 is currently approved.

2-03 SUBMITTALS

A. Submission of Data: Submittals shall be made sufficiently in advance of the coating operations to allow ample time for checking, correcting, resubmitting and rechecking.

B. Manufacturer's Information: The Contractor shall submit the following listed data prior to beginning coating operations.

1. Manufacturer's data sheet for product used.
2. Manufacturer's instructions and recommendations on surface preparation and application.
3. Material safety data sheet for each product used.

2-04 DELIVERY AND STORAGE

A. Deliver all coating materials to the job site in original, new and unbroken, sealed packages and containers bearing manufacturer's name and label, and the following information, all of which shall be plainly legible at the time of use:

1. Name or title of material
2. Federal Specification Number, if applicable
3. Manufacturer's stock number and date of manufacturer
4. Manufacturer's formula or specification number
5. Manufacturer's batch number
6. Manufacturer's name
7. Contents by volume, for major pigment and vehicle constituents
8. Thinning instructions, if applicable
9. Application instructions
10. Color name and number

B. Store coating materials and application tools and equipment, including solvents and cleaning materials, in a well ventilated, dry area and away from high heat. Do not store in building or structure being coated, nor leave overnight therein. Follow manufacturer's recommendations for the safe storage of coating and solvents.

PART 3 - EXECUTION

3-01 SURFACE PREPARATION - EXISTING OR NEW CONSTRUCTION

A. Surface preparation shall not begin until at least 30 days after the concrete has been placed.

B. All efflorescence, chalk, dust, dirt, bacteria growth, oil, and grease shall be removed by a citrus base cleaner before abrasive blast cleaning. All loose and deteriorated material shall be removed by the use of hand tools.

C. Concrete, concrete block masonry surfaces, previously painted concrete and masonry and deteriorated concrete and masonry surfaces to be coated shall be abrasive brush-off blast cleaned to remove laitance, paint, deteriorated concrete, and roughen the entire surface equivalent to the surface of the No. 80 grit flint sandpaper. Concrete shall have a consistent, even texture (void free) and shall be patched where needed.

D. All active hydrostatic water leaks must be sealed prior to the application of the 100% solids epoxy protective coating. The stopping of active hydrostatic infiltration shall be accomplished by using fast setting cements, speed plugs and/or powders manufactured by Tamms Inc. or approved equal. Active leaks may also be sealed using a high pressure injection sealant of polyurethane resin per specification #07901 - Crack Sealing / High Pressure Injection.

E. When hydraulic cement is to be used to stop active leaks or to build up deteriorated areas, then Company Specification Section 17422 shall be followed by Contractor.

F. All reinforcing steel exposed shall be wire brushed or sand blasted, then heavily coated with a rust inhibitor. The rebar area shall then be covered to a minimum thickness of one inch in order to provide a smooth surface for coating application.

G. All channels and benches shall be reconstructed if necessary by removing all loose grout and rubble. Rebuild by reshaping and repairing slope of shelves or benches. Work shall include aligning inflow and outflow ports in such a manner to prevent the deposition of solids at the transition point. All inverts shall follow the grades of the pipe entering the manhole. Changes in direction of the sewer and entering branch or branches shall have a true curve of as large a radius as the size of the manhole will permit. It will also be shaped to allow easy entrance of maintenance equipment including buckets, T.V., camera, etc.

H. The application surface shall be grouted smooth for a finish similar to 80 grit sandpaper to insure proper bonding of coating on all structures using a hand applied coating system. On all fabricated

bag liner installation, brush - off blast cleaning will not be required and only depressions that are deeper than1/2 inch shall need to be grouted.

I. Black Beauty shall be used for brush blast or approved water jet cleaning with added abrasive. All debris shall remain and be removed from within the structure.

J. The entire structure is to be thoroughly rinsed by pressure washing at 3,000 to 5,000 PSI with potable water. Final cleaning and all debris removal shall be in accordance with company specification 17413 "Pressure Cleaning of Manholes and Pump Stations.

K. Determine the alkalinity and moisture content of the surfaces to be painted by performing appropriate tests. If the surfaces are found to be sufficiently alkaline to cause blistering and burning of the finish paint, correct this condition before application of paint. Do not paint over surfaces where the moisture content exceeds that permitted in the manufacturer's printed directions.

L. If acid etching is required by the coating application instructions, the treatment shall be made after sandblasting. After acid etching, rinse surfaces with clean water to neutralize the acid and test the pH. The pH shall be between 7.0 and 8.0.

M. Surfaces shall be clean and dry and as recommended by the coating manufacturer before coating is started.

N. Unless required for proper adhesion, surfaces shall be dry prior to coating. The presence of moisture shall be determined with a moisture detection device such as Delmhors Model DB, or approved equal.

O. Prior to coating, surface must be inspected by owners representative.

3-02 QUALITY ASSURANCE

A. The Contractor shall give the Engineer a minimum of 4 days advance notice of the start of any field surface preparation work or coating application work, and a minimum of 7 days advance notice of the start of any shop surface preparation work.

B. All such work shall be performed only in the presence of the Owner's Representative, unless the Owner has granted other written instructions.

C. Owner inspection, or the waiver of inspection of any particular portion of the work, shall not relieve the Contractor of his responsibility to perform the work in accordance with these Specifications.

D. Where protective coatings are to be performed by a subcontractor, said subcontractor must provide three (3) references which show that the coating subcontractor has previous successful experience with the specified or comparable coating systems. Include the name, contact person, address and telephone number for the owner of each installation for which the coating subcontractor provided the protective coating.

E. Inspection Devices: The Contractor shall furnish, until final acceptance of the work, inspection devices in good working condition for the detection of holidays, measurement of surface profile and measurement of dry film thicknesses of the protective coatings. Surface preparation comparison visual standards, profile and dry film thickness devices shall be made available for Owner's use at all times while coating is being done. The Contractor shall provide the services of a trained operator of the holiday detection devices until the final acceptance of such coatings. Holiday detection devices shall be operated only in the presence of the Owner's Representative.

3-03 SAFETY AND HEALTH REQUIREMENTS

A. General: The Contractor shall provide and require use of personal protective and safety equipment for persons working in or about the project site, in accordance with requirements of OSHA Safety and Health Standards for Construction (29CFR1926) and its subsequent amendments and revisions, and the applicable requirements of other regulatory agencies having jurisdiction. The Contractor shall also comply with the coating manufacturer's printed instructions, appropriate technical bulletins,

manuals and Material Safety Data Sheets (MSDS) in the handling of potentially hazardous or harmful materials.

B. Head and Face Protection and Respiratory Devices: The Contractor shall require all persons to wear protective helmets while in the vicinity of the work. In addition, workers engaged in or near the work during sandblasting or pressure cleaning shall wear eye and face protection devices and air purifying, half-mask or mouthpiece respirators with appropriate filters. Barrier creams shall be used on any exposed areas of skin.

C. Ventilation: Where ventilation is used to control hazardous exposure, all equipment shall be explosion proof. Forced air ventilation shall be provided to reduce the concentration of air contaminants to the degree such that a hazard does not exist and to assist in the proper curing of coatings applied in a confined area. Air circulation and exhausting of solvent vapors shall be continued until all work is completed.

D. Sound Levels: Whenever the occupational noise exposure exceeds maximum allowable levels permitted under OSHA regulations, the Contractor shall provide and require the use of approved hearing protection devices.

E. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by Owner's Representative, the Contractor shall provide additional illumination to cover all areas to be inspected.

F. Temporary Access: All temporary ladders and scaffolding shall conform to applicable safety requirements.

G. Cloths and cotton waste that might constitute a fire hazard shall be placed in fire resistant closed metal containers until removed from the project site or destroyed at the end of each work day.

3-04 PRODUCT MIXING

Product shall be mixed and stored in accordance with manufacturer's specifications.

As a general practice, premix component Part A and Part B in its own container for one minute to insure uniformity. Then mix equal amounts of Part A and Part B for approximately three minutes. A low speed drill with a jiffy mixing blade is recommended; mix in open, well ventilated area.

Mix only enough material that can be applied in 30-60 minutes; above 75 degrees F, pot life is reduced.

In cold climates, it may be necessary to heat the container to lower viscosity for ease of mixing and application. Do not thin with any solvents.

3-05 APPLICATION PROCEDURES

A. The protective coating shall be applied pinhole-free to all interior surfaces of the structure to be coated, as shown in the contract plans.

B. Concrete shall be considered sound when aggregate exposed at least 1/4 inch is not loosened or dislodged by a light hammer tap.

C. Wire mesh reinforcement or other embedded materials which are exposed by the cleaning or coating process shall be brought to the attention of the Owner's Representative for determination of an acceptable repair or removal procedure.

D. The coating shall be continuous without seams and shall be completely bonded to the prepared surface.

E. If continuous application of the coating cannot be reasonably accomplished within two (2) days, the coating shall be feathered for 2 inches from the joint line. The feathered portion shall be sanded or

wire brushed immediately prior to resuming coating application, and otherwise prepared to receive the next section of coating with complete sealing and bonding to previously applied section.

F. Unless otherwise specified herein, the coating manufacturer's printed recommendations and instructions for mixing, handling, applying, and protecting the coating materials, for preparation of surfaces, and for all other procedures relative to the coating system shall be strictly observed.

G. The minimum average dry film thickness of the final coating shall be 90 mils in lift stations and master manholes, 60 mils in standard manholes and 30 mils in valve vaults. Severely deteriorated surfaces may require a 120 mil build-up coating system; any additional thickness required to provide adequate coverage shall be authorized by the Owner's Representative or specified in the contract documents.

H. The product is to be applied using either a stiff paste brush or steel trowel to a thickness of up to 15 mils per coat on vertical and overhead surfaces. Apply to dry concrete surfaces by working the lining material into the surface by applying and finishing in a crosshatch pattern at 90 degrees to each other.

I. When applying the product to a damp concrete surface, follow all manufacturers' specifications.

J. Each application coating shall be a different color than previous coating in order to distinguish between the coats being applied.

3-06 PRECAUTIONS

A. Follow all precautions as specified by the manufacturer. In general, the coating should be applied only when substrate and ambient temperatures are above 40 degrees Fahrenheit. Thinners and solvents shall not be used to thin as the solvents will prevent the coating from curing properly. Clean equipment with mineral spirits or lacquer thinners.

B. Wear protective clothing, goggles, gloves and/or barrier creams when working with the coating. Read the MSDS before using these materials. All requirements on the MSDS shall be adhered to.

3-07 CURING OF COATINGS

A. The Contractor shall provide curing conditions in accordance with the conditions recommended by the coating material manufacturer prior to placing the completed coating system into service. A minimum of 12 hours of curing time will be required for coatings of over 30 mils, unless an alternate form of curing is approved by Owner.

3-08 CLEAN-UP AND PROTECTION

A. Clean Up: During the progress of the work, remove from the site all discarded coating materials, rubbish, cans and rags at the end of each work day. Upon completion of coating work, clean any other spattered surfaces. Remove spattered coating by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protection: Protect work of other trades, whether to be coated or not, against damage by coating and finishing work. Correct any damage by cleaning, repairing or replacing and re-coating.

1. At the completion of work of other trades, touch up and restore all damaged or defaced coated surfaces.

3-09 APPEARANCE AND INSPECTION

A. All coating shall be accomplished in a workman like manner and shall be free of unsightly sags, runs, bubbles, drips, waves, laps, unnecessary brush marks and over spray or other physical defects and shall be uniform in color.

B. The Contractor shall provide all rigging, scaffolding and other equipment necessary for a satisfactory safe inspection of a complete coating system and acceptance by the Owner's Representative.

C. Visual inspections of the coating will be conducted by the Owner's Representative. Any defective areas shall be repaired or re-coated as necessary to ensure the coating is in compliance with the specifications.

D. The thickness of the coating will be measured at random locations by the Contractor with a wet film thickness gauge. The measurement shall be taken as soon as practical after application of the coating, prior to the final cure of the coating. Any areas of insufficient thickness shall receive another application of sufficient thickness to yield the specified total thickness.

E. The coating shall be free of pinholes.

F. The final coating shall be randomly checked for dry film thickness as described in Section 3-02 (E) of this Specification.

3-10 REPAIR OF DEFECTS IN COATING

A. Any defects discovered during inspection, such as low film millage, holidays or pinholes, shall be repaired with the same materials as used for the original finish coat(s). Excessive low millage could require extra full coat(s) of coating.

B. A final inspection will be conducted by the Owner's Representative after any necessary repairs and prior to final acceptance.

3-11 WARRANTY

A. All work covered under the Contract shall be guaranteed against defective workmanship and materials for a period of at least one (1) year after completion and acceptance of the work. A first anniversary inspection shall be scheduled by the Contractor during the eleventh (11th) month following acceptance of the work. Any latent defects found during this inspection shall be promptly repaired by the Contractor at no additional cost to the Owner. Any location where coating has peeled off, bubbled or cracked, shall be considered a failure of the coating. The Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surfaces and re-coating with the same material. Any such repair work shall be completed by the Contractor within thirty (30) days after written notice of such defects unless otherwise negotiated.

B. Failure on the part of the Contractor to schedule this warranty inspection will not relieve him of warranty responsibility and any defects found by the Owner after the normal warranty period will be assumed to have occurred during the one (1) year while the warranty was in effect.

END

SECTION 10101

COLOR AUDIO - VIDEO PRECONSTRUCTION RECORD

PART 1 - GENERAL

1-01 SCOPE

A. Prior to the commencement of any Contractor mobilization or performance of any work, the Contractor shall have a continuous color audio-video tape recording taken along the entire length of the proposed project route to serve as a record of preconstruction conditions. The Contractor, at his cost, shall make available to the Engineer or Owner, at the site, one (1) audio-video tape viewer as described herein. The video tape shall be kept at the site by the Contractor until completion of the work at which time it shall be turned over to the Owner.

1-02 CONSTRUCTION SCHEDULE

A. Tape recordings shall not be made more than 30 days prior to construction in any area. No construction shall begin prior to review and approval of the video tapes, covering the construction area, by the Engineer. The Engineer or Owner shall have the authority to reject all or any portion of a video tape not conforming to the specification and order that it be redone at no additional charge. The Contractor shall reschedule unacceptable coverage within five (5) days after being notified. The Engineer shall designate those areas, if any, to be omitted from or added to the audio-video coverage. All master videocassette tapes and written records shall be well maintained without any damage and shall become the property of the Owner.

PART 2 - PRODUCTS

2-01 GENERAL

A. The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project. The video portion of the recording shall produce bright, sharp, and clear pictures with accurate colors and shall be free from distortion, tearing, rolls, and any other form of picture imperfection. All video recordings shall, by electronic means, display on the screen the time of day, the month, day, and year of the recording. The audio portion of the recording shall produce the commentary of the camera operator with proper volume, clarity, and be free from distortion.

2-02 EQUIPMENT

A. Camera: The color video camera used in the recording system shall be of Industrial Grade and shall have EIA Standard NTSC type color - 1.0 V 75 ohms. Video output from the camera(s) shall be capable of horizontal resolution of 350 lines at center and utilize a minimum of 8:1 zoom with a 2/3" Newvicon tube or CCD pick-up element for optimum color imagery plus minimum lag through one foot candle (10 Lux).

B. Recorder: The recording shall be made with an Industrial Grade VHS videocassette recorder. The recorder shall record the signal with a minimum horizontal resolution of 525 lines, 60 Fields; NTSC color signal; RF Modulated 72 db. The construction documentation shall be recorded in SP mode.

C. Video Tape: The video tapes use for the recordings shall be ½", high resolution, extended still frame capable, color VHS video cassettes. Tape width shall be 12.7 mm and tape speed shall be 33.35 mm/s. The video cassettes shall be new and shall not have been used for any previous recording.

D. Video Tape Playback Compatibility: The recorded video tapes shall be compatible for playback with any TV Standard VHS video cassette player.

PART 3 - EXECUTION

3-01 COVERAGE

A. The recordings shall contain coverage of all surface features located within the construction zone of influence and shall include but not be limited to: all roadways, pavements, detention ponds, ditches, walls, poles, signs, railroad tracks, curbs, all affected driveways, sidewalks, culverts, headwall, fences, miscellaneous structures, and Contractor staging areas. Of particular concern shall be the existence of any faults, fractures, or defects. Taped coverage shall be limited to one side of the street at any one time and shall include all surface conditions located within the zone of influence of construction supported by appropriate audio description including the location relative to construction stations. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

3-02 AUDIO CONTENT

Accompanying the video recording shall be corresponding and simultaneously recorded audio recording. This audio recording, exclusively containing the commentary of the camera operator, shall assist in viewer orientation and in any needed identification differentiation, clarification, street addresses, or objective description of the features being shown in the video portion of the recording. The audio recording shall be free from any conversations between the camera operator and any other production technicians.

3.03 VIDEO TAPE INDEXING

A. Video Tape Identification: All videotapes shall be permanently labeled and shall be properly identified by video tape number and project title.

B. Video Tape Logs: Each video tape shall have a log of that video tape's contents. The log shall describe the various segments of coverage contained on that videotape in terms of the names of the streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers when possible, and date.

3-04 TIME OF EXECUTION

A. Visibility: All recording shall be performed during times of good visibility. No recording shall be done during periods of precipitation, mist, of fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subject, and to produce bright, sharp video recordings of those subjects. No taping shall be performed when more than 10% of the area to be taped contains debris or obstructions unless otherwise authorized by the Engineer.

3-05 CONTINUITY OF COVERAGE

A. In order to increase the continuity of the coverage, the coverage shall consist of a single, continuous, unedited recording which begins at one end of a particular construction area and proceeds uninterrupted to the other end of the project site. However, where coverage is required in areas not accessible by conventional wheeled vehicles and smooth transport of the recording system is not possible, such coverage shall consist of an organized, interrelated sequence of recordings at various positions along that proposed construction area (e.g., wooded easement area). Such coverage shall be obtained by walking or by a special conveyance approved by the Engineer.

3-06 COVERAGE RATES

A. The average rate of travel during a particular segment of coverage (e.g., coverage of one side of a street) shall be indirectly proportional to the number, size, and value of the surface features within that construction area's zone of influence. The coverage rate of travel shall not exceed two hundred (200) feet per minute.

3-07 CAMERA OPERATION

A. Camera Height and Stability: When conventional wheeled vehicles are used as conveyances for the recording system, the vertical distance between the camera lens and the ground shall not exceed ten (10) feet. The camera shall be firmly mounted such that transport of the camera during the recording process will not cause an unsteady picture.

B. Camera Control: Camera pan, tilt, zoom-in and zoom-out rates shall be sufficiently controlled such that recorded objects will be clearly viewed during videotape playback. In addition, all other camera and recording system controls such as lens focus and aperture, video level, pedestal, chroma, white balance, and electrical focus shall be properly controlled or adjusted to maximize picture quality.

C. Viewer Orientation Techniques: The audio and video portions of the recording shall maintain viewer orientation. To this end overall establishing views and visual displays of all visible building addresses shall be utilized. In easements where the proposed construction location will not be readily apparent to the videotape viewer, highly visible yellow flags shall be placed in such a fashion as to clearly indicate the proposed centerline of construction.

D. Operator Experience: The operator in charge must have had previous experience with audio-video documenting preconstruction work. Any apprentice operator(s) must be continuously supervised by an experienced operator.

3-08 AUDIO-VIDEOTAPE VIEWER

The Contractor shall make available for use by the Owner or Engineer one (1) audio-video tape viewer system. The system shall be provided as requested by the Engineer or Owner, for the duration of the Contract and made available for on-site viewing or until final acceptance of the project by the Owner. The system shall consist of the following components:

A. Video Cassette Player: The video cassette player shall be capable of playback of ½ inch VHS format videocassette(s) as herein after specified and shall be powered by a standard 120 volt, 60 Hz service. Layer features shall include resettable digital counter and 10 foot UHF coaxial output connecting cable for connection to any conventional TV set. The player shall consist of a videocassette player/recorder or similar type as used for recording with corresponding digital counter number sequence so as to be compatible with the documentation. It shall be capable of speed search, still frame and frame-by-frame advance.

B. TV Receiver: TV receiver shall be a color TV standard VHF 2-13 channel coverage. It shall have a viewing area, diagonally measured, of no less than 13 inches and shall have direct video and audio input. The cables for the video and audio connections shall be supplied.

END

SECTION 11095

ABOVEGROUND DOUBLE WALL STEEL TANKS

PART 1 - GENERAL

1-01 SCOPE

A. These requirements cover horizontal double walled steel tanks intended for the outside, aboveground storage of flammable and combustible liquids at pressures in the vapor spaces between atmospheric and 0.5 psig (3.4 kPa). They are intended for use with only noncorrosive, stable liquids that have a specific gravity not exceeding that of water.

B. Tanks covered by these requirements are cylindrical in shape. These tanks are constructed, inspected, and tested for leakage before being shipped from the factory as completely assembled vessels. They are intended for stationary installations in accordance with the Flammable and Combustible Liquids Code, NFPA 30.

C. These requirements do not apply to tanks covered by the Standard for Welded Tanks for Oil Storage, ANSI/API 650, the specification for Field-Welded Tanks for Storage of Production Liquids, API 12D, or the Specification for Shop-Welded Tanks for Storage of Production Liquids, AP 12F.

D. These requirements do not cover vertical tanks that are elevated by means of legs or a supporting skirt.

PART 2 - PRODUCT

2-01 CAPACITIES, DIMENSIONS AND CONSTRUCTION

A. Capacities, dimensions, and construction of the tank shall comply with the applicable requirements in the American National Standard UL No. 142 for Aboveground Tanks, section 62-762 of the Florida Department of Protection (FDEP) REQUIREMENTS and API Standards.

B. To provide for manufacturing variations, a plus tolerance of 10 percent in maximum capacity and a plus tolerance of 5 percent in either the maximum diameter or maximum length is acceptable for tanks constructed with 0.167 inch (4.24 mm) thick or heavier steel.

2-02 MATERIALS

A. A tank shall be constructed of commercial or structural grade A 36 carbon steel or of Type 304 or 316 stainless steel. Only new material shall be used.

PART 3 - INSTALLATION

3-01

A. Installation of the tanks shall be in accordance with NFPA 30 - Flammable and Combustible Liquids Code as published by the National Fire Protection Association.

B. Installation shall include overflow protection, flame arrester, venting, and a pressure relief valve in accordance with NFPA 30 as stated above. Installation shall also be in accordance with section 62-672 of the Florida Department of Protection (FDEP) requirements.

3-02 PAINT FINISH

A. The exterior of the tank shall be sandblasted, prime painted and finish coated per company specification 09900 - PAINTING & COATING.

3-03 TESTING

A. A tank tightness test shall be performed on both the inner and outer tanks after installation per FDEP regulation 62-761.680.

3-04 GROUNDING

A. Both tanks must be grounded using a grounding lug on the tank through a ground cable to a rod driven into the ground.

3-05 WARRANTY

A. Materials and workmanship furnished by the Seller shall be guaranteed for a period of one (1) year after completion of work and acceptance by the Purchaser. The acceptance period is limited to thirty (30) calendar days after completion.

END

SECTION 16101

ELECTRICAL WORK, GENERAL

PART 1 - GENERAL

1-01 DESCRIPTION

A. Division 16 of the specifications covers all electrical work for the project. Work shall include labor, materials, and accessories required to accomplish the work as specified and shown on the drawings.

1-02 CODES, PERMITS AND INSPECTIONS

A. Installation shall comply with all laws applying to electrical installation in effect; with the regulations of the National Electrical Code, National Electrical Safety Code, other applicable publications of the National Fire Protection Association, all local governing codes and ordinances and with the regulations of the serving utility company. Provide required permits.

1-03 QUALITY ASSURANCE

A. Materials shall comply with standards of Underwriter's Laboratories, Inc. where standards have been established for the particular product and the various NEMA, ANSI, ASTM, IEEE, AEIC, IPCEA or other publications referenced.

B. Electrical work must be accomplished/supervised by a certified master electrician holding a current certified competency card and registered with the State of Florida.

1-04 SUBMITTALS

A. Shop Drawings and Product Data:

1. Shop Drawings: Shall be submitted on equipment as indicated under each section of this Division of the specification. Shop drawings shall include sufficient information to indicate complete compliance with specifications.

2. Product Data: Shall include illustrations, catalog sheets, installation instructions, drawings, and certifications as necessary. Each sheet shall show manufacturer's name or trademark.

3. Where items are those specified, only a list of such items shall be provided, except where shop drawings and product data are specifically required.

4. At the time of each submission, any deviations from the Contract Documents shall be called to the attention of the Architect-Engineer in writing, and be plainly marked on the shop drawings and product data.

B. Record Drawings:

1. Provide one complete set of contract drawings in clean, undamaged condition, indicating all significant changes from the work as shown. Use multiple pencil colors to aid in the distinction between work of separate electrical systems. In general, record every substantive installation of electrical work which previously is either not shown or field modified.

a. Show exact locations of underground cable and conduits including manholes and handholes, both interior and exterior, drawn to scale and fully dimensioned from building column lines.

b. Indicate mains and branches of wiring systems, with switchgear, panelboards and control devices located and numbered. Locate devices requiring maintenance.

c. Indicate changes in equipment ratings and locations.
d. Indicate scope of each change order, noting change order number.
e. Numbers on wires shall be indicated on record drawings.

2. Refer to General Conditions and Division 1 of the specifications for additional requirements pertaining to record documents.

C. Submit the following upon completion of the work:

1. Certificate of final inspection from local authority.
2. Tabulation of all motors listing respective manufacturer, horsepower, nameplate voltage and current, actual running current after installation and overload heater rating.

1-05 MANUFACTURER'S NAMES AND CATALOG NUMBERS

A. In some instances, specific references have been made to one or more manufacturer's names and model or catalog numbers. Use of names and catalog numbers does not indicate that the equipment specified is necessarily an "off the shelf" item. Variances may be due to requirement of a desired finish, material, or other modification.

B. In the case of panelboards, safety switches and other equipment requiring wire and cable terminations, ascertain that lug sizes and wiring gutters or space allowed for proper accommodation and termination of the wires and cables are adequate.

1-06 PROTECTION OF ELECTRICAL EQUIPMENT

A. Electrical equipment shall be protected from the weather, in particular, dripping or splashing water, at all times during shipment, storage and construction. Manufacturer's recommendations with regard to storage and protection shall be followed. Should any apparatus be subjected to possible damage by water, it shall be thoroughly dried and put through a dielectric test, at the expense of the Contractor, to ascertain the suitability of the apparatus or it shall be replaced without additional cost to the Owner.

B. Damage or Defective Equipment: Inspect all electrical equipment and materials prior to installation. Damaged equipment and materials shall not be installed or placed in service until the Owner has been notified. Replace or repair to new condition and test repaired damaged equipment in compliance with industry standards at no additional cost to the Owner, Equipment required for the test shall be provided by the Contractor.

1-07 WORKING CLEARANCES

A. Working clearances around equipment requiring electrical service shall comply with Code requirements. Should there be apparent violations of clearances, notify the Architect-Engineer before proceeding with connection or placement of equipment.

1-08 COORDINATION

A. Electrical contractor shall coordinate the electrical work with the work of other trades.

B. For locations where several elements of electrical or combined mechanical and electrical work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings at accurate scale showing the actual physical dimensions required for the installation to assure proper integration of equipment with building systems.

C. Provide approved shop drawings to all required disciplines and verify final electrical characteristics before roughing power feeds to any equipment. When electrical data on approved shop drawings differs from contemplated design, make the necessary adjustments to the wiring, disconnect, and branch-circuit protection for the equipment actually installed.

D. Damage from interference caused by inadequate coordination by the Contractor shall be rectified at no additional cost to the Owner.

PART 2 - PRODUCTS

2-01 GENERAL

A. All equipment of a particular kind such as wiring devices and panelboards, and all lighting fixtures of the same type, shall be the product of the same manufacturer.

2-02 LABELS

A. Labels shall be provided for each motor controller, safety switch, relay, panelboard, contractor, timer, control device, meter and circuit breaker. Labels shall be laminated, phenolic strips 1/16 inch thick and engraved with letters not less than 1/4 inch in height. Lettering shall be white on black background unless specified otherwise. Strips shall be of size to properly fit manufacturer's brackets and legible. Where brackets are not provided, labels shall be mounted with screws or approved adhesive.

PART 3 - EXECUTION

3-01 METHOD OF PROCEDURE

A. Erect equipment parts at such time and in such manner as to minimize interferences and delays in the execution of the work.

B. Care shall be used in the erection and installation of all equipment and materials to avoid marring surfaces of the work. Damages shall be repaired at no additional cost to the Owner.

3-02 ELECTRICAL POWER INTERRUPTION

A. When interruption of electrical power is required, written notices shall be given to the Owner 72 hours prior to the interruption making required arrangements for the interruption period. Notice of power interruption shall include a complete description of the work and the number of the Contractor's personnel that will be performing the work.

B. Power interruption shall be kept to a minimum time duration.

3-03 PLACING EQUIPMENT IN SERVICE

A. Equipment requiring electrical service shall not be energized or placed in service until all interested parties have been duly notified and are present or have waived their right to be present. Where equipment to be placed in service involves service or connection from another contractor or the Owner, the Contractor shall notify the Owner in writing when the equipment will be ready. The Owner shall be notified as far in advance as possible with a minimum of 72 hours, of the date the various items of equipment will be energized.

3-04 OPENING AND SLEEVES FOR ELECTRICAL WORK

A. Provide openings through walls, partitions, floors, and roofs as required for electrical work.

B. Provide sleeves for electrical work passing through walls, partitions, floors, and roofs.

1. Sleeves shall extend through floors, walls, and partitions and shall be cut flush with each surface unless otherwise specified. Fire wall or floor integrity shall be restored after penetration.

2. Sleeves in concrete and masonry walls, concrete floors, and roofs shall be of standard weight steel pipe, finished with smooth edges. Sleeves for walls and partitions other than masonry, concrete and suspended ceilings shall be No. 22 U.S.G. galvanized iron.

3. During construction floor sleeves shall extend 3 inches above the finished floor unless noted otherwise. Space between floor sleeves and passing conduit shall be caulked with duct seal packing and waterproof caulking compound as approved.

4. Where conduits pass through waterproofed floor or walls, design of sleeves shall be such that waterproofing can be flashed into and around the sleeves.

5. During construction sleeves for telephone cables shall be rigid steel conduit nipples extending 3 inches above floors and below ceilings and both ends terminated with conduit bushings.

3-05 SUPPORTS FOR CONDUIT AND EQUIPMENT

A. Conduit and equipment shall be supported from structural members and not from metal deck and slab assemblies.

3-06 FINAL INSPECTION AND TESTING

A. The work shall be thoroughly tested in the presence of the Owner's representative to demonstrate that the entire system is in proper working order and in accordance with the drawings and specifications. Each motor with its control shall be run as nearly as possible under operating conditions for sufficient length of time to demonstrate correct alignment, wiring capacity, speed and satisfactory operation. All main switches and circuit breakers shall be operated, but not necessarily at full load. During final inspection, Contractor shall furnish the test instruments and qualified personnel to perform complete testing.

B. Costs of tests, including expenses incident to retest occasioned by defects and failures of the equipment to meet the specifications shall be paid by the Contractor.

END

SECTION 16105

ALTERATIONS AND ADDITIONS TO EXISTING WORK

PART 1 - GENERAL

1-01 DESCRIPTION

A. Existing buildings may be occupied during construction.

B. Provide all additions and alterations to existing work required to maintain a complete and proper electrical installation. Relocate existing electrical work for other trades required to complete the work and to maintain building in service.

C. Relocate fixtures, pull boxes, electrical ducts and other similar items, to permit the installation of new equipment.

D. Install new conduits, conductors, wiring, and wiring devices to maintain temporary and permanent use of electrical facilities.

E. Existing surface mounted work that is not used shall be removed and concealed outlets blanked off.

F. Existing work to be maintained shall be reconnected and shall have all outlets, boxes, and devices accessible after installations of all trades.

G. New work in existing areas shall be exposed on walls in unfinished areas and concealed in new construction. Where cutting and patching is to be provided, finishes shall match existing surface finishes. In existing finished areas, all work shall be concealed in finishes.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3-01 SEQUENCE OF WORK

A. Electrical feeders, branch wiring, signal wiring, and other similar work shall be scheduled to correspond with the sequence of work necessary to demolish, remove and construct new work.

3-02 OPENINGS IN EXISTING WORK

A. Verify exact locations and materials before performing work. Cutting of structural members and bearing walls shall not be done without written approval of the Architect-Engineer.

3-03 VERIFICATION OF EXISTING WORK

A. Where shown on drawings, work which is "existing" is assumed to be in place and suitable for the necessary alterations and additions required. Items shall be field checked and alterations included as may be necessary for proper installation.

3-04 REMOVAL AND OWNERSHIP OF EXISTING WORK

A. Existing electrical work shall be removed where necessary. Unless otherwise specified, or indicated by Owner as obsolete or unusable, equipment and materials shall remain the property of the Owner.

B. Property of Owner shall be delivered to a location where directed by the Owner and other items shall be promptly removed from the job site.

END

SECTION 16120

RACEWAY SYSTEMS

PART 1 - GENERAL

1-01 CONDUIT AND ELECTRIC METALLIC TUBING SYSTEM

A. All wiring, unless otherwise indicated, shall be installed in metallic raceway. Minimum size shall be 3/4 inch unless otherwise noted. Raceway system shall be sized to suit the number and size of conductors to be installed or of size shown, if larger. Size may be increased to facilitate pulling of conductors.

1-02 SUBMITTALS

A. Shop Drawings: Include catalog cuts of raceway, fitting and expansion fittings.

PART 2 - PRODUCTS

2-01 GENERAL

A. For each electrical raceway system required, provide a complete assembly of conduit, tubing or duct, with fittings including, but not necessarily limited to, connectors, nipples, couplings, elbows, outlet box covers, expansion fittings and other components and accessories as needed to form a complete system of type indicated.

2-02 CONDUIT HANGERS AND SUPPORTS

A. Surface mounting conduits in interior locations shall be an approved equal in weight and quality to T&B #1210 Series for GRC and IMC and T&B #4160 Series for EMT. Surface mounting conduits in exterior locations and in service areas shall be one-hole, HDG finish, malleable, cast iron straps approved equal in weight and quality to T&B #1275-1288 with matching strap backs.

B. Suspended Conduits: Steel City #C-149 or approved equal adjustable hanger for single installations. Multiple conduits shall be trapeze type hangers where practicable. Support members shall be similar and equal to Unistrut #P-2000/4000, or approved equal, selected for span and loading in accordance with the manufacturer's recommendations, using two or more rods of 3/16 inch diameter or greater as required. GRC and IMC clamps shall be Unistrut #P-1109 Series or approved equal. EMT clamps shall be Unistrut #P-1425 Series or approved equal.

2-03 INSERTS AND ANCHORS

A. New Concrete Work: Adjustable concrete inserts shall be Grinnell or approved equal.

B. Installation in Shear or Compression in Existing Concrete: Phillips Redhead, Pierce, A-J or Diamond.

C. Concrete Block Walls: Toggle bolt or "molly" anchors. Where loads require, provide thru-bolts and 3/16 inch thickness backup plates, properly concealed.

D. Steel Beam Clamps: Steel City #500 Series or approved equal.

E. Where loads require, provide galvanized structural steel framework, secured to structure above in an approved manner.

2-04 PULL LINE

A. Pull line shall be Jet Line No. 232 polyolefin, pull line or approved equal.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Exposed conduits shall be run parallel to building lines.

B. Field bends shall be made with tools designed for conduit bending. Heating of metal conduit to facilitate bending is not permitted. Changes in direction of runs shall be made with symmetrical bends or cast-metal fittings. Crushed or deformed raceways shall not be installed.

C. Conduit shall be secured in place and protected where necessary to prevent damage to the work during construction. Ends of conduit runs shall be plugged with cork, oakum, or other approved devices to avoid entrance of plaster, concrete or other debris.

D. Location and sizing of conduit sleeves passing through floors and walls that are not shown on the drawings shall be the responsibility of the Contractor. All sleeves, unless otherwise noted, shall be rigid galvanized steel extended 3 inches above floor and capped. Space between conduits and sleeves shall be closed with duct seal at a minimum 2 inches deep at top and bottom of conduit sleeve.

E. Field cuts on conduit shall be made with a hand or power saw or approved conduit machine, and shall be made square. All male threads shall be wrapped with white teflon tape before fittings are applied.

F. Conduit parallel to, or crossing, uninsulated hot water pipes shall be separated 12 inches if parallel or 7 inches if crossing. Where hot water pipe lines are insulated, parallel or crossing conduit shall clear the insulated surface by 2 inches. Conduit shall not be run directly under cold water lines and shall be separated in other directions by at least 3 inches.

G. Conduit shall not be secured directly to other piping. Support conduit with separate supports directly from building structure.

H. Conduit bushings, where required, shall be of the insulating type. Empty conduits shall terminate with smooth insulating bushings or be capped as indicated.

I. Conduit seals shall be provided where required by codes and where passing from an air conditioned space to non-conditioned space. Where conduits terminate in a pull-box or outlet box at a point separating the air conditioned space from the non-conditioned space, conduit end shall be sealed with insulated foam. If the conduit run is to be continuous, sealing fitting and compound shall be installed.

J. Raceway shall be supported at intervals of not more than 8 feet, with pipe straps, wall brackets, strap hangers, ceiling trapeze, toggle bolts through concrete or tile blocks, expansion bolts in concrete or brick and machine screws or welded studs on steel work. Wooden plugs in concrete and masonry are not acceptable. Raceways and pipe straps shall not be welded to steel structure members.

K. Conduit installation shall follow layout shown on drawings. Layout is, however, diagrammatic only and where changes are necessary due to structural conditions, interference with other apparatus or other causes, such changes shall be made without additional cost to the Owner. Offsets in conduits are not indicated but shall be installed as required by the conditions.

L. Pull lines shall be installed in empty raceways.

M. Verify exact stub up location and termination requirement for all necessary power and control for all items and equipment being served.

N. There shall be no more than three 90 degree bends or 100 feet between branch wiring pulling points.

O. All exposed conduit runs and conduit runs above ceiling shall be run as high as possible with offsets and bends to clear obstructions. Conduits in buildings shall not be installed with less than 8'-0" of headroom without specific approval of the Engineer.

END

SECTION 16121

CONDUIT, RIGID STEEL

PART 1 - GENERAL

NOT USED

PART 2 - PRODUCTS

2-01 STEEL CONDUIT

A. Steel conduit shall be manufactured in accordance with ANSI C80.1, specifications for Rigid Steel Conduit, Zinc Coated. All galvanized rigid steel conduit shall also be coated on exterior with a polyvinyl chloride resin finish. Minimum thickness of PVC coating shall be 20 mils.

2-02 FITTINGS

A. Fittings shall be threaded, galvanized or Sherardized for steel conduit and shall be manufactured in accordance with ANSI C80.4, specifications for fittings for rigid metal conduit and electrical metallic tubing. All galvanized fittings shall also be coated on exterior with a polyvinyl chloride resin finish. Minimum thickness of PVC coating shall be 20 mils.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Install rigid steel conduit as specified and in compliance with manufacturer's instructions.

B. Rigid steel conduit will be permitted where rigid metallic raceway is required, and it shall be installed:

1. For direct burial work.

2. In hazardous, wet, or damp locations.

3. In locations where specifically designated.

C. At couplings, conduit ends shall be threaded to meet in coupling. Split couplings and right and left couplings shall not be used.

D. Rigid steel conduit shall not be installed below grade unless PVC coated. Wrench marks, scuffs or cuts on PVC coated conduit shall be covered with Robroy Plasti-bond, or approved equal, coating material.

END

SECTION 16126

CONDUIT, PVC

PART 1 - GENERAL

1-01 DESCRIPTION

A. Work includes furnishing and installing PVC conduit, supports, fittings and accessories as shown on the drawings and specified.

B. Place and join pipe, fittings and appurtenances as shown on the drawings and specified herein.

PART 2 - PRODUCTS

2-01 CONDUIT

A. Conduit shall be made of polyvinyl chloride, Schedule 40 or Schedule 80 pipe, conforming to ASTM D 1785. Schedule 40 pipe shall have solvent welded joints only. Schedule 80 pipe shall have solvent welded or threaded joints.

2-02 FITTINGS

A Fittings for Schedule 40 pipe shall be socket type, solvent welded in conformance with ASTM D 2466. Joints shall be watertight.

B. Fittings for Schedule 80 pipe shall be socket type, solvent welded in conformance with ASTM D 2467 or threaded type in conformance with ASTM D 2464. Solvent welded and threaded joints shall be watertight.

C. Transition from PVC to galvanized rigid conduit or intermediate steel conduit shall be by threaded adapter fittings.

2-03 SOLVENT

A. PVC solvent cement shall be in compliance with ASTM D 2564.

2-04 BENDS

A. Bends on conduit runs exceeding 50 feet shall be non-corrosive metallic. Bends on short runs shall be factory or field fabricated using manufacturer approved, heat applied methods.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Schedule 40 PVC pipe for electrical conduit shall be used for underground installations only with a minimum cover of 24 inches. Schedule 80 PVC pipe for electrical conduit shall be installed for aboveground installations and for underground installations where a minimum cover of 24 inches cannot be maintained.

B. Install PVC electrical conduit where shown on drawings and in compliance with manufacturer's instructions. Bends shall be smooth and uniform.

3-02 JOINTING

A. Joints for Schedule 40 PVC pipe and fittings shall be solvent welded only. Joints for Schedule 80 PVC pipe and fittings shall be solvent welded or threaded. All joints shall be watertight. All pipe cutting, threading and jointing procedures for solvent welded and threaded PVC pipe joints shall be in strict accordance with the pipe and fitting manufacturer's printed installation instructions. Thread lubricant for threaded joints shall be Teflon tape only.

3-03 SUPPORTS

A. Support conduit in compliance with Table 347-8 of the National Electrical Code. Where conduit racks are used, do not bundle or lay conduit on top of each other. A minimum of 1/8 inch spacing shall be maintained between parallel runs.

END

SECTION 16132

600 V CABLE, WIRE AND CONNECTIONS

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work includes furnishing and installing all wire, cable, and connectors required for the power distribution systems, motors, and miscellaneous items requiring electrical power.

PART 2 - PRODUCTS

2-01 ACCEPTABLE MANUFACTURERS

A. Provide products produced by one of the following wire and cable manufacturers:

1. Anaconda Wire and Cable
2. Okonite Co.
3. Phelps Dodge Wire and Cable
4. Triangle Wire and Cable
5. Electrical Cable Division USS Corp.
6. General Cable Corp.
7. Wire and Cable Department, General Electric Company
8. Rome Cable Division of Alcoa
9. Southland Wire Corp.

B. Provide electrical connectors produced by the following manufacturers:

1. AMP Inc.
2. Burndy Corp.
3. O.Z./Gedney Co.
4. Thomas & Betts Co.
5. Ideal Industries
6. General Electric Co.
7. Minnesota Mining & Mfg. Co.

2-02 CABLE, WIRE AND CONNECTORS

A. Except as otherwise indicated, provide 600 volt rating insulated copper cable, copper wire and connectors of manufacturer's standard materials, as indicated by published product information, designed and constructed as recommended by the manufacturer, meeting IPCEA-NEMA Standards.

B. Unless otherwise noted, wire No. 10 AWG and smaller shall be solid, factory color coded, with type THW insulation. Minimum wire size shall be No. 12 AWG except control wiring which may be No. 14.

C. Wire sizes No. 8 and larger shall be stranded with insulation type THW insulation. Wire shall be factory color coded or coded with tape.

D. Use following colors for coding:

240 Volt System	480 Volt System	Equipment Phase Sequence
Neutral - White	Neutral - Gray	ABC, top to bottom, left to right, front to back
Phase A - Black	Phase A - Brown	
Phase B - Red	Phase B - Orange	
Phase C - Blue	Phase C - Yellow	

Grounding Conductors - Green

2-03 CONNECTOR JOINTS AND CONNECTIONS

A. Connectors for splicing of No. 10 AWG and smaller conductors shall be 3-M Scotchlok, spring type pressure connectors, or approved equal.

B. Splices for No. 8 AWG and larger shall be O.Z., Type PMX and PMXC cover, or approved equal.

C. Terminations for motors with No. 10 AWG or smaller conductors shall be a spring type pressure connector. Terminations for motors requiring No. 8 AWG and larger terminations shall provided taped connections of spade lugs of motor leads to looped input conductors, using machine bolt and nut arrangement.

D. Lug terminations for No. 8 AWG and larger cable shall be with O.Z., Type XL lugs, or approved equal.

E. Electrical insulating tape shall be Scotch No. 88 or 99, or approved equal.

PART 3 - EXECUTION

3-01 WIRE INSTALLATION

A. No wire shall be pulled until the conduit system is complete form pull-point to pull-point and major equipment terminating conduits have been fixed in position.

B. Cable insulation shall not be disturbed or torn while installing wire in conduits. A neutral lubricant may be used in pulling non-armored conductors and shall be used if wire is pulled by mechanical means.

C. Bending radius of insulated wire or cable shall be not less than the minimum recommended by manufacturer.

D. Maximum pulling tension of any wire or cable shall not exceed manufacturer's recommended values.

E. Splices shall not be made except in junction boxes, outlet boxes, or other permanently accessible, secured locations.

F. Color-code taping of conductors shall cover not less than 6 inches and shall be within the enclosure. Color coding is required at termination points and within junction boxes. Where tape is used it shall cover not less than 6 inches of the conductor at panelboards and in each outlet box, junction box or termination. In switchboards, or other enclosures where more than 4 feet of conductor is exposed, conductor shall be taped at entrance to enclosure and at termination.

G. Installed splices shall have equal-to or better mechanical strength and insulation than the factory applied insulation.

H. Allow adequate conductor lengths in all junction boxes, pull boxes and terminal cabinets. All termination of conductors in which conductor is in tension will be rejected and shall be replaced with conductors of adequate length. This requirement shall not include vertical cable supports in vertical raceway installations provided in pullboxes at proper vertical spacings.

3-02 COORDINATION

A. Before installing raceways and pulling wire to any mechanical equipment, verify electrical characteristics with final submittal on equipment to assure proper number and AWG of conductors.

3-03 FIELD QUALITY CONTROL

A. Prior to energization, check cable and wire for circuit continuity, short circuits, and proper phasing of conductors.

END

SECTION 16136

GROUNDING-SECONDARY VOLTAGE SYSTEMS

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work includes all grounding for the electrical systems, extending to all electrical items connected with a source of power, including all grounding required by NEC (National Electrical Code). When grounding requirements exceed NEC minimums it shall be installed as shown.

B. Except as otherwise indicated, the secondary distribution system shall include a grounding conductor in all raceways in addition to the return path of metallic conduit.

1-02 SUBMITTALS

A. Certified report of electrical continuity tests and ground resistance measurements as specified in paragraph TESTING AND REPORTS in Part 3, Section 3-05.

PART 2 - PRODUCTS

2-01 GROUNDING CONDUCTORS

A. All grounding conductors shall be copper conductor material only. Materials shall be in conformity with those specified elsewhere herein for electrical systems. Conductors within the raceway systems shall have same type of insulation as phase conductors and shall be identified as specified herein.

2-02 GROUNDING CONNECTORS AND DEVICES

A. Connectors and devices used in the grounding systems shall be of copper or bronze materials, and applicable for the use whether specified by manufacturers number herein or otherwise required. Specified items of designated manufacturers indicate required criteria, equals may be provided if approved. All connectors and devices shall be compatible with the surfaces being bonded or shall be suitably surfaced or coated and comply with NEC. Materials in items not listed herein shall be of equal quality to the following specified items:

1. Lugs: heavy cast copper or cast bronze, with ground surface equal to Burndy QA-B or T&B equal.

2. Grounding and bonding bushings: malleable iron, Thomas & Betts (T&B).

3. Piping clamps: T&B.

4. Grounding screw and pigtail: Raco No. 983.

2-03 ARTIFICIAL GROUNDING ELECTRODES

A. Ground rods for artificial grounding electrodes shall be of the driven type, round, cone-pointed, galvanized copper encased steel of not less than 3/4 inch diameter. Minimum length shall be 10 feet. All connections below grade and in inaccessible locations shall be Thermite welded. Each rod shall be die stamped with identification of manufacturer and rod length. Rods shall be A.B. Chance or approved equal.

PART 3 - EXECUTION

3-01 GROUNDING CONDUCTOR IDENTIFICATION

A. Grounding conductors within the raceway systems shall be identified with a green color as follows:

1. Size No. 8 and smaller: Continuous green colored insulation.

2. Size No. 6 and larger: Green tape for a minimum of 6 inches at terminators in switchboards, cabinets, junction and pull boxes, where passing through pull boxes and at every point where the conductor is accessible.

3. In switchboards the grounding conductors shall be identified by a minimum of 6 inches of tape at both the entrance and termination points where the length within switchboard exceeds 6 feet.

3-02 INSTALLATION AND METHODS - 120 THROUGH 480 VOLT SYSTEMS

A. Except as otherwise indicated, each feeder raceway on the load side of the service entrance shall contain a grounding conductor sized as indicated and where not shown shall be sized in accordance with Table 250-95 of the NEC. Conductor shall be connected to the equipment grounding bus in switchboards and panelboards, to the grounding bus in all motor control centers and as specified, to lighting fixtures, motors and other types of equipment and outlets. The ground shall be in addition to the metallic raceway and be properly connected thereto, using a lug device located with item enclosure at point of electric power connections, to permit convenient inspection.

B. Each feeder conduit shall be bonded at all discontinuities, including switchboards and all subdistribution and branch panels with conductor in accordance with Table 250-95 NEC for parallel return with respective interior grounding conductor.

C. Grounding provisions shall include double locknuts on all heavywall conduits.

D. Provide green insulation ground for all grounding type receptacles and equipment of all voltages. In addition to grounding strap connection to metallic outlet boxes, a supplemental grounding wire and screw equal to Raco No. 983 shall be provided to connect receptacle ground terminal to the box.

E. Motors and Equipment: All motors, heating coil assemblies and equipment requiring flexible connections shall have a green grounding conductor properly connected to the frames and extending continuously to the supply source grounding bus with approved connectors regardless of conduit size or type.

3-03 MISCELLANEOUS GROUNDING CONNECTIONS

A. Required connections to building steel shall be with approved terminals and bolted in accessible locations.

B. All surfaces to which grounding connections are made shall be thoroughly cleaned to maximum conductive condition immediately before connections are made. Exposed bare metal after termination point shall be painted.

C. Welded or Brazed Connections: Joints in grounding conductors shall be welded or brazed. The welding or brazing processes shall be an exothermic type.

3-04 MAIN ELECTRICAL SERVICE GROUNDING AND BONDING

A. Ground in accordance with Article 250 of the NEC. Artificial grounding electrodes shall be provided for the main service grounding in sufficient number and configuration to secure grounding resistance

specified. Grounding system shall also be extended to the cold water entrance pipe and be grounded to the line side of any metering.

3-05 TESTING AND REPORTS

A. Raceway Continuity: Metallic raceway system as a component of the facilities grounding system shall be tested for electrical continuity. Resistance to ground throughout the system shall not exceed NEC specified limits.

B. Ground resistance measurements shall be made of each grounding system utilized in the project. The ground resistance measurements shall include building structure steel, driven grounding system, and other approved systems as may be applicable. Ground resistance measurements shall be made in normally dry weather, not less than 24 hours after rainfall, and with the ground under test isolated from other grounds. Resistances measured shall not exceed specified limits.

C. Upon completion of testing, the testing conditions and results shall be certified by the Contractor and submitted in writing on Contractor's letterhead to the Architect-Engineer.

END

SECTION 16156
SAFETY SWITCHES

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work includes providing safety switches as indicated or required.

1-02 SUBMITTALS

A. Shop Drawings: Showing fuses, number of poles, enclosures and ratings.

1-03 COMPATIBILITY

A. Insure that ratings of installed switch and motor are compatible when switch is serving as motor-disconnect.

PART 2 - PRODUCTS

2-01 MANUFACTURER

A. Switches shall be heavy duty, non-fused, of rating and number of poles as indicated or required.

B. Safety switches shall be NEMA heavy duty (HD) with rejection fuse clips where current limiting fuses are specified.

C. Enclosures shall be NEMA 4X, Type 304, stainless steel except as otherwise indicated and provided with a lock hasp for outdoor mounted switches.

D. Doors to safety switches shall interlock so that cover cannot be opened when switch is closed but shall be provided with a defeat mechanism to allow authorized personnel to open enclosure without opening switch.

E. Switches shall be quick-make, quick-break type, constructed so switch blades are visible in "OFF" position with door open; equipped with operating handle which is an integral part of the enclosure base and whose position is easily recognizable and is padlockable in the "OFF" position. Current carrying parts shall be constructed of high-conductivity copper, and silver-tungsten type switch contacts with positive pressure type reinforced fuse clips in fusible switches.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Switches shall be plumb and securely mounted. Contractor shall use installation ears on boxes. At no time shall boxes be drilled.

B. Install safety switches in accordance with the manufacturer's written instruction, the applicable requirements of NEC and the National Electrical Contractors Association's "Standard of Installation", and in accordance with recognized industry practices to ensure that products serve the intended function.

C. Install disconnect switches used with motor-driven appliances, motors, and controllers within sight of the controller position, unless otherwise indicated.

END

SECTION 16157
MOTORS, GENERAL SERVICE

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work includes furnishing and installing general service electric motors as indicated and specified.

1-02 QUALITY ASSURANCE

A. NEMA Standard MG-1, Motors and Generators.

1-03 SUBMITTALS

A. Shop drawings and product data shall be submitted. Submittals for all motors shall include the complete nameplate data on each motor. Nameplate data shall include the name of the motor manufacturer and all information called for in the NEMA Standard MG1-Paragraph 10.38 titled "Nameplate Marking". This data shall be submitted for motors provided as part of mechanical equipment as well as those supplied individually.

PART 2 - PRODUCTS

2-01 GENERAL

A. Motors shall conform to the applicable portions of NEMA Standards MG-1, Motors and Generators. Motors shall be of sufficient size for the duty to be performed. Motors shall not exceed full-rated load when the driven equipment is operating at specified capacity under the most severe conditions likely to be encountered.

2-02 DESIGN CHARACTERISTICS

A. Motor horsepower and RPM shall be as shown on the drawings. Other characteristics shall be as follows and as specified in Section 17330 "Vertical Deep Shaft Turbine Well Pump Installation" of these specifications.

B. Integral horsepower motors shall be 3 phase, 60 hertz, 230/460 volt, NEMA Design B, normal starting torque, Class F insulation with Class B temperature limits at 40 degrees Celsius ambient. Motors 25 horsepower and larger shall be Code "G" for "across-the-line" starting. Motor windings shall be triple dipped, baked, and coated with a fungicidal varnish suitable for tropical environments.

C. All electric motors shall be the high efficiency type.

2-03 OVERLOAD PROTECTION

A. Overload protection shall be provided for each motor. The overload protection device shall be integral with either the motor or controller. An overload device shall be in each underground conductor.

PART 3 - EXECUTION

3-01 SIZE AND LOCATION

A. Size and location of motors indicated is based on a specific design and may change slightly from one manufacturer to another. Connection shall be made to equipment as actually installed. Before connecting to any piece of equipment, the nameplate data shall be checked against the information shown on the drawings. When electrically driven equipment furnished under these specifications materially differs from the contemplated design, Contractor shall make the necessary adjustments to the wiring, disconnect, services and branch-circuit protection, etc., at no additional cost to the Owner.

END

SECTION 16158
MOTOR CONTROL EQUIPMENT

PART 1 - GENERAL

1-01 DESCRIPTION

A. Unless otherwise indicated, every motor not specified to be provided with a controller at the factory shall be provided with a controller as specified herein.

1-02 QUALITY ASSURANCE

A. NEMA Standard IC-1 Industrial Control; other applicable standards of NEMA, and applicable standards of IEEE, ANSI, NEC and National Electrical Safety Code.

1-03 SUBMITTALS

A. The following shop drawings shall be submitted to show:

1. General Layout.
2. Elementary wiring diagrams of standard motor controllers by size.
3. Outline and wiring diagrams of all special devices.

PART 2 - PRODUCTS

2-01 GENERAL

A. Motor controllers shall conform to the applicable requirements of NEMA Standard IC-1 Industrial Control. Controller sizes shall be verified to be compatible with the horsepower of the motor.

2-02 MAGNETIC MOTOR CONTROLLERS

A. Magnetic motor controllers shall be provided as indicated. They shall not be smaller than NEMA Size 1.

B. Non-Reversing Magnetic Controllers: Non-reversing magnetic controllers shall start full voltage, non-reversing, AC single speed motors. The controllers shall be sized for the load unless otherwise indicated.

C. Overload Relays: Bi-metallic relays are required. Overload relays shall be supplied in each leg. Overload relays shall be matched to load and shall be adjustable from 90% to 110%. A single reset button shall be mounted on the starter door to permit external reset. The relay shall be convertible from manual to automatic reset by a simple adjustment.

D. When required, control transformers, shall be provided. Both legs of the primary and one leg of the secondary control transformer shall be protected by circuit breakers. The other leg of the secondary shall be grounded. The capacity of the control transformers shall be adequate to operate all of the control devices in the circuit.

E. Auxiliary Contacts: Motor controllers shall be provided with all control devices including auxiliary contacts for equipment to operate as specified.

2-03 COMBINATION MOTOR CONTROLLERS

A. Combination motor controllers shall be provided with molded case motor circuit protectors or molded case circuit breakers as indicated. Motor circuit protective devices shall have short circuit capacity as indicated. Unit control circuit fusing shall be provided. The motor circuit protective device shall be

mounted in the same enclosure as the magnetic controller and shall be operable by hand from outside the enclosure. The handle shall be so interlocked with the door that it must be returned to the "OFF" position before the door can be opened. A defeat mechanism shall be provided to allow authorized personnel to open the enclosure door without opening the disconnecting device. Provision for padlocking the disconnect handle in the "OFF" position shall be made.

B. Motor circuit protectors shall be the continuously adjustable, instantaneous magnetic trip type circuit breaker and shall be so constructed that all poles open, close and trip simultaneously. The continuous current rating of the motor circuit protector and the minimum fault-current, interrupting capability of the combination motor controller and motor circuit protector, shall be as indicated on the drawings.

2-04 OVERLOAD AND SHORT CIRCUIT PROTECTION

A. Heater elements shall be provided for overload protection. A motor circuit protector shall be provided for motor short circuit protection. See Part 3 of this Section for settings.

2-05 MOTOR CONTROL CENTERS

A. Motor control centers shall contain grouped combination starters as specified herein before and other equipment and devices as indicated. Motor control center shall be fabricated by the manufacturer of the magnetic motor controllers in order to obtain unit responsibility for the entire assembly. The control center shall be NEMA Class (I) (II), Type (A) (B) (C). The control center shall be manufactured and tested in accordance with the applicable standards of IEEE, NEMA, ANSI, NEC and National Electric Safety Code. Service voltage shall be as indicate. Control voltage shall be 120 volt, single phase, 60 Hertz provided from transformers in each unit.

B. Enclosures: Enclosures shall be NEMA 1 with doors. Doors shall be attached to enclosure frame and shall not be part of the starters so that they may be closed to cover the opening after the starter has been re- moved. Doors shall be mounted on full length pin type hinges, held closed by means of captive fasteners. Doors shall be fabricated with formed round corners. The various sections shall be assembled in plant and shall be shipped with two full length sturdy floor channel sills and a full length lifting beam. Each structure shall be thoroughly cleaned inside and out after fabrication. Structures shall be chemically treated to insure good paint adhesion and painted with one coat of primer and one coat of manufacturer's standard finish.

C. Vertical Sections: Vertical sections shall be standardized, interchangeable, and jig built from No. 11 and No. 12 gage steel. Vertical sections shall be 90 inches high and 20 inches deep and shall have vertical and horizontal buses, a vertical wiring channel, and compartmented control units. The vertical wiring channel shall have a minimum width of 4 inches and be separated by metal plates from the control units. Two hinged doors shall provide access to the wireway. The doors shall conform to the door requirements in subparagraph B "Enclosures" above. A 10 inch minimum wireway shall be provided at the bottom of each vertical section. Vertical buses shall be isolated from the control compartment, but the buses shall be accessible from the front by removing isolating panels. Individual controllers shall be plug-in type. The top and bottom plate of each control compartment shall consist of removable shelves for easy unit rearrangement. Each vertical section shall be grouted as shown on plans.

D. Bus Construction: Bus bars and all bolted connections shall be accessible from the front of each section. Bus bars shall be insulated. The continuous duty rating of the main bus shall be 600 amperes unless otherwise indicated. The bus shall be braced for 42,000 rms symmetrical short circuit duty. The vertical buses shall have a continuous duty rating of 300 amperes unless otherwise indicated. A ground bus shall be run the full length of the control center and shall be rigidly bolted to the structure. The ground bus shall be drilled and ground lugs supplied. An insulated neutral bus, one half the rating of the main bus, shall be supplied where indicated. Neutral lugs of appropriate capacity shall be supplied with the neutral bus.

E. Provisions For Incoming Power: An incoming line compartment shall be provided in the vertical section indicated. Lugs for cable sizes and conductor material as indicated shall be provided.

F. Unit compartments:

1. Combination motor controllers, as shown on the drawings, shall be provided with molded case motor circuit protectors.

2. All combination starter units and feeder units of plug-in construction shall have a positive guidance system combined with a mechanical insertion method into the vertical bus bars. Connection of power wires to the wedge stabs shall be made with positive crimp connections.

3. Each unit compartment shall be provided with an individual flange formed pan-type door with quick release, quarter-turn latches. The door shall be mounted on the unit, not the section, such that any individual unit may be withdrawn or inserted without disturbing adjacent units or without having to remove any hardware. All pilot devices shall be door mounted so that they withdraw with the unit if the unit has to be withdrawn.

4. The integral handle shall be of a vertical design mounted directly to the unit disconnect so that positive indication of the position of the disconnect is visible with the unit door open or closed. Operation of the disconnect handle shall be mechanically interlocked so that with the door open or closed the interlock must be defeated to either open the door while the unit is energized, or with the door open, to energize the disconnect. The handle shall have provisions for padlocking in the OFF position for up to three padlocks. On circuit breaker units the handle shall indicate the TRIPPED position in addition to ON, OFF, and RESET positions.

5. Means shall be provided for padlocking the unit in a partially withdrawn LOCKOUT position for unit or downstream maintenance. In the LOCKOUT position, the unit power stabs are disengaged from the vertical bus bars and no power can enter the unit.

6. Combination starter units specified with Type B or C wiring shall contain draw out split-type terminal blocks mounted at the right-hand side of the unit. In the LOCKOUT position, all terminal blocks are split so that no foreign source of power can enter the unit. Terminal blocks are split by operation of the unit disconnect screw, and no other means of assist is required. Combination starter unit sizes 1 thru 4 up to 48 inches high can be removed from the section structure without the need of disconnecting power or control leads to the terminal blocks.

7. Racking screw and wedge stab combination requires that individual unit disconnects must be in the OPEN position before access to the unit disconnect screw is possible. With the disconnect in the ON or closed position, access to the racking screw is covered by the INNER-OUTER so that insertion or withdrawal cannot be achieved. With the unit disconnect in the OFF or open position withdrawal or insertion of the unit is possible by means of INNER-OUTER linkage with the disconnect. All plug-in combination starter units and plug-in feeder units (225 ampere maximum) utilize INNER-OUTER with vertical handle to insure open disconnect insertion or withdrawal.

8. Combination motor controller units shall be equipped with control fuse. The other secondary lead shall be grounded.

9. Unless otherwise indicated, all motor starters shall be provided with hand-off-automatic (H.O.A.) Switch in the door.

10. Auxiliary Contracts: Motor controllers shall be provided with all control devices including auxiliary contracts for equipment to operate as specified.

G. Nameplates: Each unit compartment shall be drilled for self tapping stainless steel screws to receive a nameplate. Nameplates shall show motor control center designation, motor number, and motor designation. Nameplates shall be black laminated plastic with white cut letters. Size of nameplate to be approved by Owner

PART 3 - EXECUTION

3-01 SETTINGS, OVERLOAD AND SHORT CIRCUIT PROTECTION

A. Establish heater element size and establish and set the instantaneous trip point of the motor circuit protector based upon the nameplate data of equipment actually supplied and in accordance with the Nation Electrical Code.

B. Coordinate vertical and horizontal clearances with adjacent equipment.

C. Motor control center shall be installed on a 4 inch reinforced concrete pad extending a minimum of 6 inches past each end of motor control center and front and rear of motor control center. A 3/4 inch chamber shall be provided on all exposed edges of concrete.

D. Provide an insulating fiber grate mat (manufactured / supplied by A.B. Curls and associates Inc. P.O. Box 3549, Lakeland Fl. 33802 or Fibergrate Corp., Dallas, Texas 800-527-4043 or approved equal) to be placed on the floor in front of motor control center. The mat shall extend the entire length of the motor control center and shall be 24 inches wide and 3/16 inches thick.

END

SECTION 16159
REMOTE PUMP CONTROL PANELS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Pump control panels shall be furnished and installed at each remote well site as indicated and specified.

1-02 QUALITY ASSURANCE

A. Work shall comply with all applicable codes, standards, rules and regulations published by IEEE, ANSI, NEC, National Electrical Safety Code and NEMA Standard IC-1 Industrial Control.

1-03 MANUFACTURER

A. Pump control panels shall be as manufactured by Sta-Con, Incorporated, Apopka, Florida or an equal approved by the Engineer.

1-04 SUBMITTALS

A. Shop drawings shall be submitted showing layout, materials and components for pump control panels.

PART 2 - PRODUCTS

2-01 GENERAL

A. The control panel shall be suitable for simplex or duplex well pump operation as indicated on the drawings. The pump control panel shall be a NEMA 4X enclosure constructed of 304 stainless steel with a gasketed door. The door shall be provided with a lock hasp.

B. The power panel shall contain a main circuit breaker, motor circuit breakers, motor strip heater circuit breakers, control circuit breaker and duplex receptacle circuit breaker where indicated on drawings. All circuit breakers shall be thermal magnetic type FA minimum frame size as manufactured by the Square D Company.

C. The motor starter sub-panel shall contain magnetic across-the-line starters with under voltage release and over load coils in each phase leg to provide maximum protection of each pump motor. Motor starters shall be Allen Bradley Bulletin 509 or approved equal.

D. Each control panel shall be provided with a phase monitor and surge monitors to insure protection for each pump circuit. A lightning arrestor shall be mounted on the exterior bottom of the control panel, connected to the incoming primary power lines. Ground lightning arrestor to the neutral shall be supplied on the incoming power line.

E. Each control panel shall have a timed "ON" time delay relay in each pump circuit. Time delay relay shall have a range of 0.2 to 60 seconds and shall be General Electric Cat. No. CR122A04122AA, or approved equal. Each control panel shall have a timed "OFF" time delay relay in each pump circuit. Time delay relay shall have a range of 0.2 to 180 seconds and shall be General Electric Cat. No. CR2820B111AA2 or approved equal.

F. Each control panel shall have a control transformer as indicated to provide 120 volts single phase A.C. control power. Both legs of the primary shall be protected by a thermal magnetic, Type FA 2 pole circuit breaker minimum frame size as manufactured by the Square D Company. One leg of the secondary of the control transformer shall be protected by a thermal magnetic, Type FA circuit breaker minimum frame size as manufactured by the Square D Company. The other leg shall be grounded. The capacity of the control transformer shall be adequate to operate all the control devices

in the circuit to include power for motor space heaters (for motors 20 HP and above coordinate with motor manufacturer) with a minimum capacity of 0.75 KVA.

G. Each control panel shall have an inner aluminum dead-front door mounted on a continuous hinge, for personnel protection against exposed electrical wiring and components. The dead-front door shall have cut-outs for access to the circuit breaker handles. Mounted on the inner dead-front door shall be push to test "run" indicator lights, power "ON" indicating lights, pump fail indicating lights, local-off-remote selector switches, reset push-buttons, 20 ampere 120 volt single phase duplex convenience outlet with ground fault protection, elapsed time meters (one for each pump), ammeter and ammeter switch unless otherwise indicated on drawings.

H. Indicating lights, selector switches and reset push-buttons shall be heavy-duty oil-tight type similar to Bulletin 800T as manufactured by Allen Bradley Company, or approved equal. Push buttons, selector switches, and indicating lights shall have name plates as specified hereinafter.

I. The panel shall be provided with a 60W convenience light to illuminate the interior of the panel at night. The switch for this light shall be a heavy-duty single pole switch located on the inner dead-front door.

J. Elapsed time meters shall be six-digits non-resettable, recording in hours and tenths. Meters shall be wired as indicated. Meters shall be Hecon to621134, Syracuse Series 2000, or approved equal.

K. Ammeter circuits shall be wired such that each phase can be tested for amperage draw by using the selector switch. Ammeters shall have a scale range as indicated and shall be transformer rated 0-5 amperes. Ammeters shall be Type 178 as manufactured by General Electric or an approved equal. Ammeter switches shall be designed for panel mounting and shall be of the same manufacturer as the meter supplied. Current transformers for the ammeters shall be of the doughnut type and shall be of the rating indicated.

2-02 WIRING

A. All wiring shall be neatly laced or shall be installed in plastic wireways.

B. All terminations to external devices shall terminate on terminal blocks.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Control panels shall be installed at well sites as indicated.

B. A wiring and circuit schematic and pump data sheet sized 11 inches by 17 inches shall be permanently affixed to the interior of the enclosure door. The schematic and data sheet shall be extruded vinyl homopolymer laminate or approved equal. An aluminum warning sign with the legend "DANGER-HIGH VOLTAGE" shall be mounted on the exterior main panel door. The warning sign design and colors shall be in accordance with OSHA specifications. A metallic foil or plastic warning label with red backpanel door. The label shall have the following legend:

"WARNING-ELECTRICAL SHOCK HAZARD"

3-02 NAMEPLATES

A. Each switch, circuit breaker, indicating light, push-button, meter, relay, etc. shall have an engraved laminated plastic nameplate mounted above for proper identification. OSHA specifies the warning sign design and colors shall be a metallic foil or plastic warning label with a red backpanel door.

END

SECTION 16160
WASTEWATER LIFT STATION CONTROL PANEL

PART I - GENERAL

1-01 DESCRIPTION

A. The lift station control panel shall be supplied containing all the electrical and mechanical equipment necessary to provide for the operation of two electrical submersible pumps. The panel shall be a regulator type and provide a high level alarm system and emergency power provisions which can be utilized manually in case of main power failure.

1-02 QUALITY ASSURANCE

A. All work shall comply with the applicable codes, standards, rules and regulations published by IEEE, ANSI, NEC, National Electric Safety Code and Nema Standard IC-1 Industrial Control.

1-03 SUBMITTALS

A. Shop drawings shall be submitted showing layout materials and components for lift station control panels, as specified on the drawings.

PART 2 - PRODUCTS

2-01 GENERAL

A. The control panel shall be NEMA 4x, Type 304, 14 Gauge Stainless Steel with continuous welds on all seams. A rolled lip shall be provided around three sides of the door and around all sides of the enclosure opening. A neoprene gasket attached with oil resistant adhesive and held in place with stainless steel retaining clips shall be installed around the door. All hardware except the print pocket shall be stainless steel. Two modular replacement aluminum subpanels shall be provided to hold the components for the controls. The outer door shall contain a self storing wind resistant rod.

B. Mounted on the exterior of the enclosure shall be a generator receptacle, power available light, high level alarm light, alarm bell, alarm reset button and 2 each air vents. All parts mounted to the enclosure shall be secured with stainless steel hardware.

C. The power subpanel shall contain a main circuit breaker, emergency circuit breaker, motor circuit breakers, control circuit breaker, duplex receptacle breaker, across the line magnetic motor starters with over load protection on each leg, control voltage fuse transformer, alternator. All control wiring shall be color coded per IPCEA (minimum 18 colors) size 18 AWG, rated for 300 V, 80 degrees C, stranded, tinned copper with PVC phase monitor, relays, terminal strips, ground fault duplex receptacle, trouble light and neutral block. The main and emergency breaker shall be interlocked to assure only one breaker can operate at one time.

D. The inner dead front door shall be constructed of .25" clear lexon. The inner dead front shall have rounded edges and shall be mounted on an .063" aluminum continuous aircraft hinge with a stainless steel pin. The inner dead front shall be fastened to the enclosure and hinged with stainless steel screws. The dead front shall be supported on the vertical break opposite the hinge with a continuous support and shall not depend on breakers or other components. The inner dead front shall contain breaker knock-outs for protrusion of the breaker handles. Mounted on the inner dead front door shall be level lights, pump run lights, elapsed time meters, HOA switches, 3 position alternator mode switch, trouble switch and thermal overload reset buttons. All components shall be equal to and directly interchangeable with those listed on the drawing.

E. Each control panel shall be provided with a phase monitor and surge protection to insure protection for each pump circuit.

F. The panel shall be provided with a 60 watt coated panel convenience light to illuminate the interior of the panel at night. The switch for this light shall be a heavy duty single pole switch located on the inner dead front door.

G. Provide two 2-1/2 inch diameter conduit knockout holes for electrical conduit mounting in the bottom of the cabinet. The knockout shall be located by the Contractor to suit junction box and taped closed for shipping.

H. The duplex ground fault protected (15 amps) outlet shall be mounted internally in the bottom of the panel in an aluminum junction box.

I. Two 1-1/2" emergency wire access covers shall be located internally in the bottom left of the panel, constructed of 1-1/2" Square D threaded closing plate.

J. Each control panel shall have a control transformer, where required as indicated, to provide 120 volts single phase A.C. control power. Both legs of the primary shall be protected by a thermal magnetic Type FA 2 pole circuit breaker minimum frame size as manufactured by the Square D Company, one leg of the secondary of the control transformer shall be protected by a thermal magnetic, Type FA circuit breaker minimum frame size as manufactured by the Square D Company, the other leg shall be grounded. The capacity of the control transformer shall be adequate to operate all the control devices in the circuit to include power for motor space heaters (for motors 20 HP and above coordinate with motor manufacturer) with a minimum capacity of 0.75 KVA.

K. Lightning arrestor, GE or equivalent, sized for voltage, current and phase for particular installation as approved by the Engineer and mounted on the outside bottom of the disconnect box.

L. When a single phase control panel is specified, two single phase modules shall be installed on power subpanel. Contractor shall also equip panel with two extra run capacitors and two extra start capacitors as spare parts.

2-02 WIRING

A. All wiring shall be neatly laced or shall be installed in plastic Panduit raceways. The raceways shall be sized so that not more than 50% of the design capacity is used.

B. All terminations to external devices shall terminate on terminal blocks.

C. All control wiring shall be color coded (minimum 18 colors), size 18 AWG rated for 300 volts, 80 C. stranded tinned copper PVC insulated.

D. A wiring and circuit schematic sized 11 inches by 17 inches shall be permanently affixed to the interior of the enclosure door. The schematic shall be extruded vinyl homopolymer laminate or approved equal. Also included in door shall be a print pocket large enough for an 8 ½" x 11" clipboard to be mounted at start up. A plastic or aluminum warning sign with legend "DANGER-HIGH VOLTAGE" shall be mounted on the exterior main panel door. The warning sign design and colors shall be in accordance with OSHA specifications and must be affixed to door without screws or rivets. (No holes to be drilled in exterior door).

2-03 NAME PLATES

A. Each switch, circuit breaker, indicating light, push-button, meter, relay etc. shall have an engraved laminated plastic background color coded nameplate mounted above for proper identification: Red for alarm and emergency breaker, Black for power, Green for level, and blue for controls. Letters shall be a minimum of 1/4 inch in height.

2-04 OPERATION

A. The control function provides for the operation of the lead pump under normal conditions. If the incoming flow exceeds the pumping capacity of the lead pump, the lag pump will automatically start to handle this increased flow. As the flow decreases, pumps will be shut off at the elevation shown

on the plans. In the event of a malfunction or a flow that exceeds the capacity of the pumps, a voice reporter shall be activated announcing a high level condition. If the level continues to rise, an audible high level alarm and light will be activated to indicate high level condition at the site. A reset function shall lock out the audible alarm; however, the alarm light shall release only with the correction of the high level condition.

B. In order to insure pump back-up guarantee and also to distribute almost equal pump time to each of the two pumps, an alternator shall be included in the panel. Under normal conditions, the lead pump will start (for example, it may be No. 1) and pump until it either pumps down the level in the wet well and shuts off or cannot keep up with the flow and requires the lag pump (#2) to come on. Should the lag pump be required, it will stay on until the desired shut off level is attained and both lead and lag pumps will shut down. When the wet well level increases where one pump is required, the alternator will request the lead pump (in this sequence pump #2) to start and the entire cycle will be repeated. The alternator will have the capability of setting either pump 1 or pump 2 to be lead pump continuously. This capability shall be accomplished by an alternator selector switch labeled Lead #1, Lead #2, Lead 3 and Auto.

C. Should the "Pump-Off" regulator fail, the system will keep the station in operation and provide a visual indication of the regulator failure.

D. In the event of phase reversal, loss of any phase, or low voltage of any phase, control voltage shall be interrupted through the phase monitor. The phase monitor shall automatically reset upon removal of any and all of the above conditions.

2-05 SPECIAL

A. The above panel requirements describe a 230 volt, 3 phase power available, E-3 phase panel complete as described above. This shall apply in all cases, however, in special cases where only 230 volt, 1 phase power is available to the pump station, the following changes and additions are necessary:

1. The phase monitor and circuit will be changed to accommodate a 230 volt relay which will monitor both legs.

2. The lower left panel will contain for each pump a motor start relay, start capacitors, run capacitors and two 5 terminal-terminal strips for pump motor leads, color coded Red or mounted over a laminated Red plastic plate.

3. In addition to schematic furnished on inside door, add single phase Module Schematic, 230 volt relay Conversion Schematic and Ammeter diagram.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Control panels shall be installed at the lift station sites as shown on the drawings.

B. All work shall be in a neat and workmanlike manner by a certified master electrician holding a current competency card and registered with the State of Florida.

C. Electrical work shall be coordinated so as not to interfere with or delay other construction operations.

D. Contractor shall do all necessary cutting, sleeving, excavating and backfilling for the installation of the equipment and the restoration thereafter.

E. The Contractor shall install all equipment and control devices furnished by equipment manufacturers with their equipment and complete wiring in accordance with manufacturer's recommendations and approved wiring diagrams. Any Owner furnished equipment will be connected by the Contractor.

F. The ends of all conduits shall be carefully reamed free from burrs after threading and before installation. All cuts shall be made square. All joints shall be made up tight. Care shall be taken to see

that all power conduit runs either from a permanent and continuous ground connection point, or a bond wire is provided within the conduit.

G. The Contractor shall permanently and effectively ground service neutral and all raceways, devices, and utilize equipment in accordance with requirements of National Electrical Code, and as shown on drawings.

3-02 ELECTRICAL WORK - GENERAL

See Section 16101.

3-03 GROUNDING - SECONDARY VOLTAGE SYSTEM

See Section 16136.

3-04 UNDERGROUND ELECTRICAL WORK (600 VOLTS AND BELOW)

See Section 16301.

3-05 DISCONNECT BOX

A. A heavy duty nema 4x lockable GE or equivalent nonfusable (fused for Osceola County, Florida) disconnect switch mounted in type 304 stainless steel enclosure. Contractor to use mounting provided. Holes are not to be drilled in disconnect box. Sized for voltage, current and phase for particular installation as approved by engineer mounted in accordance with lift station drawing.

3-09 OUTSIDE LIGHTNING ARRESTOR

A. A lightning arrestor, GE or approved equal, sized for voltage, current and phase for particular installation as approved by Engineer shall be mounted outside the disconnect box.

3-10 JUNCTION BOX AND SEALS

A. A nema 4x - 304 stainless steel lockable junction box a minimum size of 10" X 8" X 4" produced by Universal Manufacturing, V1084 Class, or approved equal with 8" terminal strip for liquid sensors shall be installed as shown, and filled with silicone sealant. Box shall be 12 inches above wet well top elevation. "Eys" seal fitting kit (one for each conduit required) complete with sealant by manufacturer mounted in accordance with lift station drawing.

3-11 CONDUIT

A. For all above ground conduit and installation, and from junction box into panel, refer to specification, Conduit, Rigid Steel Section 16121.

B. For all below ground conduit and installation and from junction box to wet well, refer to Specification, Conduit, PVC Section 16126.

3-12 SPLICES

A. All splices for conductors No. 12 through No. 6 AWG solid or stranded shall be made with "Scotchlock" spring connectors or the pressure wire type. For wire sizes larger than No. 6, splices shall be made with "OZ" Type "XW" or "XLP" as appropriate to the splice being installed. Equal fittings of Brundy and Penn Union may be used. Tape shall be equal to Scotch No. 33 plastic over splice and filler tape on splices shall be equal to "Scotchfill". All Scotchlock splices in hand holes shall be dipped Glyptol for waterproofing.

3-13 PERMITS

A. All required permits and inspection certificates shall be obtained and paid for by the Contractor and be made available to the owner at the completion of the work.

3-14 START-UP

A. The manufacturer shall provide all necessary instruments and special apparatus to conduct any test that may be required to insure that the system is operating as designed. A written start-up report is required and must be furnished to Owner within 30 days of start-up.

3-15 GUARANTEE

A. The Contractor shall submit a written guarantee to the Owner that all electrical work and material furnished provided under this contract is free of defects for a period of one year after final acceptance of the job. There will be no additional charge to the Owner to repair or replace any such work which is found to be defective within the guarantee period. Should a defect occur and the Contractor or his representative not be available for immediate repair, an interim repair by others may be made without violation of the guarantee.

END

SECTION 16164

LIMIT SWITCHES

PART 1 - GENERAL

1-01 DESCRIPTION

A. Limit switches shall be furnished and installed on the well pump discharge check valve. The limit switch shall be mounted so the check valve lever arm will open the switch when the check valve opens during pump discharge. The limit switch shall be wired so that the pump motor will automatically de-energize if the check valve fails to open and the "ON" time delay relay times out.

1-02 QUALITY ASSURANCE

A. NEMA Standard IC-1 Industrial Control; other applicable standards of IEEE, ANSI, NEC, and National Electrical Safety Code.

1-03 MANUFACTURER

A. Limit switch shall be Allen Bradley Bulletin 802T-AP with Bulletin 802T-W2D lever arm or approved equal.

1-04 SUBMITTALS

A. Shop drawings shall be submitted for approval by the Engineer.

PART 2 - PRODUCTS

2-01 GENERAL

A. Limit switches shall conform to the applicable requirements of NEMA Standard IC-1 Industrial Control.

B. Contacts shall have a continuous rating of 10 amperes.

C. Limit switch shall be NEMA IV Type.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Limit switches shall be installed on the discharge check valve of each well pump and wired as indicated and in accordance with the manufacturer's installation instructions.

END

SECTION 16301
UNDERGROUND ELECTRICAL WORK (600 VOLTS AND BELOW)

PART 1 - GENERAL

1-01 APPLICABLE PUBLICATIONS

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

B. Military Specification (Mil. Spec.) Publication:
MIL-C-18480B Coating Compound, Bituminous, Solvent, Coal Tar Base.

C. Underwriter's Laboratories Inc. (UL) Publications:
44-1977 Rubber-Insulated Wires and Cables; (R 7/81) 510-1982 Insulating Tape.

D. National Electrical Manufacturer's Association (NEMA) Publications:
TC2-1978 Electrical Plastic Tubing (EPT); and Conduit (EPC-40 and (R 4/81) EPC-80);
TC3-1978 PVC Fittings for use with Rigid PVC conduit and Tubing.

E. American National Standards Institute (ANSI) Publication:
C2-1981 National Electrical Safety Code (NESC)

F. National Fire Protection Association (NFPA) Publication:
70-1981 National Electrical Code (NEC) or latest revision

G. American Association of State Highway and Transportation Officials (AASHTO) Publication:
Standard Specifications for Highway Bridges (1977), Twelfth Edition

1-02 GENERAL REQUIREMENTS

A. Section 16101 "Electrical Work" General".

1-03 SUBMITTALS

A. The following information shall be submitted for approval

1. Catalog Information
   a. Conduit
   b. Precast Handhole
   c. Handhole Frame and Cover

B. Certificates: Material and Equipment: Provide manufacturer's statement certifying that the product supplied meets or exceeds contract requirements.

1. Precast handhole and accessories.
2. Handhole frame and cover.

PART 2 - PRODUCTS

2-01 CONDUIT

A. Except as otherwise indicated, conduit for direct burial shall be PVC conforming to NEMA TC2 (conduit) and TC3 (fittings) type SCH-40-PVC.

2-02 TAPE

A. Plastic insulating tape shall conform to the requirements of UL 510.

2-03 POWER WIRE AND CABLE

A. Wire and cable conductor sizes are designated by American Wire Gauge (AWG). Conductors shall be copper. Insulated conductors shall bear the date of manufacture imprinted on the wire insulation with other identification. Wire and cable manufactured more than 12 months before installation shall not be used.

B. Insulated conductors in conduit and light poles shall be type XHHW conforming to UL 44.

C. Insulated conductors (cables) for direct burial in earth shall be cable or individual conductors bundled together and shall be provided with HHW insulation and shall be Underwriter's approved as type UF or type USE. Conductors for direct burial extended through conduit sleeves under roadways, paved area, slabs, etc., and into handholes and lighting control centers shall be the same as direct buried cable.

D. All control cables shall be shielded pairs with the cable shield tied to ground. Control cables shall be installed per Section 16136 Grounding - Secondary Voltage Systems. This shield shall not be connected to any "floating" grounds. Control wire shall not be installed in conduit with power wire.

2-04 PRECAST HANDHOLES

A. Provide precast handholes (pull boxes) complete with all accessories and strengths as required and as specified on drawings. Each casting shall be identified by having the manufacturers name and address cast into an interior face or permanently attached thereto. The complete assembly, including frame and cover, shall be rated for AASHTO H20 wheel loading.

B. Metal frames and covers shall be made of cast-iron or steel. Frames and covers of steel shall be welded by qualified welders in accordance with standard commercial practice. Steel covers shall be rolled steel floor plate having an approved anti-slip surface. Covers shall be rated AASHTO H20. Covers shall be embossed with minimum one inch high letters with the word ELECTRICAL.

2-05 BITUMASTIC COATING

A. Coating material shall conform to Company Spec. 09900 Painting & Coating.

2-06 GROUNDING

A. Equipment grounding conductor shall be No. 6 AWG except as otherwise noted.

2-07 CONCRETE

A. Concrete shall conform to Section 03010 "Concrete Work".

PART 3 - EXECUTION

3-01 INSTALLATION

A. Underground cable installation shall conform to ANSI C2 and NFPA 70 except as otherwise specified or indicated.

3-02 UNDERGROUND CONDUIT

A. Except as otherwise indicated, conduit shall be PVC and shall not be installed under or above traffic signal loops.

B. The top of the conduit shall be not less than 18 inches below grade, shall have a minimum slope of 3 inches in 100 feet toward drainage points, and shall run in straight lines except where a change of direction is necessary. As each conduit run is completed, a testing mandrel not less than 2 inches long with a diameter 1/4 inch less than the inside diameter of the conduit shall be drawn through the conduit. A brush, having stiff bristles, shall then be drawn through the conduit until the conduit is clear of all particles of earth, sand or gravel. Conduit plugs shall then immediately be installed. There shall not be less than 3 inches clearance from the conduit to each side of the trench. The bottom of the trenches shall be graded smooth. Where rock, soft spots, and/or sharp edged materials are encountered, the bottom shall be excavated for an additional 3 inches, filled and tamped level with the original bottom using sand or earth free from particles that would be retained on a 1/4 inch sieve.

C. Under roads, paved area, and railroad tracks, conduit shall be encased in concrete. The concrete encasement shall extend at least 10 feet beyond the edges of paved areas and roads. The concrete encasement shall be rectangular in cross-section and shall provide at least 3 inches of concrete cover. Conduit shall be separated by a minimum concrete thickness of 2 inches, except for light and power conduits which may be separated by a minimum concrete thickness of 3 inches. Conduit sleeves and conduit shown associated with direct buried cable systems shall extend a minimum of 12 inches beyond the concrete encasement. Conduit shall be capped where indicated.

3-03 CONCRETE

A. Concrete for electrical requirements shall be at least 3000 psi concrete 3/8" and shall conform to the requirements of Section 03010 "Concrete Work".

3-04 BACKFILLING

A. A plastic warning tape shall be provided about 12 inches below the top of the trench in the backfill. Backfill shall be placed in layers not more than 6 inches thick and each layer shall be compacted. Backfilling shall progress as rapidly as the construction, testing and acceptance of the work permits. Backfill shall be free from roots, wood scrap material, and other vegetable matter and refuse. Compaction of backfill shall be to 95 percent of AASHTO T-180 or 98 percent of T-180 AASHTO under roadways.

3-05 RECONDITIONING OF SURFACES

A. Surfaces disturbed during the installation of duct, conduit or direct burial cable shall be restored to their original elevation and condition and for new work to new elevations and conditions specified. Sod or topsoil shall be preserved carefully and replaced after the backfilling is completed. Sod that is damaged shall be replaced by sod of quality equal to that removed. Where the surface is disturbed in a newly seeded area, the restored surface shall be reseeded with the same quantity and formula of seed as that used in the original seeding.

3-06 PRECAST HANDHOLE INSTALLATION

A. Commercial precast assembly shall be set on 6 inches of level, crushed rock fill, 3/4 inch to one inch size, extending 12 inches beyond the handhole on each side. Granular fill shall be compacted by a minimum of four passes with a plate type vibrator. Handhole shall be filled as indicated with rock which would pass a 1/4 inch screen and which is free of sharp material after conduits are in place.

3-07 FIELD PAINTING

A. Cast-iron frames and covers not buried in masonry shall be cleaned of mortar, rust, grease, dirt and other deleterious materials, and given a coat of bituminous paint conforming to Spec. 09900 Painting & Coating.. Steel frames not buried in masonry and steel covers shall be cleaned of mortar, dirt and grease by an approved blasting process. Surfaces that cannot be cleaned satisfactorily by blasting shall be cleaned to bare metal by wire brushing. Other contaminants shall be washed with solvents until thoroughly cleaned. Immediately after cleaning, surfaces shall be coated with a pretreatment coating or be given a crystalline phosphate coating. As soon as practicable after the pretreatment

coating has dried, treated surfaces shall be given a coat of bituminous paint conforming to Spec. 09900 Painting & Coating.

3-08 EARTHWORK

A. Excavation for handholes shall be to depths required. If hard material is encountered, the provisions of the contract respecting an adjustment for changed conditions shall apply, subject to the requirements of notification thereunder being given. Hard material shall be defined as solid rock, firmly cemented unstratified masses or conglomerate deposits possessing the characteristics of solid rock not ordinarily removed without systematic drilling and blasting, and any boulder, masonry or concrete (except pavement), exceeding ½ cubic yard in volume. Excavated materials not required or suitable for backfill shall be removed from the project site, at no additional cost to the Owner.

B. Backfilling around structures shall consist of earth, loam, sand-clay or sand and gravel, free from large clods of earth or stones over one inch in size. Backfill materials shall be placed symmetrically on all sides in loose layers not more than nine inches deep. Each layer shall be moistened, if necessary, and compacted with mechanical or hand tampers to 95 percent compaction (AASHTO T-180 proctor). Surfaces disturbed during the installation of manholes and handholes shall be replaced as described under the paragraph 3-05, Reconditioning of Surfaces.

3-09 SPLICES FOR 600 VOLT CLASS CABLES

A. Splices in underground systems shall be made using a compression connector on the conductor and by insulating and waterproofing by the following method suitable for continuous submersion in water. Cast-type splice insulation shall be provided by means of a molded casting process employing a thermosetting epoxy resin insulating material which shall be applied by a gravity pour method employing materials and equipment contained in an approved commercial splicing kit. The component materials of the resin insulation shall be in a packaged form ready for convenient mixing without removing from the package. When the mold is in place around the joined conductors, the resin mix shall be prepared and poured into the mold. Cables shall not be moved until after the splicing materials have completely set. Splices shall only be made in handholes, in cabinets and in pole handholes.

3-10 GROUNDING

A. Noncurrent carrying metallic parts associated with electrical equipment shall have a maximum resistance to solid "earth" ground not exceeding the following values:

Grounded secondary distribution system neutral, conduit and noncurrent carrying metal parts associated with distribution systems and grounds not otherwise covered ..... 5 ohms

B. When work in addition to that indicated or specified is directed in order to obtain the specified ground resistance, the provisions of the contract covering "Changes" shall apply.

C. Grounding connections which are buried or otherwise normally inaccessible, and excepting specifically those connections for which access for periodic testing is required, shall be made by exothermic weld or with a wedge-pressure grounding connector. Exothermic welds shall be made strictly in accordance with the weld manufacturer's written recommendations. Welds which have "puffed up" or which show convex surfaces, indicating improper cleaning, are not acceptable. Mechanical connectors are not required at exothermic weldments.

D. Grounding conductors shall be copper. A No. 6 AWG bare copper grounding conductor shall be installed in each trench for power.

3-11 FIELD TESTS

A. Distribution conductors 600 Volt Class: All 600 volt class conductors shall be tested to verify that short circuits or accidental grounds do not exist. Tests shall be made using an instrument which applies a voltage of approximately 500 volts to provide a direct reading of resistance.

3-12 TEST REPORTS

A. 600 volt cables (identify each cable & test result).

B. Grounding electrodes & systems (identify electrodes and systems, each test).

END

SECTION 17010

WATER SUPPLY WELLS

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work described in this section encompasses all work required for the drilling, developing, testing and completion of water supply wells as shown on the attached drawings and as specified herein. The Contractor shall base his bid on data given hereinafter.

1-02 SCOPE

A. The contractor shall furnish all labor, equipment and material, and shall provide all operations required for the completion of the water supply wells. For this project the contractor shall provide a water supply well that has a minimum continuous pumping capacity of _____ g.p.m. All labor, material, equipment and operations included in this section shall be in accordance with American Water Works Association (AWWA) Standards for Deep Wells (AWWA A100-84) or latest revision which the present specifications supplement or modify to fit the particular needs or conditions to be encountered in the proposed work.

1-03 PERMITS

A. Upon notice of award, the Contractor shall immediately apply for construction permits required to drill the water supply wells from the appropriate regulatory agencies. No drilling operations shall commence until appropriate permits have been obtained. The Contractor shall submit copies of all permits to the Engineer prior to commencement of drilling.

1-04 GENERAL

A. Preparation: Contractor shall provide suitable preparations at the site for the drainage and disposal of water, mud and drill cuttings. Contractor shall protect adjacent property from damage by water, mud and drill cuttings resulting from well drilling operations.

B. Well Location: Each water supply well shall be located as shown on the attached drawings. However, the Owner reserves the right to change the location of any well to another site with similar characteristics and conditions to those of the original site. Unit prices included in the Proposal Schedule will remain the same regardless of the new location.

C. Well Depth: The exact depth of each well shall be indicated in the Proposal Schedule and shall not go beyond the estimated depth unless mutually agreed upon by the Engineer and the Contractor, in which case adjustment will be made to the contract bid price based on the contract unit prices submitted by the Contractor.

D. Drilling Method: Water supply wells drilled in unconsolidated formations shall be drilled by the hydraulic rotary drilling method using either standard or reverse circulation. Water supply wells drilled in consolidated formations shall be drilled by the air rotary drilling method.

E. Bore: Regardless of the method of drilling, the diameter of the bore hole shall be drilled large enough to receive the size of the casing and screen freely without excessive bumping or driving. The bore hole shall be drilled straight and plumb without offsets and bends in the alignment.

F. Well Development: Each well shall be developed using the horizontal high velocity jetting method or by any other method deemed appropriate by the Contractor to develop the wells to meet Owner's intended use. The method of well development shall be approved by the Engineer prior to commencement of development operations.

1-05 EQUIPMENT AND PERSONNEL

A. The Contractor shall furnish capable personnel and equipment to construct the wells by rotary drilling with either standard or reverse circulation or by air rotary drilling. The Contractor's drilling rigs, tools, equipment, and personnel shall be subject to the Engineer's approval.

B. The Bidder shall submit, with his bid, information on the equipment he plans to use in this project as follows:

1. Manufacturer's name, type and model of each drilling rig, power engine, circulation pump and air compressor;

2. Manufacturer's name, type model, discharge pressure and pumping capacity of the high pressure pump and power engine to be used for well development;

3. The outside diameter of the horizontal jetting tool to be used for well development, together with the number of nozzles per tool and the nozzle orifice size;

4. Manufacturer's name, type and model of test pump, including number of stages, impeller model, diameter, discharge pressure, pumping capacity and length of column and discharge piping together with manufacturer's name, type and model of gear drive and power engine.

The Bidder shall submit with the above information a statement indicating ownership of or lease agreement on this equipment and the location or locations of each one of them during the ten days following the bid opening. If requested by the Engineer or his representative, the Bidder shall facilitate the inspection by the Engineer or his representative of the equipment described, together with proof of ownership or lease agreement. Failure on the part of the Bidder to fulfill any of the above requirements shall be grounds to reject his bid.

C. The Contractor, in addition to furnishing the services of skilled and experienced drillers in the type of formations to be encountered, shall also furnish an adequate number of competent helpers. The drillers shall be capable of keeping good and clean well logs and reports of the drilling, developing and test-pumping operations as instructed by the Engineer. They shall also be capable of recognizing and making lithologic classifications of the formations to be encountered during the work.

1-06 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall be responsible for performing all work required in the construction of the water supply wells in strict accordance with these specifications. If evidence indicates that a well is not constructed in accordance with these specifications, to the satisfaction of the Engineer and the Owner, the Contractor shall perform any work required, at his own expense, to correct the problem, or if the problem cannot be corrected, the Contractor shall abandon such well and drill a new well without additional cost to the Owner.

1-07 SUBMITTALS

A. The Contractor shall submit to the Engineer for approval, six (6) sets of shop drawings from the well screen manufacturer prior to shipment of the screen by the manufacturer. The well screen shop drawings shall indicate: the diameter, length and unit weight of the screen; the screen materials; the recommended slot size; the opening area/square foot of screen; the type and material of fittings; information regarding any recommended extra column strength or extra collapse strength required for the intended screen installation; and recommendations for the effective size and uniformity coefficient for filter gravel packing around the well screen.

B. The Contractor shall submit to the Engineer for approval, six (6) copies of mill certificates from the well casing manufacturer prior to delivering casing to the job site. The certificates shall verify that the casing furnished under this contract complies with the requirements set forth in these specifications.

C. Following completion of well construction, the Contractor shall submit to the Engineer six (6) copies of a report for each well including drilling logs, an "as-built" drawing of the well showing all dimensions, test pumping data, and all other pertinent data and information.

1-08 PRODUCT HANDLING

A. The Contractor shall exercise care in transporting and handling well screens to prevent damage or deformation. The Contractor shall verify that the screen manufacturer has properly crated the screens prior to shipment from the factory in order to decrease the possibility of damage to the screens during shipment to the job site.

PART 2 - MATERIALS

2-01 GENERAL

A. All materials specified herein shall be new and free from objectionable defects. No used or old material will be accepted. However, if the Contractor deems it necessary or desirable to use temporary surface casing to facilitate the construction of each well, temporary casing may be used, subject to the approval of the Engineer.

2-02 WELL CASING

A. All permanent well casing shall be of new and unused Grade A, black steel pipe with welded or screwed couplings and shall conform to AWWA Standards for Mill-Type Steel Water Pipe (AWWA C202-64) as follows:

Nominal Size Inches	Diameter in Inches External	Internal	Wall Thickness Inches	Weight per Foot Plain Ends
3	3.500	3.068	0.216	7.58
4	4.500	4.026	0.237	10.79
5	5.563	5.047	0.258	14.62
6	6.625	6.065	0.280	18.97
8	8.625	7.981	0.322	28.55
10	10.750	10.020	0.365	40.48
12	12.750	12.000	0.375	49.56
14	14.000	13.250	0.375	54.57
16	16.000	15.250	0.375	62.58
18	18.000	17.250	0.375	70.59
20	20.000	19.250	0.375	78.60
24	24.000	23.250	0.375	94.62

Casings shall be equal to those manufactured by Bethlehem Steel Company, or National Tube division of the U.S. Steel Company. Casings shall be furnished with an approved rust-inhibitive coating, inside and outside, applied at the mill prior to shipment.

Whenever casing is to be driven, the bottom of the casing shall be protected with a seamless forged steel drive shoe manufactured by the Rampp Company, Marietta, Ohio, or an equal approved by the Engineer.

2-03 WELL SCREENS

A. Well screens when provided shall be of the continuous slot, wire-wound design in order to provide maximum inlet area consistent with strength requirements. It shall be fabricated by circumferentially wrapping a triangularly shaped wire around a circular array of internal rods. The wire configuration must produce inlet slots with sharp outer edges, widening inwardly so as to minimize clogging. For

maximum collapse strength each juncture between the horizontal wire and the vertical rods will be fusion welded under water by the electrical resistance method.

End fittings shall be welded to the screen body. The well screen shall be manufactured by Johnson Screen Division of Wheelabrator Water Technologies, Inc., P.O. Box 64118, St. Paul, Minnesota, 55164, (800) 833-9473 or an equal approved by the Engineer. The screen for each well shall have a nameplate indicating its diameter, length, weight, type of screen material, and slot size.

Well screens and attached end fittings shall be fabricated from a corrosion-resistant Type 304 stainless steel. End fittings provided with the screen will be selected on the basis of the well design parameters and the drilling method. The screens shall be designed to have adequate strength to resist damage during installation.

The screen slot size shall be determined in accordance with the effective size and uniformity coefficient of the material found in the natural water bearing formation and of the artificially introduced gravel pack material. The Contractor shall collect sufficient cutting samples for each well during drilling operations in the water bearing formation. The Contractor shall submit these samples together with a copy of the well drilling log for each well to the screen manufacturer. The slot size of the screen to be installed in each well shall be recommended by joint agreement of the Contractor and the screen manufacturer based on the analysis of the formation samples and on the recommended filter gravel material. The screen slot openings shall be designed to prevent clogging and to be free of jagged edges, irregularities and other defects.

2-04 FILTER GRAVEL

A. Filter gravel to be used for the artificial gravel pack when provided shall conform with AWWA Standards for Filtering Material (AWWA B100-72) or its revisions. However, the effective size and uniformity coefficient for the filter gravel shall be recommended, together with the slot size of the screen by joint agreement of the Contractor and the screen manufacturer in accordance with the analysis of the natural formation samples.

PART 3 - EXECUTION

3-01 DRILLING LOG

A. The Contractor shall record all materials passed through during drilling and the depths at which the changes in formations occur, together with such other information as may be called for by the Engineer. The log of the well shall show all material penetrated and full descriptive notes made of everything found by the drill and of all difficulties or unusual conditions met in drilling. All water-bearing strata shall be described in special details as to whether the material is loose, compact, its color and, if gravel, whether it is water worn or angular. The Contractor shall arrange for resistivity and gamma ray logging of each water supply well prior to ordering the well screen. The electronic logging shall serve as a basis for determining screen ordering lengths and the depths at which the screen shall be set.

3-02 STATE REPORTS AND FORMATION SAMPLES

A. The Contractor shall submit a well completion report including a drilling log and a detailed "as built" drawing to the Florida Department of Environmental Protection and to the Water Management District.

A well completion report shall be completed by the Contractor for each well constructed and shall be submitted to the two agencies listed above within thirty days after completion of the drilling operation. Blank well completion reports shall be secured at the Contractor's expense from the FDEP.

B. During the drilling operations the Contractor shall collect sufficient cutting samples for each well beginning at the ground surface and at regular intervals thereafter, not exceeding five feet and at every change in formation. These samples shall be submitted by the Contractor together with the well

log, the well completion report and other data as required by the FDER for each well to the Bureau of Geology of the Florida Department of Natural Resources and to the Water Management District.

Samples shall be kept in containers which will be secured at the Contractors expense. After being put in their containers, they shall be properly labeled and delivered by the Contractor to the Bureau of Geology and to the Water Management District upon completion of each well.

3-03 WELDED JOINTS - WELDING FOR STEEL CASING AND STAINLESS STEEL SCREENS

A. Welding in shop and field shall be done by operators who have been previously qualified in tests as prescribed in the American Welding Society Standard Qualification Procedure to perform the type of work required. Welding of well casing shall be done in accordance with AWWA Standards for Mill-Type Steel Water Pipe (AWWA C202-64). Field welding of stainless steel well screens shall be done in accordance with recommendations of the screen manufacturer.

3-04 WELL CONSTRUCTION

A. General

1. The intent of this paragraph of the specifications is to provide for the construction of water supply wells. The wells are to be of the type and characteristics described in "PART 1 - GENERAL" in this section of the specifications. Well construction shall be as shown on the attached generalized water supply well details and as specified hereinafter.

2. The cost of furnishing and installing, or installing and pulling out, any surface casing or pit casing which might be needed temporarily for the drilling operations of any well shall be included in the unit price for drilling and setting the permanent outer casing.

3. The well shall be constructed and all permanent casing set round, plumb, and true to line throughout and shall be within two degrees of plumb, in order to demonstrate that each well is plumb and aligned, it shall be tested in accordance with paragraph 3-06 "PLUMBNESS AND ALIGNMENT TEST," prior to acceptance.

4. The well casing shall be installed without excessive bumping or driving to prevent damage to welded joints or threaded couplings. The Contractor shall keep an accurate record; as assembled, of the order, number, size, and lengths of the individual pieces of casing installed in the well. Permanent casings in the water wells shall be paid at the unit price of the Contract. Casing length shall be measured from top of the permanent casing to its bottom.

5. The Contractor shall take all necessary precautions to reduce to a minimum the nuisances of drilling wells. In all those cases where necessary or where requested by the Engineer, the Contractor will use mud tanks and all the necessary equipment to avoid the use of a mud pit. Location of all his equipment and tools shall be such as to not interrupt the access to any private property or to road traffic.

6. The casing interior shall be cleaned of all foreign matter before lowering into the well. Any section of casing found to be defective or damaged shall be replaced at the Contractor's expense with new acceptable casing.

B. Water Supply Wells In Unconsolidated Formations

1. Artificially gravel packed wells to be constructed by rotary drilling shall be drilled to the depth where the outer casing is to be seated with a hole of a diameter at least four (4) inches greater than the outside diameter of the casing. The hole shall be drilled to the required depth to receive casing and permit grouting. Outer casing shall then be lowered to the exact depth determined in the field, centered in the hole and held in place with sufficient spacers to maintain true alignment and then grouted with a neat cement grout. The grout shall be proportioned of cement and the minimum quantity of water (not over six gallons per cubic foot

of cement) required to give a mixture of such consistency that it can be forced through grouting pipes. Bentonite or equal may be used up to three percent (3%) by volume to reduce shrinkage. The grout mixture, method of mixing and consistency of the grout shall be approved by the Engineer. The top of the casing to be grouted shall be left with not less than twelve (12) inches above the ground.

2. The grout shall be placed in such a manner that surface water and other impurities will be prevented from entering the well by infiltration along the bore and casing. Grouting of casing shall be accomplished in the presence of the Engineer or his representative, in one continuous operation. The method of grouting shall be by pumping the grout under pressure from the bottom of the outside permanent casing to the ground surface through a separate and temporary pipeline, completely filling the annular space between the bore hole and the casing. Spacers used to center the casing in the bore hole shall be clean and of a curable material. The grout shall be allowed to set for 72 hours before any work may be done which would disturb it or allow it to crack. If quick-setting cement is used, the setting period may be reduced to 24 hours. The Contractor shall take care to protect the grout from damage and insure proper curing during the setting period.

3. Drilling operations shall continue, after the 24 hour or longer waiting period required for setting up the cement grout, with rotary drilling to the depth determined to set the bottom of the screen. The diameter of this part of the hole shall be at least six (6) inches greater than the outside diameter of the screen. Rotary drilling through the section where the screen is to be set, shall be done only with water and an organic drilling fluid additive such as Revert, X-6, Gen Gel, or equal. No bentonite or clay shall be used through that section.

4. No screen shall be lowered into a well until the Engineer or his representative has verified that its dimensions and characteristics correspond with those approved for that particular well. Screens not meeting the approved conditions or showing any appreciable damage or deformation shall be rejected. Due precautions shall be taken during handling and lowering of the screens into the wells to prevent any damage or deformation. The screen shall have no change of alignment after installation. Payment for the screen shall be for the length indicated on the nameplate, as checked by the Engineer, at the unit price shown in the Bid Proposal.

5. The depth at which the screen is set shall be approved by the Engineer. The screen and inner casing shall then be lowered to the approved depth and set within plus or minus three (3) inches of that depth. The screen and inner casing shall be installed with suitable heavy steel stave-type centering guides so as to insure that the inner casing is perfectly concentric with the outer casing and that the screen is also concentric with the hole below the outer casing. The centering guides shall be as manufactured by, Johnson Screen Division of Wheelabrator Water Technologies, Inc., P.O. Box 64118, St. Paul, Minnesota, 55164, (800) 833-9473 St. Paul, Minnesota, or an equal approved by the Engineer.

6. After the screen and inner casing assembly have been properly installed, filter gravel shall be pumped to the bottom of the well through a separate and temporary pipe. A complete and homogenous artificial gravel packing shall then be built all around the screen and inner casing, starting from the bottom of the well upward to a level not less than ten feet above the bottom of the outside casing. Under no conditions shall the Contractor attempt to build the artificial gravel packing by dumping the filter gravel around the inner casing from the surface of the ground. The Contractor shall keep a record of the amount of gravel added to each well and this information shall be contained in the driller's report and log.

C. Water Supply Wells In Consolidated Formations

1. The hydraulic rotary well drilling process shall be used when drilling through unconsolidated materials above the consolidated water bearing lime rock formation. Unconsolidated material above the water bearing lime rock formation shall be completely cased and grouted to prevent corrosion of the casing. The well shall be drilled to the top of the consolidated lime

rock formation with a bore hole of a diameter of at lease four (4) inches greater than the outside diameter of the casing.

2. The casing shall then be lowered to the exact depth determined in the field centered in the hole and held in place with sufficient spacers to maintain true alignment and plumbness. The two (2) inch annular space between the bore hole wall and the casing shall then be completely filled with a neat cement grout. The grout shall be pumped under pressure from the bottom of the casing to the ground surface through a separate and temporary pipeline. The cement grout mixture and procedure for grouting shall be as specified above in Section 3-04B.

3. Following the required curing time for the cement grout, drilling operations into the consolidated water bearing lime rock formation may continue. The air rotary drilling method shall be used in the consolidated formation. In order to allow maximum development of the lime rock formation, no drilling mud or fluid shall be used in that formation. The diameter of the hole drilled in the lime rock formation shall not be more than five-eighths (5/8) inches smaller than the inside diameter of the surface casing. The open hole portion of the well shall maintain true alignment, plumbness and concentricity with the surface casing as is practical with the construction method employed. The open hole shall be drilled to the bottom of the consolidated water bearing lime rock formation. Measurement for the open hole section of the well shall be from the bottom of the permanent surface casing to the bottom of the open hole. Payment shall be at the Contract Unit Price for the open hole section.

3-05 WELL CAPPING

A. Whenever there is an interruption in work on a well, the Contractor shall protect the well in such a manner as to effectively prevent either tampering with the well or the entrance of foreign matter into it. After each water supply well has been tested and completed, the Contractor shall furnish and install suitable connections and materials for permanently capping each well, as shown on the attached drawings.

The steel flanges used to fabricate each permanent well cover shall meet AWWA Standards for Steel Pipe Flanges, Class D, (AWWA C207-78). The flanges shall be gasketed with a cloth inserted rubber gasket. The gasket shall extend from the inside diameter of the flange to as least the outside edge of the bolt holes. The flanges shall be bolted with carbon steel bolts and nuts meeting ASTM A-307 Grades A or B. All bolt heads and nuts shall have American Standard Regular hexagonal dimensions as specified in American Standard for Wrench Head Bolts and Nuts and Wrench Openings (ASA B18.2). All bolts and nuts shall be threaded in accordance with American Standard for Screw Threads (ASA B1.1), Course-Thread Series, Class 2A and 2B fit.

The top of the water supply well casing shall not be less than the dimension above ground level as shown on the attached drawings.

Following the installation of the permanent well cap, all well casing exposed above ground and the well cap shall be painted as indicated on the attached drawings. The Contractor is responsible for any objectionable material that may fall into the water supply wells and its consequences until the completion and acceptance by the Engineer of all the work described in these specifications. The unit prices set in the Contract shall cover all the necessary work and material to cap each well.

3-06 PLUMBNESS AND ALIGNMENT TEST

A. Required to Test: The well boring shall be constructed and all casing and liners set round, plumb and true to line as defined herein. To demonstrate the compliance of the work with this requirement, the Contractor shall furnish all labor, tools and equipment and shall make the test described herein. Test for plumbness and alignment must be made after the complete construction of the well and before its acceptance. The cost of accomplishing one (1) plumbness and alignment test for both the outside and inside casings, for each well, shall be included in the contract unit prices for drilling and setting casing. No additional payments will be made for making any additional tests.

B. Description of Test: For screened wells, plumbness and alignment shall be tested for the entire length of the outside casing prior to grouting, and for the inside casing from the bottom of the screen to the ground surface prior to gravel packing. For open hole wells, plumbness and alignment shall be tested from the bottom of the hole to the ground surface. Each casing or open hole shall be tested by lowering into the casing or open hole a section of pipe 40 feet long or a dummy of the same length. The outer diameter of the pipe shall be not more than 1/2-inch smaller than the diameter of the part of the casing or open hole being tested. If a dummy is used, it shall consist of a rigid spindle with three rings, each ring being 12-inches wide. The rings shall be truly cylindrical and shall be placed at each end of the dummy and one ring in the middle thereof. The central member of the dummy shall be rigid so that it will maintain the alignment of the axis of the rings.

C. *Requirement for Plumbness and Alignment*: Should the dummy, or pipe, fail to move freely through the length of the casing or open hole to the required depth, or should the well vary from the vertical in excess of two- thirds of the smallest inside diameter of that part of the well being tested per 100 feet of depth, or beyond limitations of this test, the plumbness and alignment of the well shall be corrected by the Contractor at his own expense. Should he fail to correct such faulty alignment or plumbness, the Engineer may refuse to accept the well.

3-07 WELL DEVELOPMENT

A. Following the construction of each water supply well, but before any final pumping tests have been started, the Contractor shall develop and clean out each well. The purpose of the development work is to remove effectively from the well, well walls, well screen, and from the formation immediately adjacent to the well, material like mud, clay, fine particles of sand and/or of shell and any other type of fine material. The Contractor shall develop each well using the horizontal, high velocity jetting method. Other methods may be used at the discretion of the well Contractor with the prior approval of the Engineer.

B. The Contractor shall furnish all necessary pumps, compressors, tools, piping, hoses and other equipment needed to develop the well. The Contractor shall conduct the well development to give the maximum practical yield of water per foot of drawdown and to extract from the water bearing formation the practical maximum quantity of such fine materials as may, during the life of the well, be drawn into the casing when the well is pumped continuously under maximum conditions of drawdown. Actual well development, regardless of the method use, shall be conducted for a minimum time period of six hours and until water pumped from the well at the maximum test pumping rate is clear and free of sand. The water shall be considered sand-free when samples taken during test pumping contain not more than one part per million of sand by weight. At the conclusion of the development, the well shall be cleared of all accumulations of sediment to the full depth of the well. The well development must be done in a manner that will not cause undue settlement and disturbance of the strata above the water bearing formation or disturb the seal effected around the well casing which provides the natural sanitary protection against vertical seepage along the casing.

3-08 WELL DISINFECTION

A. After each water supply well has been completely constructed and developed, it shall be thoroughly cleaned of all foreign substances including tools, timbers, rope, debris of any kind, cement, oil, grease, joint dope and scum. The casing pipe shall be thoroughly swabbed, using alkalies if necessary to remove oil, grease or joint dope. The well shall then be disinfected with a chlorine solution consisting of clean potable water and sodium hypochlorite or calcium hypochlorite.

The chlorine solution used for disinfecting the well shall be of such volume and strength, and shall be so applied, that a minimum concentration of 50 ppm shall be obtained in all parts of the well at static conditions. The chlorine solution shall be forced into the water bearing formation by creating a hydraulic head in the well with the disinfecting solution. The chlorine solution shall be introduced into the well in such a manner that the well surfaces above the static level will be completely flushed with the solution. The chlorine solution shall be prepared and applied in a manner approved by the Engineer. The chlorine solution shall remain in the well for a minimum time period of four hours. Following the chlorination time period, the well shall be pumped to waste to completely remove

chlorine solution from the well. The Owner will collect two water samples per day from the well for standard bacteriological testing. Bacteriological clearance of the well shall be demonstrated when the standard bacteriological tests indicate coliform counts of minus one for four consecutive days. In the event that the well fails to pass bacteriological clearance, the Contractor shall be responsible for re-disinfection/chlorination of the well until bacteriological clearance of the well is demonstrated. Any re-disinfection required shall be at the Contractor's expense.

Prior to installing the test pump in the well, all interior and exterior parts of the test pump coming in contact with the water in the well shall be disinfected with a five percent (5%) chlorine solution (chlorine bleach). The method of disinfecting the test pump shall be approved by the Engineer or his representative prior to installing the test pump.

3-09 PUMPING TESTS

A. General: Pumping tests as described herein shall be performed for each of the water supply wells. The purpose of the tests is to gather sufficient and accurate data to determine aquifer characteristics and coefficients, and to size the permanent well pump.

B. Test Pump and Equipment: The Contractor shall furnish, install and operate all necessary materials and pumping equipment capable of pumping from the well a minimum of not less than 500 gpm. The test pumping unit shall be a deep well turbine pump with a right angle gear and a diesel engine drive or other drive approved by Engineer. Throttling devices shall be furnished for the pumping unit so that the discharge may be reduced to zero gpm. The pumping unit shall be capable of operating continuously for the duration of the pumping test (1500 minutes/25 continuous hours).

In the event the Contractor's pumping units should fail and interrupt a pumping test, the Contractor will be penalized for the hours of pumping already performed, and test will be started over at the Contractor's expense.

The Contractor shall furnish all necessary discharge conduit for the pumping unit, which shall be sufficient size and length to convey the water being pumped to a point of final discharge off the Owner's property. The pumped water shall be discharged in such a manner so as not to flood or otherwise damage any private or public property. The Contractor shall furnish, install and operate equipment of approved size and type for measuring the flow of water, such equipment to be an orifice-piezometer set or a turbine-type water meter for accurately determining the discharge rate from 0 gpm to 200 gpm.

The Contractor shall provide the necessary number of experienced employees to be continuously on-site whenever a pumping test is being performed. The employees shall be responsible for operation of the pumping unit and for determining and recording pumping rates during the test. The Contractor's employees will also be expected to determine water elevations in the pumped well and to simultaneously determine water levels in the observation wells, as directed by the Engineer. All measurements taken by the Contractor during the pumping tests shall be recorded by accurate means of measurement. Results will be recorded to the nearest 100th of a foot.

C. Pumping Tests: Two different pumping tests shall be performed for each well. The first test shall be a step drawdown test to measure the yield and specific capacity of the well. The second test shall be a continuous pump test at one pumping rate to determine aquifer characteristics.

Following drilling, development, and preliminary testing, the well shall be allowed to set idle for at least 24 hours to enable the water level in the well to return to its normal static level. The Contractor shall record static water level readings at the water supply well being tested and at the observation wells prior to the start of a well pumping test. From 24 hours prior to the start of a well test to 24 hours following the completion of a well test, the Owner will make every effort to operate the existing wells, adjacent to the well being tested, in a constant mode, i.e., certain wells will be selected for operation at a nearly average day usage with none of the wells being started or stopped during the test pumping period. This operation of the in service well field may require some wasting of water by the Owner during low demand hours.

1. **Step Drawdown Pumping Tests:**

It is anticipated that the step drawdown test will be performed for five different flow rates between 50 and 200 gpm. However, the well shall not be pumped at a rate that would pump the water level below the top of the screen in screened, gravel packed wells, or below the cased portion of the well in open hole wells, or at a rate that would do irreparable damage to the well. The exact flow rates to be employed for this test shall be determined by the Engineer or his representative in the field at the time of the test. The time duration for each incremental pumping rate shall be 1-1/2 hours. Water level readings shall be taken at the pumped well for each incremental pumping rate at time = 0, then at five minute intervals for the first 30 minutes and ten minute intervals for the remaining 60 minutes. Incremental pumping rates shall be maintained as accurately as possible by the Contractor. Accurate pumping rate reading and water level readings shall be recorded by the Contractor.

2. Aquifer Pumping Test:

Following completion of the step drawdown pumping test, all pumping shall cease and the well shall be allowed to recover for at lease 24 hours before commencing the aquifer pumping test. The aquifer pumping test shall be performed for one pumping rate for a continuous period of 1500 minutes (25 hours). The Owner reserves the right to extend the test period to 72 hours. The pumping rate to be used shall be determined by the Engineer based on the results of the step drawdown pumping test. It shall be the responsibility of the Contractor to ensure that the pumping unit maintains a constant, continuous pumping rate without significant variance or surging for the duration of the test. If the pumping unit fails to maintain a constant, continuous pumping rate, as determined by the Engineer or his representative, the test shall be restarted and the Contractor shall be penalized for the hours of pumping already performed. If the pumping test is interrupted, the well shall be allowed to recover to its original static level for a period of 24 hours.

Prior to commencing the aquifer pumping test, static water level readings shall be obtained from the pumped well and from the observation well(s). Upon commencement of the pumping test, water level readings shall be obtained from the pumped well and from the observation well(s) as follows:

Time Interval Between Water Level Readings	Time = T Since Pump Started
30 seconds	From T = 0 min. to T = 4.0 min.
1 minute	From T = 4.0 min. to T = 10.0 min.
2 minutes	From T = 10.0 min. to T = 20.0 min.
5 minutes	From T = 20.0 min. to T = 40.0 min
10 minutes	From T = 40.0 min. to T = 120.0 min.
30 minutes	From T = 120.0 min. to T = 240.0 min.
60 minutes	From T = 240.0 min. to T = 1000.0 min.
100 minutes	From T = 1000.0 min. to T = 1500.0 min.

At the completion of the aquifer pumping test, the Contractor shall make recovery water level readings in the well being tested and in the observation well(s), in a similar manner as that described above for drawdown measurements during pumping and until the well has recovered to within one foot of normal static level. The Contractor shall be responsible for maintaining a constant pump rate as specified by the Engineer and for obtaining water level records for the test well and the observation well(s).

D. The Contractor shall submit six (6) copies of a report detailing all work completed by the Contractor during the pumping tests. The report should include, but not be limited to; a time log and water level elevations for both drawdown and recovery of the test well and the observation well(s), pumping rates for each test, and other pertinent data.

E. Payment to the Contractor for pumping tests shall be paid for based on the lump sum and unit prices given in the Contract Bid Proposal. The Engineer will determine when to start and stop a pumping test and the rate of pumping.

3-10 ACID TREATMENT

A. Following the pumping test, if directed by the Owner or the Engineer, the Contractor shall remove the test pump and acidize the well in order to increase the yield of the well.

The acid used for acidization shall be 18° Baume (27.92%) hydrochloric (muriatic) acid. The hydrochloric acid used shall contain a non-toxic stabilizer to prevent after-precipitation of dissolved minerals and a non- toxic inhibitor to prevent corrosion of the casing and well screen. The stabilizing and inhibiting chemical agents used shall be acceptable to the Florida State Board of Health.

The procedure used for acid treatment shall be subject to the approval of the Florida State Board of Health. Full strength acid shall be introduced to the well by means of a 3/4-inch or 1-inch diameter drop pipe. Acid shall not be introduced into the well by pouring acid from the top of the well casing. The drop pipe shall be either black iron or plastic pipe, no galvanized pipe shall be used. The Contractor shall provide any overflows and vents required for safety. The acid shall be introduced to the well starting from the bottom of the screen or open hole. The drop pipe shall be gradually retracted during filling operations to ensure equal concentrations of acid are present in the entire length of screen or open hole. The quantity of acid used shall be 1-1/2 to 2 times the volume of water in the screen or open hole section of the well. At no time during the acidization process shall the pH of the well contents be allowed to rise above 2.0. Additional acid shall be introduced to the well, as required, to ensure that the pH remains below 2.0 for the duration of acid treatment.

Following introduction of acid to the well, agitation of the acid shall be started as soon as possible. Agitation may be accomplished by surge blocks, bailers or by any other appropriate means available to the Contractor. The acid shall be agitated for three (3) to four (4) hours. Following acid treatment, the well shall be pumped clear of all sediment, and until the water is free of discoloration and the pH level returns to normal (pH between 6.0 and 8.0).

If pressure acidizing is used, pressure control shall be provided by means of a sealing arrangement between the well casing and the acid drop pipe. The seal shall be capable of maintaining a minimum operating pressure of 100 psig in the well. The sealing arrangement shall be provided with the necessary pressure gauges and valves to determine accurate gauge pressure in the well, and so that acid and air can be introduced into or vented from the well. Pressure shall be maintained in the well between 75 to 100 psig for a minimum time period of two (2) hours. Following pressure acidization, the waste valve shall be opened and the well pumped at a rate to produce substantial drawdown to clear the well of all sediment, and until the water is free of discoloration and the pH level returns to normal (pH between 6.0 and 8.0).

Following the initial acid treatment, the Engineer or his Representative may request the Contractor to complete a second acid treatment, as herein before described, to further increase the well yield. Payment to the Contractor for acid treatment shall be paid for based on the lump sum prices given in the Contract Bid Proposal. Upon completion of acid treatment, the Contractor shall reinstall the test pump and additional pumping tests shall be performed in accordance with these specifications.

3-11 WATER QUALITY SAMPLES AND ANALYSES

A. The Contractor shall cooperate with the Engineer and Owner during the aquifer pumping test for each water supply well so that the Owner or his representative can collect water quality samples. The Contractor shall provide clear access to each well throughout each aquifer pumping test so that the necessary water samples can be obtained.

3-12 PROTECTION OF PROPERTY AND NUISANCES

A. The Contractor shall take special precautions to reduce to a minimum the nuisances and damage to property which could result during execution of the work. Special attention is called to the "General Conditions" of these specifications. Any damage to public or private property shall be immediately repaired or paid for by the Contractor at no expense to the Owner. Equipment, tools, and materials shall be located in places where they will produce a minimum of nuisance. Wherever necessary or requested by the Engineer, the contractor will use mud tanks and all the necessary equipment to substitute for mud pits. Any water or fluid resulting from any of the operations, or excess water from the well development works or the pumping test operations shall be conveyed out by piping, ditches, or any other means at the Contractor's expense to places where it may be disposed of without any detrimental effect to public or private interests.

3-13 PROTECTING WATER SUPPLY

A. The Contractor shall take precautions to prevent contaminated water or water having undesirable physical or chemical characteristics from entering the bore hole made by the Contractor in drilling the well. He shall also take all necessary precautions during the construction period to prevent contaminated water, gasoline, etc., from entering the well by seepage through the ground surface.

3-14 CORRECTIVE WORK

A. In the event that the well becomes contaminated, or that water having undesirable physical or chemical characteristics does enter the well due to the neglect of the Contractor, he shall, at his own expense, perform such work or supply such casings, seals, disinfecting agents or other materials as may be necessary to eliminate the contamination or shut off the undesirable water.

3-15 WELL ABANDONMENT

A. If a well fails to conform to these specifications and the Contractor is unable to correct the faulty condition(s) at his own expense, the well shall be abandoned and the Contractor shall immediately begin drilling a new well at a nearby location specified by the Owner. The abandoned well shall be completely filled with cement grout to prevent accidents and possible groundwater contamination. All wells so abandoned shall be sealed and plugged as per all concerned regulatory agency requirements. All costs resulting from the abandonment of any well not conforming to these specifications or caused by the negligence or fault of the contractor shall be borne by the Contractor.

3-16 SITE CLEANUP AND RESTORATION

A. In addition to the cleaning up requirements set forth in the "General Conditions", the Contractor shall keep the working area free at all times of tools, materials and the equipment not essential to the progress of the work. Debris, waste materials, and rubbish shall be properly disposed of and not allowed to accumulate. If the Contractor should fail to do this, the Owner will make the necessary arrangements to effect the clean-up by others and will back charge the cost to the Contractor. If such action becomes necessary on the part of and in the opinion of the Owner, the Owner will not be responsible for the inadvertent removal of material which the Contractor would not have disposed of had he effected the required clean-up.

B. Where material or debris has washed or flowed into or been placed in watercourses, ditches, gutters, drains, catch-basins, or elsewhere as result of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, etc., kept in a clean and neat condition.

C. On or before the completion of the work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove or burn all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him;

shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations, in a neat and satisfactory condition.

D. The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment, or employees to a condition at least equal to that existing, immediately prior to the beginning of operations. To this end, the Contractor shall do as required, all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration.

E. The Contractor shall thoroughly clean all materials and equipment installed by him and his subcontractors, and on completion of the work, shall deliver it undamaged and in fresh and new appearing condition.

3-17 GUARANTEE

A. The Contractor shall guarantee that all materials, equipment, structures, and work performed are free from defects in workmanship, design, or materials for a period of one (1) year after installation and acceptance by the Owner, and if any part of the work shall fail within this period, it shall be replaced and unit restored to operation at no cost to the Owner. Undue reduction in yield, cavings, or settlement around the wells, pumping sand from a finished well after being put into service, or clogging of well screens will be considered a defect to be covered by this guarantee. The Contract Bond shall cover this guarantee as defined in the General Conditions of these specifications.

END

SECTION 17120

POTABLE WATER PIPING - GENERAL

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install the potable water piping system complete, tested and ready for operation.

1-02 SUBMITTALS

A. Submit Certificate of Inspection from manufacturer stating materials furnished have been inspected at the place of manufacturer, conform to the requirements of these specifications and have been tested as specified herein.

PART 2 - PRODUCTS

2-01 PIPE AND FITTINGS

A. All pipe for potable water distribution service shall be ductile iron with ductile iron fittings for sizes 3 inches and over; or polyvinyl chloride (PVC) pipe in conformance with AWWA C900 for pipe sizes 4 through 12 inches and AWWA C905 for pipe sizes 14 through 36 inches; with ductile iron fittings for sizes 4 through 36 inches; or PVC pipe and fittings in conformance with ASTM D2241 for sizes 1-1/2 through 3 inches. All pipes shall bear the ANSI/NSF International (NSF) Standard 61 NSF Certification Mark for potable water use.

2-02 VALVES

A. All valves for sizes 2 through 20 inches shall be gate valves.

B. All valves for sizes 24 inches and larger shall be butterfly valves.

C. All valves shall be designed for a minimum working pressure of 150 psi.

2-03 PIPE, FITTINGS AND VALVES

A. All pipe, fittings and valves for potable water distribution service shall meet the requirements of these specifications as set forth in the following sections.

1. Ductile Iron Pipe and Fittings: Section 17124, DUCTILE IRON PIPE AND FITTINGS FOR POTABLE WATER.

2. Polyvinyl Chloride (PVC) Pipe and Fittings: Section 17128, POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS FOR POTABLE WATER.

3. Valves: Section 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

PART 3 - EXECUTION

3-01 TESTS AND INSPECTION

A. Field Tests:

1. Pipe, fittings and valves: Careful visual inspection.

2. All pipe, fittings and valves shall be tested hydrostatically.

3-02 EXCAVATION, TRENCHING AND BACKFILLING

A. All water distribution lines shall be installed with a 3-foot minimum cover.

B. Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES.

3-03 INSTALLATION

A. Piping, fittings and valves shall be installed in accordance with the appropriate specification section of the material specified and in accordance with the manufacturers recommendations.

B. All piping shall bear the ANSI/NSF international (NSF) standard 61 certification mark for potable water use.

3-04 SEPARATION OF WATER MAINS, WASTEWATER MAINS AND OTHER MAINS

A. Parallel Installation - Water mains shall be laid with a minimum of a ten (10) foot horizontal separation from any existing or proposed wastewater main or wastewater main structure(s), storm water piping and restricted access reclaimed water mains, and a minimum of a five (5) foot separation from public access reclaimed water mains. The distance shall be measured outside wall to outside wall. In cases where it is not practical to maintain an appropriate separation, the Company may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the water main closer to a wastewater, storm water or reclaimed water main, provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the wastewater, storm water or reclaimed water main, at such an elevation that the bottom of the water main is at least 18 inches above the top of the wastewater, storm water or reclaimed water main.

B. Crossings - Water mains crossing wastewater mains and/or storm water utility shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the wastewater main or storm water utility. This shall be the case where the water main is either above or below the wastewater main or storm water utility. At crossings, one full length of ductile iron water pipe shall be located so both joints will be as far from the wastewater main or storm water utility as possible. Special structural support for the water and wastewater pipes may be required.

C. Exception - The reviewing authority must specifically approve in writing any variance from the above requirements. Variances may include one of the below:

1. The wastewater line shall be constructed of water main pipe material with appropriate color coding and pressure tested to ensure water tightness.

2. Both mains shall be constructed of a full length of ductile iron pipe, with pipe ends located equidistant from the crossing point.

3. The water main shall be installed in a Grade B steel casing pipe per Company Specification 17310, Steel Casing Pipe, and extended a minimum of 10 feet beyond the crossing.

4. Both mains shall be encased in concrete as detailed on construction drawings. Concrete encasement shall be used only with the prior written approval of the Company.

5. In no case shall the lines be closer than 6" of vertical edge to edge separation.

D. Other Potential Sources of Water Main Contamination - Design engineers should exercise caution when locating water mains at or near certain sites such as non-potable water lines, storm drainage structures, wastewater treatment plants or industrial complexes. Individual septic and drain fields tanks must also be located and avoided. The engineer must contact the Company to establish specific design requirements for locating water mains near any source of contamination.

3-05 PRE-CHLORINATION DURING CONSTRUCTION

A. During construction in progress water lines shall be pre-chlorinated to prevent contamination and to increase assurance of bacteriological clearance following final disinfection.

B. Upon completion of laying each joint of pipe, a sufficient amount of calcium hypochlorite (powder, granular chlorine with 65 to 70 percent available chlorine by weight) shall be applied to one end of the pipe. The amount of chlorine applied per pipe joint shall be as indicated in the following table to produce a chlorine dosage of 40 to 60 mg/l available chlorine.

Pipe Diameter, Inches	Chlorine Application Per Pipe Joint
6	0.5 ounces
8	0.5 ounces
10	1.0 ounces
12	1.5 ounces
14	2.0 ounces
16	2.5 ounces
18	3.0 ounces
20	3.5 ounces
24	5.0 ounces
30	7.5 ounces

C. When applying the dry hypochlorite to each pipe joint, the hypochlorite shall not be allowed to get into the pipe bell or around the joint gasket.

D. When the water line construction is completed, slowly fill the line with water to prevent flushing the hypochlorite from the pipe.

E. When the pipeline is full of water, the chlorine solution shall remain in the pipeline for a minimum of 24 hours and until flushing procedures have commenced.

F. Following flushing of the water line, standard final disinfection procedures shall be accomplished as outlined below in this section of the specifications.

3-06 HYDROSTATIC PRESSURE AND LEAKAGE TESTING

A. All piping, fittings, and valves installed for the purpose of conveying potable water under pressure shall be tested following installation in accordance with the applicable portions of the hydrostatic tests for ductile iron pipe, as set forth in Section 4 of ANSI/AWWA C600, latest revision.

B. Hydrostatic testing shall commence only after a minimum of 36 hours have elapsed after the last concrete reaction or thrust block has been cast using high early strength concrete, or at least 7 days after the last concrete reaction or thrust block has been cast using standard strength concrete.

C. All potable water pressure lines shall be hydrostatically tested to a pressure of 150 psig for a minimum duration of two hours. The test pressure shall not vary by more than ± 5 psig. Only oil-filled gauges that have 5-pound increments will be allowed for this testing.

D. Procedure for hydrostatic testing:

1. Each section of the pipeline to be tested shall be slowly filled with water. Water is supplied through a cross connection control device connected to an existing water main, then this

service line downstream of the device shall be disconnected during the hydrostatic pressure test.

2. During filling of the pipeline and prior to testing, all air shall be expelled from the pipeline. To accomplish this, air release points shall be provided by tapping the line, complete with corporation stops, at all high elevation points in the pipeline. Following completion of the testing, the taps shall be tightly plugged unless otherwise specified.

3. Apply the specified test pressure, measured at the point of lowest elevation in the line, by means of a test pump connected to the pipeline in a manner approved by the Engineer and the Company. All equipment required for the performance of the test, i.e., pumps, pipe connections, gauges and all necessary appurtenances, shall be furnished by the Contractor.

4. Following a successful hydrostatic pressure of the pipeline, each individual valve shall be pressure tested with differential pressure on each side of the valve (50 psi minimum differential pressure). Valve shall be pressure tested for a minimum of ten (10) minutes

E. A leakage test shall be conducted concurrently with the hydrostatic pressure test. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe or any valved section thereof, to maintain pressure within ± 5 psig of the specified test pressure, after the air in the pipeline has been expelled and the pipe has been filled with water.

F. Allowable leakage shall be limited to the following formula as set forth in ANSI/AWWA C600, latest revision or to Table 6A of ANSI/AWWA C600. The maximum allowable leakage shall be the minimum quantity of the two values as determined by the formula or obtained from Table 6A. The allowable leakage formula is:

$$L = \frac{SD\sqrt{P}}{133{,}200}$$

in which L is the allowable leakage, in gallons per hour; S is the length of pipe being tested in feet; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch gauge.

G. During the hydrostatic and leakage tests all exposed pipe, fittings, valves, hydrants, pipe couplings, service lines and the like will be carefully examined. Acceptance of the pipeline shall be determined on the basis of the allowable leakage. If any test of the pipe laid indicates leakage greater than that allowed, the Contractor shall, at his own expense, repair by removing and replacing defective pipe, fittings, valves, hydrants, pipe couplings, service lines and the like, with materials that are free of defects, after which the pipeline shall be retested. Repair and retesting shall be done until the lines pass the specified test. Following the test all services shall be opened to ensure proper operation. All visible leaks and cracked pipe, fittings, valves, hydrants, pipe couplings, service lines, and the like shall be repaired or replaced regardless of the amount of leakage. The repair/replacement, if any, shall be approved in writing by the Engineer, Owner and the Company.

3-07 FLUSHING LINES

A. Following the hydrostatic and leakage tests and after final disinfection, all potable water lines constructed under this contract shall be flushed to remove sand, loose dirt and other contaminants. Flushing velocity shall be a minimum of 2.5 fps. Flushing shall continue until clean, clear water flows from the water line. However, the Contractor shall endeavor to use the minimum amount of flushing water required to complete the work.

B. Fire hydrants installed on the water line may be used for flushing. If fire hydrants are not available, temporary blowoffs shall be installed for the purpose of flushing the water main. Temporary blowoffs shall be installed as close as possible to the ends of the water main being flushed. Blowoffs installed on water mains up to and including 8 inch shall be the same diameter as the wa ter main. Blowoffs installed on 10 and 12 inch water mains shall be 8 inches in diameter. Blowoffs for water mains larger

than 12 inches shall be 10 inches in diameter. Temporary blowoffs shall be removed and plugged after the main is flushed.

C. Notify Company at least 72 hours prior to flushing water lines.

D. Blowoffs and drainage piping used for flushing shall not be connected to any wastewater collection system, submerged in any stream or installed in any other manner that will permit back-siphonage into the distribution system.

E. Prior to flushing water with high chlorine concentrations, obtain approvals from the Engineer, the Owner and the Company as to the methods and locations of the discharge.

F. Initial flushing shall only be provided through an approved and certified cross-connection-control device and temporary piping as shown in the Drawings.

3-08 FINAL DISINFECTION

A. All pipe, fittings, valves and all other appurtenances installed for potable water lines shall be disinfected prior to being placed in service. Disinfection procedure shall be approved by the Engineer and shall be in conformance with ANSI/AWWA C651, latest revision.

B. Pipe subjected to contaminating materials shall be treated as approved by the Engineer. Should such treatment fail to remove contaminants from the pipe, contaminated sections of pipe shall be replaced with new uncontaminated pipe at no additional cost to the Owner.

C. Disinfection of a completed line shall be accomplished using the following procedure.

1. All potable water piping, fittings, valves and appurtenances shall be disinfected with a chlorine solution with a sufficient concentration such that the initial chlorine concentration in the water line shall be a minimum of 50 mg/l available chlorine, at any point in the line.

2. Chlorine used for the purpose of disinfection shall be granular calcium hypochlorite which contains approximately 65 to 70 percent available chlorine by weight. The calcium hypochlorite shall be stored in a cool, dry and dark environment, prior to its use, to minimize deterioration.

3. Water from the existing, in service water line shall be made to flow at a constant, slow rate through an approved temporary construction water service into the water line to be disinfected. The approved temporary construction water service shall be installed per Company standards and shall include an approved, certified cross connection control device supplied by the Contractor along with a water meter supplied by the Company. Chlorine solution shall be injected or pumped at a regulated rate into the new main, at a point not more than 10 feet downstream from the beginning of the new water main. The method of tapping the water main for the chlorine injection point and the location of the tap shall be approved by the Engineer and the Company.

4. Chlorine solution shall be circulated in the water main by opening the water control valve and systematically manipulating hydrants and blowoffs.

5. Water service lines shall be disinfected in a similar manner as that for water mains, including corrective measures, by methods acceptable to the Engineer and the Company.

6. Chlorine solution shall remain in the water lines for no less than 24 hours, unless directed by the Engineer and the Company.

7. Extreme care shall be exercised at all times to prevent concentrated chlorine solution, foreign contaminants or debris from entering existing water mains.

D. After 24 hours, the free residual chlorine concentration in the water line at the pipe extremities shall be at least 10 mg/l; if not, the water lines shall be re-disinfected as described above.

E. Final flushing of lines may proceed 24 hours after disinfection, provided the free residual chlorine analysis is satisfactory. Flushing shall be continued until a diethyl-P-Phenylenediamine (DPD) calorimetric test shows that lines contain only the normal chlorine residual. Prior to flushing water with high chlorine concentrations, obtain approvals from the Engineer, the Owner and the Company as to the methods and locations of discharge. The final flushing at 2.5 FPS shall be through the new water main connection only in order to obtain the desired flow rate.

F. Following disinfection and thorough flushing of the water lines, as specified herein, the Contractor shall furnish all labor and materials required to obtain samples of water from established points of the water line in suitable sterilized containers. One sample shall be obtained at each established sampling point for every 1200 lf of line at the end of the line and at each branch. Samples shall be delivered to the County Health Department or certified lab acceptable to regulatory agency having jurisdiction for bacteriological examination. Samples shall be collected in conformance with County Health Department standards and lab testing schedule. Prior to collecting samples, the Contractor shall notify the Engineer, the Owner and the Company who will have representatives present during sample collection. A second consecutive set of samples shall be taken 24 hours after the first set and tested by the County Health Department or certified lab acceptable to regulatory agency having jurisdiction.

G. Bacteriological test results will be available approximately 48 to 72 hours after samples are submitted. If test results are unsatisfactory, the Contractor shall immediately rechlorinate and retest the water lines and proceed with such corrective measures as are necessary to secure disinfected lines. All services shall be rechlorinated if the lines are rechlorinated. The water lines shall be redisinfected and retested, at the Contractor's expense, until approved by the Engineer, the Company and the regulatory agencies having jurisdiction.

H. At satisfactory completion of the bacteriological test requirements, potable water lines shall be placed in service per Section 3-11 and after certification letters have been received from regulatory agencies. Contractor shall notify the Company 72 hours prior to placing lines in service.

3-09 DISINFECTION PROCEDURES WHEN CUTTING INTO OR REPAIRING EXISTING MAINS

A. When cutting into or repairing existing mains, the disinfection procedure shall be approved by the Engineer and the Company, and shall be in conformance with ANSI/AWWA C651, latest revision.

B. If the bottom of the trench is wet, liberal quantities of calcium hypochlorite shall be applied to the open trench to lessen the danger of contamination of the water line.

C. The interior of all pipe, valves, fittings, couplings and appurtenances, to be used in the cut-in or repair operation, shall be thoroughly swabbed or sprayed with a 5 percent hypochlorite solution before installation.

D. If valve and hydrant locations permit, following installation flush the water line toward the work location from both directions. Begin flushing immediately following completion of the work and continue flushing until discolored water is eliminated.

E. Where practical, in addition to the procedures described above, the section of main that has been cut into or repaired shall be isolated, all service connections shut off and the isolated section disinfected and flushed as specified above in paragraph 3-08 FINAL DISINFECTION. The chlorine dose may be increased to as high as 300 mg/l and the contact time decreased to as little as 15 minutes. Following chlorination, flush the isolated section using fire hydrants until discolored water is removed and until a DPD calorimetric test indicates that the line contains only the normal chlorine residual. Prior to flushing water with high chlorine concentrations, obtain approvals from the Engineer, the Owner and the Company as to the methods and locations of discharge.

F. Following disinfection and thorough flushing of the affected section of the water line, the Contractor shall furnish all labor and materials required to obtain bacteriological clearance of the line in accordance with paragraph 3-08 FINAL DISINFECTION, subparagraphs F, G and H. Bacteriological sampling and analysis shall continue until two consecutive negative samples are recorded.

3-10 PAYMENT OF WATER FOR FLUSHING AND TESTING (FCWC/PUI CONTRACTS ONLY)

A. The Company will provide the water free to the Contractor for one hydrostatic pressure and leakage test, one flushing, one final disinfection and one final flushing for each water line constructed. The Contractor shall provide all labor, equipment and materials necessary to install a water meter connection for the measurement of water required for testing. The Company will set the meter. If the initial test fails, all subsequent water will be charged at the current approved Company rates for General Service during the time of retesting.

3-11 OPERATION OF VALVES AND CONNECTION TO EXISTING WATER LINES

A. Operation of all system valves on existing Company water mains shall be the responsibility of Company personnel only. At no time shall the Contractor operate any system valves. System valves shall be defined as any valve which has main pressure against either side of the valve. Newly installed tapping valves and control valves to networks not yet accepted for service are considered as system valves. Valves within a network still under construction are not considered as system valves. The Contractor shall notify the Company to request a valve to be operated. Valve operations are made by appointment only and appointments shall be made at least 72 hours prior to the time the Contractor requires the valve to be operated. When notifying the Company for valve operation appointments, the Contractor should give the following information:

1. Name of person calling
2. Name of the Contractor
3. Location of the project
4. The time requested for valve operation

B. Connection to Existing Water Mains for Company Work: The Contractor shall not connect to an existing Company water main unless the Engineer and a representative of the Company are present. The Contractor shall notify the Engineer and the Company at least 72 hours prior to the time the Contractor desires to connect to an existing water main.

C. Connection to Existing Water Mains by Developers: The following shall apply to Developers and their Contractors for connection to an existing Company water main.

1. To obtain water service during construction, the Developer's Contractor shall be required to install a temporary construction water service, complete with a meter setting and an approved and certified cross connection control device. The construction meter will be supplied and set by the Company. All other piping, fittings, cross connection control device and appurtenances required for the temporary construction water service shall be supplied by the Developer's Contractor. The temporary service shall be installed in the form of bypass between the existing Company system and the new system being constructed. The temporary bypass shall be constructed and approved in accordance with Company Standard Specifications.

2. Prior to installation of a temporary construction water service, the Developer's Contractor shall be required to request and apply for the service at the local Company office and pay a deposit in an amount to be determined by the Company office. A service account will be set up for the temporary water service and all charges for water used and services rendered by the Company will be billed to the Developer's Contractor at the currently approved rates. All outstanding charges shall be paid to the Company prior to acceptance of the system by the Company.

3. Absolutely no tap or connection shall be made to an existing water main unless: The new system has been designed and constructed to Company specifications and the system has been inspected, approved and accepted by the Company; the Developer's Engineer has certified the system as being complete; and the system has been approved by the Florida Department of Health, the Florida Department of Environmental Protection and all other affected regulatory agencies.

4. When all required documents and approvals have been received by the Company, the Company will then issue a letter of acceptance. The Developer's Contractor's warranty period will begin on the date of the letter of acceptance. The Contractor shall not connect to an existing Company water main unless the Developer's Engineer and a representative of the Company are present. The Contractor shall notify the Engineer and the Company at least 72 hours prior to the time the Contractor desires to connect to an existing water main.

5. Following acceptance and approval of the new water system in its entirety, the temporary construction water service may be removed. The Developer's Contractor shall notify the Company at least 72 hours in advance of the time the Contractor desires to remove the temporary service, so that the Company may remove the temporary construction meter.

END

SECTION 17122

PIPING SUPPORTS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install all pipe supports as indicated and as specified herein.

1-02 SUBMITTALS

A. Submit manufacturer's descriptive literature demonstrating compliance with this specification.

PART 2 - PRODUCTS

2-01 PIPING SUPPORTS FOR DUCTILE IRON AND STEEL PIPE

A. Furnish and install supports necessary to hold the piping and appurtenances in a firm, substantial manner at the lines and grades indicated on the drawings or specified. Piping within structures shall be adequately supported from floors, walls, ceilings or beams. Supports from the floor shall be by approved saddle stands or suitable concrete or brick piers as indicated or approved. Pipe saddles shall be shaped to fit the pipe with which they will be used and shall be capable of screw adjustment.

B. Concrete piers shall conform accurately to the bottom 1/3 to ½ of the pipe. Piping long walls shall be supported by approved wall brackets with attached pipe rolls or saddles or by wall brackets with adjustable hanger rods. For piping supported from the ceiling, approved rod hangers of a type capable of screw adjustment after erection of the pipeline, with suitable adjustable concrete inserts or beam clamps, shall be used. If required, piping supports shall be placed so as to provide a uniform slope in the pipe without sagging. Supports shall be located wherever necessary in the opinion of the Engineer, however, in no case shall they exceed 8 feet on centers for straight pipe runs. Adequate supports shall especially be used adjacent to valves and fittings in pipelines. Fabricated steel or cast iron pipe supports, saddles, rolls, brackets and the like shall be as manufactured by ITT Grinnell or an equal approved by the Engineer.

2-02 PIPE SUPPORTS FOR SMALL DIAMETER PVC AND STEEL PIPE

A. Small diameter PVC piping 3-inches in diameter and smaller, and steel piping 2-inches in diameter and smaller shall be supported with "SUSPORT" system arrangements as manufactured by Universal Suspension Systems Inc. of Gillette, New Jersey or an equal approved by the Engineer. Clamping halves for the pipe support shall be manufactured of molded polypropylene and shall support and fit closely for 360° around the pipe. To support piping, all hardware for the "SUSPORT" system shall be manufactured of Type 304 stainless steel.

B. In some cases, to adequately support small diameter PVC or steel piping, a metal frame support structure may be required for support of the "SUSPORT" system specified above. Where required, metal frame support structures shall be constructed using channels, fittings, brackets, hardware and other accessories as manufactured by B-Line Systems, Inc. of Highland, Illinois, or an equal approved by the Engineer. If located in indoor, non-corrosive environments, the materials for the frame structure shall be carbon steel with an epoxy coating applied by a cathodic, electro-deposition process which is equal to "Dura-Green" by B-Line Systems, Inc. The materials for the frame structure shall be Type 304 stainless steel unless otherwise noted on the drawings. Hardware used to construct the frame support structure shall be cadmium plated for carbon steel supports or Type 304 stainless steel for stainless steel supports.

C. Pipe supports for small diameter PVC and steel piping shall be located wherever necessary in the opinion of the Engineer to adequately support the pipe, however, they shall have a maximum spacing

as specified below for straight pipe runs. Adequate supports shall especially be used adjacent to valves and fittings in pipelines. The following table is based on spacing requirements for Schedule 80 PVC or Standard Weight (Schedule 40) steel pipe carrying a fluid with a Specific Gravity of 1.0 at a temperature not exceeding 120°F. Support spacing for PVC or steel piping carrying fluids with Specific Gravities or temperatures exceeding those stated above shall be approved by the Engineer.

Nominal Pipe Diameter, Inches	Support Spacing, Feet PVC Pipe	Steel Pipe
½"	3.5	4.5
3/4"	4.0	5.0
1"	4.5	5.5
1-1/4"	5.0	6.5
1-1/2"	5.0	7.5
2"	5.5	8.0
2-1/2"	5.0	-
3"	6.0	-

PART 3 - EXECUTION

3-01 INSTALLATION

A. Provide and install supports as specified above to minimize stress imposed on piping, and associated appurtenances.

B. Piping support systems and accessories shall be installed in accordance with the manufacturer's installation instructions.

END

SECTION 17124

DUCTILE IRON PIPE AND FITTINGS FOR POTABLE WATER

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, place, joint and test all ductile iron pipe, fittings, specials and appurtenances as shown on the drawings and as specified herein.

1-02 QUALITY ASSURANCE

A. Ductile iron pipe and ductile iron fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured.

1-03 SUBMITTALS

A. *Submit manufacturer's Certificates of Inspection,* descriptive literature, illustrations, specifications, installation instructions and related information.

PART 2 - PRODUCTS

2-01 PIPE

A. Ductile iron pipe shall conform to the requirements of ANSI/AWWA C 151, latest revision, minimum thickness Class 51, a rated water working pressure of 250 psi, and shall be furnished in laying lengths of 20 feet or less, unless specifically shown otherwise on the drawings. The thickness class for flanged pipe designed for buried or above ground service shall be Class 53. Pipe shall be coated and lined as specified below in Section 2-05.

B. All piping shall bear the ANSI/NSF International (NSF) Standard 61 certification mark for potable water use.

2-02 FITTINGS

A. Fittings and special castings shall conform to the type of pipe being installed and shall have a minimum working pressure of 250 psi. Fittings shall be ductile iron and shall conform to ANSI/AWWA C 110, latest revision, and ANSI/AWWA C 111, latest revision, for flanged and mechanical joint pipe. Fittings 12 inches and smaller in diameter shall be short body pattern, unless the drawings specifically call for long body fittings. Long body fittings shall be used where called for and for sizes 14 inches and larger or, when the laying length is not controlled by short body patterns. Fittings shall have joints that match the type of pipe furnished except ductile iron push-on joint pipe, which shall have mechanical joint fittings unless otherwise specified. Fittings shall be coated and lined as specified below in Section 2-05.

2-03 JOINTS AND JOINTINGS

A. General: The type of joint shall conform to the requirements of the pipe and fittings used, the laying conditions and service required. Joints shall be suitable for potable water service.

B. Mechanical Joints: Jointing materials for mechanical joints shall be provided by the pipe and fitting manufacturer. Materials assembly and bolting shall be in strict accordance with ANSI/AWWA C 111, latest revision. Tee head bolts and nuts for mechanical joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan or an equal approved by the Engineer.

C. Push-on or Slip Joints: Pipe using push-on or slip joints shall be in strict accordance with ANSI/AWWA C 111, latest revision and shall be as manufactured by United States Pipe Company (Tyton Joint), Clow Corporation (Super Bell-Tite Joint), or American Cast Iron Pipe Company (Fastite Joint) may be used. Jointing materials shall be provided by the pipe manufacturer and installation shall be in strict accordance with the manufacturer's recommended practice.

D. Flanged Joints: Flanges shall be American Standard for 125 pound steam pressure with any special drilling and tapping as required to insure correct alignment and bolting. Gaskets shall be rubber full face type, cloth inserted, minimum thickness of 1/8 inch. Flanged joints shall be made with bolts and nuts, studs with a nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same American National Standard as the flanges. Bolts and nuts shall be Grade B conforming to the ASTM Specifications for Steel Machine Bolts and Nuts and Tap Bolts, Designation A 307. Bolts and studs shall be of the same quality as machine bolts.

E. Restrained Joints: Where indicated on drawings, to prevent pipe joints and fittings from pulling apart under pressure, pipe joints and fittings shall be restrained as specified below.

1. Manufactured Restrained Joints: Manufactured restrained joints shall be Tyton joint with Field-Lok gasket system for 4" - 12" and TR-Flex type for 14" - 54" as manufactured by United States Pipe Company, Lok-Fast or Lok-Ring Type manufactured by the American Cast Iron Pipe Company, Megalug mechanical joint restraint manufactured by EBAA Iron Inc. or approved equal. Joints shall be manufacturer's standard specifically modified push-on type joints with joint restraint provided by ductile iron retainer rings joined together by corrosion resistant, high strength steel tee head bolts and nuts. Restrained push-on pipe and fittings shall be ductile iron only and shall comply with applicable portions of this specification. Manufactured restrained joints shall be capable of deflection during assembly. Deflection shall not exceed 75% of the manufacturer's recommendations. Tee head bolts and nuts for restrained joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan, or an equal approved by the Engineer.

2. When prior approval is obtained from the Engineer, ductile iron pipe and fittings may be restrained using tiebolt joint restraint. Joint restraint materials for this method of restraint shall be the Megalug mechanical joint restraint as manufactured by EBAA Iron Inc., Uni-Flange thrust restraint for flanged piping as manufactured by Uni-Flange Corp., or an equal approved by the Engineer. All bolts, nuts, washers, tie rods and other fasteners for the joint restraint system shall be manufactured of CORTEN high strength, low alloy, corrosion resistant steel in conformance with ASTM A 242. Tie bolts shall be manufactured of heat treated CORTEN steel. Tie rods shall have a minimum diameter of 3/4 inch. Prior to backfilling all parts of the joint restraint system shall be coated with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M.

2-04 NON-STANDARD FITTINGS AND WALL CASTINGS

A. Fittings having non-standard dimensions and cast especially for this project shall be of an approved design. Fittings shall be manufactured to meet the requirements of the same specifications and shall have the same diameter and thickness as standard fittings, but laying lengths and types of ends shall be determined by positions in the pipelines and by the particular piping to which it is connected. Flange facing and drilling shall conform to the 125 pound American National Standard. Where required, flanges shall be drilled and tapped for studs. Other dimensions shall be substantially equal to corresponding parts of standard bell and spigot fittings. Wall castings shall be of the sizes and types indicated on the drawings. Where indicated, a central fin not less than 1/2 inch thick of the same diameter as a flange shall be cast midway of the length to form a waterstop.

2-05 COATINGS AND LININGS

A. Exterior Coatings: Ductile iron pipe, fittings and specials to be installed underground shall be coated on exterior with hot dip coal tar. All clamps, bolts, nuts, studs and other parts of joints for underground

installation shall be field coated with coal tar epoxy prior to backfilling. Coal tar epoxy shall be equal to Kop-Coat Bitumastic No. 300-M.

B. Interior Linings: All cast iron and ductile iron pipe, fittings and specials for potable water service shall be cement lined in accordance with ANSI/AWWA C 104, latest revision, "Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water". The cement lining shall have a standard thickness and following curing the lining shall have a seal coat of NSF approved bituminous material suitable for contact with potable water in accordance with ANSI/AWWA C 104, latest revision.

2-06 PIPING SUPPORTS

A. Furnish and install supports necessary to hold the piping and appurtenances in a firm, substantial manner at the lines and grades indicated on the drawings or specified. Piping within structures shall be adequately supported from floors, walls, ceilings or beams. Supports from the floor shall be by approved saddle stands or suitable concrete or brick piers as indicated or approved. Pipe saddles shall be shaped to fit the pipe with which they will be used and shall be capable of screw adjustment.

B. Brick and concrete piers shall conform accurately to the bottom 1/3 to 1/2 of the pipe. Piping along walls shall be supported by approved wall brackets with attached pipe rolls or saddles or by wall brackets with adjustable hanger rods. For piping supported from the ceiling, approved rod hangers of a type capable of screw adjustment after erection of the pipeline and with suitable adjustable concrete inserts or beam clamps shall be used. If required, piping supports shall be placed so as to provide a uniform slope in the pipe without sagging. Supports shall be located wherever necessary, and in no case shall they exceed 8 feet on centers.

PART 3 - EXECUTION

3-01 HANDLING AND CUTTING PIPE

A. Care shall be taken in handling, cutting and laying pipe and fittings to avoid damaging the pipe and interior cement mortar lining, scratching or marring machined surfaces, and abrasion of the pipe coating. All cracked pipe and fittings shall be removed at once from the work at no additional cost to the Owner.

B. Pipe cutting shall be done in a neat workmanlike manner without creating damage to the pipe or cement mortar lining. Ductile iron pipe may be cut using an abrasive pipe saw, rotary wheel cutter, guillotine pipe saw or milling wheel saw. Cut ends and rough edges of ductile iron pipe shall be ground smooth. For push-on joint connections the cut end shall be beveled to prevent gasket damage during joint assembly.

3-02 LAYING PIPE AND FITTINGS

A. Excavating, Trenching and Backfilling: Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES.

1. Bedding for Ductile iron Pipe: Minimum laying requirements shall be Type 2 as defined in ANSI/AWWA C 600, latest revision. Provide proper bedding required, in accordance with specified thickness class of pipe being laid and depth of cover. Proper pipe laying conditions shall be in accordance with ANSI/AWWA C 150 and C 151, latest revisions, and ANSI/AWWA C 600, latest revision.

B. All ductile iron pipe and fittings shall be laid in accordance with American Water Works Association Specification ANSI/AWWA C 600, latest revision, entitled "Standard for Installation of Gray and Ductile Cast-Iron Water Mains and Their Appurtenances", with the following sections specifically applying:

1. Section 3.3 - Pipe Installation
2. Section 3.4 - Joint Assembly

C. Pipe and fittings shall be laid accurately to the lines and grades indicated on drawings or required. Care shall be taken to insure a good alignment both horizontally and vertically and to give the pipe a firm bearing along its entire length. Any pipe which has its grade or joint disturbed after laying shall be taken up and re-laid.

D. When the bell and spigot type pipe or similar pipe is laid, the bell of the pipe shall be cleaned of excess tar or other obstructions and wiped out before the cleaned and prepared spigot of the next pipe is inserted. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed. Castings to be encased in masonry shall be accurately set with bolt holes, if any, carefully aligned.

E. All pipe and fittings shall be cleared of sand, dirt and debris before laying. All precautions shall be taken to prevent sand, dirt or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings shall be kept clean after installation until accepted in the complete work.

F. Any time that pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe shall be installed when trench conditions are unsuitable for such work, including standing water, excess mud or rain.

3-03 JOINTS

A. Machined Surfaces: Machined surfaces shall be cleaned and coated with a suitable rust preventive coating at the shop immediately after being machined.

B. Sleeve Type Couplings: Installation shall be in accordance with the manufacturer's recommendation.

C. Push-on Joints: The Fastite, Super Bell-Tite or Tyton single ring rubber push-on joint shall be installed in strict accordance with the pipe manufacturer's recommendations.

3-04 VALVE AND HYDRANT INSTALLATION

A. Valves and fire hydrants shall be installed on ductile iron potable water mains where shown on the drawings. The weight of valves and hydrants shall not be carried by the pipe. The valve or hydrant shall be supported by a concrete cradle as shown on the Standard Details. Concrete for the cradle shall be poured against undisturbed soil.

3-05 THRUST BLOCKING

A. Suitable concrete reaction or thrust blocking shall be applied on all pressure pipe lines, except for those having flanged or restrained joints, at all tees, plugs, caps, and at bends deflecting 11-1/4 degrees or more. As an option for the contractor, and at no additional cost to the Owner, pipe movement can be prevented as specified above in Paragraph 2-03E, Restrained Joints. Concrete used for thrust blocking shall have a minimum compressive strength of 3,000 psi at 28 days and installed only under dry conditions. A schedule and details for the required thrust blocks are included on the Standard Details.

B. Both concrete thrust blocks and tie rods must be used when specified, or in the judgement of the Engineer, the nature and criticality of an installation is such as to require positive assurance of stability.

C. Areas where thrust blocks are to be placed shall be hand excavated. Excavation for thrust blocks shall be completed following installation of the pipe and fitting to be restrained. For thrust blocks, hand excavate to undisturbed soil and to the minimum sizes and configurations shown on drawings. Use

extreme care following excavation not to disturb soil in the thrust block area, prior to pouring concrete. All thrust blocking shall be dewatered while thrust block is being poured.

D. Each fitting and pipe shall be wrapped with 8-mil thick polyethylene prior to pouring concrete, so that no concrete comes in direct contact with the surface of the fitting or pipe. Concrete shall cure a minimum of 7 days prior to putting the line under pressure. The Contractor shall not backfill around thrust blocks until approval is obtained from the Engineer.

3-06 IDENTIFICATION SYSTEM

A. Polyethylene identification tape shall be installed for all PVC and ductile iron potable water mains. The identification tape, tape color and imprint legend shall be as specified in Section 17161, IDENTIFICATION TAPE FOR BURIED PIPE. The tape shall be installed in accordance with the manufacturer's installation instructions and with the instructions given in Section 17161. One line of tape shall be placed above the pipe and one 12" below grade.

3-07 TESTING AND DISINFECTION

A. All ductile iron potable water mains shall be hydrostatically pressure tested, flushed and disinfected in accordance with Section 17120, POTABLE WATER PIPING - GENERAL.

END

SECTION 17128

POLYVINYL CHLORIDE (PVC) PIPE FOR POTABLE WATER

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, place, joint and test all polyvinyl chloride pipe, fittings and appurtenances as shown on the drawings and as specified herein.

1-02 QUALITY ASSURANCE

A. Polyvinyl chloride pipe and fittings or ductile iron fittings shall be inspected and tested at the manufacturer's plant as required by the standard specifications to which the material is manufactured.

1-03 SUBMITTALS

A. Submit manufacturer's Certificates of Inspection, descriptive literature, illustrations, specifications, installation instructions and related information.

PART 2 - PRODUCTS

2-01 PIPE

A. Polyvinyl chloride pipe for nominal diameters 4 inches through 12 inches in size shall conform to the requirements of AWWA C-900 with a minimum dimension ratio of DR 18, pressure class 150, and gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 150 psi and with not less than a 4 to 1 sustained hydrostatic pressure safety factor.

B. Polyvinyl chloride pipe for nominal diameters 14 inches through 36 inches in size shall conform to the requirements of AWWA C-905 with a minimum dimension ratio of DR 18 for sizes 14 inches through 24 inches and DR 21 for 30 inch and 36 inch sizes, and gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 150 psi and with not less than a 4 to 1 sustained hydrostatic pressure safety factor.

C. Polyvinyl chloride pipe for distribution and service lines for nominal diameters of 3 inches in size shall conform to the requirements of ASTM D2241 with a standard dimension ratio SDR 21, pressure class 200, and gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 200 psi and with not less than a 2 to 1 sustained hydrostatic pressure safety factor. Polyvinyl chloride pipe for 2 inch and smaller in diameter shall be Schedule 80 Pipe, conforming to ASTM 1785 and specification 17132 with solvent welded joints or approved equal.

D. All piping shall bear the ANSI/NSF International (NSF) Standard 61 certification mark for potable water use.

E. All PVC pipe used for potable water shall be colored white or blue.

2-02 JOINTS

A. Bell and Spigot: Pipe joints shall be made with integral bell and spigot pipe ends. The bell shall consist of an integral thickened wall section designed to be at least as strong as the pipe wall. The bell shall be supplied with a factory glued rubber ring gasket which conforms to the manufacturer's standard dimensions and tolerances. The gasket shall meet the requirements of ASTM F477 "Elastomeric Seals (Gaskets) For Joining Plastic Pipe". PVC joints shall be "Ring-Tite" as manufactured by Johns-Manville or an equal approved by the Engineer.

B. Restrained Joints: Where indicated on drawings, to prevent pipe joints and fittings from separating under pressure, pipe joints and fittings shall be restrained as follows:

1. PVC pipe bell and spigot joints shall be restrained with the Uni-Flange Corp. Series 1350 Restrainer or an equal approved by the Engineer. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A536, Grade 65-45-12. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements of ASTM A242.

2. Ductile iron mechanical joint fittings used with PVC pipe shall be restrained with the Uni-Flange Corp. Series 1300 for 3 inch restrainers, EBAA Iron Inc. Series 1100 Megalug for 4 inch through 24 inch restrainers or an equal approved by the Engineer. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A536, Grade 65-45-12. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements of ASTM A242.

2-03 FITTINGS

A. All fittings for use with PVC pipe three (3) inches and larger in size shall be ductile iron with a minimum working pressure of 250 psi and shall conform to ANSI/AWWA C110, latest revision. Fittings shall have mechanical joint bell ends manufactured in accordance with ANSI/AWWA C111, latest revision. Jointing materials for mechanical joints shall be provided by the fitting manufacturer. Materials, assembly and bolting shall be in accordance with ANSI/AWWA C111, latest revision. Tee head nuts and bolts for mechanical joints shall be manufactured of corrosion resistant high strength, low allow COR-TEN steel meeting the requirements of ASTM A242.

B. Interior Linings: All ductile iron fittings for potable water service shall be cement lined in accordance with ANSI/AWWA C104, latest revision "Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water". The cement lining shall have a standard thickness and following curing the lining shall have a seal coat of NSF approved bituminous material in accordance with ANSI/AWWA C104, latest revision.

C. Exterior Coatings: All ductile iron fittings to be installed underground shall be coated on exterior with hot dip coal tar. All clamps, bolts, nuts, studs and other parts of joints for underground installation shall be field coated with coal tar epoxy prior to backfilling. Coal tar epoxy shall be equal to Kop-Coat Bitumastic No. 300-M.

D. All fittings for use with PVC pipe 2-1/2 inches and smaller in size shall be manufactured of PVC in accordance with the same specifications as the PVC pipe of the same size. Fittings shall have bell ends with elastomeric gaskets which conform to the same dimensions, tolerances and specifications as the PVC pipe.

PART 3 - EXECUTION

3-01 STORAGE AND HANDLING

A. PVC pipe shall be delivered to the site in unbroken bundles packaged in such manner as to provide protection against damage. When possible pipe should be stored at the job site in the unit packages until ready for use. Packaged units shall be handled using a fork lift or a spreader bar with fabric straps. Packaged units shall not be stacked at the job site higher than two units high.

B. When it is necessary to store PVC pipe for more than three months, exposure to direct sunlight shall be prevented by covering the pipe with an opaque material. Adequate air circulation above and around the pipe shall be provided as required to prevent excessive heat accumulation. PVC pipe shall not be stored close to heat sources or hot objects such as heaters, fires, boilers or engine exhaust. Pipe gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease. The interior and all sealing surfaces of pipe, fittings and other appurtenances shall be kept clean and free of dirt and foreign matter.

C. Care shall be taken in handling and laying pipe and fittings to avoid severe impact blows, crushing, abrasion damage, gouging or cutting. Pipe shall be lowered, not dropped, from trucks or into trenches. All cracked, damaged or defective pipe and fittings, or any length of PVC pipe having a gouge, scratch or other permanent indentation of more than 10 percent of the wall thickness in depth, shall be rejected and removed at once from the work and replaced with new acceptable pipe at no additional cost to the Owner.

3-02 FIELD CUTTING PIPE

A. Field cutting of pipe shall be done in a neat workmanlike manner without creating damage to the pipe. The pipe shall be cut square with a fine toothed hand or power saw or other cutter or knife designed for use with plastic pipe. Prior to cutting, the pipe shall be marked around its entire circumference or a square-in vise shall be used to ensure the pipe end is cut square. Remove burrs by smoothing edges with a knife, file or sandpaper. Bevel the cut end of the pipe using a pipe beveling tool, wood rasp, or portable sander to prevent damage to the gasket during joint assembly. A factory finished beveled end should be used as a guide to ensure proper beveling angle and correct depth of bevel. Round off any sharp edges on the leading edge of the bevel with a knife or file.

3-03 LAYING PIPE AND FITTINGS

A. Excavating, Trenching and Backfilling: Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES. Bedding for PVC pipe shall be Type 2 using granular pipe bedding material as specified in Section 02202 and as shown on the standard details.

B. All PVC pipe and ductile iron fittings shall be laid in accordance with the pipe manufacturers published installation guide, the AWWA Manual of Practice No. M23 "PVC Pipe - Design and Installation" and the Uni-Bell Plastic Pipe Asscciation installation recommendations.

C. In preparation for pipe installation, placement (stringing) of pipe should be as close to the trench as practical on the opposite side of the trench from the excavated material. The bell ends of the pipe should point in the direction of the work progress.

D. Pipe and fittings shall be laid accurately to the lines and grades indicated on drawings or required. Care shall be taken to insure a good alignment both horizontally and vertically and to give the pipe a firm bearing along its entire length. Deflection of pipe shall not exceed 75% of manufacturer's recommendation. Any pipe which has its grade or joint disturbed after laying shall be taken up and relaid.

E. All pipe and fittings shall be cleared of sand, dirt and debris before laying. All precautions shall be taken to prevent sand, dirt or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings, shall be kept clean after installation until accepted in the complete work.

F. Any time that pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe shall be installed when trench conditions are unsuitable for such work, including standing water, excess mud or rain.

3-04 PIPE JOINT ASSEMBLY

A. The PVC bell and spigot joint shall be assembled in accordance with the pipe manufacturer's installation instructions. Clean the interior of the bell, the gasket, and the spigot of the pipe to be jointed with a rag to remove any dirt or foreign material before assembling. Inspect the gasket, pipe spigot bevel, gasket groove and sealing surfaces for damage or deformation.

B. Lubricate the spigot end of the pipe with a lubricant supplied or specified by the pipe manufacturer for use with gasketed PVC pipe in potable water systems. The lubricant should be applied as specified by the pipe manufacturer. After the spigot end is lubricated it must be kept clean and free of dirt and sand. If dirt and sand adhere to the lubricated end, the spigot must be wiped clean and re-lubricated.

C. Insert the spigot into the bell so that it contacts the gasket uniformly. Align the pipe sections and push the spigot end into the bell until the manufacturer's reference mark on the spigot is flush with the end of the bell. The pipe should be pushed into the bell using a bar and block. The joint shall not be assembled by "stabbing" or swinging the pipe into the bell, nor shall construction machinery be used to push the pipe into the bell.

D. If undue resistance to insertion of the spigot end is encountered or if the reference mark does not reach the flush position, disassemble the joint and check the position of the gasket. If the gasket is twisted or pushed out of its seat, inspect the components, repair or replace damaged items, clean the components and repeat the assembly steps. Be sure the pipe is in proper alignment during assembly. If the gasket was not out of position, check the distance between the spigot end and the reference mark and relocate the mark if it is out of position.

3-05 VALVE, FITTING AND HYDRANT INSTALLATION

A. The weight of valves, ductile iron fittings and fire hydrants shall not be carried by PVC pipe. The valve, fitting or hydrant weight shall be supported by a concrete cradle as shown on the standard details. Concrete for the cradle shall be poured against undisturbed soil.

3-06 THRUST BLOCKING

A. Suitable concrete reaction or thrust blocking shall be applied on all pressure pipe lines, except for those having screwed, flanged or restrained joints, at all tees, plugs, caps, and at bends deflecting 11-1/4 degrees or more. As an option, at no additional cost to the Owner, pipe movement shall be prevented as specified above in Paragraph 2-02 B, Restrained Joints. Concrete used for thrust blocking shall have a minimum compressive strength of 3,000 psi at 28 days. A schedule and details for the required thrust blocks are included.

B. Both concrete thrust blocks and restrained joints or tie rods must be used when specified, or in the judgement of the Engineer, the nature and criticality of an installation is such as to require positive assurance of stability.

C. Areas where thrust blocks are to be placed shall be hand excavated. Excavation for thrust blocks shall be completed following installation of the pipe and fitting to be restrained. For thrust blocks, hand excavate to undisturbed soil and to the minimum sizes and configurations shown on drawings. Use extreme care following excavation not to disturb soil in the thrust block area, prior to pouring concrete.

D. Each fitting and pipe shall be wrapped with 8-mil thick polyethylene prior to pouring concrete, so that no concrete comes in direct contact with the surface of the fitting or pipe. Concrete shall cure a minimum of 7 days prior to putting the line under pressure. The Contractor shall not backfill around thrust blocks until approval is obtained from the Engineer.

3-07 IDENTIFICATION SYSTEM

A. Detectable, metallic backed, polyethylene identification tape shall be used for all PVC potable water pipe. The identification tape, tape color and imprint legend shall be as specified in Section 17161, IDENTIFICATION TAPE FOR BURIED PIPE. The tape shall be installed in accordance with the manufacturer's installation instructions and with the instruction given in Section 17161.

3-08 TESTING AND DISINFECTION

A. All PVC potable water lines shall be hydrostatically pressure tested, flushed and disinfected in accordance with Section 17120, POTABLE WATER PIPING-GENERAL.

END

SECTION 17129

WATER SERVICES & METER BOXES

PART I - GENERAL WATER SERVICES (Single and Double)

1-01 DESCRIPTION

A. Furnish and install the potable water service piping complete; tested and ready for operation to and including the meter box installation.

1-02 QUALITY ASSURANCE

A. Polyvinyl chloride pipe and fittings or ductile iron fittings shall be inspected and tested at the manufacturer's plant as required by the standard specifications to which the material is manufactured.

1-03 SUBMITTALS

A. Submit manufacturer's Certificates of Inspection, descriptive literature, illustrations, specifications, installation instructions and related information.

PART 2 - PRODUCTS

2-01 All piping for potable water services shall be as follows:

A. Water service lines for 3/4" and 1" meters shall be in accordance with Section 17132, POLYVINYL CHLORIDE (PVC) PIPE 2-INCH AND SMALLER IN DIAMETER and/or Section 17133 POLYETHYLENE PLASTIC PIPE.

B. Water service lines 1-1/2" and 2" shall be in accordance with Section 17132, POLYVINYL CHLORIDE (PVC) PIPE 2-INCH AND SMALLER IN DIAMETER and/or Section 17133 POLYETHYLENE PLASTIC PIPE.

C. Water service lines 3" and larger shall be in accordance with Section 17124, Ductile Iron Pipe and Fitting For Potable Water and/or Section 17128, Polyvinyl Chloride (PVC) Pipe For Potable Water

2-02 Water Main Connection

A. Single or multi-service connections for 1" through 2" services shall be with a double strap tapping saddle, Smith-Blair #313 or approved equal and with Ford #FB1700 Ball Corporation or approved equal.

B. Single service connections for 3" or larger services shall be with a tapping sleeve and valve. See Section 17190, 2-03 (Tapping Sleeve and Valve).

C. Each single service line from the multi-service line is to be fitted with a Ford coupling adaptor #C84-44 (1" single service and 1" Schedule 80 PVC or PE 3408 to the meter box as specified in Part 2-1 as described).

2-03 Meter Vault Piping and Valves

A. Water services for 1 1/2" and 2" meter installations shall be Schedule 80 PVC through the meter vault with Ford Meter Valves and compression fittings BF73-666 or BF73-777 on both sides of the meter or approved equal.

B. Water services for meters 3" and larger shall be ductile iron pipe with ductile iron resilient seated gate valves (flanged) either side of meter. Valves shall be per Section 17190.

2-04 METER BOXES

A. Single or double meter boxes designed for 5/8", 3/4", and 1" meters shall be cast iron body and lid by Ford Meter Box Company. This box shall be used with PE 3408 piping only.

B. Single or double meter boxes designed for 5/8", 3/4", and 1" meters shall be plastic body and lid with a hinged cast iron reading lid by Brooks Products, Inc. or approved equal. This box shall be used with schedule 80 PVC piping only.

C. Meters 1-1/2" and larger shall be installed above ground unless prior written approval is obtained from the Company. Above ground meters shall be installed in accordance with the Standard Details.

For 1 1/2" and larger meters, vaults shall be precast reinforced concrete construction with 3/8" diamond pattern galvanized steel plate, bolted down cover with stainless steel hardware, and a 12" square meter read door with stainless steel hinges and hardware. Sizes of vaults may vary with the size of meters. A minimum of nine (9) inches of clearance shall be allowed between each interior end and side wall to the fittings for the meter. Height from the inside top of vault cover to top of meter register shall not be more than eleven (11) inches.

D. Meter vault or box covers shall be set 1/2" to 1" above finish grade. Crushed stone to a depth of six (6) inches shall be placed in meter vaults and meter boxes before setting of meters.

END

SECTION 17130

POLYVINYL CHLORIDE (PVC) PIPE FOR RAW POTABLE WATER MAINS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, place, joint and test all polyvinyl chloride pipe, fittings and appurtenances as shown on the drawings and as specified herein.

1-02 QUALITY ASSURANCE

A. Polyvinyl chloride pipe and fittings or ductile iron fittings shall be inspected and tested at the manufacturer's plant as required by the standard specifications to which the material is manufactured.

1-03 SUBMITTALS

A. Submit manufacturer's Certificates of Inspection, descriptive literature, illustrations, specifications, installation instructions and related information.

PART 2 - PRODUCTS

2-01 PIPE

A. Polyvinyl chloride pipe for raw potable water mains in nominal diameters of 4 to 12 inches in size shall conform to the requirements of AWWA C 900 with a minimum dimension ratio of DR 25, pressure class 100, and gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 100 psi and with not less than a 4 to 1 sustained hydrostatic pressure safety factor. All PVC pipe used for raw potable water shall be colored green.

2-02 JOINTS

A. Bell and Spigot: Pipe joints shall be made with integral bell and spigot pipe ends. The bell shall consist of an integral thickened wall section designed to be at least as strong as the pipe wall. The bell shall be supplied with a factory glued rubber ring gasket which conforms to the manufacturer's standard dimensions and tolerances. The gasket shall meet the requirements of ASTM F477 "Elastomeric Seals (Gaskets) For Joining Plastic Pipe". PVC joints shall be "Ring-Tite" as manufactured by Johns-Manville or an equal approved by the Engineer.

B. Restrained Joints: Where indicated on drawings, to prevent pipe joints and fittings from separating under pressure, pipe joints and fittings shall be restrained as follows:

1. PVC pipe bell and spigot joints shall be restrained with the Uni-Flange Corp. Series 1350 Restrainer or an equal approved by the Engineer. The restraining device shall be manufactured of high strength ductile iron meeting ASTM A536, Grade 65-45-12. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements of ASTM A242. Painted with bitumastic once installed.

2. Ductile iron mechanical joint fittings used with PVC pipe shall be restrained with EBAA Iron Inc. Series 1100 megalug for 4 inch through 12 inch retainers or an equal approved by the Engineer. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A536, Grade 65-45-12. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements of ASTM A242.

2-03 FITTINGS

A. All fittings for use with PVC pipe three (3) inches and larger in size shall be ductile iron with a minimum working pressure of 250 psi and shall conform to ANSI/AWWA C110, latest revision. Fittings shall have mechanical joint bell ends manufactured in accordance with ANSI/AWWA C111, latest revision. Jointing materials for mechanical joints shall be provided by the fitting manufacturer. Materials, assembly and bolting shall be in accordance with ANSI/AWWA C111, latest revision. Tee head nuts and bolts for mechanical joints shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements or ASTM A242.

B. Interior Linings: All ductile iron fittings for potable water service shall be cement lined in accordance with ANSI/AWWA C104, latest revision "Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water". The cement lining shall have a standard thickness and following curing the lining shall have a seal coat of NSF approved bituminous material in accordance with ANSI/AWWA C104, latest revision.

C. Exterior Coatings: All ductile iron fittings to be installed underground shall be coated on exterior with hot dip coal tar. All clamps, bolts, nuts, studs and other parts of joints for underground installation shall be coated with coal tar epoxy prior to backfilling. Coal tar epoxy shall be equal to Kop-Coat Bitumastic No. 300-M.

D. All fittings for use with PVC pipe 2-1/2 inches and smaller in size shall be manufactured of PVC in accordance with the same specifications as the PVC pipe of the same size. Fittings shall have bell ends with elastomeric gaskets which conform to the same dimensions, tolerances and specifications as the PVC pipe.

PART 3 - EXECUTION

3-01 STORAGE AND HANDLING

A. PVC pipe shall be delivered to the site in unbroken bundles packaged in such manner as to provide protection against damage. When possible pipe should be stored at the job site in the unit packages until ready for use. Packaged units shall be handled using a fork lift or a spreader bar with fabric straps. Packaged units shall not be stacked at the job site higher than two units high.

B. When it is necessary to store PVC pipe for more than six months, exposure to direct sunlight shall be prevented by covering the pipe with an opaque material. Adequate air circulation above and around the pipe shall be provided as required to prevent excessive heat accumulation. PVC pipe shall not be stored close to heat sources or hot objects such as heaters, fires, boilers or engine exhaust. Pipe gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease. The interior and all sealing surfaces of pipe, fittings and other appurtenances shall be kept clean and free of dirt and foreign matter.

C. Care shall be taken in handling and laying pipe and fittings to avoid severe impact blows, crushing, abrasion damage, gouging or cutting. Pipe shall be lowered, not dropped, from trucks or into trenches. All cracked, damaged or defective pipe and fittings, or any length of PVC pipe having a gouge, scratch or other permanent indentation of more than 10 percent of the wall thickness in depth, shall be rejected and removed at once from the work and replaced with new acceptable pipe at no additional cost to the Owner.

3-02 FIELD CUTTING PIPE

A. Field cutting of pipe shall be done in a neat workmanlike manner without creating damage to the pipe. The pipe shall be cut square with a fine toothed hand or power saw or other cutter or for use with plastic pipe. Prior to cutting, the pipe shall be marked around its entire circumference or a square-in vise shall be used to ensure the pipe end is cut square. Remove burrs by smoothing edges with a knife, file, or sandpaper. Bevel the cut end of the pipe using a pipe beveling tool, wood rasp, or portable sander to prevent damage to the gasket during joint assembly. A factory finished beveled

end should be used as a guide to ensure proper beveling angle and correct depth of bevel. Round off any sharp edges on the leading edge of the bevel with a knife or file.

3-03 LAYING PIPE AND FITTINGS

A. Excavating, Trenching and Backfilling: Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES. Bedding for PVC pipe shall be Type 2 using granular pipe bedding material as specified in Section 02202 and as shown on the standard details.

B. All PVC pipe and ductile iron fittings shall be laid in accordance with the pipe manufacturers published installation guide, the AWWA Manual of Practice No. M23 "PVC Pipe - Design and Installation" and the Uni-Bell Plastic Pipe Association installation recommendations.

C. In preparation for pipe installation, placement (stringing) of pipe should be as close to the trench as practical on the opposite side of the trench from the excavated material. The bell ends of the pipe should point in the direction of the work progress.

D. Pipe and fittings shall be laid accurately to the lines and grades indicated on drawings or required. Care shall be taken to insure a good alignment both horizontally and vertically and to give the pipe a firm bearing along its entire length. Deflection of pipe shall not exceed 75% of manufacturer's recommendation. Any pipe which has its grade or joint disturbed after laying shall be taken up and relaid.

E. All pipe and fittings shall be cleared of sand, dirt and debris before laying. All precautions shall be taken to prevent sand, dirt or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings shall be kept clean after installation until accepted in the complete work.

F. Any time that pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe shall be installed when trench conditions are unsuitable for such work, including standing water, excess mud or rain.

3-04 PIPE JOINT ASSEMBLY

A. The PVC bell and spigot joint shall be assembled in accordance with the pipe manufacturer's installation instructions. Clean the interior of the bell, the gasket, and the spigot of the pipe to be jointed with a rag to remove any dirt or foreign material before assembling. Inspect the gasket, pipe spigot bevel, gasket groove and sealing surfaces for damage or deformation.

B. Lubricate the spigot end of the pipe with a lubricant supplied or specified by the pipe manufacturer for use with gasketed PVC pipe in potable water systems. The lubricant should be applied as specified by the pipe manufacturer. After the spigot end is lubricated it must be kept clean and free of dirt and sand. If dirt and sand adhere to the lubricated end, the spigot must be wiped clean and relubricated.

C. Insert the spigot into the bell so that it contacts the gasket uniformly. Align the pipe sections and push the spigot end into the bell until the manufacturer's reference mark on the spigot is flush with the end of the bell. The pipe should be pushed into the bell using a bar and block. The joint shall not be assembled by "stabbing" or swinging the pipe into the bell, nor shall construction machinery be used to push the pipe into the bell.

D. If undue resistance to insertion of the spigot end is encountered or if the reference mark does not reach the flush position, disassemble the joint and check the position of the gasket. If the gasket is

twisted or pushed out of its seat, inspect the components, repair or replace damaged items, clean the components and repeat the assembly steps. Be sure the pipe is in proper alignment during assembly. If the gasket was not out of position, check the distance between the spigot end and the reference mark and relocate the mark if it is out of position.

3-05 VALVE, AND FITTING INSTALLATION

A. The weight of valves and ductile iron fittings shall not be carried by PVC pipe. The valve and/or fitting weight shall be supported by a concrete cradle as shown on the standard details. Concrete for the cradle shall be poured against undisturbed soil.

3-06 THRUST BLOCKING

A. Suitable concrete reaction or thrust blocking shall be applied on all pressure pipe lines, except for those having screwed, flanged or restrained joints, at all tees, plugs, caps, and at bends deflecting 11-1/4 degrees or more. As an option, at no additional cost to the Owner, pipe movement shall be prevented as specified above in Paragraph 2-02 B, Restrained Joints. Concrete used for thrust blocking shall have a minimum compressive strength of 3,000 psi at 28 days. A schedule and details for the required thrust blocks are included on drawings.

B. Both concrete thrust blocks and restrained joints or tie rods must be used when specified, or in the judgement of the Engineer, the nature and criticality of an installation is such as to require positive assurance of stability. The number and size of tie rods shall be sized per engineer.

C. Areas where thrust blocks are to be placed shall be hand excavated. Excavation for thrust blocks shall be completed following installation of the pipe and fitting to be restrained. For thrust blocks, hand excavate to undisturbed soil and to the minimum sizes and configurations shown on drawings. Use extreme care following excavation not to disturb soil in the thrust block area, prior to pouring concrete.

D. Each fitting and pipe shall be wrapped with 8-mil thick polyethylene prior to pouring concrete, so that no concrete comes in direct contact with the surface of the fitting or pipe. Concrete shall cure a minimum of 7 days prior to putting the line under pressure The Contractor shall not backfill around thrust blocks until approval is obtained from the Engineer.

3-07 IDENTIFICATION SYSTEM

A. Detectable, metallic backed, polyethylene identification tape shall be used for all PVC non-potable water pipe. The identification tape, tape color and imprint legend shall be as specified in Section 17161, IDENTIFICATION TAPE FOR BURIED PIPE. The tape shall be installed in accordance with the manufacturer's installation instructions and with the instructions given in Section 17161.

3-08 TESTING AND DISINFECTION

A. All PVC potable water lines shall be hydrostatically pressure tested, flushed and disinfected in accordance with Section 17120, POTABLE WATER PIPING-GENERAL.

END

SECTION 17132

POLYVINYL CHLORIDE (PVC) PIPE 2-INCH AND SMALLER IN DIAMETER

PART 1 - GENERAL

1-01 DESCRIPTION

A. Place, joint and test all pipe, fittings, specials and appurtenances of a size 2" and smaller as shown on the drawings and specified herein.

B. All plastic pipe and fittings shall conform to this specification section whether provided as a part of an equipment "package" or purchased separately by the Contractor.

C. Unless specifically noted otherwise on the drawings, all piping shall be made of polyvinyl chloride.

PART 2 - PRODUCTS

2-01 PVC PIPE

A. Shall be made of polyvinyl chloride, Schedule 80 white pipe, conforming to ASTM D 1785. Schedule 80 pipe shall have solvent welded joints only.

B. All piping shall bear the ANSI/NSF International (NSF) Standard 61 certification mark for potable water use.

2-02 FITTINGS

A. Fittings for Schedule 80 pipe shall be socket type, solvent welded in conformance with ASTM D 2467 or threaded type in conformance with ASTM D2464. Solvent welded joints shall be watertight.

2-03 SOLVENT CEMENT

A. PVC solvent cement shall be NSF approved and be in compliance with ASTM D 2564.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Install where shown on drawings and in compliance with manufacturer's instructions.

3-02 JOINTING

A. Joints for Schedule 80 PVC pipe and fittings shall be solvent welded. All joints shall be made watertight. All pipe cutting and jointing procedures for solvent welded PVC pipe joints shall be in strict accordance with the pipe and fitting manufacturer's printed installation instructions. Thread lubricant for threaded joints shall be Teflon tape only.

3-03 TESTING AND DISINFECTION

A. All PVC potable water lines shall be hydrostatically pressure tested, flushed and disinfected in accordance with Section 17120, POTABLE WATER PIPING-GENERAL.

END

SECTION 17133

POLYETHYLENE PLASTIC PIPE

PART I - GENERAL

1-01 DESCRIPTION

A. Place, joint and test all pipe, fittings, specials and appurtenances of a size 2" and smaller as shown on the drawings and specified herein.

B. All polyethylene pipe and fittings shall conform to this specification section whether provided as a part of an equipment "package" or purchased separately by the Contractor.

C. Unless specifically noted otherwise on the drawings, all water service piping shall be made of polyethylene pipe.

PART 2 - PRODUCTS

2-01 PE PIPE

A. Shall be made of polyethylene, PE 3408, (200 PSI SDR 9, ASTM D 3350) PE 3408 shall conform to cell classification. PE 334434C.

B. All PE pipe shall be NSF approved and conform to AWWA C901-88.

C. Contractor shall supply certification of polyethylene compounds from the manufacturer. This testing shall be done in accordance with NSF No. 14. Tester shall be designated by an accredited testing facility designated by the Owner.

D. PE pipe shall be stamped for identification.

E. All polyethylene pipe used for potable water service shall be colored black.

F. All polyethylene pipe used for reuse water service shall be colored purple.

PART 3 - EXECUTION

3-01 STORAGE HANDLING

A. Contractor shall store polyethylene pipe, tubing and fittings in such a manner that prevents damage due to crushing, piercing, excessive heat, harmful chemicals or exposure to sunlight for longer than 3 months and any other manufacturer's storage specifications. Polyethylene pipe shall be free of scratches, nicks, kinks and gouges.

B. Bends in PE pipe shall not be within 10 pipe diameters from any fitting or valve. Minimum radius of curvature is 30 pipe diameters or the coil radius. Bending shall not cause kinking. Any kinked or damaged section shall be removed to the satisfaction of the Owner.

C. Contractor shall use specified Ford, Mueller or Hayes fittings as shown on the standard details. Contractor shall submit to Owner shop drawings of fittings or appurtenances to be used prior to construction. Contractor shall use the approved fittings only for this project. Contractor shall follow manufacturer's recommendation for installation of fittings.

D. The PE pipe shall be installed in accordance with Section 02202 and Section 17161.

E. Testing of PE pipe shall be hydrostatically pressure tested, flushed and disinfected in accordance with Section 17120, POTABLE WATER PIPING - GENERAL.

END

SECTION 17161

IDENTIFICATION TAPE FOR BURIED PIPE

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install identification tape over the centerline of buried potable water lines, wastewater force mains, and reclaimed water mains.

1-02 SUBMITTALS

A. Submit manufacturer's descriptive literature, illustrations, specifications and other pertinent data.

PART 2 - PRODUCTS

2-01 IDENTIFICATION TAPE

A. Identification Tape for Ductile Iron and Steel Pipe: Identification tape shall be manufactured of inert polyethylene so as to be highly resistant to alkalies, acids and other destructive agents found in soil, and shall have a minimum thickness of 4-mils. Tape width shall be 6-inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2-feet for entire length of tape.

B. Identification Tape for Polyvinyl Chloride Pipe: Identification tape shall be manufactured of polyethylene with a minimum thickness of 4-mils and shall have a 1-mil thick metallic foil core. The tape shall be highly resistant to alkalies, acids and other destructive agents found in soil. Tape width shall be 3-inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2-feet for entire length of tape.

C. Tape background colors and imprints shall be as follows:

Imprint	Background Color
"Caution - Potable Water Line Buried Below"	Blue
"Caution - Raw Potable Water Line Buried Below"	Green
"Caution - Wastewater Force Main Buried Below"	Green
"Caution - Reclaimed Water Main Buried Below"	Purple
"Caution - Chemical Feed Line Buried Below"	Green
"Caution - Reuse Line Buried Below"	Brown

D. Identification tape shall be "Terra Tape" as manufactured by Reef Industries, Inc., Houston, TX., (800) 231-6074, Allen Systems Inc., Wheaton, IL (800) 323-1749, or approved equal.

PART 3 - EXECUTION

3-01 INSTALLATION OF IDENTIFICATION TAPE

A. Identification tape shall be installed for all buried potable water lines, raw potable water lines, and wastewater force mains in accordance with the manufacturer's installation instructions and as specified herein.

B. For potable water mains, raw potable water mains, reuse or treated mains, identification tape shall be installed at two depths: directly on top of the pipe and one foot below final grade over centerline

of pipe. For PVC pipe, the tape installed one foot below final grade shall be detectable type, the tape installed directly on top of the pipe may be detectable or non-detectable.

C. For chemical feed lines identification tape shall be installed at two depths: directly on top of the pipe and one foot below final grade over centerline of pipe. For PVC pipe, the tape installed one foot below final grade shall be detectable type, the tape installed directly on top of the pipe may be detectable or non-detectable.

END

SECTION 17190

GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, place, joint and test all valves.

B. Valves shall open by turning to the left (counter-clockwise), when viewed from the stem.

1-02 SUBMITTALS

A. Submit manufacturer's catalog data, illustrations, principle dimensions, materials of construction, installation instructions and other pertinent data.

B. Submit certificates from manufacturer stating that products furnished comply with these specifications.

C. Operation and Maintenance Manuals: Submit six manuals for each different size, type or model of valve furnished. Manuals shall be bound sets of literature including the following and other pertinent information required.

1. Detailed assembly drawings, clear and concise instructions for operating, adjusting, overhauling, troubleshooting and other maintenance.

2. A complete lubrication schedule including lubricant types, grades and frequency of lubrication.

3. A list of parts for all products with catalog numbers and all data necessary for ordering replacement parts. Such instructions and parts lists shall have been prepared for the specific product furnished and shall not refer to other types or models.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling valves to avoid damage. Inside of valves shall be kept free of dirt and debris.

PART 2 - PRODUCTS

2-01 GATE VALVES

A. General: When full open, gate valves shall have a clear waterway equal to the nominal diameter of the pipe. Operating nut or wheel shall have an arrow cast in the metal indicating the direction of opening. Each valve shall have the manufacturer's distinctive marking, pressure rating and year of manufacture cast on the body. All valves and appurtenances shall be NSF approved for contact wiht potable water. Prior to shipment from the factory, each valve shall be tested by applying to it a hydrostatic pressure equal to twice the specified working pressure.

1. Hydrostatic and leakage tests shall be conducted in strict accordance with ANSI/AWWA C500, latest revision or ANSI/AWWA C509 latest revision whichever is applicable.

B. Gate Valves to 2-1/2 Inch: Gate Valves with nominal sizes from 2 to 2-1/2 inches shall conform to ANSI/AWWA C500, latest revision and shall be designed for a minimum working pressure of 150 psi. Valves shall be iron body, bronze mounted, double disc, parallel seat, non-rising stem type with O-ring stem seals. Interior ferrous surfaces of valve, except for finished or bearing surfaces, shall be coated

with a two-part thermosetting epoxy coating in acordance with AWWA C550, latest revision. Surfaces shall be clean, dry and free from rust and grease before coating. Exterior surfaces of valve shall be coated as specified hereinafter. Gate valves for this size range shall be as manufactured by Mueller Company, American Valve and Hydrant Company or approved equal.

C. Gate Valves 3 to 20 Inch: Gate valves with nominal sizes from 3 to 20 inches shall conform to ASNI/AWWA C509, latest revision and shall be designed for a minimum working pressure of 200 psi. Valves shall be iron body, resilient seat type with non-rising stem and O-ring stem seals. The valve stem, stem nut, glands and bushings shall be bronze. Valve disc shall be constructed to assure uniform seating pressure between disc seat ring and body seating surface. Body seating surface shall be machined. Resilient seat of valve shall be formed by replaceable resilient seat ring seals made from internally reinforced molded rubber which are attached to the disc ring with stainless steel screws, or a special corrosion resistant, synthetic elastomer which is permanently bonded to and completely encapsulates a cast iron valve disc. Interior of valve body and valve disc shall be coated with a two-part thermosetting epoxy coating in accordance with AWWA C550, latest revision. Surfaces shall be clean, dry and free from rust and grease before coating. Exterior surfaces of valve shall be coated as specified herinafter. Gate valves for this size range shall be as manufactured by Mueller Company, American Valve and Hydrant Company, Kennedy Valve Manufacturing Company US Pipe and Foundry Company or approved equal.

D. Valve Joints: All gate valves shall have mechanical joint ends or flanged ends to fit the pipe run in which they are to be used, except valves installed on slip joint pipe shall have mechanical joint ends unless otherwise specified.

E. Valve Operators: Gate valves shall open left or counter-clockwise when viewed from the stem. Buried gate valves shall be furnished with 2-inch square AWWA standard nut operators with a valve box and cover. Gate valves located above ground or inside structures shall be furnished with hand wheel operators and shall have a suitable indicator arrow to give valve position from fully open to fully closed.

2-02 BUTTERFLY VALVES

A. General: All valves 20 inches in size and larger shall be butterfly valves. All butterfly valves shall be Class 150-B in conformance with ANSI/AWWA C504, latest revision and designed for a minimum working pressure of 150 psi. Butterfly valves shall be of the tight closing rubber seat type with rubber seats which are mechanically restained to the valve disc. Valves shall be bubble tight with 150 psi on the upstream side of the valve and 0 psi on the downstream side and shall be satisfactory for applications involving valve operation after long periods of inactivity. Valve discs shall rotate 90 degrees from the fully open position to the fully closed position. Butterfly valves shall be as manufactured by Mueller company, American Valve and Hydrant Company or approved equal.

B. Valve Bodies: Valve bodies shall be constructed of high strength cast iron conforming to ASTM A126, Class B. Buried valves shall have integrally cast mechanical joint ends and aboveground valves shall have cast iron flanges. End flanges shall conform in dimensions and drilling to ANSI B16.1, Class 125. Two trunnions for shaft bearings shall be integral with each valve body. Valve body thickness shall be in strict accordance with ANSI/AWWA C504 latest revision for Class 150-B valves. Valve body seat ring shall be constructed of Type 304 stainless steel. Seating edges of the body seat ring shall be smooth and polished. The body seat ring shall be capable of compensating for changes in direction of flow to assure a bubble tight seal in either direction.

C. Valve Discs: Valve discs shall be solid (no cores) and constructed of ductile iron ASTM A536, Grade 65-45-12. Valve disc shall be of the offset design to provide 360 degree uninterrupted seating.

D. Valve Shafts: Valve shafts may consist of a one piece unit extending completely through the valve disc bearings and into the operating mechnism or may be of the "stub shaft" type, which comprises two separate shafts inserted into the valve disc hubs. If used, stub shafts shall extend a minimum of 1-1/2 shaft diameters into the valve disc hubs. Valve shafts shall be constructed of ASTM A276, Type 304 stainless steel or a stainless steel with greater overall corrosion and oxidation resistance. The

minimum shaft diameter shall conform to ANSI/AWWA C504, latest revision for Class 150B valves. The valve disc shall be attached to the shaft by means of "O" ring sealed taper pins. The valve shaft seal shall consist of "O" rings in a bronze cartridge.

E. Valve Seats: Valve seats shall be of a natural rubber or a synthetic rubber compound bonded to a Type 304 stainless steel retaining ring and secured to the valve disc by Type 304 stainless steel set screws. The valve seat shall be adjustable and replaceable in the field without dismantling operator, disc or shaft. Provision for seat adjustment will take the form of tightening the set screws around the periphery of the retaining ring, which will lock the seat rigidly into position after adjustment and also will effect a minimum of 1/8 inch change in seat rise at equal increments around the entire seat.

F. Valve Bearings: Valve shafts shall be fitted with sleeve-type bearings. Bearings shall be corrosion resistant and self-lubricating. Bearings shall be designed for a pressure not exceeding the published design load for the bearing material, or 1/5 of the compressive strength of the bearing or shaft material.

G. Valve Operators: All butterfly valves shall open left or counterclockwise when viewed from the stem. Manual valve operators shall be of the worm gear or traveling nut type and shall be fully enclosed. All operators shall have adjustable mechanical stop limiting devices to prevent overtravel of disc. Should an adjustment of the disc be required to maintain a bubble tight seal, this adjustment shall be made externally without removing the operator housing cover. The operator shall be designed such that all adjustments can be made under pressure and without the possibility of dirt getting into the operator lubricant. Any adjustments through the lower shaft will not be acceptable. Units furnished for buried service shall be fully gasketed and grease packed. Valves located aboveground shall be equipped with handwheel operators and shall have a suitable indicator arrow to give valve position from fully open to fully closed. Buried valves, designated to be furnished with aboveground operators, shall be equipped with handwheel operators on extended bonnet. The handwheel for buried valves shall be set 3 feet above finished grade. All other buried butterfly valves shall be furnished with 2-inch square AWWA nut operator with valve box and cover. Operator components shall, at the extreme operator positions, withstand without damage a pull of 200 lbs. for handwheel or chainwheel operators or an input torque of 300 ft. lbs. for operating nuts.

H. Valve Coatings: Interior of valve body and valve disc except for valve seat and stainless steel valve body seat ring shall be coated with a two-part thermosetting epoxy coating in accordance with AWWA C550, latest revision. Surfaces shall be clean, dry aand free from rust and grease before coating. Exterior surfaces of valve shall be coated as specified herinafter.

I. Valve Testing: Prior to shipment from the factory, hydrostatic and leakage tests shall be conducted for each butterfly valve. Hydrostatic and leakage tests shall be conducted in strict accordance with ANSI/AWWA C504, latest revision.

2-03 TAPPING SLEEVES AND VALVES

A. Tapping Sleeves: Shall be cast iron, mechanical joint type, with working pressure rating of 200 psi for sizes 4 inches through 12 inches and 150 psi for sizes 14 inches and larger, and shall conform to the applicable Sections of AWWA Standard C110 of latest revision. Sleeve and glands shall be split type for assembly on pipe, and sleeve and mechanical joint glands and gaskets shall be sized for use with the class and type of pipe being tapped. Sleeve and glands shall be Standard Bituminous coated, and shall be furnished complete with all accessories. Outlet flange shall be Class 125 Standard. Contractor shall obtain approval from the Engineer for drilling machine used prior to tapping operations. Tapping sleeves shall be as manufactured by the Mueller Company, American Valve and Hydrant Company, Kennedy Valve or approved equal.

B. Tapping Valves: Tapping valves shall conform to ANSI/AWWA C500 or C509, latest revision and shall be designed for a minimum working pressure of 150 psi.

1. Tapping valves 3 to 12 inches in size shall be resilient seat type gate valves as specified hereinabove for gate valves 3 to 12 inches in size. Resilient seat type tapping valves shall

be furnished with a raised guide ring cast integrally on the flanged end which is designed to match the groove in the tapping sleeve. The purpose of this guide ring shall be to ensure true alignment of the valve with the tapping sleeve.

2. Tapping valves larger than 12 inches shall be iron body, bronze mounted gate valves, with double disc, parallel seat and non-rising stem. Stem shall be bronze and sealed by two "O" rings. Stem nut shall be bronze and cast integrally into the top wedge. The valve disc seating mechanism shall be bottom wedging, hook and wedge type, with disc hooks and wedges as separate interacting parts. Valve shall be designed for vertical mounting in approximately level setting on buried water lines. Valve ends shall be flanged American Standard Class 125 pound steam pressure rating on one side of the valve and mechanical joint on the other side for use with the class and type of pipe to be installed from the tapping valve. Tapping valves 12 inches and larger shall be furnished with a raised guide ring cast integrally on the flanged end as specified above for resilient seat type tapping valves. Interior ferrous surfaces of the valve, except for finished and bearing surfaces, shall be coated with a two-part thermosetting epoxy coating in accordance with AWWA C550, latest revision. Surfaces shall be clean, dry and free from rust and grease before coating. Exterior surfaces of valve shall be coated as specified hereinafter. The valve shall open left or counterclockwise when viewed from the stem. The valve shall be furnished with a 2-inch square AWWA standard nut operator with a valve box and cover.

3. Tapping valves shall be as manufactured by the Mueller Company, American Valve and Hydrant Company, Kennedy Valve, or approved equal.

2-04 EXTERIOR COATINGS FOR IRON BODY VALVES

A. All exterior surfaces of iron body valves shall be clean, dry and free from rust and grease before coating.

B. The exterior ferrous parts of all valves shall be coated at the factory with coal tar epoxy. Coating shall be applied in two 8 mil dry film thickness coats for a minimum total finish dry film thickness of 16 mils. Prior to backfilling, all uncoated nuts, bolts, glands, rods and other parts of joints shall be coated in the field with coal tar epoxy. The coal tar epoxy shall be Kop-Coat Bitumastic No. 300-M, or approved equal.

2-05 VALVE EXTENSIONS

A. Extension stems shall be provided on all buried valves when operating nut is deeper than 4 feet below final grade. All extension hardware shall be stainless steel.

2-06 VALVE BOXES

A. Furnish, assemble and place a valve box over the operating nut for each buried valve.

B. Valve boxes shall be of the adjustable screw type of suitable length. The valve boxes shall be manufactured of cast iron and shall be of the three piece design including base section, center section and top section with cover. The cast iron cover shall have the word "WATER" cast into it. The top section shall be adjustable for elevation and shall be set to allow equal movement above and below finished grade. The castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM A48, Class 30B for Gray Iron Castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections and other harmful defects. The seating surfaces of both the cover and the top section shall be machined so that the cover will not rock after it has been seated. The valve boxes shall be coated inside the outside with an asphaltic coating prior to machining, so that the machined seating surfaces will be free of any coating. Cast iron valve box assemblies shall be Clow Corp. No. F-2450, Tyler Corp. No. 461-S or approved equal.

PART 3 - EXECUTION

3-01 INSTALLING VALVES

A. Valves of the size and type shown on the drawings shall be installed at the locations indicted on the drawings. Valves shall be installed in accordance with manufacturer's installation instructions and with the standard details.

B Valves shall be installed such that they are supported properly.

C. Valve box shall be centered accurately over the operating nut and the entire assembly shall be plumb. The tops of valve boxes shall be adjusted to the proper elevation as specified below and as shown on the drawings.

D. In paved areas, tops of valve box covers shall be set flush with pavement. Follow paving operations, a 30-inch square shall be neatly cut in the pavement around the box and the paving removed. The top of the box shall then be adjusted to the proper elevation and a 30-inch square by 6-inch thick concrete pad poured around the box cover. Concrete pads in traffic areas shall be reinforced with No. 4 reinforcement bars as shown on the drawings. Concrete for the pad shall be 3,000 psi compressive strength.

E. In unpaved areas, tops of the valve box covers shall be set 0.20 foot above finished grade. After the top of the box is set to the proper elevations, a 30-inch square by 6-inch thick concrete pad shall be poured around the box cover. Concrete for the pad shall be 3,000 psi compressive strength.

F. The concrete pad for the valve box cover shall have a 2-inch diameter, bronze disc embedded in the surface as shown on the drawings. The bronze disc shall have the following information neatly stamped on it: The size of the valve; the number of turns to open; the direction to open; and the year of installation.

3-02 TOUCH-UP OF ABOVEGROUND EXTERIOR COATINGS

A. Following installation of aboveground valves, touch-up nicks and scratches of exterior painted surfaces with the same finish coating as specified hereinbefore.

END

SECTION 17194
CHECK VALVES

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, install and test all check valves as shown on the drawings and as specified herein.

1-02 SUBMITTALS

A. Submit manufacturer's catalog data, illustrations, principle dimension, materials of construction, installation instructions and other pertinent data.

B. Submit certificates from manufacturer stating that the products furnished comply with these specifications.

C. Operation and Maintenance Manuals: Submit four (4) manuals for each different size, type or model of valve furnished. Manuals shall be bound sets of literature including the following and other pertinent information required.

1. Submit detailed assembly drawings, with clear and concise instructions for operating, adjusting, overhauling, troubleshooting and other maintenance.

2. Submit a complete lubrication schedule including lubricant types, grades and frequency of lubrication.

3. Submit a list of parts for all products with catalog numbers and all data necessary for ordering replacement parts. Such instructions and parts lists shall have been prepared for the specific product furnished and shall not refer to other types or models.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling valves to avoid damage. Inside of valves shall be kept free of dirt and debris.

PART 2 - PRODUCTS

2-01 SWING CHECK VALVES

A. Check valves 2-inch through 12-inch in size shall conform to AWWA C508 latest revision and shall be designed for a minimum working pressure of 150 psi. Check valves shall be cast iron body swing type with 125 lb. flanged ends. When open, the valve shall have a straight way passage with a minimum area equal to the full pipe area. Swing check valves shall be completely bronze fitted with a renewable bronze seat ring and a rubber faced disc. Check valves shall be supplied with an outside lever and weight.

B. Swing check valves shall be the Empire Specialty valve Figure #220 "Custom Quiet Closing Swing Check Valve with Weight and Lever", Mueller A-2602-6-01-E193, or an equal approved by the owner. All fasteners shall be stainless steel.

2-02 COATINGS

A. Valve Interior: Prior to shipment from the factory, the interior ferrous surfaces of the valve, except for finished or bearing surfaces, shall be coated with a fusion bond epoxy. The epoxy coating shall conform with AWWA C550, latest revision and will be a minimum of 10 mils in thickness. Additionally, when utilized in a potable water system all materials shall be approved (when applicable) by the National Sanitation Foundation for potable water contact.

B. **Valve Exterior: The valve exterior shall be coated as follows. Surfaces shall be clean, dry and free from rust and grease before coating.**

1. **For check valves installed in below ground pits, the exterior ferrous parts of all valves shall be coated with a fusion bonded epoxy coating conforming to AWWA C550 and shall be coated per Company specification 09900.**

2. For above ground service, the exterior ferrous parts of all valves shall be coated with a fusion bonded epoxy coating conforming to AWWA C550 and shall be a minimum of 10 mils in thickness. If adjoining piping is specified to be painted per specification 09900 then the exterior of the valve will be additionally coated with two coats, 1.4 mils dry film thickness each coat, of a medium to long oil alkyd resin coating. The color of the finish coats shall be in accordance with the piping color code in the painting schedule.

   a. Prior to shipment from the factory, valves shall be shop painted with one coat, 1.5 mils dry film thickness, of a primer per paint specification 09900 with rust-inhibitive pigments and synthetic resins.

   b. Following installation in the field, valves shall be painted with one coat, 1.5 mils dry film thickness, or a finish coat per paint specification 09900 with rust-inhibitive pigments and coats, 1.4 mils dry film thickness each coat, of a medium to long oil alkyd resin coating. The color of the finish coats shall be in accordance with the piping color code in the painting schedule.

PART 3 - EXECUTION

3-01 INSTALLATION OF VALVES

A. Install the correct size check valve at the locations indicated on the drawings. Valves shall be installed in accordance with the manufacturer's installation instructions and the details shown on the drawings.

B. Valves shall be installed such that they are supported properly.

C. Check valves shall be tested hydrostatically concurrently with the line in which they are installed.

3-02 TOUCH-UP OF ABOVE GROUND EXTERIOR COATINGS

A. Following installation of above ground valves, touch-up nicks and scratches of exterior painted surfaces with the same finish coating as specified herein before.

END

SECTION 17196

BACKFLOW PREVENTERS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Provide reduced pressure principle or double check valve assembly backflow preventers where indicated on the drawings. The type of backflow preventer required for a particular installation shall be as required and approved by the Company.

1-02 SUBMITTALS

A. Submit manufacturer's catalog data, illustrations, principle dimensions, materials of construction, installation instructions and other pertinent data.

B. Submit certificates from manufacturer stating that products furnished comply with these specifications.

C. Operation and Maintenance Manuals: Submit six manuals for each different size, type or model of backflow preventer furnished. Manuals shall be bound sets of literature including the following and other pertinent information required.

1. Detailed assembly drawings, clear and concise instructions for operating, adjusting, overhauling, troubleshooting and other maintenance.

2. A complete lubrication schedule including lubricant types, grades and frequency of lubrication.

1-03 STANDARDS OF CONSTRUCTION

A. Backflow prevention devices shall be manufactured in accordance with AWWA C506, latest revision, American Society of Sanitary Engineering Standards, the University of Southern California Foundation for Cross Connection Control and Hydraulic Research Foundation "Manual of Cross Connection Control", latest edition and shall be approved by Underwriters Laboratories for fire system installations.

1-04 PRODUCT HANDLING

A. Exercise care in transporting and handling backflow preventers to avoid damage. Inside of backflow preventers shall be kept free of dirt and debris.

PART 2 - PRODUCTS

2-01 REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS

A. Reduced pressure principle backflow preventers shall include an integral sensing system that will automatically open a relief valve whenever the differential pressure between the inlet supply and the reduced pressure zone drops to 2 psi. The relief valve shall remain open until a positive pressure differential of 2 psi is re-established. If pressure upstream of the first check valve drops to atmospheric or below, the relief valve shall remain fully open providing an internal air gap between the first check valve and the water level in the reduced pressure zone. The unit shall also be constructed such that any minor leakage of the second check valve will result in visible flow from the relief valve, even if the first check valve is totally disabled.

B. Reduced pressure principle backflow preventers shall have all bronze bodies for sizes 3 inches and smaller and cast iron bodies for sizes 4 inches and larger. Cast iron bodies shall be coated with a two-part thermosetting epoxy coating in accordance with AWWA C550. The reduced pressure backflow preventer shall consist of two independently operated, spring loaded, wye pattern, poppet type check valves designed for installation in a normal horizontal flow attitude. An independent spring

loaded relief valve shall be located between the two check valves. Check valve and relief valve springs shall be stainless steel, and all other internal working parts shall be bronze and stainless steel. Check valve and relief valve seats shall be stainless steel or bronze and shall be field replaceable without removing the device from the service line. Backflow preventers shall be designed for a working pressure of 150 psi and a temperature range of 32°F to 140°F. The backflow preventer shall be manufactured as a complete unit including test cocks, and upstream and downstream isolation gate valves. The test cocks shall be arranged such that the unit can be tested without removing the unit from the line. Isolation gate valves furnished for the unit shall be as specified below.

C. Reduced pressure principle backflow preventers shall be as listed on the Foundation's most current list.

2-02 DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTERS

A. Double check valve assembly backflow preventers 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 shall be designed to close when the downstream pressure is greater than the supply pressure.

B. Double check valve assembly backflow preventers shall have all bronze bodies for sizes 2 inches and smaller and cast iron bodies for sizes 2-1/2 inches and larger. Cast iron bodies shall be coated with a two-part thermosetting epoxy coating in accordance with AWWA C550. The double check valve assembly shall consist of two independently operated, spring loaded, wye pattern, poppet type check valves. The unit shall be designed for installation in a normal horizontal flow attitude. Check valve springs shall be stainless steel, and all other internal working parts shall be bronze and stainless steel. Check valve seats shall be stainless steel or bronze and shall be field replaceable without removing the device from the service line. Backflow preventers shall be designed for a working pressure of 150 psi and a temperature range of 32°F to 140°F. The backflow preventer shall be manufactured as a complete unit including test cocks, and upstream and downstream isolation gate valves. The test cocks shall be arranged such that the unit can be tested without removing the unit from the line . Isolation gate valves furnished for the unit shall be as specified below.

C. Double check valve assembly backflow preventers shall be as listed on the Foundation's most current list.

2-03 ISOLATION GATE VALVES

A. Backflow preventers shall be furnished complete with upstream and downstream isolation gate valves.

B. Isolation gate valves for potable water service:

1. Gate valves 2 inches in size and smaller shall be all bronze valves conforming to Fed. Spec. WW-V-54, Type I, Class A designed for a working pressure of 150 psi. Bronze for valve body and internals shall be in accordance with ASTM B61. Valves shall be furnished with screwed ends, handwheel operator, non-rising stem, one-piece solid wedge disc and union bonnet. Valves shall be as manufactured by Crane, Powell or an approved equal. The minimum weight of valves shall be as follows:

Valve Size (Inches)	Valve Weight (Pounds)
3/4	1.4
1	2.4
1-1/4	3.6
1-1/2	5.0
2	8.0

2. Gate valves 3 to 12 inches in size shall be resilient seated gate valves in accordance with AWWA C509 with flanged ends, non-rising stem and a handwheel operator. Refer to Section 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

C. Isolation gate valves for fire protection service shall be resilient seated gate valves in accordance with AWWA C509 with flanged ends and a handwheel operator. The operator shall be of the open screw and yoke (OS & Y) type. Refer to Section 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

PART 3 - EXECUTION

3-01 GENERAL WARNING

A. Backflow prevention devices installed on closed systems may cause excessive pressure increases due to thermal water expansion and/or waterhammer downstream of the backflow preventer. Excessive pressure increases may cause damage or failure to water heaters and other plumbing fixtures which may be hazardous. The customer or plumbing contractor should install adequate pressure and thermal expansion devices to prevent possible excessive pressure increases within water heaters and other plumbing fixtures.

3-02 INSTALLATION

A. Backflow preventers shall be installed, where required by the Utility Company, at the locations shown on the Drawings. Backflow preventers shall be installed in accordance with the manufacturer's written installation instructions and as shown on the Standard Details.

B. Reduced pressure principle backflow preventers shall be installed horizontally with an 18 inch minimum clearance between the finished grade and the lowest point on the bottom of the unit. Reduced pressure backflow preventers shall be installed with provisions for a suitable drain arrangement to drain off discharges from the relief valve, so that discharges are not objectionable. Double check valve assembly backflow preventers shall be installed horizontally with a 12 inch minimum clearance between the finished grade and the lowest point on the bottom of the unit. Backflow preventers shall be installed such that they are easily accessible for testing, maintenance and repair.

C. Piping and fittings for units 3 inches and larger in size shall have flanged joints. Piping, fittings and valves for units 3 inches and larger in size shall be properly supported with concrete foundations and adjustable pipe support stands as shown on the Standard Details.

D. Following installation the device shall be tested by a certified backflow prevention device tester. If the test fails the device shall be repaired by a certified backflow prevention device technician and retested by a certified tester. Copies of all tests shall be furnished to the company.

3-03 COATING

A. Following installation of the backflow preventer, piping, fittings and valves, the entire aboveground assembly shall be primed and coated. Prior to applying primer and finish coatings all surfaces shall be clean, dry and free of rust, oil and grease.

B. Prior to applying primer and finish coatings, all piping, fittings and valves with asphaltic coatings shall be either commercial sandblasted to remove all asphaltic coatings or coated with two coats, 1.2 mils DFT each coat, of a sealer consisting of synthetic alcohol-soluble resin and titanium dioxide pigment. The sealer shall be Kop-Coat Inertol Tar Stop or an equal approved by the Engineer.

C. The aboveground installation shall be primed with one coat, 1.5 mils DFT per coat, of a rust inhibitive synthetic resin primer. The primer shall be Kop-Coat Pug Primer, Kop-coat 622 Rust Penetrating Primer or an equal approved by the Engineer.

D. The installation shall be finish coated with two coats, 1.4 mils DFT each coat, of a straight long oil alkyd resin enamel. The color of the finish coats shall be OSHA yellow. The finish coating shall be Kop-Coat Rustarmor 500 or an equal approved by the Engineer.

END

SECTION 17200
AIR AND VACUUM VALVE FOR DEEP WELL TURBINE PUMPS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, install and test air and vacuum valves for deep well turbine pumps as shown on the drawings and as specified herein.

1-02 SUBMITTALS

A. Submit manufacturer's catalog data, illustrations, principle dimensions, materials of construction, installation instructions and other pertinent data.

B. Operation and Maintenance Manuals: Submit six manuals for each different size, type or model of valve furnished. Manuals shall be bound sets of literature including the following and other pertinent information required.

1. Detailed assembly drawings, clear and concise instructions for operating, adjusting, overhauling, troubleshooting and other maintenance.

2. A complete lubrication schedule including lubricant types, grades and frequency of lubrication.

3. A list of parts for all products with catalog numbers and all data necessary for ordering replacement parts. Such instructions and parts lists shall have been prepared for the specific product furnished and shall not refer to other types or models.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling valves to avoid damage to the air and vacuum valve. Inside of valves shall be kept free of dirt and debris.

PART 2 - MATERIALS

2-01 AIR AND VACUUM VALVE

A. Air and vacuum valves for deep well turbine pumps shall be designed to allow large quantities of air to escape out the orifice when the pump is started and close water tight when the liquid enters the valve. The air valve shall also permit large quantities of air to re-enter through the orifice when the pump is stopped to prevent a vacuum from forming in the pump column.

B. Air and vacuum valves for deep well turbine pumps shall have a cast iron body and cover with a screwed inlet designed for a working pressure of 300 psi. The valve shall be furnished with a bronze diffuser, stainless steel float and Buna-N seat. The discharge orifice shall be fitted with an adjustable throttling device to regulate the flow of air escaping to establish a pressure loading on the rising column of water to minimize shock to the pump and check valve.

C. Air and vacuum valves for deep well turbine pumps shall be Series 140 WD as manufactured by APCO Valve and Primer Corp., the Crispin Deep Well Air Valve as manufactured by the Multiplex Manufacturing Co., or an equal approved by the Engineer.

2-02 PIPING AND FITTINGS

A. Inlet and air vent piping and fittings shall be of the size necessary for the air and vacuum valve being installed. Required piping and fittings shall be Sch.. 80 black steel. The screen for air vent shall be stainless steel fine mesh screen.

B. Exterior surfaces shall be coated as follows:

1. Prior to shipment from the factory, valves shall be shop painted with two coats, 1.5 mils dry film thickness, of a rust-inhibitive pigments and synthetic resins, per FCWC Specification 09900 "Painting and Coating".

2. Following installation in the field, valves, pipe and fittings shall be painted with one coat, 1.5 mils dry film thickness, of a combination lead and chromate primer with rust-inhibitive pigments and synthetic resins. Valves, pipe and fittings shall be finish painted with two coats, 1.4 mils dry film thickness each coat, of a medium to long oil alkyd resin coating. The color of the finish coats shall be in accordance with the piping color code in the painting schedule.

PART 3 - EXECUTION

3-01 INSTALLATION OF VALVES

A. Install the indicated size air and vacuum valve at the locations shown on the drawings. Valves shall be installed in accordance with the manufacturers installation instructions and the details shown on the drawings.

B. Valve shall be installed so that it will operate properly without binding.

C. Air vent piping with stainless steel screen shall be installed on the valve discharge orifice as indicated on the drawings.

3-02 TESTS

A. The valve shall be tested and adjusted for proper performance and operation as a part of tests for the turbine pump, and discharge piping and valve installation.

3-03 TOUCH-UP OF ABOVEGROUND EXTERIOR COATINGS

A. Following installation of aboveground valves, touch-up nicks and scratches of exterior painted surfaces with the same finish coatings as specified hereinbefore.

END

SECTION 17205

FIRE HYDRANTS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, place, joint and test fire hydrants as shown and specified.

1-02 SUBMITTALS

A. Manufacturer's Product Data: Submit for fire hydrants, include a catalog data, illustrations, principle dimensions, materials of construction and other pertinent data. Data should include sample test curves of head loss/flow volume data plotted from zero to full flow for the test conditions required in AWWA C502, latest revision, Section 5, for each model of hydrant purchased.

B. Submit manufacturer's certificates stating that the fire hydrants furnished comply with these specifications.

C. Each fire hydrant shall be tested mechanically and hydrostatically in accordance with AWWA C502, latest revision, Section 5. Submit affidavits from the hydrant manufacturer indicating compliance with the testing requirements.

D. Operation and Maintenance Manuals: Submit six for each different model of fire hydrant furnished. Manuals shall be complete bound sets of literature including the following and other pertinent information required.

1. Detailed assembly drawings including a list of all parts and materials with catalog number and all data necessary for ordering replacement parts.

2. Clear and concise instructions for installing, operating, adjusting, overhauling and other servicing of the fire hydrant.

3. Such instructions and parts lists shall have been prepared for the specific fire hydrant model furnished and shall not refer to other types or models of similar fire hydrants.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling fire hydrants to avoid damage. Inside of fire hydrants shall be kept free of dirt and debris.

PART 2 - PRODUCTS

2-0 FIRE HYDRANTS

A. Fire hydrants shall be general service type, cast or ductile iron body, fully bronzed mounted, for 150 psi working pressure, complying with AWWA Standard C502, latest revision. The inlet connection shall be mechanical joint type, with accessories, for 6 inch ductile iron pipe. The hydrant foot shall have integral cast tie-back lugs. The integral shut-off valve shall be compression type opening against water pressure, and shall open left (counterclockwise) as viewed from the operating nut.

B. The main hydrant valve opening shall be 5-1/4 inches. Valve diameter and general interior design shall be sufficient to provide head loss/flow quantity ratios less than specified in the above cited standard. The main valve seat and the threaded portion of the hydrant into which it screws shall be bronze. The hydrant barrel drain valve and port shall be bronze. The hydrant barrel drain shall be actuated by the main valve stem. The drain washer for the drain valve shall be Buna-N rubber which shall provide positive sealing action when the valve is opened. The stem operating threads and thrust bearing, and bronze seat ring threads shall be sealed by O-rings to protect from moisture and corrosion. Stem and seat ring threads shall be permanently grease lubricated or provided with a

means for lubrication. A weather shield shall be provided on the bonnet to protect the operating nut and lock nut area from dirt and water.

C. The hose nozzles shall be bronze with American National Standard fire hose coupling screw threads, one 4-1/2 inch pumper nozzle and two 2-1/2 inch hose nozzles. The hydrant operating nut and nozzle cap nuts shall be the same standard size and shape as specified by the local fire district. Nozzle caps shall be securely chained to hydrant barrel. Chains shall be corrosion free and painted to match hydrant color. The hydrants shall be "traffic" type with a frangible flange or lugs and operating stem section at ground line.

D. Hydrants shall be furnished with a 3-1/2 foot bury body except where deeper burial depths are indicated on the plans or are designated by the Engineer.

2-02 COATINGS FOR FIRE HYDRANTS

A. All ferrous metal surfaces of the hydrants shall be clean, dry and free from grease before coating as follows:

1. All exposed exterior surfaces below the ground line shall be coated at the factory with a black asphaltic coating in accordance with AWWA C502, latest revision.

2. All exposed interior surfaces above and below the main hydrant valve, except non-ferrous and machined ferrous surfaces shall be coated at the factory with a two-part thermosetting epoxy coating in accordance with AWWA C550, latest revision.

3. All exposed, exterior, above ground ferrous metal surfaces including barrel, bonnet, nozzle caps, nozzle cap chains, nuts, bolts and other fasteners shall be coated at the factory as follows:

a. Shop primed with one coat, 1.5 mils dry film thickness, of a rust inhibitive resin primer. Primer shall be compatable with finish coating and shall be applied in accordance with the coating manufacturer's recommendation. Primer shall be Kop-Coat Pug Primer, or approved equal.

b. Shop finish painted with two coats, 1.4 mils dry film thickness each coat, of a medium to long oil alkyd resin coating. Finish coating shall be applied in accordance with the coating manufacturer's recommendations. Finish coating shall be Kop-Coat Glamortex 501, or approved equal. Color of the finish coating shall be OSHA Yellow.

2-03 APPROVED FIRE HYDRANTS

A. General Service Type:

Manufacturer	Model
1. Kennedy	Guardian
2. Mueller	Centurion A-423
3. Dresser, M & H	Style 929 Reliant
4. U. S. Pipe	Metropolitan 250
5. American Flow Control	American-Darling B84B

2-04 AUXILIARY VALVE

A. Auxiliary valve furnished with each hydrant shall be a 6 inch non-rising stem gate valve with mechanical joint ends and a cast iron valve box in conformance with Section 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Fire hydrants shall be installed at the locations shown and as detailed on the drawings, and in accordance with the manufacturer's installation instructions.

3-02 HYDROSTATIC AND LEAKAGE TEST

A. After installation the fire hydrants shall be hydrostatically tested and flushed with the line in which they are installed in accordance with Section 17120, POTABLE WATER PIPING - GENERAL.

3-03 HYDRANT EXTERIOR FINISH COATING IN FIELD

A. Following installation, finish paint above ground exterior of hydrant with one coat, 1.4 mils dry film thickness, of a medium to long oil alkyd resin coating. Finish coating shall be supplied by the hydrant manufacturer and shall be applied in accordance with the coating manufacturer's recommendations. Prior to finish coating surfaces shall be clean, dry and free of grease and dirt. Finish coating shall be Kop-Coat Glamortex 501, or approved equal. Color of the finish coating shall be per local county code or OSHA Yellow.

END

SECTION 17233

PIPING COUPLINGS

PART 1 - GENERAL

1-01 DESCRIPTION

A. The Contractor shall furnish and install all pipe couplings as required to complete the work of this contract. Pipe couplings shall conform to the following specifications for construction and installation.

1-02 SUBMITTALS

A. Submit manufacturer's product data include principal dimensions, materials of construction, descriptive literature, illustrations, specifications and other related information.

PART 2 - MATERIALS

2-01 PIPE COUPLINGS

A. Pipe couplings used to join two pieces of plain end pipe or plain end pipe to a flange, shall be sized to suit outside diameter of pipeline. Transition couplings shall be used to join pipe of different outside diameters. Pipe couplings shall be one of the following types:

1. Type 1 Pipe Couplings: Solid sleeve long body type of ductile iron with mechanical joint ends. Interior and exterior coatings shall be as specified for ductile iron pipe.

2. Type 2 Pipe Couplings: Bolted type with sleeve of gray cast iron conforming to ASTM A126, Class B and followers of ductile iron conforming to ASTM A536. Gaskets shall be wedge type manufactured of resilient rubber. Bolts shall be high strength low alloy steel with heavy semi-finished hexagon nuts. Bolts and nuts shall conform to AWWA C111 (ANSI A21.11). Couplings shall be Type 431 Cast Coupling, Type 433 Cast Transition Coupling or Type 435 Cast Reducing Coupling, manufactured by the Municipal and Utility Division of Rockwell International, Style 53 or 153 manufactured by Dresser Industries or approved equal.

3. Type 3 pipe couplings: Flanged type to connect plain end pipe to flanged equipment. The body shall be gray iron ASTM A126, Class B or malleable iron ASTM A47. The follower will be malleable iron ASTM A47, Grade 32510 or ductile iron ASTM A536. Gasket and o-ring shall be grade 60. Bolts and nuts will be high strength stainless steel. Couplings shall be #912 cast iron flanged coupling adapter by Rockwell International or approved equal.

PART 3 - INSTALLATIONS

A. The installation of all couplings shall be in strict accordance with the manufacturer's recommendations. After installation the entire exterior surface of the coupling and all nuts and bolts shall be coated with coal tar epoxy prior to backfilling. The coal tar epoxy used shall be equal to Kop Coat Bitumastic No. 300-M and shall be applied in accordance with the manufacturer's recommendations.

END

SECTION 17310

STEEL CASING PIPE

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install steel casing pipes, including carrier pipes and all related items of work necessary for a complete installation as shown on drawings and specified herein.

B. All defects disclosed by tests shall be remedied. All tests shall be performed by the Contractor and observed by the Engineer.

1-02 SUBMITTALS

A. Submit certificates for inspection from the pipe manufacturer certifying that steel casing pipe supplied meets the requirements of these specifications.

B. Submit shop drawings of each steel casing and carrier pipe installation prior to fabrication of piping, casing and appurtenances.

PART 2 - PRODUCTS

2-01 STEEL CASING PIPE

A. Steel casing shall be new and unused Grade B steel pipe, minimum yield strength 35,000 psi, conforming to American Railway Engineering Association (A.R.E.A.) Specifications for Pipeline Crossings Under Railway Tracks for Non-Flammable Substances - 1972, with allowance for corrosion; and shall conform to ASTM A 53 or AWWA C 202, latest editions, for mill pipe and ASTM A 139 or AWWA C 201, latest editions, for fabricated pipe. Thickness shall be as shown. Joints shall be electri-fusion (arc) welded by operators qualified in accordance with American Welding Society Standard Procedure.

1. Steel Casing Pipe Crossing Highways

Steel Casing Pipe Nominal Size in Inches	Carrier Pipe Nominal Diameter	Minimum Wall Thickness In Inches
14	4	0.344
16	6	0.344
18	8	0.344
20	10	0.344
24	12	0.375
26	14	0.375
28	16	0.375
30	18	0.375
33	20	0.552
37	24	0.625

2. Steel Casing Pipe Crossing Railroads

Steel Casing Pipe Nominal Size in Inches	Carrier Pipe Nominal Diameter	Minimum Wall Thickness In Inches
14	4	0.344
16	6	0.344
18	8	0.344

Steel Casing Pipe Nominal Size in Inches	Carrier Pipe Nominal Diameter	Minimum Wall Thickness In Inches
20	10	0.375
24	12	0.438
26	14	0.438
28	16	0.594
30	18	0.625
33	20	0.688
37	24	0.812

B. Should steel casing pipe be installed at an elevation differing from that shown on the drawings, the Contractor shall notify the Engineer prior to ordering steel casing materials.

2-02 CARRIER PIPE

A. Carrier pipes shall be ductile iron pipe, Class 52, as specified in SECTION 17124, DUCTILE IRON PIPE AND FITTINGS FOR POTABLE WATER or SECTION 17407, DUCTILE IRON PIPE AND FITTINGS FOR RAW WASTEWATER or PVC C-900 DR-14 as specified in SECTION 17128, POLYVINYL CHLORIDE (PVC) PIPE FOR POTABLE WATER or SECTION 17414, POLYVINYL CHLORIDE (PVC) PIPE FOR WASTEWATER FORCE MAINS. Type of pipe to be installed shall be as specified on drawings. Restrained joints shall be used for the carrier pipe contained within the casing pipe.

PART 3 - EXECUTION

3-01 STEEL CASING PIPE

A. Steel casing pipe shall be placed by boring and jacking. Open cut will not be allowed unless authorized by the Engineer or specifically shown or specified. Install steel casing pipe so that carrier pipe can be installed true to line and grade. Steel casing pipe sizes shown on drawings are minimum sizes. Larger pipe may be provided, at no additional cost to the Companyr, to facilitate the installation. The thickness of steel casing pipe shall be approved by the Engineer. Steel casing pipe shall be of the minimum length shown on the drawings.

B. Extreme care shall be taken to prevent voids from occurring outside the steel casing. If voids should occur they shall be filled with a cement grout in a manner approved by the Engineer. The cement grout shall be one part portland cement to 5 parts sand by volume.

C. Casing bores not completed and abandoned because of unforeseen subsurface conditions, beyond the control of the Contractor, shall be left in a safe condition including filling the casing or bore to restore the structural integrity of the area to a condition equal to that prior to construction. Casing or bore shall be filled completely with cement grout hereinbefore specified.

3-02 CARRIER PIPE

A. Carrier pipe shall be installed within steel casing pipe as shown on drawings and specified hereinafter. Carrier pipe shall have bolted on standard casing spacers unless otherwise specified with a shell made in two sections of heavy T-304 stainless steel. Connecting flanges shall be ribbed for extra strength. The shell shall be lined with a PVC liner .090" thick with 85-90 durometer. All nuts and bolts are to be 18-8 stainless steel. Runners shall be made of ultra high molecular weight polymer with inherent high abrasion resistance and a low coefficient of friction. Runners shall be supported by risers made of heavy T-304 stainless steel. The supports shall be MIG welded to the shell and all welds shall be fully passivated. The height of the supports and runners combined shall be sufficient to keep the carrier pipe at least .75" from the casing pipe wall at all times. Casing spacers shall be installed per manufactures instructions and made by Cascade Waterworks Mfg. Co. of Yorkville, Il., or approved equal.

B. Placement of spacers on carrier pipe shall be as follows:

1. General - One spacer shall be placed not more than two feet from each end of the casing. Subsequent spacers shall be placed at 8' intervals within the casing, or in accordance with pipe manufactures recommendations.

2. P.V.C. Carrier - One spacer shall be placed on the spigot end of each segment at the line marking the limit of insertion into the bell. When the joint is complete, the spacer shall be in contact with the bell of the joint so that the spacer pushes the joint and relieves compression within the joint. Subsequent spacers shall be placed at 6' intervals, or in accordance with pipe manufacturers recommendations.

C. Upon completion of the installation of the carrier pipe, each end of the steel casing shall be sealed with a non-shrinking grout equal to Embeco 167 by Master Builders, or approved equal, as shown on drawings.

END

SECTION 17330

VERTICAL DEEP SHAFT TURBINE WELL PUMP INSTALLATION

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work described in this section encompasses all labor, material and equipment required to install and test the vertical deep shaft turbine well pump, complete with the pump and motor; air and vacuum valve; flow control valve; piping, fittings and valves; pressure gauge and accessories; and concrete pad and supports. The Contractor shall provide all mechanical and electrical equipment required for a complete and operable facility in accordance with the drawings and these specifications, but which is not already present and usable at the existing well.

B. These specifications for mechanical and electrical equipment are tentative, pending conformation, modification or deletion thereof, based on test pump results and other field data which can only be obtained after drilling and testing of the wells. Final selection of the pump, motor and appurtenances will depend upon the drawdown and yield determined in the field.

1-02 QUALITY ASSURANCE

A. Qualifications of Manufacturer: Furnish equipment from a manufacturer regularly engaged in the production of equipment specified, and has similar equipment installed and operating in the United States. Written proof of qualification may be required.

B. Field Service: Furnish the services of a manufacturer's field service engineer to check, adjust and start the pumping equipment and to provide a written start-up report and proper instruction to the operating personnel in the operation and maintenance of all equipment and accessories covered by this section.

1-03 SUBMITTALS

A. Before commencing with the fabrication or installation of materials and equipment, the Contractor shall submit a complete set of detailed shop drawings for all equipment and materials provided as specified in this section. Shop drawings shall include catalog data, illustrations, principle dimensions, weights, materials of construction, space required, clearances, capacities, piping and electrical connections and requirements, controls, type of finish, installation instructions and other pertinent data.

B. For the following material the Contractor shall submit from the manufacturers or suppliers verifying that the material furnished for the installation complies with the requirements of these specifications: pipe and fittings; concrete, cement and aggregate; reinforcing steel; and crushed stone bedding material.

C. Submit the following for the proposed deep shaft turbine pump:

1.	Pump Manufacturer's Name	_____
2.	Pump Model No.	_____
3.	Rated Capacity	_____ gpm
4.	Total Dynamic Head At Rated Capacity	_____ feet
5.	Nominal Speed of Turbine	_____ RPM
6.	Number of Stages	_____
7.	Length of Pumping Unit	_____ feet
8.	Outside Diameter of Bowl Unit	_____ inches
9.	Size of Column Pipe	_____ inches

10.	Outside Diameter of Column Pipe Coupling	_____ inches
11.	Length of Column Pipe (setting)	_____ feet
12.	Size of Suction Pipe	_____ inches
13.	Length of Suction Pipe	_____ feet
14.	Length From Underside of Discharge Head to Bottom of Suction Pipe	_____ feet
15.	Size of Line Shaft	_____ inches
16.	Type of Impellers	_____
17.	Discharge Head Model No.	_____
18.	Motor Manufacturer and Model No.	_____
19.	Motor NEMA Frame No.	_____
20.	Motor Horsepower	_____ HP
21.	Motor Speed	_____ RPM
22.	Actual Bowl Efficiency at Rated Capacity (Adjusted for Staging)	_____ %
23.	Line Shaft Loss at Rated Capacity	_____ HP
24.	Brake Horsepower of Pumping Unit at Rated Capacity	_____ BHP
25.	Kilowatt Consumption Per Hour at Rated Capacity	_____ KW/Hr
26.	Field Efficiency of Turbine (Wire to Water)	_____ %
27.	Hydraulic Thrust at Rated Capacity	_____ pounds
28.	Weight of Line Shaft	_____ pounds
29.	Total Thrust Load at Rated Capacity	_____ pounds
30.	Capacity of Motor Thrust Bearing	_____ pounds

D. Submit certified characteristic performance curves for each pump and motor combination furnished. Performance curves for the pumps shall include impeller size, motor speed, and the head capacity, efficiency, and horsepower for the full range of the head conditions specified. Pump performance curves shall be submitted on 8-1/2 by 11-inch sheets.

E. Operation and Maintenance Manuals: Submit six bound sets for the complete pumping installation. Include data for each piece of equipment, any other pertinent information required and the following:

1. Clear and concise instructions for starting, operating, shut-down, adjustment, overhaul, troubleshooting and other maintenance of the equipment.

2. A complete lubrication schedule including types, grades and temperature ranges and frequency of lubrication.

3. Safety precautions, diagrams and illustrations, testing procedures, and pump curves and performance data.

4. List of all parts for the equipment, with catalog numbers, and other data necessary for ordering replacement parts. Instructions and parts lists shall have been prepared for the specific equipment furnished and shall not refer to other types or model of similar equipment.

5. It is intended that the manual be complete in all respects for all equipment, controls, accessories and associated appurtenances.

1-04 PRODUCT HANDLING

A. Exercise care in transporting, handling and storing all equipment to avoid damage. Keep the internal areas of pumps, valves, pipe and fittings free of dirt and debris.

1-05 WARRANTY

A. Furnish a written warranty form the pump manufacturer warranting the pump and motor units supplied against defects in design, workmanship and materials for a period of one year from the date of start-up or eighteen months from date of delivery to the job site. The warranty shall cover normal use, operation and service and shall apply to all similar units furnished for the project.

B. In the event the pump fails to perform as specified or is proven defective in service during the warranty period, the manufacturer shall provide a replacement part and labor required to replace, repair or modify defective components without additional cost to the Owner.

C. The replacement or repair (including cost of parts and labor) of those items normally consumed in service, such as pump seals and packing, oil grease and the like, shall be considered as part of routine preventative maintenance by the Owner.

PART 2 - PRODUCTS

2-01 VERTICAL DEEP SHAFT TURBINE WELL PUMP

A. Operating Conditions: Refer to the Supplementary Requirements of these specifications.

B. Water lubricated, vertical turbine pumps furnished for this project shall be as manufactured by the Peerless Pump Company or an approved equal.

C. Pump Discharge Head Assembly: Shall be manufactured of high grade cast iron, in accordance with ASTM A 48, Class 30. The discharge head assembly shall be suitable for mounting a vertical electric motor and shall be equipped with a discharge elbow having a standard flanged, above ground discharge outlet.

D. Pump Discharge Column Assembly: Column piping shall be steel meeting ASTM A 120, Grade B or ASTM 53, Grade B. Column pipe shall be furnished in interchangeable sections not over ten (10) feet in length which shall be coupled with threaded, sleeve type couplings. The joints shall be butted to insure perfect alignment after assembly.

The line shafting shall be manufactured of Type 416 stainless steel, and shall be turned, ground and polished precision shafting of ample size to operate the pump without distortion or vibration. The shaft shall be furnished in interchangeable sections not over ten (10) feet in length, The shaft shall be coupled with Type 303 stainless steel couplings which are machined from solid bar steel.

The column assembly bearing shall be bronze meeting ASTM B145, ALY 836 or 844. he bearing guides shall be threaded into the pipe couplings and retained by the butted ends. Each bearing guide shall contain a water lubricated, cutless neoprene bearing designed for vertical turbine pump service.

E. Pump Bowl Assembly: Pump bowls shall be cast iron meeting ASTM A48, Class 30, free from blow holes, and all other faults, accurately machined and fitted to close dimensions. Pump bowl interior shall be coated with a smooth vitreous enamel. Each pump bowl shall be fitted with a lateral bowl wear ring to restrict the leakage flow at the impeller skirt. The wear ring shall be a resilient neoprene ring reinforced with an embedded steel core.

Pump impellers shall be of bronze, ASTM B-145, Grade 4A, accurately machined and finished, and perfectly balanced both hydraulically and mechanically. The impeller shaft shall be manufactures of Type 416 stainless steel. The impeller shaft shall be supported in the bowl by a combination of water lubricated bronze ASTM B-144 and fluted neoprene bearings. impellers shall by securely fastened to the impeller shaft with a Type 303 stainless steel tapered brushing. It shall be possible to maintain the impeller efficiency by means of adjustment of the top shaft nut at the top of the motor.

F. Suction Pipe and Strainer: Suction piping shall be of proper diameter to fit the suction manifold and shall be the same material as the pump column not over ten (10) feet in length which shall be coupled

by threaded, sleeve type couplings. The total length of suction pipe to be furnished shall be as shown on the drawings.

A pump strainer shall be furnished below the suction piping. The strainer shall be conical in shape and manufactures of stainless steel, heavy gauge welded wire. The net inlet opening area of the strainer shall not be less than four (4) times the area of the suction pipe.

G. Water Level Indicator: Furnish and install a suitable polyethylene tubing air line of sufficient length to extend form the pump discharge head to the top of the bowl assembly for the purpose of measuring water levels inside the well. air line tubing shall have 1/8" inside diameter, 1/4" outside diameter and manufactured of high density polyethylene. Polyethylene tubing shall be as manufactured by Trojan Manufacturing, Tampa, Florida or an equal approved by the Engineer. The air line shall be furnished with an altitude gauge reading in feet and connections for an air pump as shown on the drawings.

2-02 PUMP MOTOR

A. Pump motor shall conform to the applicable portions of Section 16157, MOTORS, GENERAL SERVICE of these specifications. The motor shall be of sufficient size such that the pump does not exceed the motor's full rated horsepower at any point on the pump's characteristic curve. the pump motor shall also have service factor of 1.15 which shall be reserved for the Owner's protection.

B. Pump motor shall be vertical, hollow shaft, specially built NEMA Style P base, squirrel cage induction type, maximum 1800 rpm suitable for 230/460 volt, 3 phase, 60 hertz current. Motors shall have Class F insulation with Class B temperature limits at 40o C ambient. Motor shall have normal starting torque and low starting current as specified for NEMA Design B characteristics. Motor windings shall be triple dipped and baked and finally shall be coated with a fungicidal varnish suitable for tropical environments.

C. Motor enclosure shall be open drip-proof (ODP), weather protected - 1 (WP-1) design with forced air circulation by integral fan. Openings for ventilation shall be uniformly spaced around the motor frame. Openings shall be screened with 1/8 inch stainless steel mesh screen to prevent entry of large insects and be clearly identified. Pump motor shall be provided with a non-reverse ratchet coupling assembly. Motor shall be fitted with heavy lifting eyes capable of supporting the weight of the motor.

D. The motor thrust bearing shall have ample capacity to carry the weight of all the rotating parts plus the hydraulic thrust of the pump impellers, and have an ample safety factor. This factor should be based on an average life expectancy of five years operation at 24 hours per day.

E. Motor shall be equipped with strip heaters which shall operate on 110 volt single phase power. The strip heaters shall be energized foil or plastic warning label with red background and white letters which have the following legend:

"WARNING-ELECTRICAL SHOCK HAZARD

Motor Equipped with Strip Heaters. Strip Heater Circuit
Remains Energized When Main Disconnect For Pump Motor Is OFF"

F. Pump motors shall be as manufactures by US Motors Company or an equal approved by the Engineer.

2-03 PUMP AND MOTOR COUPLING GUARD

A. Provide a coupling guard/bug screen on the pump base to prevent personal injury form the rotating pump and motor coupling. The guard shall be manufactured of heavy stainless steel wire fabric and shall comply with all applicable OSHA requirements. The guard shall be bolted or screwed to the pump base with stainless steel bolts and nuts or screws and shall be easily removable for access to the pump and motor coupling.

2-04 DUCTILE IRON PIPE AND FITTINGS

A. For ductile iron pipe and fittings refer to SECTION 17124, DUCTILE IRON PIPE AND FITTINGS FOR POTABLE WATER.

2-05 POLYVINYL CHLORIDE PIPE

A. For polyvinyl chloride pipe refer to SECTION 17130, POLYVINYL CHLORIDE (PVC) PIPE FOR RAW POTABLE WATER MAINS.

2-06 BLACK STEEL PIPE

A. Well casing vent, automatic air release valve and deep well air and vacuum valve piping shall be threaded Schedule 80 black steel in accordance with ASTM A53. Fittings shall be cast or forged black steel, 150 pounds per square inch working pressure, with threaded ends. Pipe couplings shall be black steel meeting the pipe schedule strength.

B. The screen for the air vent shall be Type 316 stainless steel fine mesh screen.

C. Thread and Lubricant: Threads shall be American National Standard free from cuttings and burrs. Thread lubricant shall be Teflon tape.

2-07 AUTOMATIC AIR RELEASE VALVE

A. Automatic air release valves shall be designed to release small pockets of air in the piping system after it is filled and under pressure. Air release valve shall have a cast iron body and cover with a ½ inch screwed inlet and shall be designed for a working pressure of 150 psi. The valve shall be furnished with a stainless steel float and Buna-N seat. The valve linkage shall be manufactured of Delrin and bronze. All internal parts such as lever pins, retaining rings, screws and other like items shall be manufactured of stainless steel or bronze.

B. Automatic air release valves shall be No. 55 as manufactured by APCO Valve and Primer Corp., or an approved equal.

2-08 AIR AND VACUUM VALVE

A. Air and vacuum valves for deep well turbine pumps shall be designed to allow large quantities of air to escape out the orifice when the pump is started and close water tight when the liquid enters the valve. The air valve shall also permit large quantities of air to reenter through the orifice when the pump is stopped to prevent a vacuum from forming in the pump column.

B. Air and vacuum valves for deep well turbine pumps shall have a cast iron body and cover with a screw inlet designed for a working pressure of 150 psi. The valve shall be furnished with a bronze diffuser, stainless steel float and Buna-N seat. The discharge orifice shall be fitted with an adjustable throttling device to regulate the flow of air escaping to establish a pressure loading on the rising column of water to minimize shock to the pump and check valve.

C. Air and vacuum valves for deep well turbine pumps shall be Series 140 WSD as manufactured by APCO-Valve and Primer Corp., the Crispin Deep Well Air Valve as manufactured by the Multiplex Manufacturing Co., or an equal approved by the Engineer.

2-09 AUTOMATIC FLOW CONTROL VALVE

A. Install automatic pressure compensating flow control valves where indicated on drawings. Valves shall have the capacities and pressure differential characteristics as indicated and shall conform to the following.

1. Valve body shall be gray cast iron meeting ASTM A126s Class 30 with a design operating pressure of 200 psi. Valves shall be mechanically compatible for mounting between standard 125 lb. cast iron flanges. Mounting studs and nuts shall be cadmium plated steel. Valve body shall be provided with inlet and outlet tapped holes with plugs suitable for connection of flow measuring instruments.

2. Valve control mechanism shall consist of a tamper proof, self contained, open chamber cartridge assembly with unobstructed flow passages that eliminate accumulation of particles and debris. All internal working parts shall be passivated stainless steel. The cartridge assembly shall consist of a spring loaded cup. The cup shall be guided at two points and shall utilize the full available differential pressure across the valve to activate the cup and thereby reduce friction and hysterisis and eliminate binding. The cartridge shall have a thin orifice plate for self cleaning of the variable inlet ports over the full control range.

3. Valves shall be factory set and shall automatically limit the rate of flow to required capacity to within ± 5 percent accuracy over an operating pressure differential of at least 14 times the minimum required for control. Certified performance data shall be submitted for each valve.

4. Each valve shall be provided with a non-corrosive metal identification tag attached to the valve body with stainless steel screws. The tag. shall be metal stamped with location identification, valve model number, rated flow in gpm and differential pressure range in psi.

B. All automatic flow control valves shall be of one manufacturer. Automatic flow control valves shall be as manufactured by Griswold Controls, Santa Ana, California or an equal approved by the Engineer.

2-10 CHECK VALVES

A. For check valves refer to SECTION 17194, CHECK VALVES.

2-11 GATE VALVES

A. For gate valves refer to SECTION 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

2-12 CAM LOCK COUPLERS

A. The discharge of the pump discharge piping bypass shall be provided with a cam lock type, flanged male adapter. The adapter shall have a nominal diameter of 4-inches with a standard ANSI/AWWA 125 lb. drilled flange. The cam lock male adapter shall be furnished with a compatible dust cap with a brass chain. The male adapter, flange and dust cap shall be manufactured of high tensile aluminum.

B. Cam lock type flange male adapter and dust caps shall be as manufactured by Ever-Tite coupling Co., Inc., New York, N.Y. or an equal approved by the Engineer.

2-13 PROPELLER FLOW METERS

A. Install propeller flow meters where indicated in the drawings. The size of meters shall be as indicated in the drawings and shall conform to the following.

1. Meter Tube: The meter tube shall be manufactures of cast iron with flanged ends conforming to ANSI/AWWA Class 125 drilling. The tube shall be furnished with a stainless steel liner and with stainless steel straightening vanes. The meter tube and meter shall be suitable for 150 psi working pressures.

2. Flow Meter: Flow meter shall be a magnetic drive type meter with permanent ceramic sleeve type magnets. The magnet shall be mounted on the propeller shaft and designed to produce a magnetic field which is angular to the axis of the shaft. This angular field shall be received by a separate and sealed vertical shaft coupling half, which shall drive the meter register. The

meter shall be within ± 2 percent accuracy within the meters standard range. The meter head shall be manufactured of cast iron. The meter propeller shall be manufactured of molded polyethylene, polypropylene or other thermoplastic material resistant to abrasion and corrosion. Bearings shall be stainless steel and permanently lubricated for the life of the meter. Meter shafts, bolts and other mechanical parts shall be stainless steel. The gear housing shall be brass or bronze. all shafts requiring water tight seals shall be sealed with O-rings.

3. Meter Register: The meter register shall be oil filled combination instantaneous rate of flow indication and a six digit totalizer. The rate of flow indicator shall read in gallons per minute. The register shall also be furnished with a test hand indicator.

4. Magnetic drive, propeller type flow meters furnished shall be Series 103 Meter with FT 190 Indicator and Totalizer as manufactured by the Sparling Division of Envirotech Corp.

2-14 PRESSURE GAUGES

A. Pressure gauges shall be a Series 188, liquid filled, corrosion resistant gauge for severe service as manufactured by Marshalltown Instruments, Marshalltown, Iowa or an equal approved by the Engineer. Gauges shall have the following specifications:

1. Range: 0 to 100 psig
2. Accuracy: ANSI Grade B-2% of full scale
3. Dial Size: 2-1/2 inch
4. Bourdon Tube/Socket: Type 316 stainless steel
5. Movement: Polyglide movement with nickel silver working parts and polycarbonate mounting plates
6. Case and Ring: Type 304 stainless steel
7. Window: Polycarbonate
8. Dial: White coated aluminum with black scale
9. Pointer: Black coated aluminum
10. Blowout Disc: Ethylene propylene
11. Restrictor: Type 316 stainless steel
12. Liquid Fill: 3000 Centistroke silicone fluid

B. Pressure gauges shall be furnished and installed with a 1/4-inch Type 316 stainless steel pressure snubber and a 1/4-inch brass, tee handle stop cock.

2-15 CONCRETE

A. All concrete strength shall be 3,000 psi in 28 days as determined by use of ASTM C 31 and C 39.

B. Cement: Portland cement, free from lumps and other defects, shall conform to ASTM C 150, Type II, unless otherwise indicated herein. Cement shall be of United States manufacture or an approved equal.

C. Fine Aggregate: Washed, natural yellow sand, consistent in color in quality sufficient for total project. Salt water aggregate is not acceptable. Conform to ASTM C 33.

D. Coarse Aggregate: Provide crushed lime stone, average gradation ½ to 1 inch in size, in quality sufficient for total project; salt water aggregate is not acceptable. Conform to ASTM C 33.

E. Water: Clean, fresh and free from injurious quantities of oil, acid, alkali, mineral and organic matter, or other deleterious substances.

F. Reinforcing Steel Bars: Conform to ASTM A 615 Grade 60. Reinforcing shall be United States manufacture or an approved equal.

2-16 IDENTIFICATION OF EQUIPMENT

A. All mechanical and electrical equipment provided by the Contractor including valves and control panels shall be properly identified to conspicuously indicate manufacturer, model, serial number and operating conditions. Operating conditions mean: rated flow and pressure range for flow control valves; and working pressures for other valves. For control panels and flow control valves, the equipment information shall be metal stamped on noncorrosive metal labels either welded or attached with stainless steel screws to the related equipment. Labels shall not be coated and shall be readily accessible and readable. Other valves, i.e., gate, check, air release, and air and vacuum valves, shall either have the equipment information cast into the valve or shall have a metal label attached as described above.

PART 3 - EXECUTION

3-01 INSTALLATION OF PUMP AND MOTOR

A. General: Contractor shall install the pump and motor as shown on the drawings and in strict accordance with the manufacturer's installation instructions. Equipment shall be installed by qualified personnel.

B. Noise and Vibrations: All equipment containing moving parts shall be installed level and plumb, unless otherwise indicated in the drawings or in the specifications; and shall be anchored securely in order that noise be suppressed to a minimum and that vibrations do not cause damage while in operation.

C. Testing of Equipment: All mechanical equipment and piping shall be tested as in operation to demonstrate capacity, correct alignment, smooth operation, proper adjustment, and freedom from noise, vibration, overheating and leaking, to demonstrate satisfaction of the specifications. All defects shall be corrected.

D. Lubrication: All mechanical equipment requiring lubrication shall be lubricated in conformance with the manufacturer's instructions, with regard to type and amount of lubricant, prior to testing any equipment. Any leaks or abnormal burning of lubricants by any equipment shall be corrected.

E. Hardware: All anchor bolts, nuts and washers shall be cadmium plated steel or stainless steel. All brackets and the hardware items shall be galvanized plated steel.

F. Start-up Services: The Contractor shall furnish the services of a factory trained representative of the pump manufacturer to thoroughly check the installation of the pumping equipment to ensure that it is properly installed, lubricated, and operable. The factory representative shall be present during start-up of the pumping equipment to make any final adjustments or repairs necessary and to instruct the Owner's operators int e proper operation and maintenance required for the pump and motor. The factory representative shall submit a written start-up report to the Engineer within 30 days after start-up of the pump equipment. Final payment shall not be made to the Contractor until this report has been submitted to and approved by the Engineer.

3-02 INSTALLATION OF PIPING, FITTINGS, VALVES AND FLOW METER

A. Install piping, fittings, valves, flow meter and other appurtenances to the well pump installation in accordance with the manufacturer's installation instructions, the requirements of referenced sections included with these specifications and as shown on the drawings. Equipment shall be installed in a workmanlike manner so that individual equipment will function properly and freely and no individual parts shall be strained.

B. Install black steel vent piping as shown on drawings. If the static water level in the well is below the pump discharge head flange, vent to atmosphere with one inch black steel pipe and fittings terminating in a 180° bend a minimum of one foot above the top vent on the pump motor. The outlet to the vent shall be screened with fine mesh stainless steel screen.

If the static water level in the well is above the pump discharge head flange, install a one inch brass swing check valve between the well vent piping and the air valve piping. Provide a 180° bend with stainless steel screen as specified above.

C. Provide a one inch Sch.. 40 PVC solvent welded drain from the well pump stuffing box discharge port on the pump discharge head to the edge of the concrete slab as shown on the drawings. Provide a crushed stone sump area at the edge of the concrete slab for discharge of stuffing box water.

3-03 CONCRETE WORK

A. Prior to pouring concrete for the pump support pedestal, the exterior of the well casing shall be coated with two coats of coal tar epoxy. Each coat shall be a minimum of 10 mils (DFT). Coal tar epoxy shall be Kop-Coat Bitumastic No. 300-M, or an equal approved by the Engineer.

B. Forms: Forms may be steel, plywood or other suitable material. constructed true to line and grade, and sufficiently rigid to prevent deformation under load of concrete. Conform to the tolerances rated in ACI 347. Form ties shall be arranged so that metal will not be more than 1-1/2 inches from surfaces when forms are removed. Chamfer exposed corners and edges 3/4 inches, unless otherwise noted, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

3-04 EXTERIOR COATINGS

A. Coatings shall be as specified in specification 09900 "Painting and Coating" or an approved equal. Coatings shall be applied in strict accordance with the manufacturer's recommendations.

3-05 TESTING

A. Pump and motor shall be tested for proper adjustment and operation in strict accordance with the pump manufacturer's installation instructions. All excessive vibration, improper adjustment or damage shall be corrected by the Contractor prior to final acceptance at not additional cost to the Owner.

B. Air and vacuum valves, flow meters and flow control valves shall be tested for proper adjustment and operation. Improper adjustments or damage shall be corrected by the Contractor at his expense prior to final acceptance.

C. All piping, valves and fittings shall be hydrostatically tested and flushed in accordance with SECTION 17120, POTABLE WATER PIPING - GENERAL with the exception that any leaks found on flanged piping shall be eliminated by correcting faulty joint assembly or by replacing defective materials at no additional cost to the Owner.

3-06 DISINFECTION

A. Well Disinfection:

1. Prior to installing the pump in the well, all interior and exterior parts of the pump coming in contact with the water in the well shall be disinfected with a five percent (5%) chlorine solution (chlorine bleach). The method of disinfecting the pump shall be approved by the Engineer or his representative prior to installing the pump.

2. The chlorine solution used for disinfecting the well shall be of such volume and strength and shall be so applied that a minimum concentration of 50 ppm shall be obtained in all parts of the well at static conditions. The chlorine solution shall be forced into the water bearing formation by creating a hydraulic head in the well with the disinfecting solution. The chlorine solution shall be introduced into the well in such a manner that the well surfaces above the static level will be completely flushed with the solution. The chlorine solution shall be prepared and applied in a manner approved by the Engineer. The chlorine solution shall

remain in the well for a minimum time period of four hours. Following the chlorination time period, the well shall be pumped to waste to completely remove chlorine solution from the well. The Owner will collect two water samples per day from the well for standard bacteriological testing. Bacteriological clearance of the well shall be demonstrated when the standard bacteriological tests indicate coliform counts of minus one for ten consecutive days. In the event that the well fails to pass bacteriological clearance, the Contractor shall be responsible for redisinfection/chlorination of the well until bacteriological clearance of the well is demonstrated. Any redisinfection required shall be at the Contractor's expense.

B. Discharge Piping Disinfection: Piping, valves, fittings and appurtenances installed to connect the well discharge to raw water mains, and any raw water mains installed by the contractor, shall be disinfected and flushed in accordance with SECTION 17120, POTABLE WATER PIPING - GENERAL.

END

SECTION 17340

SUBMERSIBLE TURBINE WELL PUMP INSTALLATION

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work described in this section encompasses all labor, material and equipment required to install and test the submersible turbine well pump, complete with the pump and motor; air and vacuum valve; flow control valve; piping, fittings and valves; pressure gauge and accessories; and concrete pad and supports. The Contractor shall provide all mechanical and electrical equipment required for a complete and operable facility in accordance with the drawings and these specifications, but which is not already present and usable at the existing well.

B. These specifications for mechanical and electrical equipment are tentative, pending conformation, modification or deletion thereof, based on test pump results and other field data which can only be obtained after drilling and testing of the wells. Final selection of the pump, motor and appurtenances will depend upon the drawdown and yield determined in the field.

1-02 QUALITY ASSURANCE

A. Qualifications of Manufacturer: Furnish equipment from a manufacturer regularly engaged in the production of equipment specified, and has similar equipment installed and operating in the United States. Written proof of qualification may be required.

B. Field Service: Furnish the services of a manufacturer's field service engineer to check, adjust and start the pumping equipment and to provide a written start-up report and proper instruction to the operating personnel in the operation and maintenance of all equipment and accessories covered by this section.

1-03 SUBMITTALS

A. Before commencing with the fabrication or installation of materials and equipment, the Contractor shall submit a complete set of detailed shop drawings for all equipment and materials provided as specified in this section. Shop drawings shall include catalog data, illustrations, principle dimensions, weights, materials of construction, space required, clearances, capacities, piping and electrical connections and requirements, controls, type of finish, installation instructions and other pertinent data.

B. For the following material the Contractor shall submit from the manufacturers or suppliers verifying that the material furnished for the installation complies with the requirements of these specifications: pipe and fittings; concrete, cement and aggregate; reinforcing steel; and crushed stone bedding material.

C. Submit the following for the proposed submersible turbine pump:

1.	Pump Manufacturer's Name	_____
2.	Pump Model No.	_____
3.	Rated Capacity	_____ g.p.m.
4.	Total Dynamic Head At Rated Capacity	_____ feet
5.	Nominal Speed of Turbine	_____ RPM
6.	Number of Stages	_____
7.	Length of Pumping Unit	_____ feet
8.	Outside Diameter of Bowl Unit	_____ inches
9.	Size of Column Pipe	_____ inches

10.	Outside Diameter of Column Pipe Coupling	_____ inches
11.	Length of Column Pipe (setting)	_____ feet
12.	Type of Impellers	_____
13.	Motor Manufacturer and Model No.	_____
14.	Motor Horsepower	_____ HP
15.	Motor Speed	_____ RPM
16.	Actual Bowl Efficiency at Rated Capacity (Adjusted for Staging)	_____ %
17.	Brake Horsepower of Pumping Unit at Rated Capacity	_____ BHP
18.	Kilowatt Consumption Per Hour at Rated Capacity	_____ KW/Hr
19.	Field Efficiency of Turbine (Wire to Water)	_____ %
20.	Distance From Top of Well to Magnetic Starter + 10 Feet	_____ FT

D. Submit certified characteristic performance curves for each pump and motor combination furnished along with draw down test data. Performance curves for the pumps shall include impeller size, motor speed, and the head capacity, efficiency, and horsepower.for the full range of the head conditions specified. Pump performance curves and well draw down tests shall be submitted together on 8-1/2 by 11-inch sheets.

E. Operation and Maintenance Manuals: Submit six bound sets for the complete pumping installation. Include data for each piece of equipment, any other pertinent information required and the following:

1. Clear and concise instructions for starting, operating, shut-down, adjustment, overhaul. troubleshooting and other maintenance of the equipment.

2. A complete lubrication schedule including types, grades and temperature ranges and frequency of lubrication.

3. Safety precautions. diagrams and illustrations, testing procedures, and pump curves and performance data.

4. List of all parts for the equipment, with catalog numbers, and other data necessary for ordering replacement parts. Instructions and parts lists shall have been prepared for the specific equipment furnished and shall not refer to other types or model of similar equipment.

5. It is intended that the manual be complete in all respects for all equipment, controls, accessories and associated appurtenances.

1-04 PRODUCT HANDLING

A. Exercise care in transporting, handling and storing all equipment to avoid damage. Keep the internal areas of pumps, valves, pipe and fittings free of dirt and debris.

1-05 WARRANTY

A. Furnish a written warranty from the pump manufacturer warranting the pump and motor units supplied against defects in design, workmanship and materials for a period of one year from the date of start-up or eighteen months from date of delivery to the job site. The warranty shall cover normal use, operation and service and shall apply to all similar units furnished for the project.

B. In the event the pump fails to perform as specified or is proven defective in service during the warranty period, the manufacturer shall provide a replacement part and labor required to replace, repair or modify defective components without additional cost to the Owner.

C. The replacement or repair (including cost of parts and labor) of those items normally consumed in service, such as pump seals and packing, oil grease and the like, shall be considered as part of routine preventative maintenance by the Owner.

PART 2 - PRODUCTS

2-01 SUBMERSIBLE TURBINE WELL PUMP

A. Operating Conditions shall be determined after draw down test and shall be based on site conditions. Refer to the requirements of these specifications.

B. Water lubricated, submersible turbine pumps furnished for this project shall be as manufactured by the Peerless Pump Company or an equal approved by the Engineer. Other pump manufacturers may be considered, provided the bidder includes manufacturer's literature for any alternate pumps proposed with his bid, calling out specific reasons and advantages for the alternate proposed. In any case, Peerless Pumps will be considered as the standard of quality for this project and any alternate pump proposed must either meet or exceed the specifications for the Peerless pump as specified herein.

C. Surface plate (pump base) shall be made of cast iron. It shall rigidly support the total weight of the motor, bowl assembly, column pipe, cable and column of water. The cable outlet shall be designed to prevent entry of foreign matter into the well and (optional) shall be equipped with a cable seal.

D. Drop pipe, threaded and coupled, shall conform to American Standard tapered pipe thread specifications. The pipe shall be sized so that flow velocities are not less than 4 feet per second, nor more than 15 feet per second. The drop pipe may be furnished in random lengths.

E. Pump motor coupling shall be of 416 stainless steel and shall be capable of transmitting the total torque of the unit, regardless of the direction of rotation.

F. Pump bowl assembly shall include bowls made of close grained cast iron, free from blow holes, sand holes or other detrimental defects, with a tensile strength of 30,000 psi. Each bowl shall have vitreous enameled flow passages (not applicable to 4SW or 6WS). Each intermediate bowl shall be constructed with a bronze bearing and a neoprene bearing to support the impeller shaft. These "dual bearings" shall provide the longest possible shaft life, based on the widest range of pumping conditions (4SW and 6WS have all bronze bearings). The bowl unit shall be capable of withstanding a hydrostatic pressure equal to twice the pressure at the rated capacity of 1.5 times the shutoff head, whichever is greater. The impeller shaft shall be made of 416 stainless steel. Each impeller shall be made of bronze, accurately machined and finished, and suitably balanced. Each impeller shall be securely fastened to the shaft with a taper lock bushing. The bowl shall include a side seal at the impeller skirt and, in addition, a resilient neoprene ring, reinforced with an embedded steel core, installed directly below the impeller skirt. This durable, resilient "lateral bowl wear ring" shall protect the end of the impeller skirt against wear from entrained abrasives. The close running clearance between the impeller skirt and the "lateral bowl wear ring" shall provide sustained protection against bowl recirculation and consequent reductions in efficiency. (Note: bowl lateral seal rings are not available in models 4WS and 6WS). The bowl unit shall include a bearing to carry the momentary upthrust encountered at start-up. The bowl unit shall include a metal guard to protect the motor cable from abrasion during installation.

G. Interconnector, made of close grained cast iron, shall couple the bowl unit to the motor. The interconnector shall include a bronze sleeve bearing with a length to shaft diameter ratio of at least 3:1 to protect the motor from radial loads. This bearing shall be protected from sand and grit by a labyrinth-type sand slinger. The interconnector shall completely enclose the upper motor end bell to protect the coupling and motor seal from abrasives. the interconnector shall include a suction screen which has a net open area at least four times the area of the eye of the impeller. The screen shall be made of corrosion resistant material.

H. **Water Level Indicator: Furnish and install a suitable polyethylene tubing air line of sufficient length to extend from the pump discharge head to the top of the bowl assembly for the purpose of measuring water levels inside the well. Air line tubing shall have 1/8" inside diameter, 1/4" outside diameter and manufactured of high density polyethylene meeting ASTM 3408. The air line shall be furnished with an altitude gauge reading in feet and connections for an air pump as shown on the drawings.**

2-02 PUMP MOTOR

A. Pump motor shall conform to the applicable portions of Section 16157, MOTORS, GENERAL SERVICE of these specifications. The motor shall be of sufficient size such that the pump does not exceed the motor's full rated horsepower at any point on the pump's characteristic curve. the pump motor shall also have service factor of 1.15 which shall be reserved for the Owner's protection.

B. Motor shall conform to the latest National Electrical Manufacturers Association (NEMA) specifications for submersible motors. The motor thrust bearing shall be sized to carry the weight of all rotating parts plus the hydraulic thrust of the pump regardless of the direction of rotation. The thrust bearing shall have sufficient capacity to permit the pump to operate for short periods with the discharge valve closed.

The motor shall be of the squirrel cage induction type, suitable for "across the line" starting. The motor shall be capable of continuous operation under water at the conditions specified. The power output shaft shall be 416 stainless steel (SAE 51416) or equivalent. All fastenings exposed to well water shall be of stainless steel or equivalent corrosion resistant material.

C. Motor Controls, mounted in an outdoor lockable (NEMA 4X) type 304 S. S. cabinet, shall include: hand-off-automatic selector switch, start-stop push button, standard magnetic contacter and three adjustable ambient compensated quick-trip overload relays suitable for submersible pump motor service.

D. Submersible cable shall be sized to limit the voltage drop to 5% at the motor's terminals. Three, separate conductors shall be furnished. Each conductor shall be jacketed or the conductors may be included in a single jacketed assembly. The conductor insulation shall be water and oil resistant, suitable for continuous immersion.

The length of the cable to be furnished shall be the sum of (a) total pump setting, including bowl unit, (b) plus one foot for each 50 feet of setting to compensate for possible twisting or sag during installation, (c) plus forty feet to extend from the surface plat to the pumping plant panel. The cable will be suitably supported from the column. All cable fittings and terminals shall be water tight at the pressure encountered in the application.

E. Pump motors shall be as manufactures by Franklin Motors Company or an equal approved by the Engineer.

2-03 DESCRIPTIVE MATERIAL

A. Descriptive Material: The bidder shall submit with each proposal complete dimensional prints, descriptive material and performance information for the equipment offered. Installation and operation instructions shall be furnished with each pump.

2-04 DUCTILE IRON PIPE AND FITTINGS

A. For ductile iron pipe and fittings refer to SECTION 17124, DUCTILE IRON PIPE AND FITTINGS FOR POTABLE WATER.

2-05 POLYVINYL CHLORIDE PIPE

A. For polyvinyl chloride pipe refer to SECTION 17130, POLYVINYL CHLORIDE (PVC) PIPE FOR RAW POTABLE WATER MAINS.

2-06 BLACK STEEL PIPE

A. Well casing vent, automatic air release valve and deep well air and vacuum valve piping shall be threaded Schedule 80 black stainless steel in accordance with ASTM A53. Fittings shall be cast or forged black steel, 150 pounds per square inch working pressure, with threaded ends. Pipe couplings shall be black steel meeting the pipe schedule strength.

B. The screen for the air vent shall be Type 316 stainless steel fine mesh screen.

C. Thread and lubricant: Threads shall be American National Standard free form cuttings and burrs. Thread lubricant shall be Teflon tape.

2-07 AIR AND VACUUM VALVE

A. Air and vacuum valves for deep well turbine pumps shall be designed to allow large quantities of air to escape out the orifice when the pump is started and close water tight when the liquid enters the valve. The air valve shall also permit large quantities of air to re-enter through the orifice when the pump is stopped to prevent a vacuum from forming in the pump column.

B. Air and vacuum valves for deep well turbine pumps shall have a cast iron body and cover with a screw inlet designed for a working pressure of 150 psi. The valve shall be furnished with a bronze diffuser, stainless steel float and Buna-N seat. The discharge orifice shall be fitted with an adjustable throttling device to regulate the flow of air escaping to establish a pressure loading on the rising column of water to minimize shock to the pump and check valve.

C. Air and vacuum valves for deep well turbine pumps shall be Series 140 WSD as manufactured by APCO-Valve and Primer Corp., the Crispin Deep Well Air Valve as manufactured by the Multiplex Manufacturing Co., or an equal approved by the Engineer.

2-08 AUTOMATIC FLOW CONTROL VALVE

A. Install automatic pressure compensating flow control valves where indicated on drawings. Valves shall have the capacities and pressure differential characteristics as indicated and shall conform to the following.

B. Valve body shall be gray cast iron meeting ASTM A126s Class 30 with a design operating pressure of 200 psi. Valves shall be mechanically compatible for mounting between standard 125 lb. cast iron flanges. Mounting studs and nuts shall be cadmium plated steel. Valve body shall be provided with inlet and outlet tapped holes with plugs suitable for connection of flow measuring instruments.

C. Valve control mechanism shall consist of a tamper proof, self contained, open chamber cartridge assembly with unobstructed flow passages that eliminate accumulation of particles and debris. All internal working parts shall be passivated stainless steel. The cartridge assembly shall consist of a spring loaded cup. The cup shall be guided at two points and shall utilize the full available differential pressure across the valve to activate the cup and thereby reduce friction and hysterisis and eliminate binding. The cartridge shall have a thin orifice plate for self cleaning of the variable inlet ports over the full control range.

D. Valves shall be factory set and shall automatically limit the rate of flow to required capacity to within ± 5 percent accuracy over an operating pressure differential of at least 14 times the minimum required for control. Certified performance data shall be submitted for each valve.

E. Each valve shall be provided with a non-corrosive metal identification tag attached to the valve body with stainless steel screws. The tag shall be metal stamped with location identification, valve model number, rated flow in gpm and differential pressure range in psi.

F. All automatic flow control valves shall be of one manufacturer. Automatic flow control valves shall be as manufactured by Griswold Controls, Santa Ana, California or an equal approved by the Engineer.

2-09 CHECK VALVES

A. For check valves refer to SECTION 17194, CHECK VALVES.

2-10 GATE VALVES

A. For gate valves refer to SECTION 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

2-11 CAM LOCK COUPLERS

A. The discharge of the pump discharge piping bypass shall be provided with a cam lock type, flanged male adapter. The adapter shall have a nominal diameter of 4-inches with a standard ANSI/AWWA 125 lb. drilled flange. The cam lock male adapter shall be furnished with a compatible dust cap with a brass chain. The male adapter, flange and dust cap shall be manufactured of high tensile aluminum.

B. Cam lock type flange male adapter and dust caps shall be as manufactured by Ever-Tite coupling Co., Inc., New York, N.Y. or an equal approved by the Engineer.

2-12 PROPELLER FLOW METERS

A. Install propeller flow meters where indicated in the drawings. The size of meters shall be as indicated in the drawings and shall conform to the following.

B. Meter Tube: The meter tube shall be manufactured of cast iron with flanged ends conforming to ANSI/AWWA Class 125 drilling, latest revisions. The tube shall be furnished with a stainless steel liner and with stainless steel straightening vanes. The meter tube and meter shall be suitable for 150 psi working pressures.

C. Flow Meter: Flow meter shall be a magnetic drive type meter with permanent ceramic sleeve type magnets. The magnet shall be mounted on the propeller shaft and designed to produce a magnetic field which is angular to the axis of the shaft. This angular field shall be received by a separate and sealed vertical shaft coupling half, which shall drive the meter register. The meter shall be within ± 2 percent accuracy within the meters standard range. The meter head shall be manufactured of cast iron. The meter propeller shall be manufactured of molded polyethylene, polypropylene or other thermoplastic material resistant to abrasion and corrosion. Bearings shall be stainless steel and permanently lubricated for the life of the meter. Meter shafts, bolts and other mechanical parts shall be stainless steel. The gear housing shall be brass or bronze. All shafts requiring water tight seals shall be sealed with O-rings.

D. Meter Register: The meter register shall be oil filled combination instantaneous rate of flow indication and a six digit totalizer. The rate of flow indicator shall read in gallons per minute. The register shall also be furnished with a test hand indicator.

E. Magnetic drive, propeller type flow meters furnished shall be Series 103 Meter with FT 190 Indicator and Totalizer as manufactured by the Sparling Division of Envirotech Corp.

2-13 PRESSURE GAUGES

A. Pressure gauges shall be a Series 188, liquid filled, corrosion resistant gauge for severe service as manufactured by Marshalltown Instruments, Marshalltown, Iowa or an equal approved by the Engineer. Gauges shall have the following specifications:

1. Range: 0 to 100 psig
2. Accuracy: ANSI Grade B-2% of full scale
3. Dial Size: 2-1/2 inch
4. Bourdon Tube/Socket: Type 316 stainless steel

5. Movement: Polyglide movement with nickel silver working parts and polycarbonate mounting plates
6. Case and Ring: Type 304 stainless steel
7. Window: Polycarbonate
8. Dial: White coated aluminum with black scale
9. Pointer: Black coated aluminum
10. Blowout Disc: Ethylene propylene
11. Restrictor: Type 316 stainless steel
12. Liquid Fill: 3000 Centistroke silicone fluid

B. Pressure gauges shall be furnished and installed with a 1/4-inch Type 316 stainless steel pressure snubber and a 1/4-inch brass, tee handle stop cock.

2-14 CONCRETE

A. All concrete strength shall be 3,000 psi in 28 days as determined by use of ASTM C 31 and C 39.

B. Cement: Portland cement, free from lumps and other defects, shall conform to ASTM C 150, Type II, unless otherwise indicated herein. Cement shall be of United States manufacture or an approved equal.

C. Fine Aggregate: Provide washed, natural yellow sand, consistent in color and quantity sufficient for total project. Salt water aggregate is not acceptable. Conform to ASTM C 33.

D. Coarse Aggregate: Provide crushed lime stone, average gradation 1/2 to 1 inch in size, in quality sufficient for total project; salt water aggregate is not acceptable. Conform to ASTM C 33.

E. Water: Provide clean, fresh and free from injurious quantities of oil, acid, alkali, mineral and organic matter, or other deleterious substances.

F. Reinforcing Steel Bars: Conform to ASTM A 615 Grade 60. Reinforcing shall be United States manufacture or an approved equal.

2-15 IDENTIFICATION OF EQUIPMENT

A. All mechanical and electrical equipment provided by the Contractor including valves and control panels shall be properly identified to conspicuously indicate manufacturer, model, serial number and operating conditions. Operating conditions mean: rated flow and pressure range for flow control valves; and working pressures for other valves. For control panels and flow control valves, the equipment information shall be metal stamped on noncorrosive metal labels either welded or attached with stainless steel screws to the related equipment. Labels shall not be coated and shall be readily accessible and readable. Other valves, i.e., gate, check, air release, and air and vacuum valves, shall either have the equipment information cast into the valve or shall have a metal label attached as described above.

PART 3 - EXECUTION

3-01 INSTALLATION OF PUMP AND MOTOR

A. General: Contractor shall install the pump and motor as shown on the drawings and in strict accordance with the manufacturer's installation instructions. Equipment shall be installed by experienced and mechanically skilled workmen with previous experience in similar installations.

B. Noise and Vibrations: All equipment containing moving parts shall be installed level and plumb, unless otherwise indicated in the drawings or in the specifications; and shall be anchored securely in order that noise be suppressed to a minimum and that vibrations do not cause damage while in operation.

C. Testing of Equipment: All mechanical equipment and piping shall be tested as in operation to demonstrate capacity, correct alignment, smooth operation, proper adjustment, and freedom from noise, vibration, overheating and leaking, to demonstrate satisfaction of the specifications. All defects shall be corrected to the satisfaction of the Engineer/Owner and at no additional cost to the Owner.

D. Lubrication: All mechanical equipment requiring lubrication shall be lubricated in conformance with the manufacturer's instructions, with regard to type and amount of lubricant, prior to testing any equipment. Any leaks or abnormal burning of lubricants by any equipment shall be corrected.

E. Hardware: All anchor bolts, nuts and washers shall be cadmium plated steel. All brackets and the hardware items shall be galvanized plated steel.

F. Start-up Services: The Contractor shall furnish the services of a factory trained representative of the pump manufacturer to thoroughly check the installation of the pumping equipment to ensure that it is properly installed, lubricated, and operable. The factory representative shall be present during start-up of the pumping equipment to make any final adjustments or repairs necessary and to instruct the Owner's operators in the proper operation and maintenance required for the pump and motor. The factory representative shall submit a written start-up report to the Engineer within 30 days after start-up of the pump equipment. Final payment shall not be made to the Contractor until this report has been submitted to and approved by the Engineer.

3-02 INSTALLATION OF PIPING, FITTINGS, VALVES AND FLOW METER

A. Install piping, fittings, valves, flow meter and other appurtenances to the well pump installation in accordance with the manufacturer's installation instructions, the requirements of referenced sections included with these specifications and as shown on the drawings. Equipment shall be installed in a workmanlike manner so that individual equipment will function properly and freely and no individual parts shall be strained.

B. Install black steel vent piping as shown on drawings. If the static water level in the well is below the pump discharge head flange, vent to atmosphere with one inch black steel pipe and fittings terminating in a 180° bend a minimum of one foot above the top vent on the pump motor. The outlet to the vent shall be screened with fine mesh stainless steel screen.

If the static water level in the well is above the pump discharge head flange, install a one inch brass swing check valve between the well vent piping and the air valve piping. Provide a 180° bend with stainless steel screen as specified above.

C. Provide a one inch Sch 40 PVC solvent welded drain from the well pump stuffing box discharge port on the pump discharge head to the edge of the concrete slab as shown on the drawings. Provide a crushed stone sump area at the edge of the concrete slab for discharge of stuffing box water.

3-03 CONCRETE WORK

A. Prior to pouring concrete for the pump support pedestal, the exterior of the well casing shall be coated with two coats of coal tar epoxy. Each coat shall be a minimum of 10 mils (DFT). Coal tar epoxy shall be Kop-coat Bitumastic No. 300-M, or an equal approved by the Engineer.

B. Forms: Forms may be steel, plywood or other suitable material. Construct true to line and grade, and sufficiently rigid to prevent deformation under load of concrete. Conform to the tolerances rated in ACI 347. Form ties shall be arranged so that metal will not be more than 1-1/2 inches from surfaces when forms are removed. Chamfer exposed corners and edges 3/4 inches, unless otherwise noted, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

3-04 EXTERIOR COATINGS

A. Coatings shall be as specified in specification 09900 "Painting and Coating" or an equal approved by the Engineer. Coatings shall be applied in strict accordance with the manufacturer's recommendations.

B. Field Applied Finish Coating: Immediately following the drying time required for prime coatings all pumps, motors, pipe, valves, fittings, meters and other appurtenances to the well pump installation shall be finish coated. All surfaces to be coated shall be completely dry and free of all dust dirt oil and grease for immediate and final finish coats. All surfaces shall be coated with two coats, 1.5 mils dry film thickness each coat, of a straight long oil alkyd resin enamel coating.

C. Color Coding: All equipment shall be color coded to comply with the standard colors specified below. Colors specified below are selected from Kop-Coat Master Color Selection Chart No. 560-L.

Equipment	Color
Pumps and motors	Light Gray 306
Coupling Guards	OSHA Safety Orange
Pipe, Fittings, Valves, Meters and Appurtenances	OSHA Safety Green

3-05 TESTING

A. Pump and motor shall be tested for proper adjustment and operation in strict accordance with the pump manufacturer's installation instructions. All excessive vibration, improper adjustment or damage shall be corrected by the Contractor prior to final acceptance at no additional cost to the Owner.

B. Air and vacuum valves, flow meters and flow control valves shall be tested for proper adjustment and operation. Improper adjustments or damage shall be corrected by the Contractor, at no additional cost to the Owner, prior to final acceptance.

C. All piping, valves and fittings shall be hydrostatically tested and flushed in accordance with SECTION 17120, POTABLE WATER PIPING - GENERAL with the exception that any leaks found on flanged piping shall be eliminated by correcting faulty joint assembly or by replacing defective materials at no additional cost to the Owner.

3-06 DISINFECTION

A. Well Disinfection:

1. Prior to installing the pump in the well, all interior and exterior parts of the pump coming in contact with the water in the well shall be disinfected with a five percent (5%) chlorine solution (chlorine bleach). The method of disinfecting the pump shall be approved by the Engineer or his representative prior to installing the pump.

2. The chlorine solution used for disinfecting the well shall be of such volume and strength and shall be so applied that a minimum concentration of 50 ppm shall be obtained in all parts of the well at static conditions. The chlorine solution shall be forced into the water bearing formation by creating a hydraulic head in the well with the disinfecting solution. The chlorine solution shall be introduced into the well in such a manner that the well surfaces above the static level will be completely flushed with the solution. The chlorine solution shall be prepared and applied in a manner approved by the Engineer. The chlorine solution shall remain in the well for a minimum time period of four hours. Following the chlorination time period, the well shall be pumped to waste to completely remove chlorine solution from the well. The Owner will collect two water samples per day from the well for standard bacteriological testing. Bacteriological clearance of the well shall be demonstrated when the standard bacteriological tests indicate coliform counts of minus one for ten consecutive days.

In the event that the well fails to pass bacteriological clearance, the Contractor shall be responsible for redisinfection/chlorination of the well until bacteriological clearance of the well is demonstrated. Any redisinfection required shall be at the Contractor's expense.

B. Discharge Piping Disinfection: Piping, valves, fittings and appurtenances installed to connect the well discharge to raw water mains, and any raw water mains installed by the contractor, shall be disinfected and flushed in accordance with SECTION 17120, POTABLE WATER PIPING - GENERAL.

END

SECTION 17400

WASTEWATER FORCE MAINS - GENERAL

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install wastewater force mains and appurtenances where shown on the drawings complete, tested and ready for operation as specified herein.

1-02 SUBMITTALS

A. Submit Certificate of Inspection from manufacturer verifying materials furnished have been inspected at the place of manufacture, conform to the requirements of these specifications and have been tested as specified herein.

PART 2 - PRODUCTS

2-01 PIPE

A. All pipe for wastewater force mains shall be either ductile iron pipe with linings as specified in Section 17407, DUCTILE IRON PIPE AND FITTINGS FOR WASTEWATER or polyvinyl chloride (PVC) as specified in Section 17414, POLYVINYL CHLORIDE (PVC) PIPE FOR WASTEWATER FORCE MAINS. For all PVC piping the color shall be green unless otherwise specified on the drawings.

2-02 FITTINGS

A. All fittings for wastewater force mains shall be ductile iron with linings as specified in Section 17407, DUCTILE IRON PIPE AND FITTINGS FOR WASTEWATER or Section 17414, POLYVINYL CHLORIDE (PVC) PIPE FOR WASTEWATER FORCE MAINS.

2-03 VALVES

A. All valves for wastewater force mains shall be plug valves designed for a minimum working pressure of 150 psi in accordance with Section 17431, PLUG VALVES FOR WASTEWATER SERVICE.

2-04 AUTOMATIC AIR RELEASE VALVES

A. Automatic air release valves installed on wastewater force mains shall be in accordance with Section 17440, AUTOMATIC AIR RELEASE VALVES FOR WASTEWATER FORCE MAINS.

PART 3 - EXECUTION

3-01 EXCAVATION, TRENCHING AND BACKFILLING

A. Excavation, trenching, and backfilling shall be in accordance with Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES, and in accordance with the specification section for the particular material of pipe installed for wastewater force mains.

B. All wastewater force mains shall be installed with a 3-foot minimum cover.

3-02 INSTALLATION

A. Piping, fittings and valves shall be installed in accordance with the appropriate specification section of the material specified and in accordance with the manufacturers recommendations.

B. All piping shall be PVC DR14 or Ductile Iron CL53 under all traffic areas and extended an additional 5 feet on either side.

C. A solid 20 foot length of PVC DR-14 or Ductile Iron CL53 pipe shall be centered and installed under or over drainage piping with a 12" minimum clearance. All piping within 15' of storm drain structures shall also be PVC DR14 or DIP CL53.

D. As the work progresses, the interior of the force main shall be cleared of dirt and superfluous materials. Except where authorized, trenches shall be kept completely free from water until the pipe jointing and jointing inspection are completed. At all times when work is not in progress, open ends of pipe and fittings shall be securely plugged so that water, earth or other substances will not enter pipe or fittings. All pipe laid shall be backfilled at the close of the day when required by Company or controlling agencies.

3-03 SEPARATION OF WASTEWATER FORCE MAINS AND POTABLE WATER MAINS

A. Wastewater force mains shall be installed with a minimum of 10 foot horizontal separation between the wastewater force main and any potable water main. At crossings, the installation shall provide for a minimum vertical separation distance of 18 inches between the outside of the crossing wastewater and water mains. This separation shall be provided where the water main is either below or above the wastewater main. When the 18 inch minimum vertical separation distance cannot be maintained, the water and wastewater mains shall both be constructed with 20-foot lengths of ductile iron pipe at the crossing, with the pipe ends located equidistant from the crossing point.

3-04 HYDROSTATIC PRESSURE AND LEAKAGE TESTING

A. All piping installed for the purpose of conveying wastewater under pressure shall be tested following installation in accordance with the applicable portions of the hydrostatic tests for ductile iron pipe, as set forth in Section 4 of ANSI/AWWA C600, latest revision.

B. Hydrostatic testing shall be completed before the joints have been backfilled, unless the backfilling has been authorized by the Engineer.

C. Hydrostatic testing shall commence only after a minimum of 36 hours have elapsed after the last concrete reaction or thrust block has been cast using high early strength concrete, or at least 7 days after the last concrete reaction or thrust block has been cast using standard strength concrete.

D. All wastewater pressure mains shall be hydrostatically tested to a pressure of 100 psig for a minimum duration of two hours. The test pressure shall not vary by more than $\pm$ 5 psig.

E. Procedure for hydrostatic testing:

1. Each section of the pipeline to be tested shall be slowly filled with clean water.

2. During filling of the pipeline and prior to testing, all air shall be expelled from the pipeline. To accomplish this, air release points shall be provided by tapping the line, complete with corporation stops, at all high elevation points in the pipeline. Following completion of the testing the taps shall be tightly plugged unless otherwise specified.

3. Apply the specified test pressure, measured at the point of lowest elevation in the main, by means of a test pump connected to the pipeline in a manner approved by the Engineer and the Company. All equipment required for the performance of the test, i.e., pumps, pipe connections, gauges and all necessary appurtenances, shall be furnished by the Contractor.

F. A leakage test shall be conducted concurrently with the hydrostatic pressure test. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe or any valved section thereof, to maintain pressure within $\pm$ 5 psig of the specified test pressure, after the air in the pipeline has been expelled and the pipe has been filled with water.

G. Allowable leakage shall be limited to the following formula as set forth in ANSI/AWWA C600, latest revision, or to Table 7 of ANSI/AWWA C600. The maximum allowable leakage shall be the minimum quantity of the two values as determined by the formula or obtained from Table 7. The allowable leakage formula is:

$$L = \frac{SD\sqrt{P}}{133{,}200}$$

in which L is the allowable leakage, in gallons per hour; S is the length of pipe being tested in feet; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch gauge.

H. During the hydrostatic and leakage tests all exposed pipe, fittings, valves, pipe couplings, and the like will be carefully examined. Acceptance of the pipeline shall be determined on the basis of the allowable leakage. If any test of the pipe laid indicates leakage greater than that allowed, the Contractor shall, at his own expense, repair by removing and replacing defective pipe, fittings, valves, pipe couplings, and the like, with materials that are free of defects, after which the pipeline shall be retested. Repair and retesting shall be done until the mains pass the specified test. All visible leaks and cracked pipe, fittings, valves, pipe couplings, and the like shall be repaired or replaced regardless of the amount of leakage.

3-05 FLUSHING OF WASTEWATER FORCE MAINS

A. Following the hydrostatic and leakage tests, all wastewater force mains constructed shall be flushed to remove sand, loose dirt and other debris. Flushing velocity shall be a minimum of 2.5 fps. Flushing shall continue until clean water flows from the force main. However, the Contractor shall endeavor to use the minimum amount of flushing water required to complete the work. Flushing water may be obtained from an approved non-potable water source or potable water may be used with limitations as specified below.

B. Absolutely no direct connections shall be permitted to a potable water system for the purpose of obtaining flushing water for wastewater force mains. Potable water may be obtained for flushing if an approved air gap or certified reduced pressure principle backflow preventer and water meter (for water accountability) are employed. The method and source of water supply for flushing shall be approved by the Engineer and the Company prior to beginning connections or flushing operations.

C. Temporary blowoffs may be required for the purpose of flushing the force main. Temporary blowoffs shall be installed as close as possible to the ends of the force main being flushed. Blowoffs installed on force mains up to and including 8 inch shall be the same diameter as the force main. Blowoffs installed on 10 and 12 inch force mains shall be 8 inches in diameter. Blowoffs for force mains larger than 12 inches shall be 10 inches in diameter. Temporary blowoffs shall be removed and plugged after the main is flushed.

D. The Company shall be notified at least 72 hours prior to flushing wastewater force mains.

E. Blowoffs and drainage piping used for flushing shall not be discharged to any wastewater gravity sewer or pumping station wet well. The Contractor shall obtain prior approvals from the Engineer and all appropriate regulatory agencies as to the methods and locations of flushing water discharge.

3-06 OBTAINING POTABLE WATER FOR TESTING AND FLUSHING

A. The potable water supply shall be protected with an air gap or a certified reduced pressure principle backflow preventer and water meter (for water accountability) approved by the Company.

B. Payment of Water Used for Company Contract Work:

1. The Contractor shall provide all labor, equipment and materials necessary to install a water meter connection for the measurement of water required for testing. The Company will then supply and

set the meter. The Company will provide the water free to the Contractor for one hydrostatic pressure and leakage test, and one final flushing for each force main constructed. If any test fails, additional water will be charged at the currently approved Company rates for General Service during the time of testing.

C. Payment of Water Used for Developer Constructed Force Mains:

1. To obtain water service during construction, the Developer's Contractor shall be required to install a temporary construction water service, complete with a meter setting and an approved certified backflow prevention device. The construction meter will be supplied and set by the Company. All other piping, fittings, backflow preventer and appurtenances required for the temporary construction water service shall be supplied by the Developer's Contractor.

2. Prior to installation of a temporary construction water service, the Developer's Contractor shall be required to request and apply for the service at the local Company office. A service account will be set up for the temporary water service and all charges for water used and services rendered by the Water Utility Company will be billed to the Developer's Contractor at the currently approved rates. All outstanding charges shall be paid to the Company prior to acceptance of the system by the Company.

3. The Developer's Contractor shall notify the Water Utility Company at least 72 hours in advance of the time the Contractor desires to remove the temporary water service, so that the Company may remove the temporary construction meter.

3-07 OPERATION OF EXISTING VALVES AND PUMPING STATIONS

A. Operation of all water and wastewater system valves and wastewater pumping stations on existing Company systems shall be the responsibility of Company personnel only. At no time shall the Contractor operate any system valves or wastewater pumping stations. System valves shall be defined as any valve which has main pressure against either side of the valve. Newly installed tapping valves and control valves to networks not yet accepted for service are considered as system valves. Valves within a network still under construction are not considered as system valves.

B. The Contractor shall notify the Company to request a valve or a pumping station be operated. Valve and pumping station operations are made by appointment only and appointments shall be made at least 72 hours prior to the time the Contractor requires the valve or pumping station to be operated. When notifying the Company for appointments, the Contractor shall give the following information:

1. Name of person calling and telephone number
2. Name of the Contractor
3. Location of the project
4. The time requested for valve or pumping station operation

3-08 CONNECTIONS TO EXISTING WASTEWATER SYSTEMS

A. The Contractor shall coordinate making connections to an existing wastewater system which is in service at the time of construction, with the Company.

B. Connection to Existing Wastewater Systems for Company Contract Work. The Contractor shall not connect to an existing Company gravity wastewater main, manhole, wastewater pumping station or wastewater force main unless the Engineer and a representative of the Company are present. The Contractor shall notify the Engineer and the Company at least 72 hours prior to the time the Contractor desires to connect to an existing wastewater gravity sewer, force main, manhole, or pumping station. When notifying the Company, the Contractor shall give the following information:

1. Name of person calling and phone number
2. Name of the Contractor
3. Location of the Project
4. The time requested for connection to an existing wastewater system

C. **Connection to Existing Wastewater System by Developers. The following shall apply to Developers and their Contractors for connection to an existing Company gravity sewer main, manhole, wastewater pumping station or wastewater force main.**

1. **Absolutely no tap or connection shall be made to an existing wastewater system unless. The new system has been designed and constructed to the Company specifications and the system has been inspected, approved and accepted by the Company; the Developer's Engineer has certified the system as being complete; and the system has been approved by the Florida State Department of Health, the Florida Department of Environmental Protection and all other affected state and local regulatory agencies.**

2. When all required documents and approvals have been received by the Company, the Company will then issue a letter of acceptance and the service may be provided by the Company. The Developer's Contractor's warranty period will begin on the date of the letter of acceptance. The Contractor shall not connect to an existing Company wastewater system unless the Developer's Engineer and a representative of the Company are present. The contractor shall notify the Engineer and the Company at least 72 hours prior to the time. The contractor desires to connect to the existing wastewater system. When notifying the Company, the Contractor shall give the following information:

   a. Name of person calling and telephone number
   b. Name of Contractor
   c. Name and location of the Project
   d. The time requested for connection to an existing wastewater system

END

SECTION 17402

GRAVITY WASTEWATER SEWERS - GENERAL

PART 1 - GENERAL

1-01 DESCRIPTION

A. Gravity sewers, manholes, fittings and manhole stub-outs shall be provided as shown on the drawings and specified herein. Attention is called to the combination of pipe and joints which are specified separately but which are to be supplied integrally as pipe fittings with factory fabricated joints.

1-02 SUBMITTALS

A. Submit copies of certified certificates verifying conformance to the specified factory test.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3-01 APPROVAL OF MATERIALS

A. Pipe and fittings shall be tested by an independent laboratory at the factory as required by the standard specifications under which the pipe is manufactured.

3-02 EXCAVATION, TRENCHING AND BACKFILLING FOR GRAVITY SEWERS

A. Shall be in accordance with Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES, and in accordance with the specification section for the particular material of sewer pipe installed.

B. All gravity wastewater sewer lines shall be installed with a 4-foot minimum cover.

3-03 LAYING PIPE

A. Pipe laying shall commence at the lowest end of the system and proceed upgrade with the spigot ends of bell and spigot pipe pointing in the direction of the flow. Each pipe shall be laid true to line and grade and in such manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets of the flow lines. As the work progresses, the interior of the sewer shall be cleared of dirt and superfluous materials. Except where authorized, trenches shall be kept completely free from water until the pipe jointing and jointing inspection are completed. At all times when work is not in progress, open ends of pipe and fittings shall be securely plugged so that water, earth or other substances will not enter pipe or fittings.

B. Gravity pipe line shall be one C900 DR14 over or under drainage piping when the vertical separation is less than 3'-0". The PVC pipe shall also be extended a minimum of 5'-0" from either side of the drain line.

3-04 FIELD TESTING

A. Joints: Shall be left exposed following makeup for visual inspection to show that the pipe is fully seated and the bell is not cracked.

B. Alignment: Following placing of one foot of tamped backfill cover, the pipe shall be sighted between successive manholes to insure proper grade and alignment. This work shall be performed in the

presence of the Engineer and a representative of the Company. Upon examination from either end of the sewer line section, a full circle of light shall be visible from the viewed end. Any section which does not pass the alignment test shall be repaired, or removed and relaid at no additional cost to the Owner, until the section passes the test.

C. Infiltration/Exfiltration Test: Leakage into or out of the sewer shall not exceed a rate of 50 gallons per day per inch of diameter per mile of sewer for any section of sewer line. Sections tested for infiltration/exfiltration shall not exceed 1000 feet in length for any one test. The infiltration/exfiltration test shall be performed in the presence of the Engineer and a representative of the Company. When infiltration/exfiltration exceeds the amount specified above, the sewer line shall be repaired or taken up and relaid at no additional cost to the Owner. This testing and correction procedure shall be repeated until the sewer line passes the infiltration/exfiltration test.

1. Infiltration Test: When sewers are constructed in an area where annual groundwater elevations do not fluctuate significantly, i.e., more than one to two feet between high and low groundwater elevations, the sewer may be tested for water-tightness by measuring infiltration into the sewer line. Sections of the sewer system upstream of the section being tested shall be plugged off, prior to beginning the test. Groundwater infiltration shall be measured by means of a calibrated V-notch, sharp crested weir in a rigid sealed frame of the correct size for the sewer pipe being tested. When installed in the sewer pipe, the frame shall completely seal against the pipe such that no leakage can occur between the weir frame and the pipe wall. The weir shall be read only after flows have stabilized in the opinion of the Engineer and the Company Representative.

2. Exfiltration Test: In lieu of the infiltration test or when sewers are constructed in areas where annual groundwater elevations fluctuate significantly, the sewer shall be tested for water-tightness by using the exfiltration test. For this test, the section of the sewer line being tested shall be plugged on the upstream side of successive manholes and with all service connections plugged or capped. The line shall be filled from the upstream manhole with water to a depth of 2 feet or more above the top of the pipe or to a depth equal to the high groundwater elevation during the wet season normally experienced in the area being tested, whichever is greater. The trench excavation shall remain dewatered as required throughout the test. The water level in the sewer section being tested shall be allowed to stabilize a minimum of one hour before beginning the test. Following the one hour stabilization period, water loss shall be measured from the upstream manhole for a test period of two hours. The loss of water form the section being tested shall not exceed the rate of 50 gpd/in-mi.

3-05 CLEANING AND VIDEO INSPECTION

A. Upon completion of testing for the sewer system, sewer lines shall be flushed to remove dirt, sand, stones and other debris which may have entered the lines during construction and settled out in the lines and manholes. Material and debris flushed from the sewer line shall be removed from a downstream manhole and disposed of at an approved disposal area. Section 17410 CLEANING OF WASTEWATER COLLECTION SYSTEM, shall be followed for this cleaning operation.

3-06 SERVICE LATERAL MARKERS

A. Single and double service laterals for building sewer connections shall be marked with an electronic marker. The electronic marker shall be an EMS Mini-Marker or an EMS Full Range Marker as manufactured by Automation Products Company, Austin, Texas. The color of the electronic marker for sanitary sewer service laterals shall be green. The marker shall be buried from one to two feet below finished grade over the end of the plugged service lateral.

3-07 SEPARATION OF WATER AND SEWER LINES

A. Sewer lines shall be installed with at least a 10 foot horizontal separation between the sewer line and any water main. At crossings, the installation shall provide for a minimum vertical separation distance of 18 inches between outside of the crossing wastewater sewer line and water main. This separation

shall be provided where the sewer line is either below or above the water main. When the 18 inch minimum vertical distance cannot be maintained, the mains shall be encased in concrete as detailed on drawings, or the wastewater sewer line and water main shall both be constructed with 20-foot lengths of ductile iron pipe at the crossing, with the pipe ends located equidistant from the crossing point.

3-08 CONNECTIONS TO EXISTING LINES

A. The Contractor shall coordinate making connections to existing sewer lines, which are in service at the time of construction, with the Company.

B. Connection to Existing Wastewater Systems for Company Contract Work: The contractor shall not connect to an existing Company gravity sewer main, manhole, wastewater pumping station or wastewater force main unless the Engineer and a representative of the Company are present. The Contractor shall notify the Engineer and the Company at least 72 hours prior to the time the Contractor desires to connect to an existing wastewater gravity sewer, manhole or pumping station. When notifying the Company, the Contractor shall give the following information:

1. Name of person calling and phone number
2. Name of the Contractor
3. Location of the Project
4. The time requested for connection to an existing system.

C. Connection to Existing Wastewater Systems by Developers: The following shall apply to developers and their Contractors for connection to an existing Company gravity sewer main, manhole, wastewater pumping station or wastewater force main.

1. Absolutely no tap or connection shall be made to an existing wastewater system unless: The new system has been designed and constructed to the Company specifications and the system has been inspected, approved and accepted by the Company; the Developer's Engineer has certified the system as being complete; and the system has been approved by the Florida State Department of Health, the Florida Department of Environmental Protection and all other affected state and local regulatory agencies.

2. When all required documents, approvals, and fees have been received by the Company, the Company will then issue a letter of acceptance and service may be provided by the Company. The Developer's Contractor's warranty period will begin on the date of the letter of acceptance. The Contractor shall not connect to an existing Company wastewater system unless the Developer's Engineer and a representative of the Company are present. The Contractor shall notify the Engineer and the Company at least 72 hours prior to the time the Contractor desires to connect to an existing wastewater system. When notifying the Company, the Contractor shall give the following information:

    1. Name of person calling and phone number
    2. Name of Contractor
    3. Name and location of the Project
    4. The time requested for connection to an existing wastewater system.

END

SECTION 17403

DEFORMED - PIPE LINING INSTALLATION

Part 1 - GENERAL

1-01 SCOPE OF WORK

A. The intent of the deformed - pipe lining installation is to rehabilitate wastewater collection systems by installing a deformed polyethylene pipe into the existing wastewater collection system. This pipe is processed through a heat / pressure procedure to create a new pipe within the old pipe. The installed pipe should extend from one manhole to the next in a continuous, tight-fitting, watertight pipe-within-a-pipe.

1-02 RELATED WORK

A. Section 17411 " Cleaning of Gravity Collection Systems"

B. Section 17405 "TV, Video Tape, and Inspection of Wastewater Collection Systems"

Part 2 - MATERIALS

A. The deformed-pipe liner shall be a smooth liner of high density polyethylene or approved equal. The liner shall be U-LINER, AM Liner, or approved equal.

B. The liner shall be properly sized to the diameter of the wastewater pipe and the length of the system to be rehabilitated. The material thickness shall conform to a minimum SDR 26.

The cured pipe material shall conform to the minimum structural standards listed below.

Cured Pipe Material Test:	Standard	Results
Tensile Stress	ASTM D-638	3000 psi
Flexural Stress	ASTM D-790	3000 psi
Modules of Elasticity	ASTM D-790	300000 psi

C. The Owner may at the expense of the contractor, have the Contractor furnish, prior to use of the materials, satisfactory evidence from an approved testing laboratory that the proposed materials conform with these specifications. Any material failing to meet any of the requirements of this specification shall be rejected.

PART 3 - EXECUTION

3-01 PREPARATORY PROCEDURES

A. The following preparatory procedures shall be adhered to unless otherwise approved by the OWNER's Representative.

1. Prior to any pipe installation in wastewater collection a designated wastewater line the CONTRACTOR shall clean the wastewater collection system as specified.

2. Inspection of the wastewater collection system shall be performed by experienced personnel specially trained in locating breaks, obstacles, and lateral connections by closed-circuit television. The interior of the wastewater collection system shall be carefully inspected to determine the location and extent of any structural failures. The locations of any conditions that may prevent proper installation shall be noted so that such conditions can be corrected.

3. The CONTRACTOR shall bypass the wastewater around the section or sections of wastewater line that are to be rehabilitated. The bypass shall be made by plugging an existing upstream manhole and pumping the wastewater into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow.

4. It shall be the responsibility of the CONTRACTORS to clear the line connections, or collapsed pipe that will prevent installation. If inspection reveals an obstruction that cannot be removed by conventional wastewater cleaning equipment, the CONTRACTOR shall make an excavation to expose and remove or repair the obstruction. Such excavation shall be approved in writing by the OWNER's Representative prior to the commencement of the work and shall be considered as a pay item. If the obstruction or obstructions could have been removed by bucket machines or swabbing using conventional cleaning methods, no pay item will be granted

3-02 INSTALLATION PROCEDURES

A. The CONTRACTOR shall designate a location to store and set-up the coil of deformed pipe and the various equipment for the installation. The CONTRACTOR shall make the coil of pipe available for the OWNER's inspection.

B. After the deformed pipe is positioned correctly, both ends are heated with a heating funnel to facilitate the insertion of processing manifolds. Temperature and pressure sensing devices shall be installed at the upstream and downstream manholes, per the MANUFACTURER's specifications, to monitor the temperature and the pressure within the pipe.

C. The temperature and pressure is increased within the liner pipe by the circulation of steam. This will be accomplished in several phases, each phase having increased pressure and temperature. At the last phase of this process, the average temperature in the liner shall be the crystalline temperature (213 degrees c). This last phase shall be maintained for approximately 30 minutes, per the MANUFACTURER's specifications.

D. The CONTRACTOR shall cool the liner by means of circulating pressurized air and then by circulating water through the new pipe. The pipe will be slowly cooled until stabilized by decreasing the pressure and removing the manifolds.

3-03 SEALING PIPE

A. The installed pipe shall be sealed at all manholes and lateral connections.

B. After curing (and the pressure test specified below), the CONTRACTOR shall reinstate the existing lateral connections designated by the OWNER. This shall be done from the interior of the pipe by means of a television camera and a cutting device that reinstates the lateral connections to not less the 95 percent of their original area.

3-04 FINAL ACCEPTANCE

A. The finished pipe shall be continuous over the entire length of an inversion run between two manholes and be free from significant defects. Any defects in the integrity or strength of the pipe shall be repaired at the CONTRACTOR's expense, in a manner mutually agreed upon in writing by the OWNER and the CONTRACTOR.

B. After the installation procedures have been performed and curing is complete, but before any service connections are reinstated, the CONTRACTOR shall conduct a pressure test on the wastewater collection system to determine if it is watertight.

C. The test shall be conducted by using the existing manifolds and gauges. The test time & pressure shall be 5 minutes and 7 psi respectively during which time pressure will be added to the pipe. If at

the end of test period no pressure loss is observed, the water tightness of the new pipe will be considered satisfactory.

D. After the work is completed, the CONTRACTOR will provided the OWNER with a video tape showing both the before and after conditions, including the reinstated laiteral connections.

3-05 CLEAN UP

A. After the installation work & testing has been completed, the CONTRACTOR shall clean up the entire project area. All excess material and debris not incorporated into the installation shall be disposed of by the CONTRACTOR.

END

SECTION 17405

TV, VIDEO TAPE AND INSPECTION OF WASTEWATER COLLECTION SYSTEMS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish all labor, tools, test equipment and materials, including any and all permits required to television inspect, video tape, still photograph and document gravity wastewater collection systems.

1-02 QUALITY ASSURANCE

A. As part of the contract documents, the Contractor shall provide a minimum of three (3) references proving competence in the field of TV/video inspection of wastewater collection systems.

B. Contractor shall do all work with the Owner's representative present. Contractor shall schedule all work with Owner's representative.

C. Equipment used shall be in good working order and provide continuous operation during TV/video tape inspection.

D. VHS video tapes shall be of good visual quality capable of slow motion and pausing without significant reduction of visual quality.

1-03 SUBMITTALS

A. Contractor shall submit to the Owner a list of equipment, materials and personnel to be used on the project including all permits obtained prior to commencing with the work.

B. Contractor shall submit to the Owner a copy of television inspection log sheet..

PART 2 - MATERIALS

A. General - Equipment used shall be designed for use in gravity wastewater collection systems. Contractor has the option of an approved equal device or other material than that which is specified. Submittals are required prior to commencement of work.

B. Television Camera - Camera used shall be 360 degree COLOR RVC camera. Camera shall be operative in 100% relative humidity and be specifically designed for the environment. Camera shall have a integral lighting system capable of producing clearly focused, well defined images of the entire periphery of the pipe. The quality of video provided shall be to the satisfaction of the Owner.

C. Monitor - A high resolution TV monitor screen shall be used. Quality of monitor shall be to the satisfaction of the Owner.

D. Video tape equipment shall be furnished to provide a visual and audio recording of all areas in the pipe. Video tape system at site shall be capable of rewind, play back, slow motion and stop motion. Video tape shall be ½" color VHS. The video tape shall have an audio channel for clearly recording the camera locations and operator observations (cracks, leaks, service connections, etc.). The system shall continuously indicate distance, in feet, from manhole to manhole and the manhole to manhole run numbers.

E. System Capability - The Contractor shall demonstrate the ability of the TV/video equipment (camera/light/video tape/audio/ photograph system) to the satisfaction of the Owner.

F. Winches - Variable speed powered remote controlled winches shall be furnished for upstream and downstream manhole locations to control two-way movement of the camera. If a self-propelled camera is used winches are not necessary.

G. Distance meter shall be furnished on the video tape. Meter shall be checked using distances between manholes. Meter distances and actual distances shall be consistent.

H. Power supply shall be continuous. If night operations occur, Contractor shall supply all labor, power and lighting equipment for operations, traffic safety, permits, etc.

PART 3 - EXECUTION

A. Construction conferences shall be held in accordance with specification 01200, Project Meetings, and the Contract Documents.

B. Inspection shall be done one manhole section at a time. Flow into the section being inspected shall be stopped prior to video inspection. Contractor shall not begin inspection without the Owner's representative present unless prior written approval is obtained from the Owner. Contractor can proceed with pressure cleaning without the owners representative present. (Specification 17411 Cleaning of Wastewater Collection Systems).

Contractor shall locate video vehicle on upstream side of manhole. Contractor shall always video tape in the downstream direction such that camera movement is with the flow.

Contractor shall insert the camera in the upstream manhole after flow restrictions required have been accomplished. Flow into the system being inspected shall be stopped with the exception of service laterals into the system being inspected. Camera shall be moved through the pipe lines at a moderate speed not exceeding 30 feet per minute. Camera shall be stopped at locations where one or more of the following conditions is observed:

1. Infiltration/inflow scurces.

2. Service Laterals.

3. Structural defects including broken pipe; collapsed or collapsing pipe, cracks, deterioration, punctures, etc.

4. Abnormal joint conditions such as misalignments, open joints and joints not sealed.

5. Unusual conditions such as root intrusion, protruding pipes, in-line pipe size changes, mineral deposits, grease and obstructions.

Camera shall be stopped long enough for a thorough visual inspection of the condition. All such conditions as specified above shall be audio recorded on video tape and the inspection log sheet. The camera shall be moved and rotated to obtain optimum view of the condition. If requested by the Owner's representative, problem areas shall be viewed in the opposite direction by pulling the TV camera from the opposite direction at no additional cost to the Owner.

While the camera is stopped at each service connection, the camera shall be rotated so as to be able to view the service connection for a length of time that enables a good visual inspection of the service connection for damage and infiltration.

When, during the inspection operation, the television camera will not pass through the entire manhole to manhole section, Contractor shall set up his equipment so that the inspection can be performed from the opposite manhole at no additional cost to the Owner.

In addition to the designated sections described in the Contract documents, Owner may designate additional sections to be TV/video taped. Contractor shall TV/video tape additional pipe sections of

the wastewater collection system as requested by Owner. The Owner shall designate sections to be TV/video taped. Payment for such shall be in accordance with Section 01152, Measurement and Payment.

C. Documentation - Contractor shall furnish a detailed report and video tapes of the system inspected. The minimum information supplied shall be the following:

1. Name and address of contractor and the Contractor's representative.

2. Name of owner, division name, system(s) inspected, and Owner's representative involved.

3. Log reports:

   a. Log sheet for each section of pipe
   b. Separate line for each deficiency and location
   c. Corresponding video tapes and location on tape.

4. Video tapes shall be labeled with the following information:

   a. System video taped (street name and manhole to manhole numbers) and log report number corresponding to video tape
   b. Date video was taped
   c. Contractor's name and representative
   d. Owner's name, address, and division name

All tapes shall be rendered unable to be taped over after they are completed.

D. Maintenance of traffic - Contractor shall be responsible for all maintenance of traffic around the inspection area. Contractor shall maintain traffic in accordance with all federal, state and local regulations at no additional cost to Owner. Contractor shall submit a maintenance of traffic plan prior to commencing construction. Contractor shall obtain all necessary permits prior to commencing construction at no additional cost to Owner.

END

SECTION 17406

SMOKE TESTING for WASTEWATER COLLECTION SYSTEM

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish all labor, tools, test equipment and materials, including permits, required to smoke test and video tape the designated systems.

B. Provide all labor and materials for notices and notifications to affected customers, and appropriate public and/or private agencies.

1-02 QUALITY ASSURANCE

A. As part of the contract documents contractor shall provide a minimum of three references proving competence in the field of smoke testing.

B. Contractor shall do all testing with Owner's representative present. Contractor shall confirm with Owner's representative all notifications of appropriate agencies in writing.

C. Equipment used shall be in good working order and provide continuous operation during testing.

D. All smoke bombs used shall not be more than 6 months old and have been stored according to the manufacturer's specifications.

1-03 SUBMITTALS

A. Contractor shall submit to the Owner a list of equipment, materials and personnel to be used on the project including all permits obtained prior to commencing with the testing.

PART 2 - PRODUCTS

A. Smoke Bombs shall be manufactured by Superior Signal Company, Inc., W. Greystone Road, Spotswood, New Jersey, Phone: (908) 251-0800 or approved equal.

PART 3 - EXECUTION

A. A preconstruction conference shall be held in accordance with specification #01200, PROJECT MEETINGS.

B. Notifications - Contractor is responsible for and shall notify all agencies involved (fire department, police, etc.) and notify all affected homeowners. In the test area, homeowners shall be notified in the following manner:

1. 48 Hour Notification - Door Hangers
2. Verbal notification to homeowner and the leaving of notices explaining smoke testing, time, and dates.

Fire Department and Police Department shall be notified in the following manner:

1. 48 hours prior to any work they shall be given an itinerary indicating dates and locations in which work will be done in for the complete project.
2. 24 hour notice of where the contractor will be working
3. Morning notification of areas in which the contractor will be working in

All notification shall be done and reviewed with inspectors prior to commencing work. Contractor is liable for any and all expenses incurred by improper notification of local, county, state or federal agencies.

C. Smoke testing of systems - The Contractor shall smoke test all sections of the specified collection systems. Smoke testing shall test no more than two (2) consecutive sections at one time.

Contractor shall only work on dry weather days. Under no circumstances shall smoke testing be done under rainy conditions. Delays/postponements due to rain are the Contractor's responsibility and no additional payment will be made for these delays.

Smoke blowing machine shall be capable of a minimum of 1700 cubic feet per minute. Smoke blower shall create a complete seal around the manhole into which it is discharging. Blower shall operate continuously prior to, during, and until the test is complete. If blower ceases operating during the test, the Contractor shall retest that section at no additional cost to the Owner.

Contractor shall use a minimum of two (2) 3-minute bombs for every two (2) M/H segments of pipe. If only one segment is tested then only one (1) 3-minute bomb is required. Smoke bombs shall be suspended above the bottom of manhole by quick clips or a perforated bucket. All smoke bomb debris shall be removed from the manhole and site after the test is complete. If a smoke bomb fails to ignite, the Contractor shall retest the sections at no additional cost to the Owner.

Contractor shall seal upstream and downstream manholes of test area. Sealing procedures shall be approved prior to smoke testing. NASSCO standards for smoke testing shall be followed.

D. Videotaping of smoke testing - Contractor shall color video tape, with a ½" color VHS system, all areas during smoke testing. Contractor shall indicate on tape the address and location of damage. Each system will have its own video tape. Video tapes shall be labeled with the following information:

1. System Tested
2. Date Tested
3. Contractor Name and Contractor's Manager
4. Owner's name, address and Owner's representative for the job.

All tapes shall be rendered unable to be taped over after they are completed. Owner's representative shall be present during all smoke testing and approve all videotaping techniques. Taping shall be complete and to the satisfaction of the Owner's representative.

E. Final report - Contractor shall supply a final report, the contents of which at a minimum shall contain the following:

1. Dates of tests and locations by street names, manhole numbers, and division name in which smoke testing was performed.
2. Locations of all suspected problems identified by the testing. These locations shall be referenced to the video tape using manhole number and customer address.
3. Any incidents with customers, local and state agencies.
4. List of equipment used.

Contractor shall supply three (3) originals of the final report. The final report shall be typewritten and bound in a professional manner.

F. Maintenance of traffic - Contractor is responsible for all maintenance of traffic around the smoke testing area. Contractor shall maintain traffic in accordance to all state, local and federal regulations at no additional cost to Owner. Contractor shall submit a maintenance of traffic plan prior to commencing testing. Contractor shall obtain all necessary permits prior to commencing testing at no additional cost to Owner.

G. Liability for Smoke Damages - Contractor is responsible for any and all smoke damage and/or injury done during testing. Contractor shall provide damage and liability insurance per the Supplementary Conditions of the Contract. Contractor shall also indemnify and hold harmless the Owner in the event of any smoke damage and/or any damage or injury related to or caused by the smoke testing.

END

SECTION 17407

DUCTILE IRON PIPE AND FITTINGS FOR WASTEWATER

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, place, joint and test all ductile iron pipe, CL53 fittings, specials and appurtenances as shown on the drawings and as specified herein.

1-02 QUALITY ASSURANCE

A. Ductile iron pipe and ductile iron fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured.

1-03 SUBMITTALS

A. Submit manufacturer's Certificates of Inspection, descriptive literature, illustrations, specifications, installation instructions and related information.

PART 2 - PRODUCTS

2-01 PIPE

A. Ductile iron pipe shall conform to the requirements of ANSI/AWWA C151, latest revision, minimum thickness Class 52, a rated water working pressure of 250 psi, and shall be furnished in laying lengths of 20 feet or less, unless specifically shown otherwise on the drawings. The thickness class for flanged pipe designed for buried or above ground service shall be Class 53. Pipe shall be coated and lined as specified below.

2-02 FITTINGS

A. Fittings and special castings shall conform to the type of pipe being installed and shall have a minimum working pressure of 250 psi. Fittings shall be ductile iron and shall conform to ANSI/AWWA C110, latest revision, and ANSI/AWWA C111, latest revision for flanged and mechanical joint pipe. Fittings 12 inches and smaller in diameter shall be short body pattern, unless the drawings specifically call for long body fittings. Long body fittings shall be used where called for and for sizes 14 inches and larger or, when the laying length is not controlled by short body patterns. Fittings shall have joints that match the type of pipe furnished except ductile iron push-on joint pipe, which shall have mechanical joint fittings unless otherwise specified. Fittings shall be coated and lined as specified below.

2-03 JOINT AND JOINTINGS

A. General. The type of joint shall conform to the requirements of the pipe and fittings used, the laying conditions and service required. Joints shall be suitable for raw wastewater service.

B. Mechanical Joints. Jointing materials for mechanical joints shall be provided by the pipe and fitting manufacturer. Material assembly and bolting shall be in strict accordance with ANSI/AWWA C111, latest revision. Tee head bolts and nuts for mechanical joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan or an equal approved by the Engineer.

C. Push-on or Slip Joints. Pipe using push-on or slip joints shall be in strict accordance with ANSI/AWWA C111, latest revision, and shall be as manufactured by United States Pipe Company (Tyton Joint), James B. Clow and Sons (Bell Tite Joint), American Cast Iron Pipe Company (Fastite

Joint) or equal. Jointing materials shall be provided by the pipe manufacturer and installation shall be in strict accordance with the manufacturer's recommended practice.

D. Flanged Joints. Flanges shall be American Standard for 125 pound steam pressure with any special drilling and tapping as required to insure correct alignment and bolting. Gaskets shall be rubber full face type, cloth inserted, minimum thickness of 1/8 inch. Flanged joints shall be made with bolts and nuts, studs with a nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same American National Standard as the flanges. Bolts and nuts shall be type 304 stainless steel.

E. Restrained Joints. Where indicated on drawings, to prevent pipe joints and fittings from pulling apart under pressure, pipe joints and fittings shall be restrained as specified below:

1. Manufactured Restrained Joints. Manufactured restrained joints shall be Tyton Joint with field-lok gasket system for 4" - 12" and TR FLEX pipe and fittings for 14" - 54" as manufactured by U.S. Pipe Company, Lok-Fast Type manufactured by the American Cast Iron Pipe Company or approved equal. Joints shall be manufacturer's standard specially modified push-on type joints with joint restraint provided by ductile iron retainer rings joined together by corrosion resistant, tight strength steel tee head bolts and nuts. Restrained push-on pipe and fittings shall be ductile iron only and shall comply with applicable portions of this specification. Manufactured restrained joints shall be capable of deflection during assembly. Deflection shall not exceed 75% of the manufacturer's recommendations. Tee head bolts and nuts for restrained joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion restraint steel as manufactured by NSS Industries, Plymouth, Michigan, or an equal approved by the Engineer.

2. When prior approval is obtained form the Engineer, ductile iron pipe and fittings may be restrained using tieboit joint restraint. Joint restraint materials for this method of restraint shall be Mega-Lug EBBA Iron or an equal approve by the Engineer. All bolts, nuts, washers, tie rods and other fasteners for the joint restraint system shall be manufactured of CORTEN high strength, low alloy, corrosion resistant steel in conformance with ASTM A 242. Tie bolts shall be manufactured of heat treated CORTEN steel. Tie rods shall have a minimum diameter of 3/4 inch. Prior to backfilling all parts of the joint restraint system shall be coated with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M or equal.

2-04 NON-STANDARD FITTINGS AND WALL CASTINGS

A. Fittings having non-standard dimensions and cast especially for this project shall be of an approved design. Fittings shall be manufactured to meet the requirements of the same specifications and shall have the same diameter and thickness as standard fittings, but laying lengths and types of ends shall be determined by positions in the pipelines and by the particular piping to which it is connected. Flange facing and drilling shall conform to the 125 pound American National Standard. Where required, flanges shall be drilled and tapped for studs. Other dimensions shall be substantially equal to corresponding parts of standard bell and spigot fittings. Wall castings shall be of the sized and types indicated on the drawings. Where indicated, a central fin not less than ½ inch thick of the same diameter as a flange shall be cast midway of the length to form a waterstop.

2-05 COATINGS AND LININGS

A. Exterior Coating. Ductile iron pipe, fittings and specials to be installed underground in soil or rock area, shall be coated on the exterior with 40 mils of bituminous coal tar. All clamps, bolts, nuts, studs and other uncoated parts of joints for underground installation shall be coated with coal tar epoxy prior to backfilling. Coal tar epoxy shall be equal to or Kop-Coat Bitumastic No. 300-M or equal.

B. Exterior Coating. Ductile iron pipe, fittings and specials to be installed in a submerged or intermittently submerged in wastewater, including all surfaces within 8' of the high water level and all surfaces inside enclosed hydraulic structures, tanks, vaults and treatment units and all surfaces of valves, couplings and pumps not fusion bonded epoxy coated shall be coated with a min. 40 to 60 mils DFT of a 100% solid epoxy unless specified elsewhere or on the drawings. All connection hardware shall

be 304 SS and not coated unless otherwise noted. All other wastewater piping and fittings in areas not listed above, shall be coated per FCWC specification 09900.

C. Interior Lining. All ductile iron pipe, fittings and specials for wastewater service shall be lined with a minimum 40 mils high build multi-component lining such as Amine cured Novalac Epoxy. Lining shall cover the interior surface of the pipe or fitting from the plain or beveled end to the rear of the gasket socket. The lining shall be Protecto 401 lining as manufactured by U.S. Pipe and Foundry Company or an equal approved by the Engineer. Any request for substitution must meet the following criteria and be accompanied by:

1. The permeability rating when tested according to Method A of ASTM E-96-66, Procedure A with a test duration of 42 days as reported by an independent laboratory.

2. A statement from the manufacturer of the submitted material attesting to the fact that at least 20% of the volume of the lining contains ceramic quartz pigment.

3. A laboratory report containing test data for Immersion in Acids, Bases, and Deionized Water at elevated temperatures using ASTM-D 714-56 (1974) for the rating method. The report should also contain data on ASTM D-2794 Direct Impact and ASTM-G 53-77 Moisture and Ultraviolet Light Exposure.

D. Touch-up and repair: Protecto Joint Compound shall be used for touch-up or repair. Procedures shall be in accordance with manufactures's recommendations. All freshly cut pipe shall be coated with the above compound and dried prior to installation.

2-06 PIPING SUPPORTS

A. Furnish and install supports necessary to hold the piping and appurtenances in a firm, substantial manner at the lines and grades indicated on the drawings or specified. Piping within structures shall be adequately supported from floors, walls, ceilings or beams. Supports from the floor shall be by approved saddle stands or suitable concrete piers as indicated or approved. Pipe saddles shall be shaped to fit the pipe with which they will be used and shall be capable of screw adjustment.

B. Concrete piers shall conform accurately to the bottom 1/3 to ½ of the pipe. Piping along walls shall be supported by approved wall brackets with attached pipe rolls or saddles or by wall brackets with adjustable hanger rods. For piping supported from the ceiling, approved rod hangers of a type capable of screw adjustment after erection of the pipeline and with suitable adjustable concrete inserts or beam clamps shall be used. If required, piping supports shall be placed so as to provide a uniform slope in the pipe without sagging. Supports shall be located wherever necessary, and in no case shall they exceed 8 feet on centers.

PART 3 - EXECUTION

3-01 HANDLING AND CUTTING PIPE

A. Care shall be taken in handling, cutting and laying pipe and fittings to avoid damaging the pipe, scratching or marring machined surfaces, and abrasion of the pipe coating. All cracked pipe and fittings shall be removed at once from the work at no additional cost to the Owner.

B. Pipe cutting shall be done in a neat workmanlike manner without creating damage to the pipe or pipe lining. Ductile iron pipe may be cut using an abrasive pipe saw, rotary wheel cutter, guillotine pipe saw, or milling wheel saw. Cut ends and rough edges of ductile iron pipe shall be ground smooth. For push-on joint connections the cut end shall be beveled to prevent gasket damage during joint assembly.

3-02 LAYING PIPE AND FITTINGS

A. **Excavating, Trenching and Backfilling: Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES.**

1. **Bedding for Ductile Iron Pipe. Minimum laying requirements shall be Type 2 as defined in ANSI/AWWA C600, latest revision. Provide proper bedding required, in accordance with thickness class of pipe being laid and depth of cover. Proper pipe laying conditions shall be in accordance with ANSI/AWWA C150 and C151, latest revisions, and ANSI/AWWA C600, latest revision.**

B. All ductile iron pipe and fittings shall be laid in accordance with American Water Works Association Specification ANSI/AWWA C600, latest revision, title "Standard for Installation of Gray and Ductile Cast-Iron Water Mains and Appurtenances", with the following sections specifically applying:

1. Section 3.3 - Pipe Installation

2. Section 3.4 - Joint Assembly

C. Pipe and fittings shall be laid accurately to the lines and grades indicated on drawings or required. Care shall be taken to insure a good alignment both horizontally and vertically and to give the pipe a firm bearing along its entire length. Any pipe which has its grade or joint disturbed after laying shall be taken up and relaid.

D. When the bell and spigot type pipe or similar pipe is laid, the bell of the pipe shall be cleaned of excess tar or other obstruction and wiped out before the cleaned and prepared spigot of the next pipe is inserted. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed. Castings to be encased in masonry shall be accurately set with bolt holes, if any, carefully aligned.

E. All pipe and fittings shall be cleared of sand, dirt and debris before laying. All precautions shall be taken to prevent sand, dirt or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings shall be kept clean after installation until accepted in the complete work.

F. Any time that pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe including standing water, excess mud, or rain.

3-03 JOINTS

A. Machined Surfaces. Machined surfaces shall be cleaned and coated with a suitable rust preventive coating at the shop immediately after being machined.

B. Sleeve Type Couplings. Installation shall be in accordance with the manufacturer's recommendation.

C. Push-on Joints. The Fastite Bell-Tite or Tyton single ring rubber push-on joint shall be installed in strict accordance with the pipe manufacturer's recommendations.

3-04 VALVE INSTALLATION

A. Valves shall be installed on ductile iron wastewater force mains where shown on the drawings. The weight of valves shall not be carried by the pipe. The valve shall be supported by a concrete cradle as shown on the Standard Details. Concrete for the cradle shall be poured against undisturbed soil.

3-05 THRUST BLOCKING

A. Suitable concrete reaction or thrust blocking shall be applied on all pressure pipe lines, except for those having flanged or restrained joints, at all tees, plugs, caps, and at bends deflecting 11-1/4 degrees or more. As an option, at no additional cost to the Owner, pipe movement shall be prevented as specified above in Paragraph 2-03 E., Restrained Joints. Concrete used for thrust blocking shall have minimum compressive strength of 3,000 psi at 28 days. A schedule and details for the required thrust blocks are included on the Standard Details.

B. Both concrete thrust blocks and tie rods must be used when, in the judgement of the Engineer, the nature and criticality of an installation is such as to require positive assurance of stability.

C. Areas where thrust blocks are to be placed shall be hand excavated. Excavation for thrust blocks shall be completed following installation of the pipe and fitting to be restrained. For thrust blocks, hand excavate to undisturbed soil and to the sizes and configurations shown on drawings. Use extreme care following excavation not to disturb soil in the thrust block area, prior to pouring concrete.

D. Each fitting and pipe shall be wrapped with 8-mil thick polyethylene prior to pouring concrete, so that no concrete comes in direct contact with the surface of the fitting or pipe. Concrete shall cure a minimum of 7 days prior to putting the line under pressure. The Contractor shall not backfill around thrust blocks until approval is obtained from the Engineer. Trench shall be dewatered prior to thrust block being poured.

3-06 IDENTIFICATION SYSTEM

A. Polyethylene identification tape shall be installed for all ductile iron wastewater force mains. The identification tape, tape color and imprint legend shall be as specified in Section 17161, IDENTIFICATION TAPE FOR BURIED PIPE. The tape shall be installed in accordance with the manufacturer's installation instructions and with the instructions given in Section 17161 IDENTIFICATION TAPE FOR BURIED PIPE.

B. For wastewater force mains identification tape shall be installed at two depths: directly on top of the pipe and one foot below final grade over the centerline of the pipe.

3-07 PRESSURE TESTING AND FLUSHING LINES

A. All ductile iron pipe installed for wastewater gravity sewers shall be tested for alignment and infiltration/exfiltration, and shall be flushed in accordance with Section 17402, GRAVITY WASTEWATER SEWERS-GENERAL.

B. All ductile iron pipe installed for wastewater force mains shall be hydrostatically pressure tested and flushed in accordance with Section 17400, WASTEWATER FORCE MAINS - GENERAL.

END

SECTION 17408

PRESSURE (CHEMICAL) GROUTING GRAVITY SYSTEMS for REPAIR OF WASTEWATER COLLECTION SYSTEMS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish all labor, tools and materials including permits to chemical pressure grout wastewater collection systems.

1-02 QUALITY ASSURANCE

A. As part of the contract documents, Contractor shall provide a minimum of three references proving competence in the field of chemical pressure grouting.

B. Contractor shall do all grouting with Owner's representative present.

C. Equipment used shall be in good working order and provide continuous operation during sealing and grouting.

D. Contractor shall supply a list of materials to be used. No grout shall arrive on site with more than ½ manufacturer's shelf life expired. All materials shall be in new condition. No materials shall be supplied from a previous job.

1-03 SUBMITTALS

A. Contractor shall submit to the Owner a list of equipment to be utilized. The list shall include descriptions and operational data for all equipment, including but not limited to, the following:

1. Grout Equipment:

    a) Grout injection rig manufacturer
    b) Air Testing Equipment

B. Product Data - Contractor shall supply copies of product information and recommended installation procedures for all materials including:

1. Grout
2. Gel control agent
3. Gel reinforcing agent
4. Root inhibitor

PART 2 - EQUIPMENT

A. Filming equipment shall be in accordance with Specification #17405 TV, VIDEOTAPE AND INSPECTION OF WASTEWATER COLLECTION SYSTEMS.

B. Chemical Grout Equipment

1. Equipment shall be a remote controlled grout injection rig type with inflatable packers at each end and other mechanical devices to accomplish the specified work.

2. Prior to start up, Contractor shall perform test demonstration with the Owner's representative present to verify calibrations of pump pressures and liquid amounts injected per stroke prior to commencing grouting/sealing operations. When found to be inaccurate, Contractor shall

be responsible for making all repairs, replacements and adjustments to make system accurate. Contractor shall retest until the equipment is acceptable to the Owner's representative.

C. Grout Material for injection - The Contractor shall select a polyurethane base gel grout material.

Polyurethane Base Gel shall be easily pumped through the system to be used. Gel shall react quickly in order to seal the joint against infiltrating groundwater and capable of holding groundwater head, pipe movements and wastewater movement. Materials shall be Flex Gel, manufactured by DeNeef, Inc., Avanti AV254, or approved equal. All mixing ratios shall be per the manufacturers specifications.

Contractor can use 5614 manufactured by 3M Corporation or Flex Gel SLV on undamaged joints where only the gasket has been damaged.

Contractor's personnel shall be qualified in use of these materials.

D. Warranty - All joint sealing/grouting work shall be warranted and guaranteed for a period of 18 months after completion. Ninety (90) days prior to expiration of warranty period, the Contractor shall schedule a visual review of repaired area(s) with the Owner. If noticeable degradation of any area(s) has occurred, the Contractor shall repair these areas at no additional cost to the Owner. Owner shall inform the Contractor by certified mail of deteriorated areas and contractor shall repair those areas within two months of receipt. Owner reserves the right to perform or subcontract emergency warranty repairs and bill the Contractor.

PATY 3 - EXECUTION

A. Preconstruction conferences shall be held in accordance with Specification 01200 PROJECT MEETINGS and Contract Documents.

B. Prior to grouting of damaged areas, the Contractor shall clean the wastewater collection system and TV and videotape areas unless a video inspection tape is provided to him by the Owner. Repairs shall begin within seventy (72) hours of pressure cleaning the area to be repaired.

Owner's representative shall designate sections to be repaired. Contractor shall repair any and/or all pipe joint defects, breaks or other portions of the gravity collection system as requested by Owner. Payment for such shall be in accordance with Section #01152, MEASUREMENT AND PAYMENT.

All designated sections shall be sealed by internal chemical grouting method. Methods used shall be approved by the Owner's representative. The TV video system shall be lowered into the manhole carefully to avoid damage to the manhole. The TV and packer assembly shall be pulled down the pipeline and positioned over the faulty joint by means of the measuring device previously used during TV and videotaping. If Contractor did not perform the video taping, Contractor will be supplied the video tape for use in the field. Location of repairs will be indicated by Owner in writing and it is the Contractor's responsibility to properly locate and repair. Once the packer is over the area to be repaired, the packer ends shall be expanded using control pressure. The expanded ends shall seal against the inside periphery of the pipe to form a void at the faulty joint. Contractor shall maintain upstream flows so that void area created will not be disturbed. Sealant materials shall be pumped through the hose system at controlled pressures which are in excess of groundwater pressures. A minimum pressure or 10 psi, without leakage, shall be held on the line during grouting and shall be adjusted upwards to suit the depth of the line to be grouted. The pressure shall not have the capacity to damage the pipe, however, it shall be sufficient to penetrate into the existing soil. Any damage done by the grouting equipment shall be repaired by the Contractor at no additional cost to the Owner. Once grout is injected, Contractor shall move grouting rig backward and forward wiping away excess grout. The TV/ video camera shall then be moved into position to allow suitable inspection. Regrouting of area shall be at the discretion of Owner and at no additional cost to the Owner. Any debris generated shall be collected by the Contractor at the downstream manhole. Disposal of material shall be in accordance with Specification 17411 (CLEANING OF WASTEWATER COLLECTION SYSTEMS). If materials are not removed in sufficient quantities from lines and

begins to accumulate in pump/lift station wet well, the Contractor shall be responsible for cleaning the pump/lift station. The TV/video systems used shall be as per specification 17405 (TV, VIDEOTAPE AND INSPECTION OF WASTEWATER COLLECTION SYSTEMS).

C. Documentation - Contractor shall provide a detailed report of all areas grouted. This report can be combined with the TV and videotape report. The minimum information supplied shall be the following:

1. Name and address of Contractor. Dates and areas (street names and M/H # to M/H #) where grouting was performed.

2. Name of Owner, division name, systems inspected and Owner's representative involved.

3. Log reports.
   a) Log sheet for each section of pipe repaired
   b) Separate line for each deficiency, material used, what was done and location.

D. Maintenance of traffic - Contractor is responsible for all maintenance of traffic around grouting operations. Contractor shall maintain traffic in accordance to all local, state and federal regulations at no additional cost to Owner. Contractor shall submit a maintenance of traffic plan prior to commencing grouting. Contractor shall obtain all necessary permits prior to commencing grouting at no additional cost to Owner.

END

SECTION 17409

DUCTILE IRON PIPE AND FITTINGS FOR TREATED WASTEWATER EFFLUENT PIPELINES

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, place, joint and test all ductile iron pipe, fittings, specials and appurtenances as shown on the drawings and as specified herein.

1-02 QUALITY ASSURANCE

A. Ductile iron pipe and ductile iron fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured.

1-03 SUBMITTALS

A. Submit manufacturer's Certificates of Inspection, descriptive literature, illustrations, specifications, installation instructions and related information.

PART 2 - PRODUCTS

2-01 PIPE

A. Ductile iron pipe shall conform to the requirements of ANSI/AWWA C 151, latest revision, minimum thickness Class 51, a rated water working pressure of 250 psi, and shall be furnished in minimum laying lengths of 18 feet or less, unless specifically shown otherwise on the drawings. Pipe shall be coated and lined as specified below.

2-02 FITTINGS

A. Fittings and special castings shall conform to the type of pipe being installed and shall have a minimum working pressure of 250 psi. Fittings shall be ductile iron and shall conform to ANSI/AWWA C 110, latest revision, and ANSI/AWWA C 111, latest revision, for flanged and mechanical joint pipe. Fittings 12 inches and smaller in diameter shall be short body pattern, unless the drawings specifically call for long body fittings. Long body fittings shall be used where called for and for sizes 14 inches and larger or, when the laying length is not controlled by short body patterns. Fittings shall have joints that match the type of pipe furnished except ductile iron push-on joint pipe, which shall have mechanical joint fittings unless otherwise specified. Fittings shall be coated and lined as specified below.

2-03 JOINTS AND JOINTINGS

A. General. The type of joint shall conform to the requirements of the pipe and fittings used, the laying conditions and service required. Joints shall be suitable for raw wastewater, watertight, pressure service.

B. Mechanical Joints. Jointing materials for mechanical joints shall be provided by the pipe and fitting manufacturer. Materials assembly and bolting shall be in strict accordance with ANSI/AWWA C 111, latest revision. Tee head bolts and nuts for mechanical joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan or an equal approved by the Engineer.

C. Push-on or Slip Joints. Pipe using push-on or slip joints shall be in strict accordance with ANSI/AWWA C 111, latest revision and shall be as manufactured by United States Pipe Company (Tyton Joint), Clow Corporation (Super Bell-Tite Joint), or American Cast Iron Pipe Company (Fastite

Joint) may be used. Jointing materials shall be provided by the pipe manufacturer and installation shall be in strict accordance with the manufacturer's recommended practice.

D. Flanged Joints. Flanges shall be American Standard for 125 pound steam pressure with any special drilling and tapping as required to insure correct alignment and bolting. Gaskets shall be rubber full face type, cloth inserted, minimum thickness of 1/8 inch. Flanged joints shall be made with bolts and nuts, studs with a nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same American National Standard as the flanges. Bolts and nuts shall be type 304 stainless steel.

E. Restrained Joints. Where indicated on drawings, to prevent pipe joints and fittings from pulling apart under pressure, pipe joints and fittings shall be restrained as specified below.

1. Manufactured Restrained Joints. Manufactured restrained joints shall be Tyton Joint with Field-Lok Gasket System for 4" - 12" and TR-Flex Type for 14" - 54" as manufactured by United States Pipe Company, Lok-Fast or Lok-Ring Type manufactured by the American Cast Iron Pipe Company or approved equal. Joints shall be manufacturer's standard specifically modified push-on type joints with joint restraint provided by ductile iron retainer rings joined together by corrosion resistant, high strength steel tee head bolts and nuts. Restrained push-on pipe and fittings shall be ductile iron only and shall comply with applicable portions of this specification. Manufactured restrained joints shall be capable of deflection during assembly. Deflection shall not exceed 75% of the manufacturer's recommendations. Tee head bolts and nuts for restrained joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan, or an equal approved by the Engineer.

2. When prior approval is obtained from the Engineer, ductile iron pipe and fittings may be restrained using tiebolt joint restraint. Joint restraint materials for this method of restraint shall be the MegaLug EBBA Iron or an equal approved by the Engineer. All bolts, nuts, washers, tie rods and other fasteners for the joint restraint system shall be manufactured of CORTEN high strength, low alloy, corrosion resistant steel in conformance with ASTM A 242. Tie bolts shall be manufactured of heat treated CORTEN steel. Tie rods shall have a minimum diameter of 3/4 inch. Prior to backfilling all parts of the joint restraint system shall be coated with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M.

2-04 NON-STANDARD FITTINGS AND WALL CASTINGS

A. Fittings having non-standard dimensions and cast especially for this project shall be of an approved design. Fittings shall be manufactured to meet the requirements of the same specifications and shall have the same diameter and thickness as standard fittings, but laying lengths and types of ends shall be determined by positions in the pipelines and by the particular piping to which it is connected. Flange facing and drilling shall conform to the 125 pound American National Standard. Where required, flanges shall be drilled and tapped for studs. Other dimensions shall be substantially equal to corresponding parts of standard bell and spigot fittings. Wall castings shall be of the sizes and types indicated on the drawings. Where indicated, a central fin not less than ½ inch thick of the same diameter as a flange shall be cast midway of the length to form a waterstop.

2-05 COATINGS AND LININGS

A. Exterior Coatings. Ductile iron pipe, fittings and specials to be installed underground shall be coated on exterior with hot dip coal tar. All clamps, bolts, nuts, studs and other uncoated parts of joints for underground installation shall be coated with coal tar epoxy prior to backfilling. Coal tar epoxy shall be equal to Kop-Coat Bitumastic No. 300-M.

B. Interior Linings For Treated Wastewater Effluent Pipelines. All ductile iron pipe, fittings and specials for treated wastewater effluent service shall be cement lined in accordance with ANSI/AWWA C 104, latest revision, "Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water". The

cement lining shall have a standard thickness and following curing the lining shall have a seal coat of bituminous material in accordance with ANSI/AWWA C 104, latest revision.

2-06 PIPING SUPPORTS

A. Furnish and install supports necessary to hold the piping and appurtenances in a firm, substantial manner at the lines and grades indicated on the drawings or specified. Piping within structures shall be adequately supported from floors, walls, ceilings or beams. Supports from the floor shall be by approved saddle stands or suitable concrete piers as indicated or approved. Pipe saddles shall be shaped to fit the pipe with which they will be used and shall be capable of screw adjustment.

B. Concrete piers shall conform accurately to the bottom 1/3 to ½ of the pipe. Piping along walls shall be supported by approved wall brackets with attached pipe rolls or saddles or by wall brackets with adjustable hanger rods. For piping supported from the ceiling, approved rod hangers of a type capable of screw adjustment after erection of the pipeline and with suitable adjustable concrete inserts or beam clamps shall be used. If required, piping supports shall be placed so as to provide a uniform slope in the pipe without sagging. Supports shall be located wherever necessary, and in no case shall they exceed 8 feet on centers.

PART 3 - EXECUTION

3-01 HANDLING AND CUTTING PIPE

A. Care shall be taken in handling, cutting and laying pipe and fittings to avoid damaging the pipe and interior pipe linings, scratching or marring machined surfaces, and abrasion of the exterior pipe coating. All cracked pipe and fittings shall be removed at once from the work at no additional cost to the Owner.

B. Pipe cutting shall be done in a neat workmanlike manner without creating damage to the pipe or interior pipe linings. Ductile iron pipe may be cut using an abrasive pipe saw, rotary wheel cutter, guillotine pipe saw, or milling wheel saw. Cut ends and rough edges of ductile iron pipe shall be ground smooth. For push-on joint connections the cut end shall be beveled to prevent gasket damage during joint assembly.

3-02 LAYING PIPE AND FITTINGS

A. Excavating, Trenching and Backfilling. Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES.

1. Bedding for Ductile iron Pipe. Minimum laying requirements shall be Type 2 as defined in ANSI/AWWA C 600, latest revision. Provide proper bedding required, in accordance with thickness class of pipe being laid and depth of cover. Proper pipe laying conditions shall be in accordance with ANSI/AWWA C 150 and C 151, latest revisions, and ANSI/AWWA C 600, latest revision.

B. All ductile iron pipe and fittings shall be laid in accordance with American Water Works Association Specification ANSI/AWWA C 600, latest revision, entitled "Standard for Installation of Gray and Ductile Cast-Iron Water Mains and Appurtenances", with the following sections specifically applying:

1. Section 3.3 - Pipe Installation
2. Section 3.4 - Joint Assembly

C. Pipe and fittings shall be laid accurately to the lines and grades indicated on drawings or required. Care shall be taken to insure a good alignment both horizontally and vertically and to give the pipe a firm bearing along its entire length. Any pipe which has its grade or joint disturbed after laying shall be taken up and relaid.

D. When the bell and spigot type pipe or similar pipe is laid, the bell of the pipe shall be cleaned of excess tar or other obstructions and wiped out before the cleaned and prepared spigot of the next pipe is inserted. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed. Castings to be encased in masonry shall be accurately set with bolt holes, if any, carefully aligned.

E. All pipe and fittings shall be cleared of sand, dirt and debris before laying. All precautions shall be taken to prevent sand, dirt or other foreign material from entering the pipe during installation. If necessary, or requested by the field representative, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings shall be kept clean after installation until accepted in the complete work.

F. Any time that pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe shall be installed when trench conditions are unsuitable for such work, including standing water, excess mud, or rain.

3-03 JOINTS

A Machined Surfaces. Machined surfaces shall be cleaned and coated with a suitable rust preventive coating at the shop immediately after being machined.

B. Sleeve Type Couplings. Installation shall be in accordance with the manufacturer's recommendation.

C. Push-on Joints. The Fastite, Super Bell-Tite or Tyton single ring rubber push-on joint shall be installed in strict accordance with the pipe manufacturer's recommendations.

3-04 VALVE INSTALLATION

A. Valves shall be installed on ductile iron raw wastewater force mains and treated wastewater effluent pipelines where shown on the drawings. The weight of valves shall not be carried by the pipe. The valve shall be supported by a concrete cradle as shown on the Standard Details. Concrete for the cradle shall be poured against undisturbed soil.

3-05 THRUST BLOCKING

A. Suitable concrete reaction or thrust blocking shall be applied on all pressure pipe lines, except for those having flanged or restrained joints, at all tees, plugs, caps, and at bends deflecting 11-1/4 degrees or more. As an option, at no additional cost to the Owner, pipe movement shall be prevented as specified above in Paragraph 2-03E, Restrained Joints. Concrete used for thrust blocking shall have a minimum compressive strength of 3,000 psi at 28 days. A schedule and details for the required thrust blocks are included on the Standard Details.

B. Both concrete thrust blocks and tie rods must be used when, in the judgement of the Engineer, the nature and criticality of an installation is such as to require positive assurance of stability.

C. Areas where thrust blocks are to be placed shall be hand excavated. Excavation for thrust blocks shall be completed following installation of the pipe and fitting to be restrained. For thrust blocks, hand excavate to undisturbed soil and to the sizes and configurations shown on drawings. Use extreme care following excavation not to disturb soil in the thrust block area, prior to pouring concrete.

D. Each fitting and pipe shall be wrapped with 8-mil thick polyethylene prior to pouring concrete, so that no concrete comes in direct contact with the surface of the fitting or pipe. Concrete shall cure a minimum of 7 days prior to putting the line under pressure. The Contractor shall not backfill around thrust blocks until approval is obtained from the Engineer.

3-06 IDENTIFICATION SYSTEM

A. Polyethylene identification tape shall be installed for all ductile iron raw wastewater force mains. The identification tape, tape color and imprint legend shall be as specified in Section 17161, Identification Tape For Buried Pipe. The tape shall be installed in accordance with the manufacturer's installation instructions and with the instructions given in Section 17161, Identification Tape For Buried Pipe.

B. For raw wastewater force mains identification tape shall be installed at two depths: directly on top of the pipe and one foot below final grade over the centerline of the pipe.

3-07 PRESSURE TESTING AND FLUSHING LINES

A. All ductile iron pipe installed for raw wastewater force mains and treated wastewater effluent pipelines shall be hydrostatically pressure tested and flushed in accordance with Section 17400, WASTEWATER FORCE MAINS - GENERAL. The hydrostatic test pressure for treated wastewater effluent pipe lines shall be 150 psig with a variance of ±5 psig.

END

SECTION 17410

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS FOR WASTEWATER GRAVITY SEWERS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install PVC wastewater gravity sewers and services where shown on drawings, and as specified herein in other sections of these specifications.

1-02 SUBMITTALS

A. Manufacturer's Product Data: Submit the following:

1. Manufacturer's certificates of compliance with referenced standards.

2. Copies of pipe manufacturer's descriptive and technical literature and installation instructions or guide.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling to avoid damage to pipe. Maintain inside of pipe free of dirt and debris.

PART 2 - PRODUCTS

2-01 POLYVINYL CHLORIDE (PVC) PIPE

A. PVC pipe and fittings for wastewater gravity lines and services shall conform to the requirements of ASTM D 3034, latest revision, with a standard dimension ratio (SDR) 26. See General Construction Guide Section 01175 or 01180 for special conditions. PVC pipe shall be suitable for use as a wastewater gravity sewer conduit. Pipe shall have integral wall bell and spigot joints. The pipe bell shall have the same strength as the pipe. Pipe shall be furnished in standard laying lengths of 20 ft. or 12.5 ft. Pipe and Fittings shall be Johns-Manville gravity sewer pipe and fittings or an equal approved by the Engineer.

2-02 JOINTS

A. Bell and Spigot. Pipe joints shall be an integral wall bell and spigot with a solid cross section, elastomeric ring gaskets which shall conform to the manufacturer's standard dimensions and tolerances and meet the requirements of ASTM D 3212, latest revision. The elastomeric ring gasket shall be factory assembled in the pipe bell and securely locked in place to prevent displacement during jointing in the field. PVC pipe bell, gasket and spigot shall be "Ring Tite" as manufactured by Johns-Manville, or an equal approved by the Engineer.

2-03 FITTINGS

A. All fittings and accessories shall be manufactured of PVC in accordance with the same specifications as PVC pipe of the same size. Fittings shall have bell ends with elastomeric gaskets which conform to the same dimensions, tolerances and specifications as the PVC pipe. Fittings shall be manufactured and furnished by the pipe manufacturer.

PART 3 - EXECUTION

3-01 STORAGE AND HANDLING

A. PVC pipe shall be delivered to the site in unbroken bundles packaged in such manner as to provide protection against damage. When possible pipe should be stored at the job site in the unit packages until ready for use. Packaged units shall be handled using a fork lift or a spreader bar with fabric straps. Packaged units shall not be stacked at the job site higher than two units high.

B. When it is necessary to store PVC pipe for more than six (6) months, exposure to direct sunlight shall be prevented by covering the pipe with an opaque material. Adequate air circulation above and around the pipe shall be provided as required to prevent excessive heat accumulation. PVC pipe shall not be stored close to heat sources or hot objects such as heaters, fires, boilers or engine exhaust. Pipe gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease. The interior and all sealing surfaces of pipe, fittings and other appurtenances shall be kept clean and free of dirt and foreign matter.

C. Care shall be taken in handling and laying pipe and fittings to avoid severe impact blows, crushing, abrasion damage, gouging or cutting. Pipe shall be lowered, not dropped, from trucks or into trenches. All cracked, damaged or defective pipe and fittings, or any length of PVC pipe having a gouge, scratch or other permanent indentation of more than 10 percent of the wall thickness in depth, shall be rejected and removed at once from the work and replaced with new acceptable pipe at no additional cost to the Owner.

3-02 FIELD CUTTING PIPE

A. Field cutting of pipe shall be done in a neat workmanlike manner without creating damage to the pipe. The pipe shall be cut square with a fine toothed hand or power saw or other cutter or knife designed for use with plastic pipe. Prior to cutting, the pipe shall be marked around its entire circumference or a square-in vice shall be used to ensure the pipe end is cut square. Remove burrs by smoothing edges with a knife, file, or sandpaper. Bevel the cut end of the pipe using a pipe beveling tool, wood rasp, or portable sander to prevent damage to the gasket during joint assembly. A factory finished beveled end should be used as a guide to ensure proper beveling angle and correct depth of bevel. Round off any sharp edges on the leading edge of the bevel with a knife or file.

3-03 LAYING PIPE AND FITTINGS

A. Excavating, Trenching and Backfilling: Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES. In additions, PVC gravity wastewater sewers shall have a bedding foundation in accordance with the following.

1. Bedding material for pipe shall be a well graded crushed stone or crushed gravel meeting the requirements of ASTM Designation C 33, Gradation Number 67 (3/4 inches to No. 4 Sieve). This bedding material is defined as Class 1 Material for this section of the specifications.

2. Bedding shall be as specified in ASTM D 2321, "Underground Installation of Flexible Thermoplastic Sewer Pipe" for Class 1 material and as shown on the Standard Details.

3. Wet Conditions. In any area where the sewer pipe will be installed below existing or future groundwater elevations or where the trench could be subject to inundation, Class I Material shall be placed to the top of the pipe. Provide adequate compaction to ensure that sufficient bedding material has been worked under the haunches of the pipe to provide adequate side support. The Standard Details indicate this bedding as Class I-A.

4. Dry Conditions. In any area where groundwater will not be experienced at any time above the level of the foundation material or where the trench will not be subject to inundation, Class I Material shall be placed to the spring line of the pipe. Provide adequate compaction to

ensure that sufficient bedding material has been worked under the haunches of the pipe. The Standard Details indicate this bedding as Class I-B.

B. PVC Pipe for gravity sewers shall be installed in accordance with requirements ASTM D 2321, latest revision, "Underground Installation of Flexible Thermoplastic Sewer Pipe", and the recommendations of the pipe manufacturer. PVC gravity sewers shall not be installed with cover depths in excess of 25 feet without prior approval from the Engineer.

C. In preparation for pipe installation, placement (stringing) of pipe shall be as close to the trench as practical on the opposite side of the trench from the excavated material. The spigot ends of the pipe shall point in the direction of the flow.

D. Pipe and fittings shall be laid accurately to the lines and grades indicated on drawings, installed as shown on the Standard Details and as specified in Section 17402, GRAVITY WASTEWATER SEWERS - GENERAL. Care shall be taken to insure a good alignment both horizontally and vertically and to give the pipe a firm bearing along its entire length. Any pipe which has its grade or joint disturbed after laying shall be taken up and relaid at no additional expense to the Owner.

E. All pipe and fittings shall be clear of sand, dirt and debris before laying. All precautions shall be taken to prevent sand, dirt and other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings shall be kept clean after installation until accepted in the complete work.

F. Any time that pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe shall be installed when trench conditions are unsuitable for such work including standing water, excess mud, or rain.

3-04 PIPE JOINT ASSEMBLY

A. The PVC bell and spigot joint shall be assembled in accordance with the pipe manufacturer's installation instructions. Clean the interior of the bell, the gasket, and the spigot of the pipe to be jointed with a rag to remove any dirt or foreign material before assembling. Inspect the gasket, pipe spigot bevel, gasket groove and sealing surfaces for damage or deformation.

B. Lubricate the spigot end of the pipe with a lubricant supplied or specified by the pipe manufacturer for use with gasketed PVC gravity sewer pipe. The lubricant should be applied as specified by the pipe manufacturer. After the spigot end is lubricated it must be kept clean and free of dirt and sand. If dirt and sand adhere to the lubricated end, the spigot must be wiped clean and relubricated.

C. Insert the spigot into the bell so that it contacts the gasket uniformly. Align the pipe sections and push the spigot end into the bell until the manufacturer's reference mark on the spigot is flush with the end of the bell. The pipe should be pushed into the bell using a bar and block. The joint shall not be assembled by "stabbing" or swinging the pipe into the bell, nor shall construction machinery be used to push the pipe into the bell.

D. If undue resistance to insertion of the spigot end is encountered or if the reference mark does not reach the flush position, disassemble the joint and check the position of the gasket. If the gasket is twisted or pushed out of its seat, inspect the components, repair or replace damaged items, clean the components and repeat the assembly steps. Be sure the pipe is in proper alignment during assembly. If the gasket was not out of position, check the distance between the spigot end and the reference mark and relocate the mark if it is out of position.

E. Exercise caution during assembly to prevent over assembly of the joint, causing the spigot to jam into the neck of the bell. This will eliminate flexibility of the joint and uneven settlement of the trench may cause the bell or spigot to crack and/or leak. In addition, joint over assembly will cause the spigot to

squeeze down in the neck of the bell creating a reduced internal diameter of the spigot end. To prevent over assembly do not assemble beyond the manufacturer's reference mark.

3-05 FIELD TESTING

A. Following installation, the pipe shall be tested and flushed as specified in Section 17402, GRAVITY WASTEWATER SEWERS - GENERAL.

B. Long Term Deflection Test: The pipe shall be tested to demonstrate that maximum long term deflection of the pipe does not exceed 5 percent of the inside diameter of the pipe. The test method for deflection shall be by using an electronic deflectometer or a rigid "Go-No Go" device. The test for long term deflection shall be done after the trench has been backfilled a minimum of 72 hours.

END

SECTION 17411

CLEANING OF WASTEWATER COLLECTION SYSTEMS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish all labor, tools, equipment and materials including all permits required to clean wastewater collection systems.

B. Provide debris disposal in accordance to all federal, state and local standards.

1-02 QUALITY ASSURANCE

A. As part of the contract documents, Contractor shall provide a minimum of three (3) references proving competence in the field of wastewater collection system cleaning.

B. Contractor shall do all cleaning with the Owner's representative present. Contractor shall schedule all work with Owner's representative.

C. Equipment used shall be in good working order and provide continuous operation during cleaning.

1-03 SUBMITTALS

A. Contractor shall submit to the Owner a list of equipment, materials and personnel to be used on the project including all permits obtained prior to commencing with the work.

B. Contractor shall submit to the Owner a description of the methods and locations of debris disposal and certificate of debris disposal from facility approved to accept waste.

PART 2 - EQUIPMENT

A. Hydraulic High Pressure Cleaners

1. Minimum water storage capacity shall be 600 gallons.

2. Minimum delivery capacity of 30 gpm at 1000 psi. Booster pump (positive displacement) shall be capable of 300 to 2000 psi with a pressure regulator.

3. Nozzle shall be capable of producing radial scouring action from 15 to 45 degrees. Pressure at nozzle shall be regulated by a relief valve and adjustable from 1-2000 psi minimum. Two or more high pressure nozzles shall be operative on each system.

4. Equipment shall be approved by the Owner's representative prior to commencement of cleaning.

B. Hose - Flexible hose for high pressure shall be reinforced, oil and grease resistant with abrasion resistant cover. A length of continuous hose sufficient to suit the job. Hose shall have a minimum burst pressure of 5000 psi.

C. Root Cutter shall be hydraulically operated capable of operation in 6" pipe or larger. Cutting blades shall be replaceable and designed such that vacuum of blades will pull roots into blades.

D. Manhole Hose Guide - A guide shoe or roller shall be used to protect the hose and pipe from wear at the edges of the manhole. Guide shall be capable of extending to minimum manhole depth of 30'. Guides shall provide a minimum of five (5") inch bending radius.

E. Easement hose guide shall be provided to protect the hose itself and any obstruction.

F. Waste and Debris Removal Equipment - Debris removal system from the manholes, system shall be subject to approval by the Owner's representative. At no time shall a system be operated in a manner that could damage the pipe or manhole.

G. Pipe Plugs - A minimum of two inflatable plugs shall be furnished for each size of pipe cleaned. Plugs shall be capable of utilizing a pressure of 40 psi or more and withhold heads of 30' or more. Plugs shall be capable of being inserted into and removed from the pipe at ground level.

PART 3 - EXECUTION

A. Construction conferences shall be held in accordance with Specification 01200 PROJECT MEETINGS and contract documents.

B. Pressure Cleaning - Pressure cleaning shall not be done at the same time as videotaping. Owner shall supply a water meter, water for cleaning, fire hydrant attachment and RPBFP. Pressure cleaning shall proceed at a sufficient speed to remove all sludge, dirt, sand, grease, roots and other materials from pipe. All debris and washwater shall be removed from the downstream manhole. If flows in the pipe line become a problem, Contractor shall plug off or by-pass pump the upstream flow. Contractor shall take all precautions to eliminate system back ups and be liable for damages with backed up wastewater.

In addition to the designated sections described in the Contract Documents, Owner's representative may designate additional areas to be cleaned when necessary. Payment for such shall be in accordance with Section 01152, MEASUREMENT AND PAYMENT. Contractor shall have their work approved by the Owner's representative.

C. Root Removal - Contractor shall remove roots to the extent that they will no longer be detrimental to the operation of the lines and eliminate future growth. Contractor shall remove roots on a case by case basis. Root cutter shall be used to remove the existing physical material. The amount of roots removed shall be to the satisfaction of the Owner's representative. After root removal, Contractor shall reclean areas affected by root removal operations.

D. Documentation - Contractor shall supply a summation of log report with a minimum of the following:

1. Name and address of contractor, date and areas cleaned (street name and M/H to M/H run numbers).

2. Name of Owner, division name, systems inspected, and the Owner's representative involved.

3. Log reports of manhole to manhole work done, unusual materials found while cleaning (example: pieces of pipe, roots, etc.).

E. Disposal - Washwater containing waste and/or debris shall not be disposed of or discharged in streets, ditches, canals, rivers, etc. All spills shall be contained, removed, and cleaned up immediately after occurrence by the Contractor at no additional cost to the Owner. Spills shall be disinfected by an approved disinfection method. All spills shall be immediately reported by the Contractor to the Owner with a follow up written report of the spill within 24 hours. The report shall contain a full review of the occurrence and actions taken.

F. Recleaning - If system is found not to be cleaned to the satisfaction of the Owner's representative, Contractor shall reclean until it is acceptable.

G. Maintenance of traffic - Contractor is responsible for all maintenance of traffic around cleaning site. Contractor shall maintain traffic in accordance to all federal, state and local regulations at no additional cost to Owner. Contractor shall submit a maintenance of traffic plan prior to commencing work at no additional cost to Owner. Contractor shall obtain all necessary permits prior to commencing of work at no additional cost to the Owner.

H. During an emergency contractor shall notify Division Office within 15 minutes.

END

SECTION 17412

CURED IN PLACE SECTIONAL PIPE LINING

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish all labor, tools, equipment and materials, including any and all permits required to install cured in place sectional pipe lining.

1-02 QUALITY ASSURANCE

A. As part of the contract documents, contractor shall provide a minimum of three (3) references proving competence in the field of cured in place sectional pipe lining.

B. Contractor shall do all installation of liners with Owner's representative present.

C. Equipment used shall be in good working order and provide continuous operation during installation and completion for cured in place sectional lining.

D. Contractor shall supply a list of materials to be used. Epoxy-Resin shall arrive on site with no more than 1/2 of manufacturer's shelf life expired. All materials shall be in new condition. No materials shall be supplied from a previous job.

1-03 SUBMITTALS

A. Contractor shall submit to the Owner a list of equipment to be utilized. The list shall include descriptions and operational data for all equipment, including but not limited to, the equipment outlined in the following specifications:

1. Section 17405 - (TV VIDEOTAPE AND INSPECTION OF WASTEWATER COLLECTION SYSTEMS)

2. Section 17411 - CLEANING OF WASTEWATER COLLECTION SYSTEMS

B. Product Data - The cured in place sectional liner shall incorporate epoxy resin materials that will resist the corrosive effects of the raw wastewater and hydrogen sulfide gas. The liner shall be Stephens Technology, Inc. New-Life System, Econoliner, or approved equal.

C. Epoxy Resin - Materials shall meet the following requirements.

As a 3-component system (2-component epoxy resin and a silica quartz filler), it shall be used as mastic and for leveling rough surfaces.

As a 2-component system, it shall be used as a top coat for fiberglass fabric or by itself as a sealer for structures.

The mixed components of the epoxy resin shall have the following properties:

Item		Criteria
1.	Solids Content	100% by weight
2.	Pot Life	90 minutes at 70°F
3.	Shelf Life	at least 1 year (sealed)

Item	Criteria
4. Viscosity	18,000 centipoise seconds (average at 70%)
5. Density	12 pounds per gallon
6. Shore D-Hardness:	
a. 7 Days-RT	82
b. 7 Days in H_2O at RT	76

D. The cured epoxy resin material shall have the following properties:

Item	Test Value	Latest Revision Reference Standard
Tensile Strength	12,400 psi	ASTM D 638
Compression Strength	16,800 psi	ASTM D 695
Flexural Strength	13,900 psi	ASTM D 790
Hardness	76-83 Shore D	ASTM D 2240
Impact Resistance	160 inch pounds	NBS-PS55-72
Heat Distortion Temp	220°F	ASTM D 648
Ultimate Elongation	4.5%	ASTM D 638
Adhesive Tensile Shear	3,000 psi	DOT SPEC 926-3
Modulus of Elasticity	400,000 psi	ASTM D 790

PART 2 - EQUIPMENT

A. TV and videotape systems shall be in accordance with section 17405 "TV VIDEOTAPE AND INSPECTION OF WASTEWATER COLLECTION SYSTEMS."

B. Cleaning of gravity systems shall be in accordance with section 17411 "CLEANING OF WASTEWATER COLLECTION SYSTEMS."

C. Bypass pumping equipment shall be approved by Owner's representative to commencement of work. Short term repairs may be done without bypassing, but must be approved by the Owner.

D. Liner materials shall be the same as listed in Section 1-03 (B). Epoxy mixing requirements shall be in accordance with manufacturer's recommendations.

PART 3 - EXECUTION

A. A preconstruction conference shall be held in accordance with section 01200 "PROJECT MEETINGS"

B. Prior to installation, liner area shall be pressure cleaned in accordance with section 17411 "CLEANING OF WASTEWATER COLLECTION SYSTEMS"

C. Installation of liner shall begin no later than 48 hours after cleaning. Once cleaning is complete, contractor shall survey damaged area to assess any complications in installation. If area needs grinding or debris removal it shall be the responsibility of the contractor. Area shall be cleaned to the acceptance of the Owner's representative.

D. Bypass pumping shall commence prior to installation of liner. Once bypassing has begun, installation of liner may begin. Length of liner is to be field verified prior to cutting of liner material. Thickness of liner used shall be based on the following chart - (A). Length of liner shall be a minimum of 1' past damaged area, and of a minimum length specified for the repair.

MINIMUM LINER THICKNESS
IN (mm) PER DEPTH OF PIPE

Host Pipe ID	0-8 ft Deep	8-12 ft Deep	12-16 ft Deep	16-20 ft Deep	20-24 ft Deep	24-28 ft Deep
8-inch	3	3	3	3	3	3
10-inch	3	3	3	3	3	3
12-inch	3	3	3	3	3	3
15-inch	3	3	3	3	3	3
18-inch	3	3	3	3	3	5
24-inch	3	3	3	5	5	5
30-inch	3	5	5	5	5	5
36-inch	5	5	5	5	7	7

CHART A

E. Once liner is cut it shall be impregnated with the 100 percent epoxy. Impregnation of liner shall occur over clean drop cloths, tarpaulins or plastic basin. Contractor shall use due care not to contaminate the epoxy with debris.

F. Place liner on placement carriage. Maneuver carriage into position using TV and video camera. Once in position, liner shall be forced against host pipe walls to allow epoxy resin to permeate walls of pipes. Allow liner to cure for a minimum of two hours or in accordance with manufacturer's recommendation. Once curing is complete, contractor shall retract placement carriage and remove from pipe. Heat may be introduced to accelerate curing. Reduced curing time to be approved by Owner's representative.

G. Once liner has cured, contractor shall re-video tape repaired area. Repaired area shall be as free as practical from visual defects, damage, deflection, holes, delamination, uncured resin and the like. Repair shall show no signs of water infiltration into collection system. All laterals that have been sealed off by the installation of the liner are to be reinstated by cutting an opening in the liner. The cut area shall be full size with a smooth finish and any visible cracks are to be grouted for a minimum of 4" into the lateral.

H. Contractor shall clean up all debris in entire project area and wastewater collection system. All debris shall be disposed of at the contractor's expense.

I. Documentation - Contractor shall provide a detailed report of all areas repaired. This report can be combined with the TV and videotape report. The minimum information supplied shall be the following:

1. Name and address of Contractor. Dates and areas (street name and m/h# to m/h#) where repairs were performed.

2. Name of Owner, division name, systems inspected, and Owner's personnel involved.

3. Log reports.
   a) Log sheet for each repaired section.

J. Maintenance of traffic - Contractor is responsible for all maintenance of traffic around repair operations. Contractor shall maintain traffic in accordance to all local, state and federal regulations at no additional cost to Owner. Contractor shall submit a maintenance of traffic plan to the appropriate agency and to Owner prior to commencing repairs Contractor shall obtain all necessary permits prior to commencing repairs at no additional cost to Owner.

End

SECTION 17413

PRESSURE CLEANING OF MANHOLES AND PUMP STATIONS

PART I - GENERAL

1-01 DESCRIPTION

A. Furnish all labor, tools, equipment and materials including any and all permits required to clean manhole or pump station interior structure.

B. Provide debris disposal in accordance to all federal, state and local standards.

1-02 QUALITY ASSURANCE

A. Contractor shall do all cleaning and schedule all work with Owner prior to commencement of work.

B. Equipment used shall be in good working order.

1-03 SUBMITTALS

A. Contractor shall submit to the Owner a list of equipment, materials and personnel to be used on the project including copy of all permits obtained prior to commencing with the work if required.

B. Contractor shall also submit methods and locations of debris disposal and certificate of waste/debris disposal from approved facility.

2-01 EQUIPMENT

A. Hydraulic High Pressure Cleaners

1. Minimum storage capacity shall be 500 gallons.

2. Nozzles used shall be capable of producing scouring action from 0 to 90 degrees. Pressure at nozzle shall be regulated by a relief valve and adjustable from 5 to 5000 psi minimum.

3. Equipment shall be approved by the Owner's representative prior to commencement of cleaning.

B. Hose - Flexible hose for high pressure shall be reinforced, oil and grease resistant with abrasion resistant cover. Minimum length of 100 feet of continuous hose. Hose shall have a minimum burst pressure of 8000 psi.

C. Waste and Debris Removal Equipment - Debris removal system from the manhole shall be subject to approval by the Owner's Representative. At no time shall a system be operated in a manner that could damage the piping connection or manhole structure.

D. Pipe Plugs - Pipe plugs may be used to suit rehabilitation but the gravity system flow will be the responsibility of Contractor. Plugs shall be capable of utilizing a pressure of 40 psi or more and withhold heads of 30' or more.

3-01 EXECUTION

A. Owner shall be notified 48 hours prior to start of rehabilitation work.

B. Flow Control - If flows in the manhole become a problem Contractor may plug off or by-pass pump the upstream flow. Contractor shall take all precautions to eliminate system back-ups and shall be liable for all damages with backed-up sewage.

C. Disposal - Waste and debris shall not be disposed of or discharged in any form at ground level, on the streets, ditches, canals, rivers, etc. All spills shall be contained, removed and cleaned up immediately after occurrence by the Contractor at no additional cost to the Owner. Contractor shall notify Owner within 15 minutes of any and all spills. Spills shall be disinfected by an approved disinfection method. Any and all spills shall be immediately reported by the Contractor to the Owner with a follow-up written report of the spill within 24 hours. The written report shall contain a full review of the occurrence and actions taken.

D. Maintenance of Traffic - Contractor is responsible for all maintenance of traffic around cleaning site. Contractor shall maintain traffic in accordance to all federal, state and local regulations at no additional cost to Owner. Contractor shall submit a maintenance of traffic plan prior to commencing work at no additional cost to Owner. Contractor shall obtain all necessary permits prior to commencing of work at no additional cost to the Owner.

E. The entire structure is to be pressure washed at 3000 to 5000 psi with a solution of 50% water and bleach to yield a mixture with a minimum concentration of 2 1/2% sodium hypochlorite.

F. The entire structure is to be completely rinsed by pressure washing at 3000 to 5000 psi with potable water.

G. Contractor shall have their work approved by the Owner's Representative.

END

SECTION 17414

POLYVINYL CHLORIDE (PVC) PIPE FOR WASTEWATER FORCE MAINS

PART 1 - GENERAL

1-0 DESCRIPTION

A. Furnish, place, joint and test all polyvinyl chloride pipe, fittings and appurtenances as shown on the drawings and as specified herein.

1-02 QUALITY ASSURANCE

A. Polyvinyl chloride pipe and fittings and ductile iron fittings shall be inspected and tested at the manufacturer's plant as required by the standard specifications to which the material is manufactured.

1-03 SUBMITTALS

A. Submit manufacturer's Certificates of Inspections, descriptive literature, illustrations, specifications, installation instructions and related information.

PART 2 - PRODUCTS

2-01 PIPE

A. Polyvinyl chloride pipe for wastewater force mains in nominal diameters of 4 to 12 inches in size shall conform to the requirements of AWWA C 900 with a dimension ratio of DR 25, pressure class 100, and gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 100 psi and with not less than a 4 to 1 sustained hydrostatic pressure safety factor.

B. Polyvinyl chloride pipe for wastewater force mains in nominal diameters of 14 to 24 inches in size shall conform to the requirements of AWWA C 905 with a dimension ratio of DR 25, and gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 100 psi and with not less than a 4 to 1 sustained hydrostatic pressure safety factor.

C. Upon approval by the Engineer, the following polyvinyl chloride pipe may be substituted. Polyvinyl chloride pipe for wastewater force mains in nominal diameters of 3 to 12 inches in size shall conform to the requirements of ASTM D 2241 with a standard dimension ratio SDR 21, pressure class 200, and gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 200 psi and with not less than a 2 to 1 sustained hydrostatic pressure safety factor.

2-02 JOINTS

A. Bell and Spigot. Pipe joints shall be made with integral bell and spigot pipe ends. The bell shall consist of an integral thickened wall section designed to be at least as strong as the pipe wall. The bell shall be supplied with a factory glued rubber ring gasket which conforms to the manufacturer's standard dimensions and tolerances. The gasket shall meet the requirements of ASTM F 477 "Elastomeric Seals (Gaskets) For Joining Plastic Pipe". PVC joints shall be "Ring-Tite" as manufactured by Johns-Manville or an equal approved by the Engineer.

B. Restrained Joints. Where indicated on drawings, to prevent pipe joints and fittings from separating under pressure, pipe joints and fittings shall be restrained as follows:

1. PVC pipe bell and spigot joints shall be restrained with the Uni-Flange Corp. Series 1350 Restrainer or an equal approved by the Engineer. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A 536, Grade 65-45-12.

Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements of ASTM A 242.

2. Ductile iron mechanical joint fittings used with PVC pipe shall be restrained with the Uni-Flange Corp. Series 1300 Restrainer, EBAA Iron, Inc., Series 500 Retainer Gland, or an equal approved by the Engineer. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A 536, Grade 65-45-12. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements of ASTM A 242.

2-03 FITTINGS

A. All fittings for use with PVC pipe three (3) inches and larger in size shall be ductile iron with a minimum working pressure of 250 psi and shall conform to ANSI/AWWA C 110, latest revision. Fittings shall have mechanical joint bell ends manufactured in accordance with ANSI/AWWA C 111, latest revision. Jointing materials for mechanical joints shall be provided by the fitting manufacturer. Materials, assembly and bolting shall be in accordance with ANSI/AWWA C 111, latest revision. Tee head nuts and bolts for mechanical joints shall be manufactured of corrosion resistant high strength, low alloy COR-TEN steel meeting the requirements of ASTM A 242.

B. Interior Linings. All ductile iron fittings for wastewater force mains shall be lined as follows:

1. Fittings shall be lined with a resilient epoxy interior coating applied at the factory. The epoxy coating shall be a minimum 40 mils dry film thickness. The coating shall be Protecto 401 Ceramic Epoxy as manufactured by U.S. Pipe and Foundry Company or an approved equal.

C. Exterior Coatings. All ductile iron fittings to be installed underground shall be coated on exterior with hot dip coal tar. All clamps, bolts, nuts, studs and other uncoated parts of joints for underground installation shall be coated with coal tar epoxy prior to backfilling. Coal tar epoxy shall be equal to Kop-Coat Bitumastic No. 300-M.

PART 3 - EXECUTION

3-01 STORAGE AND HANDLING

A. PVC pipe shall be delivered to the site in unbroken bundles packaged in such manner as to provide protection against damage. When possible pipe should be stored at the job site in the unit packages until ready for use. Packaged units shall be handled using a fork lift or a spreader bar with fabric straps. Packaged units shall not be stacked at the job site higher than two units high.

B. When it is necessary to store PVC pipe for more than six (6) months, exposure to direct sunlight shall be prevented by covering the pipe with an opaque material. Adequate air circulation above and around the pipe shall be provided as required to prevent heat accumulation. PVC pipe shall not be stored close to heat sources or hot objects such as heaters, fires, boilers or engine exhaust. Pipe gaskets shall be protected from exposure to heat, direct sunlight, ozone, oil and grease. The interior and all sealing surfaces of pipe, fittings and other appurtenances shall be kept clean and free of dirt and foreign matter.

C. Care shall be taken in handling and laying pipe and fittings to avoid severe 0impact blows, crushing, abrasion damage, gouging or cutting. Pipe shall be lowered, not dropped, from trucks or into trenches. All cracked, damaged or defective pipe and fittings, or any length of PVC pipe having a gouge, scratch or other permanent indentation of more than 10 percent of the wall thickness in depth, shall be rejected and removed at once from the work and replaced with new acceptable pipe at no additional cost to the Owner.

3-02 FIELD CUTTING PIPE

A. Field cutting of pipe shall be done in a neat workmanlike manner without creating damage to the pipe. The pipe shall be cut square with a fine toothed hand or power saw or other cutter or knife designed for use with plastic pipe. Prior to cutting, the pipe shall be marked around its entire circumference or a square-in vice shall be used to ensure the pipe end is cut square. Remove burrs by smoothing edges with a knife, file, or sandpaper. Bevel the cut end of the pipe using a pipe beveling tool, wood rasp, or portable sander to prevent damage to the gasket during joint assembly. A factory finished beveled end should be used as a guide to ensure proper beveling angle and correct depth of bevel. Round off any sharp edges on the leading edge of the bevel with a knife or file.

3-03 LAYING PIPE AND FITTINGS

A. Excavating, Trenching and Backfilling: Refer to Section 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES. Bedding for PVC pipe shall be Class B using granular pipe bedding material as specified in Section 02202 and as shown on the standard details.

B. All PVC pipe and ductile iron fittings shall be laid in accordance with the pipe manufacturers published installation guide, the AWWA Manual of Practice No. M23 "PVC Pipe - Design and Installation" and the Uni-Bell Plastic Pipe Association installation recommendations.

C. In preparation for pipe installation, placement (stringing) of pipe should be as close to the trench as practical on the opposite side of the trench from the excavated material. The bell ends of the pipe should point in the direction of the work in progress.

D. Pipe and fittings shall be laid accurately to the lines and grades indicated on drawings or required. Care shall be taken to insure a good alignment both horizontally and vertically and to give the pipe a firm bearing along its entire length. Any pipe which has its grade or joint disturbed after laying shall be taken up and relaid.

E. All pipe and fittings shall be cleared of sand, dirt and debris before laying. All precautions shall be taken to prevent sand, dirt or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings shall be kept clean after installation until accepted in the complete work.

F. Any time that pipe installation is not in progress, the ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe shall be installed when trench conditions are unsuitable for such work, including standing water, excess mud, or rain.

3-04 PIPE JOINT ASSEMBLY

A. The PVC bell and spigot joint shall be assembled in accordance with the pipe manufacturer's installation instructions. Clean the interior of the bell, the gasket, and the spigot of the pipe to be jointed with a rag to remove any dirt or foreign material before assembling. Inspect the gasket, pipe spigot bevel, gasket groove and sealing surfaces for damage or deformation.

B. Lubricate the spigot end of the pipe with a lubricant supplied or specified by the pipe manufacturer for use with gasketed PVC pipe in potable water systems. The lubricant shall be applied as specified by the pipe manufacturer. After the spigot end is lubricated it must be kept clean and free of dirt and sand If dirt and sand adhere to the lubricated end, the spigot must be wiped clean and relubricated.

C. Insert the spigot into the bell so that it contacts the gasket uniformly. Align the pipe sections and push the spigot end into the bell until the manufacturer's reference mark on the spigot is flush with the end

of the bell. The pipe shall be pushed into the bell using a bar and block. The joint shall not be assembled by "stabbing" or swinging the pipe into the bell, nor shall construction machinery be used to push the pipe into the bell.

D. If undue resistance to insertion of the spigot end is encountered or if the reference mark does not reach the flush position, disassemble the joint and check the position of the gasket. If the gasket is twisted or pushed out of its seat, inspect the components, repair or replace damaged items, clean the components and repeat the assembly steps. Be sure the pipe is in proper alignment during assembly. If the gasket was not out of position, check the distance between the spigot end and the reference mark and relocate the mark if it is out of position.

3-05 VALUE AND FITTING INSTALLATION

A. The weight of valves and ductile iron fittings shall not be carried by PVC pipe. The valve or fitting shall be supported by a concrete cradle as shown on the standard details. Concrete for the cradle shall be poured against undisturbed soil.

3-06 THRUST BLOCKING

A. Suitable concrete reaction or thrust blocking shall be applied on all pressure pipe lines, except for those having flanged or restrained joints, at all tees, plugs, caps, and at bends deflecting 11-1/4 degrees or more. As an option, at no additional cost to the Owner, pipe movement shall be prevented as specified above in Paragraph 2-02 B, Restrained Joints. Concrete used for thrust blocking shall have a minimum compressive strength of 3,000 psi at 28 days. A schedule and details for the required thrust blocks are included on drawings.

B. Both concrete thrust blocks and restrained joints or tie rods must be used when, in the judgement of the Engineer, the nature and criticality of an installation is such as to require positive assurance of stability.

C. Areas where thrust blocks are to be placed shall be hand excavated. Excavation for thrust blocks shall be completed following installation of the pipe and fitting to be restrained. For thrust blocks, hand excavate to undisturbed soil and to the sizes and configurations shown on drawings. Use extreme care following excavation not to disturb soil in the thrust block area, prior to pouring concrete.

D. Each fitting and pipe shall be wrapped with 8-mil thick polyethylene prior to pouring concrete, so that no concrete comes in direct contact with the surface of the fitting or pipe. Concrete shall cure a minimum of 7 days prior to putting the line under pressure. The Contractur shall not backfill around thrust blocks until approval is obtained from the Engineer.

3-07 IDENTIFICATION SYSTEM

A. Detectable, metallic backed, polyethylene identification tape shall be used for all PVC pipe for wastewater. The identification tape, tape color and imprint legend shall be as specified in Section 17161, IDENTIFICATION TAPE FOR BURIED PIPE. The tape shall be installed in accordance with the manufacturer's installation instructions and with the instructions given in Section 17161.

B. For wastewater force mains detectable identification tape shall be installed at two depths. directly on top of the pipe and one foot below final grade over the centerline of the pipe.

3-08 TESTING

A. All PVC wastewater force mains shall be hydrostatically pressure tested and flushed in accordance with Section 17400, WASTEWATER FORCE MAINS - GENERAL.

END

SECTION 17418

MANHOLES

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install precast concrete manholes, frames and covers as shown on drawings and specified herein.

1-02 SUBMITTALS

A. Contractor shall submit shop drawings for precast manholes and manhole frames and covers.

B. Submit manufacturer's product data for manufactured products.

1-03 PRODUCT HANDLING

A. Exercise care in transportation and handling to avoid damage to precast concrete manholes and manhole frames and covers.

PART 2 - PRODUCTS

2-01 PRECAST MANHOLES

A. Manhole base sections shall be set on a bedding of crushed stone as shown on the drawings. Crushed stone bedding material shall be as specified in Section 02202, EXCAVATING, TRENCHING, AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES.

B. Base and the first section of manhole barrel shall be an integral cast. Minimum base reinforcing shall be No. 4 at 12 inches, each way, for 4 foot I.D. manholes and No. 6 at 9 inches, each way, for 5 and 6 foot I.D. manholes. Base section shall have two equally spaced lifting lugs or non-penetrating lift inserts. Minimum wall thickness shall be 8".

C. Straight riser sections shall be reinforced in conformance with ASTM C478. Minimum compressive strength of the concrete in manhole base section, riser sections and top sections shall be 4000 psi at 28 days. Minimum wall thickness shall be 8 inches. Manhole wall thickness shall be designed to withstand burial depth and soil conditions encountered. Lift holes penetrating the wall of the manhole will not be permitted. Equally spaced lifting lugs, rings or non-penetrating lift inserts shall be provided.

D. Joints shall be tongue and groove pipe ends sealed with round or other flexible type natural rubber joint ring gaskets in conformance with ASTM C433, a flexible preformed bitumastic sealing material equal to Ram-Nek as manufactured by R.K. Snyder and Co., Houston, Texas, Adeka Ultra Seal water-stop product as manufactured by Pine Mountain Marketing Group LTD. 800-852-6076, or approved equal. If rubber joint ring gaskets are used, interior and exterior voids in the pipe joints shall be sealed with flexible sealing material specified above, installed in strict accordance with the manufacturer's printed instructions. If manhole sections are sealed with a flexible preformed bitumastic sealing material, adequate material shall be applied so that "squeeze out" occurs at the interior and exterior of the joint. Rubber joint ring gaskets and flexible preformed bitumastic sealing material shall be provided by the manhole manufacturer.

E. Eccentric precast concrete cone sections shall be manufactured of Precast concrete with reinforcing and joints as specified above for straight riser sections.

F. Top slabs for shallow manholes and pumping station wet wells may be Precast or cast-in-place. Steel reinforcing shall be No. 4 at 6 inches each way with extra No. 4 steel reinforcing around the manhole

opening. Concrete for top slabs shall have a compressive strength of 4000 psi at 28 days. Thickness of concrete for top slabs shall be a minimum of 6 inches for shallow manholes (under 6') and 8 inches for other manholes.

G. Pipe connections for manholes shall be resilient, waterproof connections designed in accordance with ASTM C923 "Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes". Resilient pipe connectors shall either be cast into the manhole wall or installed following casting in a cored section of the manhole wall. Resilient connectors shall either be a gasket type connector equal to the A-Lok pipe to manhole seal as manufactured by Atlantic Concrete Products, Inc., or a flexible neoprene boot with stainless steel clamps equal to the KOR-N-SEAL System as manufactured by the Dukor Corporation. When the pipe is installed in the resilient manhole connector, the pipe shall be capable of a 20 degree minimum deflection in any direction.

H. Manhole inverts shall be precast into the manhole base section by the manhole manufacturer unless prior approval is obtained from the ENGINEER to construct inverts in the field. The influent channel and the effluent channel shall be constructed with angels of 90° or greater. The drop from inlet to outlet shall be a minimum of 0.05' on straight runs and 0.10' on turns unless approved by the ENGINEER. The channel height of the manhole invert shall match the crown of the exit sewer. Manhole benches shall be sloped a minimum of one inch per foot from the outside periphery of the manhole to the edge of the invert channel. Precast invert channels shall be the Precast Invert System as manufactured by Atlantic Concrete Products, Inc. or approved equal. No angles <90.

I. Drop connections shall be required when invert of influent pipe is 2' or greater above manhole invert. Drop connections shall be constructed as shown on the standard details. Precast bases for 2' or greater drop manholes may be constructed by the manhole manufacturer with concrete and reinforcing in accordance with ASTM C478.

2-02 COATINGS

A. Interior surfaces of precast manholes including bench and channel shall be coated 28 days after curing with a 60 mil 100% solids build up coating, per specification #09950, (100% solids Epoxy Protective Coating for Manholes and Lift stations). Exterior surface of precast manholes shall be coated with two (2) coats of a bituminous seal coating. Each coat shall have a minimum dry film thickness of 1.2 mils for a total finish thickness of 2.4 mils dry film thickness. Exterior coating shall be KopCoat Inertol No. 49 or an approved equal.

2-03 MANHOLE FRAMES AND COVERS

A. Standard Manhole Frames and Covers: Shall be gray iron casting conforming to ASTM A48, Class 30B for Gray Iron Castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections and other harmful defects. The seating surfaces of both the frame and cover shall be machined so that the cover will not rock after it has been seated. The cover shall be solid with two non-penetrating pick holes. The words "SANITARY SEWER" shall be cast integrally into the manhole cover. Manhole frames and covers shall be coated on all surfaces with an asphaltic coating prior to machining so that the machined surfaces will be free of any coating. Frames and covers for normal conditions shall conform to the weight and dimensions shown in the Standard Details, or shall be furnished in equivalent foundry patterns. Standard manhole frames and covers, shall be U.S. Foundry and Manufacturing Corp. No. 38B, Ref. Cat. No. 225, Neenah Foundry Company No. R-1642 with a Type "B" cover or an approved equal.

B. Waterproof Frames and Covers: Provide where indicated on drawings, with bolted covers, neoprene gaskets and stainless steel bolts. Frames and covers shall be cast in accordance with same specifications and requirements as above for standard manhole frames and covers. Bolt holes for the cover shall be drilled completely through the cover and frame so that dirt cannot fill the holes. Waterproof manhole frames and covers shall be U.S. Foundry and Manufacturing Company No. 38B, Ref. Cat. No. 225"F or an approved equal.

C. Anchor Bolts: Anchor bolts for bolting manhole frame to precast manholes shall be 3/4 inch diameter galvanized all thread steel rods with a 5-inch hook for embedment in the precast manhole top. The bolts shall be of sufficient length to provide a minimum 2-inch thread projection through the flange of the manhole frame. Two bolt slots or inserts shall be cast into the precast manhole top section or slab, positioned at 180 degrees, at the time of manufacture.

PART 3 - EXECUTION

3-01 INSTALLATION OF PRECAST MANHOLES

A. Excavating, Trenching and Backfilling: Refer to Specification 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES.

B. All precast concrete bases shall be installed on a layer of crushed stone bedding which shall have a minimum depth of 12 inches. Crushed stone bedding material shall be a well graded crushed stone or crushed gravel meeting the requirements of ASTM Designation C33, Gradation Number 67 (3/4 inches to No. 4 sieve). Compaction of the stone shall be achieved by gas powered compaction equipment.

C. Interior and exterior joints for precast manhole section shall be sealed with a Adeka Products as specified above in Paragraph 2-01 D. The material shall be applied such that "squeeze out" occurs at the joints.

D. Pipe connections at manholes shall have resilient waterproof connections as specified above in Paragraph 2-01 G.

E. All voids in interior and exterior manhole section joints and lift holes for manhole sections shall be filled with a non-shrinking grout equal to Embeco No. 167 by Master Builders or an approved equal. Mortar shall be applied and cured in strict accordance with the manufacturers recommendations. The mortar shall be finished smooth and flush with the wall surface of the manhole.

F. In constructing "Drop Manholes", the CONTRACTOR shall encase and support the riser and incoming pipe with concrete down to undisturbed earth as shown on the Standard Details. Concrete shall have a compressive strength of 3000 psi at 28 days. The cost of this concrete shall be included in the price of the drop manhole. Encasing the riser with brick will not be acceptable. Care shall be taken to have all pipes laid to correct lines and grades before pouring concrete.

3-02 MANHOLE FLOW CHANNELS AND BENCH WALLS

A. Unless prior approval is obtained from the ENGINEER, manhole flow channels (inverts) and bench walls shall be precast into the manhole base section as specified above in paragraph 2-01 H.

B. Upon prior approval from the ENGINEER, manhole inverts may be constructed in the field as shown on the Standard Details. Invert channel bottoms shall be smooth and semicircular in shape conforming to inside of adjacent wastewater sections. Changes in direction of flow shall be made with a smooth curve of as large radius as the size of manhole will permit. Changes in size and grade of channels shall be made gradually and evenly to give a smooth uninterrupted flow pattern through the manhole. Channel height shall match the crown of the connection wastewater pipe exiting the manhole. Manhole bench walls shall be smooth and shall slope one inch per foot from the edge of the invert channel to the precast manhole wall, as shown on the Standard Details. Invert channels may be constructed by forming in concrete or by building up brick and mortar to form the manhole bench walls on each side of the channel, and plastering over bricks with cement mortar with a minimum thickness of 1" inch. Drop connections shall be constructed in accordance with the Standard Details. Manhole invert construction shall only be performed by experienced and qualified workers.

C. Bricks used to construct manhole invert channels and bench walls shall be standard size (2-1/2 in. H X 4 in. W X 8 in. L) brick in conformance with ASTM C32 "Sewer and Manhole Brick (made from clay and shale))", Grade MS. Mortar used for masonry work shall be prepared by thoroughly mixing:

One (1) volume of Type II Portland Cement with three (3) volumes of sand and sufficient clean water to produce a rich mass of approved consistency. Mixing mortar on the ground or any paved surface shall not be permitted. Sand to be used shall be clean, well-graded, and shall pass a standard No. 4 sieve.

3-03 SETTING MANHOLE FRAMES AND COVERS

A. The tops of all manhole covers shall be set flush in paved areas and 0.2 feet above finished grade in unpaved areas, unless indicated otherwise on the drawings.

B. The top of all precast manholes may be brought to proper grade for receiving manhole frame by using not more than three courses of brick or precast concrete grade rings. Bricks and mortar used for manhole top grade adjustment shall be as specified above in paragraph 3-02 C. Precast concrete grade rings shall be precast with steel reinforcement in conformance with ASTM C478 and concrete with a compressive strength of 4000 psi in 28 days. Precast concrete grade rings shall be manufactured in half annular shapes for ease of handling. The grade ring dimensions shall be 2 inches thick with an annular width of 8 inches and inside diameter of 24 or 30 inches.

C. Masonry construction shall be performed by experienced and qualified workers. All work shall be laid plumb, straight, level, square and true. Brick shall be laid in full beds of mortar and shoved into place. All joints shall be full and not more than 1/2 inch in thickness. The Contractor shall set in place and bond in the masonry all necessary anchor bolts and miscellaneous items specified elsewhere. The masonry walls shall be plastered on the inside with a one-half inch coat of Portland Cement mortar.

D. Following curing of any masonry construction required for manhole top adjustment, set manhole frame in a bed of 1/4 to 1/2 inch thick Adeka Products and anchor in place with two 3/4 inch diameter anchor bolts, which shall be securely embedded in the top of the manhole. Seal the flange of the manhole ring to the top of the manhole with cement mortar.

END

SECTION 17419

WASTEWATER PUMPING STATION VALVE VAULT CONCRETE STRUCTURE

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish, install and test all materials, mechanical, structural and related equipment as shown on the drawings and as specified in reference specifications or herein.

1-02 SUBMITTALS

A. Contractor shall submit manufacturer's catalog data, illustrations, principle dimensions, materials of construction, installation instructions and other pertinent data.

B. Contractor shall submit certificates from manufacturer stating that products furnished comply with these specifications.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling equipment to avoid damage. Inside of equipment shall be kept free of all moisture, dirt and debris.

PART 2 - PRODUCTS

2-01 DESIGN

A. The Contractor shall furnish and install valve vault which shall be precast construction (4000 psi) or poured-in-place reinforced concrete. In either case it shall be a one-piece (no joints) construction.

B. The valve vault walls shall be a minimum of 6 inches thick.

C. Include sump in bottom of vault and Schedule 80 PVC-2 inch drain line between valve vault and wet well with P-trap PVC check valve & disconnect in accordance with pumping station detail drawing.

D. Size of valve vault shall be as shown on drawings. A minimum clearance of 6-inches shall be maintained between weights and levers of check valves and vault walls. Contractor shall verify space requirements prior to submission of shop drawings.

E. Top of valve vault not to exceed 6-inches above finished grade elevation and shall level with top of wet well.

2-02 VALVE VAULT CONSTRUCTION

A. Valve Vault Bedding: After determining size of valve vault and prior to installation/pouring valve vault, stone bedding material in accordance with ASTM C-33 Gradation No. 67 (3/4 inch to No. 4 Sieve), shall be laid 12-inches minimum thickness in base area of valve vault.

B. Check valves, plug valves, piping and tees will be supported as shown on pumping station detail drawing.

C. Through the wall piping shall be grouted in place as shown on the drawings.

D. Emergency pump-out to include a 4-inch plug valve with a 4-inch aluminum Kam-lok coupler with cap and chain installed as shown on the drawing.

E. Install access cover as shown on pumping station detail drawing. Install weight and lever check valve. Insure that check valves are installed in accordance with pumping station detail drawing.

F. Piping and fittings shall be in accordance with Section 17414 Polyvinyl Chloride (PVC) Pipe for Wastewater Force Mains and be shall Ductile Iron with flanges. Flanges shall be drilled to 125 pound ANSI Standard B-16.1 template. All piping shall be suitable for wastewater application unless otherwise specified or approved by the Engineer.

G. Plug Valves for Wastewater Service, section 17431.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Valve vault and access cover and frame installation shall be as described on the pumping station detail drawings.

B. Additional items of construction such as flanged adapters, concrete support pedestals and other items necessary for the complete installation of the system shall conform to specific details on the drawings and shall conform to the applicable portion of these specifications.

3-02 COATINGS

A. Precast concrete interior and exterior surfaces, piping, fittings and valves shall be coated as stated on the drawings. Subsequent coats shall be applied within 48 hours of the previous coat.

B. Surfaces shall be dry and free of oil, rust, scale and dust prior to coating and coating shall be applied in accordance with manufacturer's instructions.

END

SECTION 17422

HYDRAULIC CEMENT PATCHING AND WATERPROOF COATING FOR WET WELLS AND MANHOLES

PART 1 - GENERAL

1-01 DESCRIPTION

A. This specification describes a Portland Cement based Hydraulic Cement (PRECO PLUG). It is used as a waterstopping material for all above and below grade concrete, masonry and stucco surfaces under hydrostatic pressure.

B. The specification also describes an acrylic polymer modified hydraulic cement coating (Brushbond). It is used as a protective and waterproofing coating on dry or damp, above or below grade, concrete, masonry and stucco surfaces. Both products shall provide a secure bond both mechanically and chemically.

1-02 WORK INCLUDED

A. The contractor shall provide all material, equipment and labor to install hydraulic cement and acrylic polymer modified hydraulic waterproof coating as required to complete the work in accordance with the plans and specifications.

PART 2 - PRODUCTS

2-01 APPROVAL REQUIREMENTS

A. PRECO Plug and brushbond as manufactured by FOSROC INC., 800-645-1258 or 941-377-3185 (in Sarasota) or approved equal conforming to the requirements of this specification.

B. Variations from material specified: Should the contractor wish to use any brand or type of material other than as specified herein, he shall so state in writing to the engineer or Owner naming the proposed substitution and manufacturer. This statement shall be accompanied by:

1. A certificate of compliance from an approved independent testing laboratory that the proposed substitute meets or exceeds the specified requirements and has been tested in accordance with the specified test standards.

2. Documented proof that the proposed brand or type of material has a proven record of performance when used in the intended application as confirmed by actual field tests or successful installations.

2-02 MATERIAL - PRECO PLUG

A. The premixed Portland Cement based hydraulic cement shall consist of portland cement, graded silica aggregated, special plasticizing and accelerating agents. It shall not contain chlorides, gypsums, plasters, iron particles, or gas forming agents or promote the corrosion of steel it may come in contact with. It shall be formulated at the factory and supplied in factory sealed and labeled, premeasured containers, which shall contain the complete quantity of materials required for this work. The labeled containers shall be mixed immediately prior to use in accordance with the manufacturer's written instructions and as stipulated in these specifications.

B. The cement shall meet the following requirements:

1.	Set-time, sec. ASTM C-191 50°F H_2O & 75°F Power	45-60
2.	Compressive Strength, psi ASTM C-109	
	10 Minute	1200
	1 Hour	1600
	1 Day	2400
	28 Days	6000
3.	Sulfate Resistance, passed ASTM C-88	15 Cycles Minimum
4.	Freeze-thaw Resistance, passed ASTM C-291	30 Cycles Minimum
5.	Shrinkage/Expansion ASTM C-157	+0.05
6.	Pull Out Strength, lbs. ASTM C-234 (#4 bar imbedded 6" in a cement pocket of 1.5" diameter)	10,000

2-03 MATERIALS - BRUSHBOND

A. Materials shall be formulated at the factory and supplied in factory sealed and labeled, premeasured containers, which shall contain the complete quantity of materials required for this work. The labeled containers shall be mixed in accordance to the manufacturers instruction and no additional cement or extenders shall be added at the job site.

B. The cured system shall exhibit the following properties.

1.	TENSILE STRENGTH, psi ASTM C-190	745
2.	COMPRESSIVE STRENGTH, psi ASTM C109	5715
3.	FLEXURAL STRENGTH, psi ASTM C-348	1585
4.	BRICK BOND STRENGTH, psi ASTM C-321	475
5.	SHEAR BOND STRENGTH ASTM C-109	775
6.	ABRASION RESISTANCE (percent weight loss) ASTM C-241	1.15
7.	IMPACT STRENGTH Inch Pounds	16

8. **WATER VAPOR TRANSMISSION RATE**
Perms 1/4" Thick Specimens
ASTM E-96 3-7

9. **WATER ABSORPTION**
(percent water absorbed)
ASTM C-140 2

10. FREEZE THAW RESISTANCE
(cycles passed)
ASTM C-291 60

2-04 Construction Methods

A. General - When requested, the contractor shall submit, for approval of the engineer or Owner, samples of the material he proposes to use prior to construction.

B. Sample application - At the option of engineer, the contractor shall demonstrate the material on a sample area which is representative of a job site application. When approved, the sample area shall serve as an acceptance for all further work.

C. All mixing and applications - The material shall be mixed and applied in strict accordance with the printed instructions of the approved manufacturer and as directed by the engineer or Owners representative. The contractor shall submit to the engineer or Owners representative, when requested, evidence indicting that the proposed applicators are fully qualified to perform the work and any proposed applicator found to be not qualified shall, at the written request of the engineer or Owners representative, be removed forthwith by the Contractor.

PART 3 - EXECUTION

3-01 PRECO PLUG

A. PREPARATION OF SURFACES: Surfaces to receive the rapid setting (45 seconds) Portland Cement based Hydraulic Cement shall be clean, structurally sound and free from oil, grease, loose mortar, paints, protective coatings, efflorescence, laitance and curing compounds.

B. APPLICATIONS: After surfaces have been properly prepared and accepted, the PRECO Plug material will be mixed and applied as follows:

To Seal Leaks: Crack opening must be prepared by chipping out a minimum depth and width of 3/4 INCH. PRECO Plug is mixed maintaining a 3:1 PRECO Plug to clean water ratio then forced into the crack.

To Patch: Trowel or knead PRECO Plug into prepared cracks, voids, joints or other connections of Sewer Pipes etc.

To Grout: Maintaining a mixing ratio 2.5:1 PRECO Plug to clean water, material is poured into holes while setting bolts, dowels or anchors.

3-02 BRUSHBOND

A. Preparation of surfaces to receive acrylic polymer modified hydraulic waterproof coating shall be clean, structurally sound and without cracks or voids wider than 1/16 inch and free from oil, grease, loose mortar, paints, protective coatings, efflorescence, laitance and curing compounds.

B. APPLICATION: After surfaces have been properly prepared and accepted, the BRUSHBOND material will be mixed and applied according to manufacturers specifications.

In general each BRUSHBOND kit consists of one (1) gallon acrylic concentrate and fifty (50) pounds of BRUSHBOND powder (grey or white). When entire kit is to be mixed, add one (1) gallon of BRUSHBOND liquid concentrate to an empty five (5) gallon pail. Dilute with one (1) gallon of clean water. Slowly add powder to the liquid and mix preferably with a propeller agitator attachment to a slow speed (350-450 rpm) drill until a smooth even consistency is reached. Do not mix more than can be used in 1-2 hours. Do not add any additional water or cement.

BRUSHBOND should be applied over predampened surfaces to prevent premature absorption of the acrylic admixture. Material is applied by using a short stiff bristle brush. A five (5) to seven (7) inch brush is recommended. Apply like paint two coats to the prepared surface. First coat should be white in color and applied in the vertical direction. The second coat should be grey and applied in the horizontal direction. Following this procedure eliminates the possibility of joints not receiving the coating.

Sufficient time for curing shall be allowed between each application, to be determined by the conditions of temperature and humidity. In no case shall speed of completion be permitted to the detriment of installation.

3-03 PRECAUTIONS

1. Protect liquid from freezing.
2. Do not apply when temperature is below 45°F.
3. Do not wet cure.

3-04 ACCEPTANCE

Completed installation must meet owners representative approval and be uniform in coverage, texture and color.

END

SPECIFICATION 17425

FIBERGLASS WET WELL LINER

PART 1 - GENERAL

1-01 Description

A. Fiberglass reinforced polyester wet wells shall be manufactured from commercial grade polyester resin or other suitable polyester or vinyl ester resins, with fiberglass reinforcements. Wet well shall be a one-piece unit manufactured by L.F. Manufacturing, Inc., P.O. Box 578, Hwy 290 East, Gidding, TX 78942, (800) 237-5791 or Fluid Containment, Inc., Route 20, Box 1380, Conroe Texas 77301-4124, 409-756-7731, or an approved equal.

PART 2 - MATERIALS

2-01 Resins

A. The resins used shall be a commercial grade unsaturated polyester resin.

2-02 Reinforcing Materials

A. The reinforcing materials shall be commercial Grade "E" type glass in the form of mat, continuous roving, chopped roving, roving fabric, or a combination of the above, having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin.

2-03 Surfacing Materials

A. If reinforcing materials are used on the surface exposed to the contained substance, it shall be a commercial grade chemical-resistant glass that will provide a suitable bond with the resin and leave a resin-rich surface.

2-04 Fillers and Additives

A. Fillers, when used, shall be inert to the environment and wet well construction. Additives, such as thixotropic agents, catalysts, promoters, etc., may be added as required by the specific manufacturing process to be used. The resulting reinforced plastic material must meet the requirement of this specification.

PART 3 - EXECUTION

3-01 Dimensional Requirements

A. Wall and top shall be a one-piece unit and shall be a minimum thickness of .50 inch or greater. Top shall be additionally reinforced to support loading of a 6" thick concrete top and aluminum access door. Top shall have a 4" high x 36" x 48" hatch opening which shall be located as shown on the drawings with one 12 inch high, to the underside of the flange, x 8 inch diameter UV protected vent pipe with flange. The outside diameter and depth shall be as specified on the drawings. Contractor shall establish final dimensional requirements of liner prior to submission of shop drawings.

3-02 Exterior Surface

A. The exterior surface shall be relatively smooth with no sharp projections. Hand-work finish is acceptable if enough resin is present to eliminate fiber show. The exterior surface shall be free of blisters larger than ½ inch in diameter, delamination and fiber show. The exterior shall have a protective UV coating applied prior to shipping that will be capable or lasting one (1) year.

3-03 Interior Surface

A. The interior surface shall be resin rich with no exposed fibers. The surface shall be free of crazing, delamination, blisters larger than ½ inch in diameter, and wrinkles of 1/8 inch or greater in depth. Surface pits shall be permitted up to 6 per square foot if they are less than 3/4 inch in diameter and less than 1/16 inch deep. A white pigment shall be added so that the interior surface is white in color.

3-04 Defects not Permitted That May be Cause for Rejection

A. Exposed fibers: glass fibers not wet out with resin.

B. Resin runs: runs of resin and sand on the surface.

C. Dry areas: areas with glass not wet out with resin.

D. Delamination: separation in the laminate.

E. Blisters: light colored areas larger than ½ inch in diameter.

F. Crazing: cracks caused by sharp objects.

G. Pits or voids: Air Pockets

H. Wrinkles: smooth irregularities in the surface.

I. Sharp projection: fiber or resin projections necessitating gloves for handling.

3-05 TEST METHODS

A. Tests shall be performed as specified in ASTM D 3753 latest edition, Section 8.

3-06 INSTALLATION

A. Detach all electrical wires, rails and hangars from the top of well.

B. Remove top from wet well.

C. Pressure wash interior of wet well with 3,000 to 5,000 psi water blast to remove all loose materials.

D. Apply a 20% muriatic acid solution to the interior of wet well to dissolve all grease and fats and to neutralize hydrogen sulfide and methane gas contamination. Allow to set for 10 minutes, and wash with 3,000 to 5,000 psi water blast again. All material washed off of walls shall be removed and disposed of off-site by Contractor.

E. All exposed rebar shall be sand-blasted and heavily coated with a rust inhibitor.

F. Measure and cut liner to desired length and measure and saw cut all incoming and outgoing line openings and also any invert configurations. Axes, hammers, chisels or similar impact type tools may not be used.

G. Lower liner into wet well and adjust so all openings and lines are correct.

H. Extend all lines inside of liner with PVC or fiberglass pipe allowing a 3" inch minimum stub out.

I. Tie-in the bottom with underwater quick setting hydraulic cement. Do not backfill until this bottom cement has hardened sufficiently to provide rigid support.

J. Seal around all pipes on inside of fiberglass liner with fiberglass cloth and epoxy a minimum of ½" thick. Top coat pipe penetration areas per specification 09950 "100% Solids Epoxy Protective Coating for Manholes and Lift Stations" with a minimum of 30 mils of white 100% solids epoxy.

K. Insert 2 x 4's every 3' in depth located in the center to hold shape while filling void. Pour 3,000 psi grout in the annular space between liner and old wet well up to top of liner. Fill in no more than two (2) foot lifts. Vibrate to assure that voids are filled.

L. Lay access door and a heavy polyurethane cloth over the top of the fiberglass wet well prior to pouring new 6" top slab with appropriate reinforcing rods. Seal areas around all openings with tape. Form-up and pour concrete top as shown on the construction drawing.

3-07 CLEAN-UP AND DISPOSAL

A. Contractor shall not allow waste or debris to accumulate; he shall have same removed from the job-site at frequent intervals.

B. Upon completion of work, all non-related surfaces shall be thoroughly cleaned of any material that may have been splashed on adjacent surfaces during the work using cleaning materials and methods that are recommended by the manufacturer of the waterproofing materials. Remove all waste, debris, surplus materials, equipment and tools coincident with the work and leave the premises and the job site in a clean and orderly condition.

3-08 WARRANTY

A. All work covered under the Contract shall be guaranteed against defective workmanship and materials for a period of at least one (1) year after completion and acceptance of the work. A first anniversary inspection shall be scheduled by the Contractor during the eleventh (11th) month following acceptance of the work. Any latent defects found during this inspection shall be promptly repaired by the Contractor at no additional cost to the Owner. The Contractor shall make repairs at all points where failures are observed. Any such repair work shall be completed by the Contractor within thirty (30) days after written notice or such defects unless otherwise negotiated.

B. Failure on the part of the Contractor to schedule this warranty inspection will not relieve him of warranty responsibility and any defects found by the Owner after normal warranty period will be assumed to have occurred during the one (1) year while the warranty was in effect.

END

SPECIFICATION 17427

FIBERGLASS MANHOLE LINER

PART 1 - GENERAL

1-01 INTENT

A. Fiberglass reinforced polyester manhole liner shall be manufactured from commercial grade polyester resin or other suitable polyester or vinyl ester resins, with fiberglass reinforcements. Manhole Liner shall be a one piece unit consisting of a barrel section, corbel or reducer section with a fiberglass neck that extends to the Ring & Cover. Manhole liner shall be manufactured to meet or exceed all specifications of ASTM D-3753 latest addition as manufactured by L.F. Manufacturing, Inc., Giddings, Texas 78942. (800) 237-5791, or approved equal.

PART 2 - MATERIALS

2-01 Resins

A. The resins used shall be a commercial grade unsaturated polyester resin or other suitable polyester or vinyl ester resin.

2-02 Reinforcing Materials

A. The reinforcing materials shall be commercial grade "E" type glass in the form of continuous roving and chop roving, having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin.

2-03 Interior Surfacing Material

A. The inner surface exposed to the wastewater environment shall be a resin-rich layer of 0.010 to 0.020 inch thickness. The inner surface layer exposed to wastewater environment shall be followed with a minimum of two passes of chopped roving of minimum length 0.5 inch to maximum length of 2.0 inches and shall be applied uniformly to an equivalent weight of 3 ounces per square foot. Each pass of chopped roving shall be well-rolled prior to the application of additional reinforcement. The combined thickness of the inner surface and interior layer shall not be less than 0.10 inch.

2-04 Wall Construction Procedure

A. After inner layer has been applied the manhole liner wall shall be constructed with chop and continuous strand filament wound manufacturing process which insures continuous reinforcement and uniform strength and composition. The cone section, if produced separately, shall be affixed to the barrel section at the factory with resin-glass reinforce joint resulting in a one piece unit. Seams shall be fiber-glassed on the inside and the outside using the same glass-resin jointing process. Field joints shall not be acceptable by anyone except the manufacturer.

2-05 Exterior Surface

A. As an ultra violet inhibitor the resin on the exterior surface of the manhole liner shall have a factory installed gray pigment added for a minimum thickness of 0.125 inch.

2-06 Fillers and Additives

A. Fillers, when used, shall be inert to the wastewater environment and manhole construction. Sand shall not be accepted as an approved filler. Additives, such as thixotropic agents, catalysts, promoters, etc. may be added as required by the specific manufacturing process to be used to meet the requirements

of this standard. The resulting reinforced-plastic material must meet the requirements of this specification.

PART 3 - EXECUTION

3-01 MANUFACTURING PROCESS

A. Manhole liner cylinders, manway reducers, corbel sections, connectors and neck section shall be produced from glass fiber-reinforced polyester resin using a combination of chop and continuous filament wound process.

1. Manway Reducer/Corbel Section: Manway reducers or corbel section will be concentric or eccentric with respect to the larger cylinder portion of the manhole liner.

2. Cover and Ring Support: The manhole liner shall provide an area from which a typical ring and cover can be supported without damage to the manhole liner.

3. Manway Neck or Lip: Manhole liner neck section shall extend from the ring and cover support area up to the ring and cover. The neck section shall be designed to protect the adjustment ring(s), brick and mortar used to bring the ring and cover to final grade.

3-02 FABRICATION

A. Dimensional Requirements: Wall and top shall be a one-piece unit and shall be a minimum of 5/16 inch thick. Liner shall be constructed to meet or exceed ASTM D-3753 specification and support an H-20 load rating. The outside diameter and depth shall be specified on approved shop drawings. Contractor shall be responsible for meeting dimensional requirements of the manhole.

B. Exterior Surface: The exterior surface shall be relatively smooth with no sharp projections. Hand work finish is acceptable if enough resin is present to eliminate fiber show. The exterior surface shall be free of blisters larger than 0.5 inch in diameter, delamination or fiber show.

C. Interior Surface: The interior surfaces shall be resin rich with no exposed fibers. The surface shall be free of crazing, delimitation, blisters larger than 0.5 inch in diameter and wrinkles of 0.125 inch or greater depth. Surface pits shall be permitted if they are less than 0.75 inch in diameter and less than 0.0625 inch deep. Voids that cannot be broken with finger pressure and that are entirely below the resin surface shall be permitted if they are less than 0.5 inch diameter and less than 0.0625 inch thick.

D. Repairs: All active leaks shall be stopped prior to the installation of the liner. Any additional manhole repair required shall meet all requirements of this specification and/or specification 17422 (Hydraulic Cement Patching and Waterproof Coating for Wet Wells and Manholes) which ever is more stringent. All exposed rebar shall be wire brushed or sand blasted, inspected by owners representative and then heavily coated with a rust inhibitor.

E. Manhole Lengths: Manhole Liner lengths shall be manufactured in six (6) inch increments ± two (2) inches. Manhole liner depth shall be from invert to top elevation minus the thickness of the ring and cover. The top 12 inches of the manhole liner shall be a fiberglass neck that extends from the liner corbel or cone section to the bottom of the ring and cover.

F. Diameter Tolerance: Tolerance of inside diameter of the liner shall be ± 1% of the specified inside diameter stated on approved shop drawings. The manhole liner inside diameter shall be approximately six (6) inches smaller than the inside diameter of the barrel section of the existing manhole.

G. Load Rating: The complete manhole shall have a minimum dynamic-load rating of 16,000 pounds-force when tested in accordance with ASTM 3753 8.4 (note 1). To establish this rating the complete manhole liner shall not leak, crack, or suffer other damage when load tested to 40,000 pounds-force

and shall not deflect vertically downward more than 0.25 inch at the point of load application when loaded to 24,000 pounds-force.

H. Stiffness: The manhole cylinder shall have the minimum pipe-stiffness values shown in the table below when tested in accordance with ASTM 3753 8.5 (note 1).

Manhole Length in Feet.	PSI
3 - 6.5	0.75
7 - 12.5	1.26
13 - 20.5	2.01
21 - 25.5	3.02
26 - 35	5.24

I. Soundness: In order to determine soundness, apply an air or water pressure test to the manhole liner sample. Test pressure shall not be less than three (3) psig. or greater than 5 psig. While holding at the established pressure, inspect the entire manhole for leaks. Any leakage through the laminate is cause for failure of the test. Refer to ASTM 3753 8.6.

J. Chemical Resistance: When tested in accordance with ASTM 3753 8.7 the log of percent retention of each property after immersion testing when plotted against the log of immersion time, and extrapolated to 100,000 hours shall assure retention of at least 50% of the initial properties.

3-03 PHYSICAL PROPERTIES

	HOOP Direction	AXIAL Direction
a. Tensile Strength (psi)	18,000	5,000
b. Tensile Modules (psi)	0.6 x 10	0.7 x 10
c. Flexural Strength (psi)	26,000	4,500
d. Flexural Modules (psi)	1.4 x 10	0.7 x 10
e. Compressive (psi)	18,000	12,000

3-04 TEST METHODS

A. All tests shall be performed as specified on ASTM D 3753 latest addition, section 8. Test method D-790 and test method D-695.

3-05 QUALITY CONTROL

A. Each completed manhole liner shall be examined for dimensional requirements, hardness and workmanship. All required ASTM 3753 testing shall be completed and records of all testing shall be kept and copies of test results shall be presented to Owner upon formal written request within a reasonable time period.

3-06 CERTIFICATION

A. As a basis of acceptance the manufacturer shall provide an independent certification which consist of a copy of the manufacturer's test report and accompanied by a copy of the test results that the manhole has been sampled, tested, and inspected in accordance with the provisions of this specification and meets all requirements. This certification shall be furnished at time of delivery to the owner.

3-07 SHIPPING AND HANDLING

A. Do not drop or impact the fiberglass manhole liner. Fiberglass Manhole Liner may be lifted by inserting a 4" x 4" x 30" timber into the reducer section with a cable or sling attached. A sling or "choker" connection around the center can also be used. Use of chains or cables in direct contact with liner surface is prohibited.

3-08 MARKING AND IDENTIFICATION

A. Each manhole liner shall be marked on the inside and outside with the following information.

1. Manufacturer's name or trademark.
2. Manufacturer's factory location.
3. Manufacturer's serial number.
4. Total length and inside diameter.

3-09 INSTALLATION

A. The manhole corbel or cone section shall be removed and disposed of by contractor.

B. Pressure wash the interior of the manhole with an 800 to 1000 psi water blast to remove all loose materials and make any necessary repairs.

C. Apply a 20% muriatic acid solution and pressure wash again.

D. Measure and cut manhole liner to exact length and invert configuration. Measure and cut all incoming and outgoing line openings.

E. Lower manhole liner into manhole and level.

F. Extend all incoming and outgoing lines inside the liner with PVC ASTM 3034 SDR-26 or other approved pipe.

G. Tie-in and seal bottom of liner with a quick setting non-shrink hydraulic cement.

H. Tie-in and seal all lines extending into the manhole liner with hydraulic cement within the grouted areas and fiberglass cloth & resin to liner. Fill the void between the pipe joints with fiberglass cloth and resin or a 100% solid epoxy gel to a smooth finish.

I. Reconstruct all channels if necessary by removing all loose grout and rubble. Rebuild by reshaping and repairing slope of shelves or benches. Work shall include aligning inflow and outflow ports in such a manner to prevent the deposition of solids at the transition point. All inverts shall follow grades of the pipe entering the manhole. Changes in direction of the wastewater and entering branch or branches shall have a true curve of as large radius as the size of the manhole will permit. It shall be shaped to allow easy entrance of maintenance equipment including buckets, camera, etc.

J. Pour or pump a minimum 3000 psi grout mix into the annular space between the liner and existing manhole.

K. Use concrete grade rings or brick and mortar on top of the liner cone section to bring ring and cover to finish grade.

L. Any exposed concrete or brick in cone section shall be first coated with a resin and fiberglass matting (patch kit).

M. Coat the entire bottom including inverts, channels and any patch coverings with 60 mils of a 100% solid epoxy per specification 09950.

N. Under paved or proposed paved roadways contractor shall backfill with flowable fill grout to bottom of existing asphalt. Within right-of-ways, but not under existing or proposed pavement, contractor shall backfill with flowable fill grout to within 12 inches below existing grade. In all other areas clear sand fill shall be used for backfill to within 12" below existing grade. The top 12" of the last two conditions shall be replaced with equal to or better than existing material.

3-10 CLEAN-UP AND DISPOSAL

A. Contractor shall not allow waste or debris to accumulate; he shall have same removed from the job-site at frequent intervals.

B. Upon completion of work, all non-related surfaces shall be thoroughly cleaned of any material that may have been splashed on adjacent surfaces during the work using cleaning materials and methods that are recommended by the manufacturer of the waterproofing materials. Remove all waste, debris, surplus materials, equipment and tools coincident with the work and leave the premises and the job-site in a clean and orderly condition.

3-11 WARRANTY

A. All work covered under the Contract shall be guaranteed against defective workmanship and materials for a period of at least one (1) year after completion and acceptance of the work. A first anniversary inspection shall be scheduled by the Contractor during the eleventh (11th) month following acceptance of the work. Any latent defects found during this inspection shall be promptly repaired by the Contractor at no additional cost to the Owner. Any location where coating has peeled off, bubbled or cracked, shall be considered a failure of the coating. The Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surfaces and re-coating with the same material. Any such repair work shall be completed by the Contractor within thirty (30) days after written notice of such defects unless otherwise negotiated.

B. Failure on the part of the Contractor to schedule this warranty inspection will not relieve him of warranty responsibility and any defects found by the Owner after the normal warranty period will be assumed to have occurred during the one (1) year while the warranty was in effect.

C. All workmanship and materials shall be guaranteed for one year after the final date of project completion.

End

SECTION 17431

PLUG VALVES FOR WASTEWATER SERVICE

PART 1 - GENERAL

1-01 DESCRIPTION

A Furnish, install and test all plug valves as shown on the drawings and as specified herein.

1-02 SUBMITTALS

A. Submit manufacturer's catalog data. illustrations, principle dimensions, materials of construction, installation instructions and other pertinent data.

B. Submit certificates from manufacturer stating that products furnished comply with these specifications.

C. Operation and Maintenance Manuals: Submit six manuals for each different size, type or model of valve furnished. Manuals shall be bound sets of literature including the following and other pertinent information required.

1. Detailed assembly drawings, clear and concise instructions for operating, adjusting, overhauling, troubleshooting and other maintenance.

2. A complete lubrication schedule including lubricant types, grades and frequency of lubrication.

3. A list of parts for all products with catalog numbers and all data necessary for ordering replacement parts. Such instructions and parts lists shall have been prepared for the specific product furnished and shall not refer to other types or models.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling valves to avoid damage. Inside of valves shall be kept free of dirt and debris.

PART 2 - PRODUCTS

2-01 PLUG VALVES

A. General: Plug valves shall be non-lubricated eccentric type designed for use in wastewater service with flanged or mechanical joint ends as specified below. Valves shall open by turning to the left (counter-clockwise), when viewed from the stem. Port area of valves shall be 100 percent of full pipe area. Valve pressure ratings, body flanges and wall thickness shall be in full conformance with ANSI B16.1, latest revision. Valves shall seal leak-tight against full rated pressure in both directions. Prior to shipment from the factory, each valve shall be hydrostatically tested as follows. Valve seats shall be tested to provide leak tight shut off to 175 psi for valves through 12 inch and 150 psi for valves 14 inch and larger, with pressure in either direction. In addition, a hydrostatic shell test shall be performed with the plug open to a pressure twice that of rating specified above to demonstrate overall pressure integrity of the valve body. Plug valves shall be eccentric plug valves as manufactured by DeZurik or resilient seated plug valves as manufactured by Dresser.

B. Eccentric Plug Valves: Eccentric plug valves shall be Series 100 Fig. 118, as manufactured by DeZurik. Valve bodies shall be constructed of high strength case iron conforming to ASTM A126, Class B and AWWA C504, latest revisions. Valve bodies shall be cast with raised eccentric seats which have a corrosion resistant welded-in overlay of not less than 90 percent pure nickel on all surfaces contacting the plug face. Valve seats shall be in accordance with AWWA C504 and AWWA C507, latest revisions. Valves shall be furnished with resilient faced plugs with Neoprene facing, suitable for use with wastewater. Valves shall be furnished with replaceable, permanently lubricated,

stainless steel, sleeve-type bearings in the upper and lower plug stem journals. Plug stem bearings shall comply with AWWA C504 and C507, latest revisions. Valves shall be bolted bonnet design. Valves shaft seals shall be designed so that they can be repacked without removing the bonnet and the packing shall be adjustable. Packing material shall be Buna-Vee type packing. Valve shaft seals shall be in accordance with AWWA C504 and AWWA C507, latest revisions. All exposed valve nuts, bolts, springs, washers and the like shall be Type 304 stainless steel.

C. Resilient Seated Plug Valves: Resilient seated plug valves shall be Style 820 as manufactured by Dresser. Valve bodies shall be constructed of high strength cast iron conforming to ASTM A126, Class B. Valve body shall provide a full circle seat area. Valve disc shall be manufactured of ductile iron conforming to ASTM S536 with integral upper and lower shafts. Valve resilient seat seals shall be Buna-N or Neoprene, suitable for use in wastewater service, bonded to a Type 304 stainless steel retaining ring and secured to the valve disc by Type 304 stainless steel set screws. The valve seat shall be adjustable and replaceable in the field without dismantling operator, disc or shaft. Bearing surfaces of valve body, bonnet and disc shafts shall be corrosion resistant by a factory applied, epoxy coating in accordance with AWWA C550 latest revision and coat with Nylon 11 applied to a thickness of 9 to 25 mils. Valves shall be bolted bonnet design. Valve shaft seals shall conform to AWWA C504, latest revision. Shaft seals shall operate in contact with corrosion protected trunnion surfaces and be either Buna-Vee packing or Buna-N O-ring type seals. If O-ring type seals are used they shall be contained in a removable corrosion resistant cartridge or recess. All exposed valve nuts, bolts, springs, washers and the like shall be Type 304 stainless steel.

D. Interior Valve Lining: All interior ferrous surfaces of the valve that will have contact with wastewater shall be coated with a factory applied, 8 to 10 mil epoxy coating in accordance with AWWA C550, latest revision. Surfaces shall be clean, dry and free from rust, oil, and grease before coating. Exterior surfaces of valve shall be coated as specified hereinafter.

E. Valve joints: All plug valves installed aboveground, in valve vaults or on flanged piping shall have flanged ends. Flanges shall comply with facing, drilling and thickness of ANSI Standards for Class 125 dimensions. Nuts and bolts for flanged connections shall be Type 304 stainless steel in accordance with ASTM A320, Class 2. All buried plug valves shall have mechanical joint ends with dimensions, bolting patterns and assembly in strict accordance with ANSI/AWWA C111, latest revision. Tee head bolts and nuts for mechanical joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan or an equal approved by the Engineer. Refer to Section 17407, DUCTILE IRON PIPE AND FITTINGS FOR RAW WASTEWATER, Part 2-03 for additional requirements for valve joints.

F. Valve Actuators

1. All plug valves installed in valve vaults or buried underground shall have actuators designed for buried and submerged service. Valve shall have seals on all shafts and gaskets on valve and actuator covers to prevent entry of water and dirt. Actuator mounting brackets for buried or submerged service shall be totally enclosed and shall have gasket seals. All exposed valve nuts, bolts, springs, washers and the like shall be Type 304 stainless steel.

2. Plug valves 4-inch in size and smaller installed aboveground or in valve vaults shall have manual actuators, one-quarter turn to open. Actuator shall be supplied with an AWWA Standard 2-inch square operating nut to allow use of standard valve levers and wrenches.

3. Plug valves 4-inch in size buried underground, and all plug valves 6-inch in size and larger installed aboveground, buried or in valve vaults shall be furnished with AWWA Standard 2-inch square operating nuts for buried valves, or handwheel, chainwheel or 2-inch square nut operators for aboveground or valve vault installation, as shown on the drawings. Gear actuator shall be sized for the maximum pressure differential across the valve, equal to the pressure rating of the valve. All gearing shall be enclosed in a high strength cast iron housing, suitable for running in a lubricant. Housing shall be provided with seals on all shafts to prevent the entry of dirt and water into the actuator. Actuator shaft and quadrant shall be supported on permanently lubricated bronze bearings. Actuator shall clearly indicate valve position for aboveground and valve vault installations and an adjustable stop shall be provided to set closing torque. Actuator shall be capable of withstanding an over-torque

without damage up to 450 foot-pounds for 2-inch square nut operators and to 300 foot-pounds for handwheel or chainwheel operators.

2-02 EXTERIOR COATINGS FOR PLUG VALVES

A. All exterior surfaces of iron body valves shall be clean, dry and free from rust and grease before coating.

B. For valves installed underground or in valve vaults, all exterior ferrous parts of valve and actuator shall be coated at the factory with an 8 to 10 mil of epoxy coating in accordance with AWWA C550, latest revision. Prior to backfilling, all uncoated nuts, bolts, glands, rods and other parts of joints shall be coated in the field with coal tar epoxy. The coal tar epoxy shall be Kop-coat Bitumastic No. 300-M, or approved equal.

C. For aboveground service, the exterior ferrous parts of all valves shall be coated as follows:

1. Prior to shipment from the factory, valves shall be coated with epoxy in accordance with AWWA C550, latest revision.

2-05 VALVE EXTENSIONS

A. Extension stems shall be provided on all buried valves when operating nut is deeper than 4 feet below final grade. Stem shall be attached to operating nut by a 1/4" S.S. bolt. A centering device shall also be centered on the extension shaft. Top of extension shall be positioned 12" below final grade.

2-06 VALVE BOXES

A. Furnish, assemble and place a valve box over the operating nut for each buried valve.

B. Valve boxes shall be of the adjustable screw type of suitable length. The valve boxes shall be manufactured of cast iron and shall be of the three piece design including base section, center section and top section with cover. The cast iron cover shall have the word "SEWER" cast into it. The top section shall be adjustable for elevation and shall be set to allow equal movement above and below finished grade. The castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM A48, Class 30B for Gray Iron Castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections and other harmful defects. The seating surfaces of both the cover and the top section shall be machined so that the cover will not rock after it has been seated. The valve boxes shall be coated inside and outside with an asphaltic coating prior to machining, so that the machined seating surfaces will be free of any coating. Cast iron valve box assemblies shall be Clow Corp. No.F-2450, Tyler Corp. No. 461-S or approved equal.

PART 3 - EXECUTION

3-01 INSTALLING VALVES

A. Plug valves of the size shown on the drawings shall be installed at the locations indicated on the drawings. Valves shall be installed in accordance with manufacturer's installation instructions and with the standard details.

B. Valves shall be installed such that they are supported properly.

C. For buried plug valves a valve box shall be centered accurately over the operating nut and the entire assembly shall be plumb. The tops of valve boxes shall be adjusted to the proper elevation as specified below and as shown on the drawings.

1. In paved areas, tops of valve box covers shall be set flush with pavement. Following paving operations, a 30-inch square shall be neatly cut in the pavement around the box and the paving removed. The top of the box shall then be adjusted to the proper elevation and a 30-inch square by 6-inch thick concrete pad poured around the box cover. Concrete pads in traffic areas shall be reinforced with No. 4 reinforcement bars as shown on the drawings. Concrete for the pad shall be 3,000 psi compressive strength.

2. In unpaved areas, tops of valve box covers shall be set 0.20 foot above finish grade. After the top of the box is set to the proper elevations, a 30-inch square by 6-inch thick concrete pad shall be poured around the box cover. Concrete for the pad shall be 3,000 psi compressive strength.

3. The concrete pad for the valve box cover shall have a 2-inch diameter, bronze disc embedded in the surface as shown on the drawings. The bronze disc shall have the following information neatly stamped on it; the size of the valve; the number of turns to open; the direction to open; and the year of installation.

D. Plug valves shall be tested hydrostatically concurrently with the line in which they are installed.

3-02 TOUCH-UP OF ABOVE GROUND EXTERIOR COATINGS

A. Following installation of above ground valves, touch-up nicks and scratches of exterior painted surfaces with the same finish coating as specified hereinbefore.

END

SECTION 17440

AUTOMATIC AIR RELEASE VALVE FOR WASTEWATER FORCE MAINS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install air release valves on wastewater force mains within precast pits as indicated on the drawings.

1-02 SUBMITTALS

A. Manufacturer's Product Data: Submit data for manufactured products, and include catalog data, drawings, principle dimensions, materials of construction, and other pertinent information.

B. Operation and Maintenance Manuals: Submit six bound sets for each different size, type or model of valve furnished. Include the following information and other pertinent information required.

1. *Clear and concise instructions for operating, adjustment, overhaul, troubleshooting and other* maintenance of the equipment.

2. A complete lubrication schedule including lubricant types, grades and frequency of lubrication.

3. A list of all parts for the equipment, with catalog numbers and all data necessary for ordering replacement parts. Instructions and parts lists shall have been prepared for the specific equipment furnished and shall not refer to other types or models of similar equipment.

1-03 PRODUCT HANDLING

A. Exercise care in transporting and handling to avoid damage to the air release valve. Maintain inside of valves free of dirt and debris.

PART 2 - MATERIALS

2-01 PRECAST MANHOLES

A. Valve pit shall be constructed as shown on drawings with a precast manhole section(s). Precast manhole section shall be constructed as specified in Section 17418, MANHOLES.

2-02 CONCRETE

A. Concrete work shall conform to the applicable requirements of Section 03010, CONCRETE WORK.

2-03 FRAME AND COVER

A. Frame and cover shall be gray iron castings conforming to ASTM A 48, Class 30B for Gray Iron Castings and shall be smooth, true to pattern, free from blow holes, sand holes, projections, and other harmful defects. The seating surfaces of both the frame and cover shall be machined so that the cover will not rock after it has been seated. The frame and cover shall be a square base frame with a double cover, with a minimum inside diameter of 35 inches. The covers shall be solid with non-penetrating pick holes. The words "SEWAGE AIR VALVE" shall be cast integrally into the cover. Frames and covers shall be coated on all surfaces with an asphaltic coating prior to machining so that the machined surfaces will be free of any coating. Frames and covers for normal conditions shall conform to the weight and dimensions shown in the Standard Details, or shall be furnished in equivalent foundry patterns. Frame and cover shall be U.S. Foundry and Manufacturing Corp. No.

USF 682, Neenah Foundry Company No. R-1740-D2 with a Type "B" cover or an equal approved by the Engineer.

2-04 AUTOMATIC AIR RELEASE VALVE

A. Automatic air release valve shall have an elongated cast iron body and be designed to operate while pressurized to allow air from a wastewater force main to escape through the air release orifice. After entrained air escapes through the orifice the orifice shall be closed by a needle mounted on a compound lever mechanism attached to a float, preventing wastewater from escaping. The air release orifice will then remain closed until enough air accumulates to open the valve and the cycle automatically repeats. The compound lever mechanism shall be manufactured of Delrin with stainless steel linkage, the needle shall be Buna N and the float, float rod and other internal parts shall be stainless steel. The valve shall be furnished with a 2 inch Type 306 S.S. inlet shut off valve, a one inch blow off valve, a 1/2 inch Type 306 S.S. outlet shut off valve, quick disconnect couplings for backflushing and 6 feet of backflushing hose with a quick disconnect coupling. The exterior of the valve shall be coated with 2 coats, 10 mils DFT each coat of coal tar epoxy. Automatic air release valve shall be an APCO Model 400, a Crispin Model S20-B or an equal approved by the Engineer.

2-05 PVC PIPING AND FITTINGS

A. Piping and fittings for installation of the automatic air release valve shall be a minimum of 2 inches nominal diameter. Materials and installation of required piping and fittings for the valve installation shall be in accordance with Section 17132, POLYVINYL CHLORIDE (PVC) PIPE 2-INCH AND SMALLER IN DIAMETER.

PART 3 - EXECUTION

3-01 INSTALLATION OF VALVE AND PIT

A. Precast valve pit shall be constructed in a workmanlike manner at the location and to the dimensions indicated on drawings.

B. Piping, fittings and the automatic air release valve shall be installed as shown on the drawings.

C. The automatic air release valve assembly shall be installed so that it is properly supported and such that it will function properly and freely and no parts shall be strained.

D. Frame and cover shall be installed for valve pit as indicated on drawings.

3-02 TESTS

A. Valve tests shall be performed with and part of tests on companion wastewater force main.

END

SECTION 17455

RENOVATION OF EXISTING SUBMERSIBLE TYPE WASTEWATER PUMPING STATIONS

PART 1 - GENERAL

1-01 DESCRIPTION

A. The work included under this section includes all labor, equipment and materials required to renovate existing wastewater pumping stations including: removal of equipment not to remain in service; renovation of existing wet wells; renovation of existing or construction of new valve vaults; installation of equipment; furnishings and installing piping, fittings, valves, and all other mechanical and electrical appurtenances; and testing of installed mechanical and electrical equipment. It is intended that the Contractor provide for a complete and operable facility in accordance with the drawings and these specifications.

1-02 SEQUENCE OF CONSTRUCTION

A. The Contractor shall submit a written narrative description of the sequence of construction activities required for the demolition, removal or relocation of existing structures, equipment, piping and electrical work and for the construction of new structures, equipment, piping and electrical work. All work schedules and construction sequences shall be approved and coordinated with the Owner and other affected utilities. Construction activities shall be planned so as to minimize reductions in pumping capabilities and down time for the existing pumping station.

1-03 EQUIPMENT

A. All equipment for each wastewater pumping station shown and specified on the contract drawings shall be furnished and installed by the Contractor.

1-04 SUBMITTALS

A. Submit four copies of manufacturers catalog data, illustrations, principle dimensions, materials of construction, installation, instruction, certificates from manufacturer stating that products furnished comply with these specifications, operation and maintenance manuals, and any other pertinent data for materials and equipment furnished by the Contractor for pumping station renovation. Refer to individual sections of these specifications for submittal requirements of particular materials and equipment to be furnished.

1-05 PERMITS AND NOTICES

A. Permits and Licenses: Contractor shall obtain all necessary permits and licenses for performing the work and shall furnish a copy of same to the Engineer prior to commencing the work. The Contractor shall comply with the requirements of the permits.

B. Notices: Contractor shall issue written notices to utility companies or local authorities for planned removal, relocation or construction activities involving gas, water, electric power, telephone, cable television or sewer utilities as a part of the contract. Copies of all written notices shall be submitted to the project Engineer or owner.

1-06 PRODUCT HANDLING

A. Exercise care in transporting, handling and storing Owner supplied and Contractor furnished materials and equipment. All materials and equipment shall be kept clean and free of dirt and debris.

PART 2 - PRODUCTS

2-01 GENERAL

A. All products shall be as specified in the contract drawings and specifications.

2-02 PIPE AND FITTINGS

A. Ductile iron pipe and ductile iron fittings shall be flanged Class 53 pipe in conformance with SECTION 17407, DUCTILE IRON PIPE AND FITTINGS FOR WASTEWATER. Nuts, bolts and other hardware items installed in wet wells and valve vaults shall be Type 304 stainless steel in accordance with ASTM A320, Class 2 (unless otherwise specified).

B. Polyvinyl chloride (PVC) pipe and fittings for vents, drains and water services shall be Schedule 80 PVC in accordance with ASTM D1785 for pipe, and ASTM D2464 and ASTM D2467 for threaded and solvent welded fittings respectively.

C. Polyvinyl chloride (PVC) pipe for discharge piping shall be DR14 C-900 with uniflange or approved equal.

2-03 CHECK VALVES

A. Refer to SECTION 17194, CHECK VALVES.

2-04 PLUG VALVES

A. Refer to SECTION 17431, PLUG VALVES FOR WASTEWATER SERVICE.

2-05 PIPE COUPLINGS

A. Refer to SECTION 17233, PIPE COUPLINGS.

2-06 KAMLOK COUPLER

A. The emergency pump by-pass shall be provided with a Kamlok type, flanged male adapter. The adapter shall have a nominal diameter of 4-inches with a standard ANSI/AWWA 125 lb. drilled flange. The kamlok male adapter shall be furnished with a compatible dust cap with a brass chain. The male adapter, flange and dust cap shall be manufactured of high tensile aluminum.

B. Kamlok type flanged male adapters and dust caps shall be as manufactured by Ever-Tite Coupling Co., Inc., New York, New York or an equal approved by the Engineer.

2-07 BACKFLOW PREVENTER

A. Where a water service is to be installed as a part of the contract for renovation of wastewater pumping stations, a reduced pressure type backflow preventer shall be installed on the water service as shown on the drawings. The reduced pressure backflow preventer shall be a Model 825Y as manufactured by Febco, an Aergap Model FRP-II as manufactured by Hersey Products (Beeco), a Model 575 as manufactured by Neptune Water Meter Co., or a Model No. 909 as manufactured by Watts Regulator Company or an equal approved by the Engineer.

2-08 MANHOLES

A. Manhole sections used for wet well renovation shall be precast concrete sections in accordance with SECTION 17418, MANHOLES.

2-09 CONCRETE WORK

A. Concrete used for foundations and cast in place reinforced concrete or precast concrete for valve vaults and tops of wet wells shall be in accordance with SECTION 03010, CONCRETE WORK.

2-10 ELECTRICAL WORK

A. All materials and equipment furnished for renovation of wastewater pumping stations shall be in accordance with DIVISION 16 - ELECTRICAL.

PART 3 - EXECUTION

3-01 TEMPORARY BY-PASS PUMPING

A. The Contractor shall provide all necessary labor, materials and equipment including pumps, engine drives or generator sets, suction and discharge piping, and control equipment to provide temporary by-pass pumping. System shall be continuously operated and maintained by the Contractor for as long as the pumping station wet well is out of service. By-pass pumping shall be accomplished by plugging the gravity sewer from the first manhole upstream of the wet well and then using the master manhole if available as a temporary wet well. Wastewater shall be discharged from the pump to a temporary connection on the existing force main.

B. The Contractor shall submit the type, model, pumping capacity, discharge pressure and type of driver for the pump to be used for temporary by-pass pumping and the method of controlling and operating the pumping equipment. In addition, the Contractor shall submit proof of ownership or a lease agreement for the proposed pumping equipment. The proposed pumping equipment and the proposed method of accomplishing the temporary by-pass pumping shall be reviewed and approved by the Owner prior to commencing any of the work.

C. The contractor shall be fully responsible for the control of wastewater flows until the renovation has been approved and accepted by the Company.

3-02 DEMOLITION, MODIFICATION AND SALVAGE OF EXISTING STRUCTURES, MATERIALS AND EQUIPMENT

A. Conditions of Structures and Equipment: The Owner assumes no responsibility for the actual condition of structures or equipment to be removed or demolished. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner in so far as practicable.

B. Salvable Material: Prior to demolition and removal activities the Contractor will consult with the Owner to identify any materials or equipment that are to be removed under the Contract that the Owner wishes to salvage and retain. Material to be salvaged shall be removed with a minimum amount of damage and stored in areas designated by the Owner. Salvaged material to be stored on the ground shall be placed on blocks or pallets. Any materials or equipment to be removed that are not designated by the Owner to be salvaged, shall be promptly removed from the site by the Contractor as a part of the Contract. Materials removed from site shall be disinfected. All salvaged parts that have been in contact with wastewater shall be sprayed with a 5% solution of sodium hypochlorite prior to leaving the site and disposed of in accordance with applicable local, state, and federal regulations.

C. Traffic: Conduct rehabilitation operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways as required by governing regulatory agencies.

D. Protections: Ensure the safe passage of persons around the area of work. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.

1. Provide suitable barricades and handrails around excavations or demolition operations as required by authorities having jurisdiction.
2. Whenever excavations cross public walkways provide a suitable safe walkway with hand railings.

3. Maintain suitable lights or flares to indicate open excavations at night along or across public or private thoroughfares.

4. Provide interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain.

5. Access to private property shall be protected and maintained during all phases of the construction.

6. All above ground equipment left unattended that has been in contact with wastewater shall be disinfected with a 5% solution of sodium hypochlorite.

E. Damages: Promptly repair damage caused to adjacent facilities by rehabilitation operations at no additional cost to the Owner.

F. Utility Services: Maintain existing utilities indicated to remain, keep accessible and in service, and protect against damage during rehabilitation operations.

1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities.

G. Rehabilitation: Demolish and remove all existing structures, pumps, piping, valves, fittings and other mechanical and electrical equipment that are indicated to be removed in the Contract Documents. Rehabilitation shall proceed in a systematic manner, from the top of the structure down. Complete demolition work above each floor or tier before disturbing supporting members on lower levels. Demolish concrete and masonry in small sections, and remove and break-up slabs unless otherwise shown to remain. Small structures may be removed intact when approved by the Engineer and by authorities having jurisdiction.

H. Modifications to Existing Facilities: The cutting and removal of existing work necessary for modifications and installation of new work shall be made without damage to the work that is to remain. Any damage done to existing facilities which are to remain shall be repaired at the Contractor's expense to the satisfaction of the Engineer and the Company.

I. Disposal of Demolished Materials: Debris, rubbish and other materials resulting from demolition operations that are not to be salvaged shall be removed and disposed of off site weekly. Debris created within facilities, which are to remain in service during the renovation work, shall be removed on a daily basis. All debris removed shall be disposed of by the Contractor in accordance with local, state, and federal regulations.

3-03 RENOVATION OF EXISTING WET WELLS

A. Precast concrete wet well sections that are to be replaced as a part of wet well renovation, shall be installed in accordance with SECTION 17418, MANHOLES.

B. If new pump bases and anchor bolts are to be installed as a part of renovation, break out and remove existing concrete mortar fill floor and fillets.

C. Interior concrete surfaces shall be prepared prior to installation of an epoxy lining to remove all surface dirt, wastewater residue, previous coatings and any other foreign material. Surface preparation shall be as specified by manufacturer or company specifications such as high pressure water cleaning or commercial sand blasting methods.

Following surface preparation interior concrete surfaces of wet well shall be lined with an epoxy liner as described hereinafter under Paragraph 3-07, Protective Coatings and Linings.

3-04 INSTALLATION OF EQUIPMENT IN WET WELL

A. Pump Bases and Pumps: Install new pump bases as shown on the drawings and in accordance with the pump manufacturer's installation instructions. Bases shall be installed level and plumb and in correct position with relation to the access frame and cover and such that guide rails are parallel and vertically plumb. The pump bases shall be anchored into a new concrete floor using type 304 stainless steel J-type anchor bolts designed to be cast into the concrete unless otherwise approved in writing. Concrete floor shall slope to pumps with a minimum 6-inch fillet at wet well wall as shown on the drawings.

B. Piping and Fittings: Flanged pipe and fittings shall be installed as shown on the drawings and as specified in SECTION 17407, DUCTILE IRON PIPE AND FITTINGS FOR WASTEWATER. Pipe and fittings shall be coated as specified below.

C. Access Door: The wet well access door shall be installed as shown on drawings. Bolted down type shall be anchored using Type 304 stainless steel expansion type anchor bolts (Red Head or equal). Wet well access door shall be located accurately such that pump guide rails are parallel and vertically plumb. Installation shall be per manufactures instruction.

D. Pump Guide Rail System: Anchor upper guide rail brackets using Type 304 stainless steel nuts and bolts or expansion type anchor bolts as shown on drawings. If shown on drawings, anchor intermediate guide rail brackets to the discharge piping. Guide rails shall be cut to the correct length and bolted, using Type 304 stainless steel bolts and nuts, to the upper and intermediate guide rail brackets. Threaded ends of 2-inch diameter pipe used for guide rails shall be removed prior to cutting to proper guide rail length. Guide rails shall be installed vertically plumb and parallel such that the pumps may be installed and removed without binding.

E. Cable Holder: Install stainless steel cable holder as shown on drawings using Type 304 stainless steel bolts and nuts or expansion type anchor bolts. The cable holder shall be installed such that control cables will hang freely, will not be affected by incoming wastewater flow, and such that cables will not interfere with pump installation and removal using the guide rail system.

3-05 VALVE VAULT, PIPING, FITTINGS AND VALVES

A. Precast Concrete Valve Vault: The valve vault shall be precast concrete with minimum clearances and dimensions as shown on drawings, and specified in section 17419 "Wastewater Pumping Station Valve Vault Concrete Structure". Concrete shall be as specified in Section 03010. The Contractor shall verify the actual inside dimensions of the vault required based on valves and fittings to be furnished. The valve vault shall be installed on a concrete and/or crushed stone foundation as shown on the drawings.

B. Access Door: The valve vault access door shall be installed as shown on drawings. Bolted down type shall be anchored using Type 304 stainless steel expansion type anchor bolts (Red Head or equal). Valve vault access door shall be located to provide unhindered access to valve operating nuts. Installation shall be per manufacturer's instructions.

C. Piping, Fittings and Valves: Piping, fittings and valves located in valve vaults shall be installed as shown on drawings. Plug valves shall have the type of operator indicated. Refer to the following specification for additional information: 17407, DUCTILE IRON PIPE AND FITTINGS FOR WASTEWATER; 17410 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS FOR WASTEWATER

GRAVITY SEWERS, 17194, CHECK VALVES; 17431, PLUG VALVES FOR WASTEWATER SERVICE.

3-06 ELECTRICAL WORK

A. Installation procedures of electrical equipment and materials furnished by the Contractor or supplied by the Owner for pumping station renovation shall be in accordance with DIVISION 16 - ELECTRICAL.

3-07 PROTECTIVE COATINGS AND LININGS

A. Exterior Wet Well and Valve Vault

1. For brick and concrete exterior below ground surfaces exposed during renovation, clean off dirt and debris with high pressure water cleaning. Surfaces shall be free of dirt, loose cement, form oil, curing compounds and any other foreign material.

2. Patch leaking joints with hydraulic cement and apply three coats (Red/Black/Red) coal tar epoxy coating with a minimum dry film thickness of 10 mils per coat, for a total finish thickness of 30 mils dry film thickness. Coatings shall be Kop-Coat Bitumastic No. 300M or an equal approved by the engineer. Subsequent coat shall be applied within 48 hours of previous coat. Refer to section 17422 Hydraulic Cement Patching and Waterproof Coating for Wet Well and Manholes. Coating shall be applied in accordance with manufacture's instructions. New precast concrete wet well sections installed as a part of the renovation contract shall be coated at the precast manufacturer's yard prior to shipment as described above.

B. Interior coating of walls, ceiling, piping, fittings and valves in Wet Well and Valve Vault.

1. Surfaces shall be dry and free of oil, rust, scale, dust, wastewater residue, previous coatings and any other foreign material prior to coating. Surface preparation shall be as specified by either high pressure water cleaning or commercial sand blasting. Existing piping, fittings and valves that are to remain following renovation shall have surfaces prepared by commercial sand blasting meeting SSPC-SP-6 specifications prior to coating. Patch leaks, cracks, joints, and depressions greater than 1/2" with hydraulic cement, preco plug, or equal. Coating shall be applied by an approved applicator per manufacturer's recommendations and FCWC specification #09950 100% SOLIDS EPOXY PROTECTIVE COATING FOR MANHOLES AND LIFT STATIONS, or approved equal.

2. Coat ductile iron piping, walls, floor, ceiling, and any valves or fittings not fusion bonded epoxy coated in valve vault with a minimum dry film thickness of 30 mils of a 100% solids epoxy.

3. All short piping pieces and fittings shall be coated separately before installation. All stainless steel hardware shall not be coated.

3-08 EXCAVATING, TRENCHING AND BACKFILLING

A. Excavating, trenching and backfilling for installation of valve vaults, force mains, electrical work and the earthwork required for wastewater pumping station renovation, including filling in below grade areas and voids resulting from rehabilitation of structures, shall be in accordance with specification 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER UTILITIES and as specified below.

B. Completely fill in areas and voids resulting from rehabilitation operations.

C. Backfill and fill materials obtained off site shall be satisfactory soil materials as defined in specification 02202, EXCAVATING, TRENCHING AND BACKFILLING FOR WATER AND WASTEWATER

UTILITIES free from debris, trash, roots and other organic matter, and stones larger than 2 inches in any dimension.

D. Prior to placement of fill materials, ensure that areas to be filled are free of standing water, frost, trash and debris.

E. Place fill materials in horizontal layers not exceeding 6" in loose depth. Compact each layer at optimum moisture content of the fill material to a density equal to the original adjacent ground, unless subsequent excavation for new work is required. Compaction shall be 98% minimum T-180 modified proctor.

F. After fill placement and compaction, grade the surface to meet adjacent contours and to provide flow to surface drainage structures.

3-09 SITE CLEAN UP AND RESTORATION

A. The site shall be cleaned up and restored to a condition superior to that prior to beginning construction. Clean up and restoration shall be in accordance with the General Conditions and as specified below.

B. Restore or replace items intended to remain that have been damaged during construction operations. These items shall include landscaping, sidewalks, roadways, driveways and any other areas that are disturbed.

C. Reconnect or restore all interrupted utility services to the condition existing prior to construction and disconnect and remove temporary services unless specified otherwise.

D. Grading.

1. General: Uniformly grade areas within limits of site grading including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades. The degree of finish required will be that ordinarily obtainable from either blade-grader or scraper operations.

2. Ditches: Finish ditches to ensure proper flow and drainage. Conduct final rolling operations to produce a hard, uniform and smooth cross-section.

3. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below the required subgrade elevations, compacted as specified, and free from irregular surface changes.

E. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to the specified tolerances.

F. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, re-shape, and compact to the required density prior to further construction.

G. Seed and mulch or solid sod all areas disturbed by construction, as indicated on drawings or in the Contract Documents, in accordance with SECTION 02487, GRASS SEEDING, MULCHING AND SODDING.

3-10 START-UP AND TESTING

A. All mechanical and electrical equipment furnished and installed for renovation of wastewater pumping stations shall be tested in normal operation to demonstrate: proper installation in strict accordance with equipment manufacturers installation instructions; required pumping capacity and discharge

pressure; proper alignment and adjustment; freedom from vibration, excessive noise and overheating; and proper operation of the lift station control panel.

B. The Contractor will furnish the services of a factory trained representative of the pump and electrical panel manufacturer. The representative will check the pumps and electrical panel to ensure that they are properly installed and operable. The Contractor shall have his representative and his electrical sub-contractor on site during start-up and testing procedures.

C. All equipment shall be warranted against all defects for a minimum period of 18 months after delivery or 12 months after system start-up, whichever expires first.

D. All defects found in materials or equipment furnished by the Contractor, or defects found in equipment or materials furnished by the Owner as a result of improper handling or installation by the Contractor, shall be corrected by repair or replacement of damaged or faulty materials or equipment at no additional cost to the Owner prior to final acceptance.

END

SECTION 18600

INSTRUMENTATION AND CONTROL, GENERAL

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install all instruments, controls, control panel, installation materials and accessory items as shown on the drawings and specified herein.

B. Furnish all calibration, commissioning, tests and adjustments required to place the system in commercial operation.

C. Furnish start-up assistance as required by the Owner. Three man days of start-up time shall be included in the bid price plus a per diem rate for additional start-up.

D. Equipment and work shall be under warranty as specified in the GENERAL CONDITIONS. This warranty shall supersede all standard conditions of sale which may be in conflict.

E. Conduit, cable, relays and other electrical devices required to complete the instrumentation and control system are specified in DIVISION 16, ELECTRICAL.

1-02 QUALITY ASSURANCE

A. Comply with the latest applicable codes, standards, rules and regulations published by:

1. American National Standards Institute (ANSI)
2. American Society for Testing and Materials (ASTM)
3. American Society of Mechanical Engineers (ASME)
4. American Water Works Association (AWWA)
5. American Welding Society (AWS)
6. Institute of Electrical and Electronic Engineers (IEEE)
7. Instrument Society of American (ISA)
8. National Electric Manufacturers Association (NEMA)
9. National Electrical Code
10. National Fire Protection Association (NFPA)
11. Local Codes when more stringent than above.
12. Manufacturer's standards when more stringent than above.

END

SECTION 18601

INSTRUMENTS AND CONTROLS

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish and install the instrument and control equipment and the installation materials specified herein.

1-02 QUALITY ASSURANCE

A. Manufacturer's published instructions and the applicable codes contained in Section 18600, INSTRUMENTATION AND CONTROLS - GENERAL.

1-03 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers are listed for each item. Substitute items may be furnished for items where the term "or approved equal" appears, in compliance with the GENERAL CONDITIONS. Complete technical data must be submitted to the Engineer for approval. Sales literature is not acceptable.

1-04 SUBMITTALS

A. Shop Drawings: Furnish fabrication drawings and wiring diagrams for the control panel. Furnish terminal strip identification for all terminal strips installed. Furnish schematic and wiring diagrams and terminal strip identifications for any control panels and junction boxes furnished by process equipment vendors.

B. Product Data: Furnish catalog cuts, data sheets and product descriptions. Furnish certified dimension drawings for flow elements and control valves.

C. Installation Instructions: Furnish installation details for each item.

D. Tag Numbers: Instruments and controls must be identified by tag number on each drawing or document. Failure of the tag number to appear will be cause for rejection.

1-05 PRODUCT HANDLING

A. Receipt: Material shall be received, unloaded, inspected and stored. Receipt and condition of shipments shall be reported to Owner.

PART 2 - PRODUCTS

2-01 CONTRACTOR FURNISHED EQUIPMENT

A. Furnish the equipment mounted in the control panel as shown and specified in the drawings.

B. Spare parts and consumable supplies shall be furnished as follows:

1. A one year supply of recording charts and replacement pen tips.
2. Ten percent replacement lamps for indicator lights and annunciators.
3. A priced recommended spare parts list.

PART 3 - EXECUTION

3-01 INSTALLATION

A. Installation work shall include all uncrating as required, recrating if necessary, storing, moving from storage, rigging, drilling, setting, assembling, aligning, cleaning, testing and any other work necessary to prepare each system and each item of equipment and its integral parts for normal continuous service. Instruments, control systems and accessories shall be installed in the locations shown on the drawings. If any deviation from the drawings is required, it shall be reported to the Owner before further action is taken.

B. In general, installation shall conform to the procedures outlined in manufacturer's instruction manuals. For equipment not supplied with instruction manuals, follow standard water plant practices acceptable to the Owner, and Architect-Engineer.

C. Special attention shall be paid to installation notes on drawings and work shall be in strict conformance thereto.

3-02 INSTRUMENT LOCATIONS

A. All instruments, instrument connections and other control equipment not specifically located on the drawings shall be located and mounted where readily accessible and visible from grade, permanent platforms, or stairways for ease of operations, inspection and maintenance and protected from damage by passing or falling objects. Instruments shall be located as near as possible to the points of measurement consistent with accessibility, temperature variations, humidity, vibration and dust.

All instruments shall be mounted completely free of piping, tubing and conduit restraints. The Contractor's instrument installation personnel shall work closely with the Owner's personnel to insure that the locations meet the requirements for operations and maintenance of the instrumentation equipment. Indicating pressure switches shall not be mounted on pump discharge piping.

3-03 PROTECTION FROM WEATHER AND CORROSIVE VAPORS

A. Weatherproof enclosures shall be furnished for all instruments mounted outdoors unless the instrument itself is weatherproof. Enclosures furnished for field mounted instruments having indicators shall include provisions for viewing the indicator.

B. All instruments located outdoors and subjected to weather conditions shall have adequate protection from moisture and corrosive vapors. Electrical instruments and other equipment whose sensitivity is affected by ambient temperature changes shall be mounted in isothermal cabinets.

3-04 PIPING AND TUBING INSTALLATION

A. All piping and tubing shall be adequately supported and located free of interference with other piping and equipment. All piping and fittings between primary connections and instruments shall be ½" 316 SS. Instrument valves for shutoff, venting and blow-down shall be manufactured of 316 SS and shall be as recommended by the equipment manufacturer. Unions shall be installed to facilitate the removal of the instrument.

B. All piping and tubing shall be adequately supported and located free of interference with other piping and equipment.

C. All instrument piping and tubing shall have burrs removed and shall be cleaned of loose dirt and scale before erection. Open ends of piping shall be capped prior to installation to keep out dirt or other foreign material.

D. All piping and tubing joints shall be made up square and tight.

E. All piping and tubing joints shall be installed with due consideration given to proper draining and venting and for removal of equipment for maintenance. All transmitter installations shall be made to minimize stresses and vibrations from the connecting piping and mounting brackets.

F.. Piping shall be as short and direct as possible and shall be run in straight lines parallel to the ground unless the drawings specify pitched runs, with as few bends as possible. Bends shall be made only with an approved bending tool.

G. All necessary supports for instrument tubing and piping shall be furnished and installed. Where required, tubing shall be supported on angle type track. The track shall be furnished with pre-punched holes and shall be bolted in place. The track shall be 316 stainless steel and as manufactured by James C. White Co,. Greensville, SC or approved equal. All required support accessories shall be of the same manufacture as the support system. All supports and accessories shall be stainless steel with stainless steel nuts and bolts. The tubes shall be held in place on the inside of the angle by means of stainless steel clips, bolts and wing nuts at intervals of not more than 5 feet. The tubes shall be routed in a uniform manner, parallel, throughout the entire run of the tube track. Couplings and tees shall be so installed as to be readily accessible for wrench tightening and testing without disturbing other tubing, clips or nuts. Flowmeter connecting piping shall be installed with a slope of 1 inch per foot to the low point. All other liquid filled lines shall slope to a low point with a slope of not less than 1/8" per foot.

3-05 CLEANING OF PIPING AND TUBING

A. All tubing and piping shall be kept clean during all phases of work. Open ends of uncompleted systems shall be closed and protected at the end of each day to prevent the entrance of foreign material.

B. All piping and tubing for primary sensing and sampling lines shall be blown-down with the operating fluid before the instrument or analyzer is placed in service. This operation shall be coordinated with system piping flushing. Precautions shall be taken to insure internal cleanliness of the completed system.

C. Hydrostatic testing of tubing and piping shall be carried out before service cleaning.

3-06 CONTROL PANEL INSTALLATION

A. The control panel shall be set in place and connected as shown on the drawings.

B. Stainless steel channel mounting frames and stainless steel anchor bolts shall be provided to fasten the control panel to aluminum posts.

END

SECTION 18602

TESTING, CALIBRATING AND COMMISSIONING

PART 1 - GENERAL

1-01 DESCRIPTION

A. Furnish all labor, tools, test equipment and material required to test, calibrate and commission the instrument and control systems.

B. Adjust initial setpoints on pressure switches, monitor switches and alarm contracts.

C. Provide all labor and materials required for initial start up of the instrument and control systems.

1-02 QUALITY ASSURANCE

A. Personnel assigned to calibrate and commission the instrument and control system shall be qualified by training and experience to perform the activities required to complete the work.

B. Calibrating and testing shall be accomplished without damage to the equipment under test.

C. Testing, calibrating and commissioning shall be conducted in the presence of the Owner, or Owner's representative.

D. Test equipment, tools and materials used shall be accurate, in working condition and shall conform to the requirements of these specifications.

1-03 SUBMITTALS

A. Reports and Certifications:

1. Prepare calibration reports in duplicate for each instrument and control loop. Each calibration shall be made under the observation of the Owner's representative, and the reports shall be signed by the Owner's representative and Contractor's Supervisor. The original copy of the signed reports shall be given to the Owner's representative, and the duplicate copy shall be retained by the Contractor.

2. At the completion of the work, submit to the Owner's representative a certification that all instruments and control systems have been commissioned and are in operating condition in accordance with the contract drawings and specifications. This certification shall indicate that the work is complete and responsibility for the instrumentation is transferred to the Owner. The standard warranty period shall begin at that time.

END

Poinciana Wastewater Treatment Plant Expansions
Expansion Criteria

The following criteria are not intended to be all inclusive or restrictive of equipment manufacturers. They are intended to convey the acceptable level of quality for the equipment used in each project.

Wastewater Treatment Plant No. 1

Expansion from 0.350 mgd to 0.500 mgd

Control building - Poured-in-place concrete slab, concrete block walls, wood trusses, plywood sheeting, shingled roof, steel exterior doors, single hung windows.

Modifications to oxidation ditch - Rotor aerator, baffles and covers by Lakeside Equipment Corporation, or approved equal.

Clarifier - Poured-in-place concrete floor and walls. Drive, stilling well. scraper mechanism and effluent launders by WesTech, or approved equal.

Final Treatment Structure (Filter and Chlorine Contact Chamber) - Poured-in-place concrete floor and walls. Filter equipment shall be Hydro-Clear by U.S. Filter/Zimpro, or approved equal. Aluminum weirs and slide gates.

Handrails and grating shall be aluminum.

Miscellaneous pumps and equipment to be determined based on project requirements.

Expansion from 0.500 mgd to 0.700 mgd

Pretreatment Structure/Splitter Box - Poured-in-place concrete. Weirs and slide gates shall be aluminum.

Oxidation ditch - Poured-in-place concrete floor with poured-in-place or prestressed concrete walls. Rotor aerators, baffles and covers by Lakeside Equipment Corporation, or approved equal.

Wastewater Treatment Plant No. 2

Expansion from 0.500 mgd to 1.000 mgd

Pretreatment Structure/Splitter Box - Poured-in-place concrete. Static screens to be 316 stainless steel by Hycor, Andritz Sprout-Bauer, Vulcan, or approved equal. Weirs and slide gates to be aluminum.

Package Treatment Plant - Poured-in-place concrete floor with prestressed or poured-in-place concrete walls. Carbon steel inner ring, basin divider walls, and clarifier equipment and appurtenances by U.S. Filter/Davco, Smith & Loveless, Sanitaire, or approved equal.

Traveling Bridge Filters - Poured-in-place concrete floor and walls. Filter equipment by U.S. Filter/Davco, or approved equal.

Chlorine Contact Chamber - Poured-in-place concrete floor and walls. Baffle walls may be concrete block. Weirs and slide gates to be aluminum.

Aerobic Digester/Sludge Holding Tank - Poured-in-place concrete floor and carbon steel walls by U.S. Filter/Davco, or approved equal.

Blower Building - Poured-in-place concrete floor, concrete block walls, hollow core roof with built-up roofing.

Handrails and grating shall be aluminum.

Miscellaneous pumps and equipment to be determined based on project requirements.

Expansion from 1.000 mgd to 1.500 mgd

Flow equalization basin - Poured-in-place concrete floor with prestressed concrete or carbon steel walls by Crom Corporation, U.S. Filter/Davco, or approved equal.

Miscellaneous pumps and equipment to be determined based on project requirements.

or

Expansion from 1.000 mgd to 2.000 mgd

Oxidation Ditch - Poured-in-place concrete floor with poured-in-place or prestressed concrete walls. Rotor aerators, baffles and covers by Lakeside Equipment Corporation, or approved equal.

Clarifiers - Remove package treatment plants from existing tanks. Clarifier equipment to be by Eimco, or approved equal.

Filters (if required) - Poured-in-place concrete floor and walls. Traveling bridge filter equipment to be by U.S. Filter/Davco, or approved equal.

Miscellaneous pumps and equipment to be determined based on project requirements.

Wastewater Treatment Plant No. 3

Expansion from 0.350 mgd to 0.850 mgd

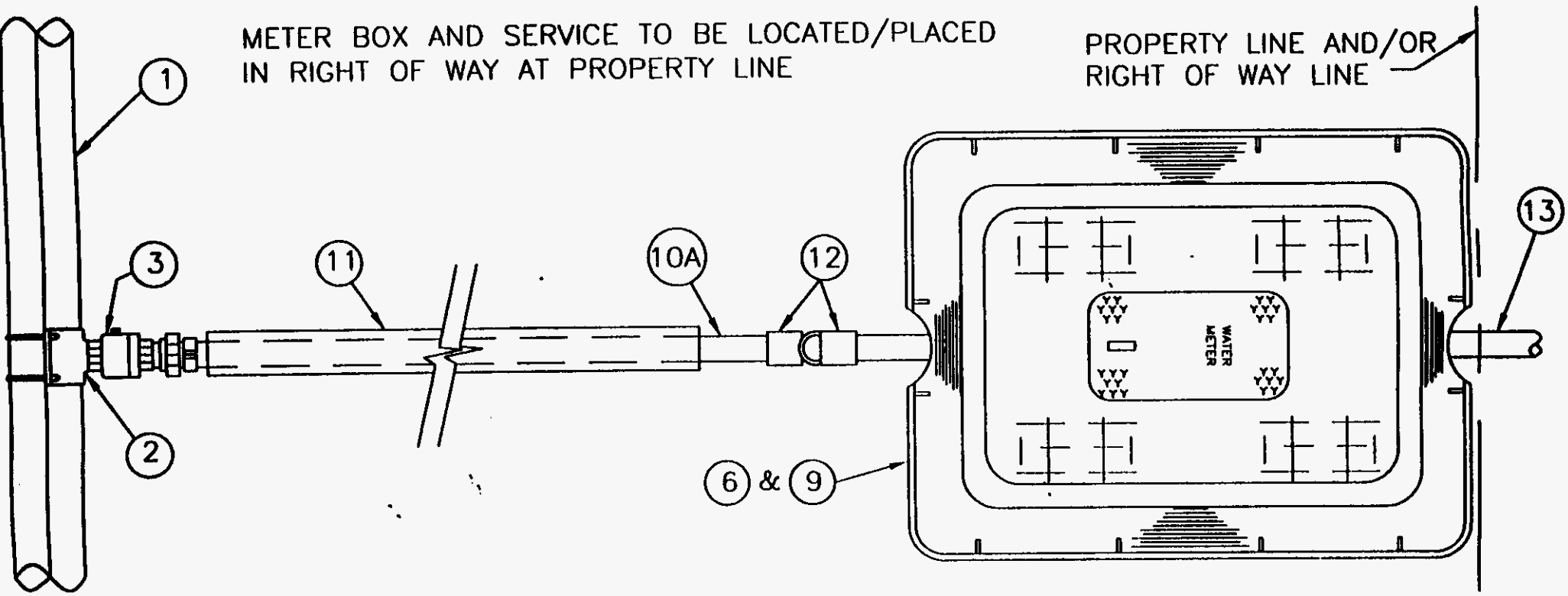
Sequencing Batch Reactor (SBR) - Poured-in-place concrete floors and walls. SBR equipment by Jet Tech, or approved equal.

Filters - Poured-in-place concrete floor and walls. Traveling bridge filter equipment to be by U.S. Filter/Davco or approved equal.

Ultraviolet Disinfection - UV disinfection equipment to be by Infilco-Degremont, Inc., or approved equal.

Sludge Digester - Existing tankage to be used.

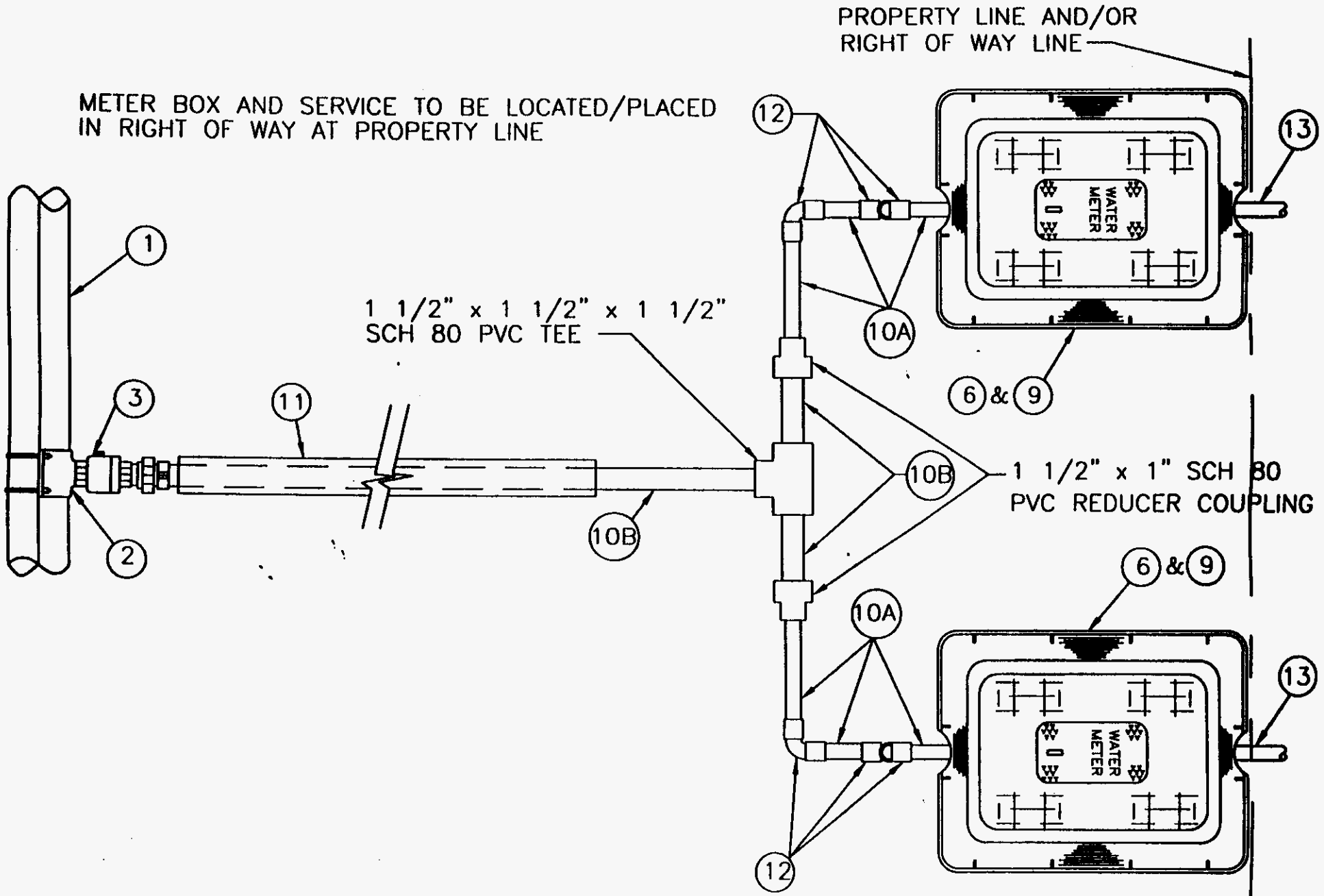
Other equipment to be determined based on project requirements.



SINGLE SERVICE CONNECTIONS FOR 3/4" AND 1" METERS

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10-28-92

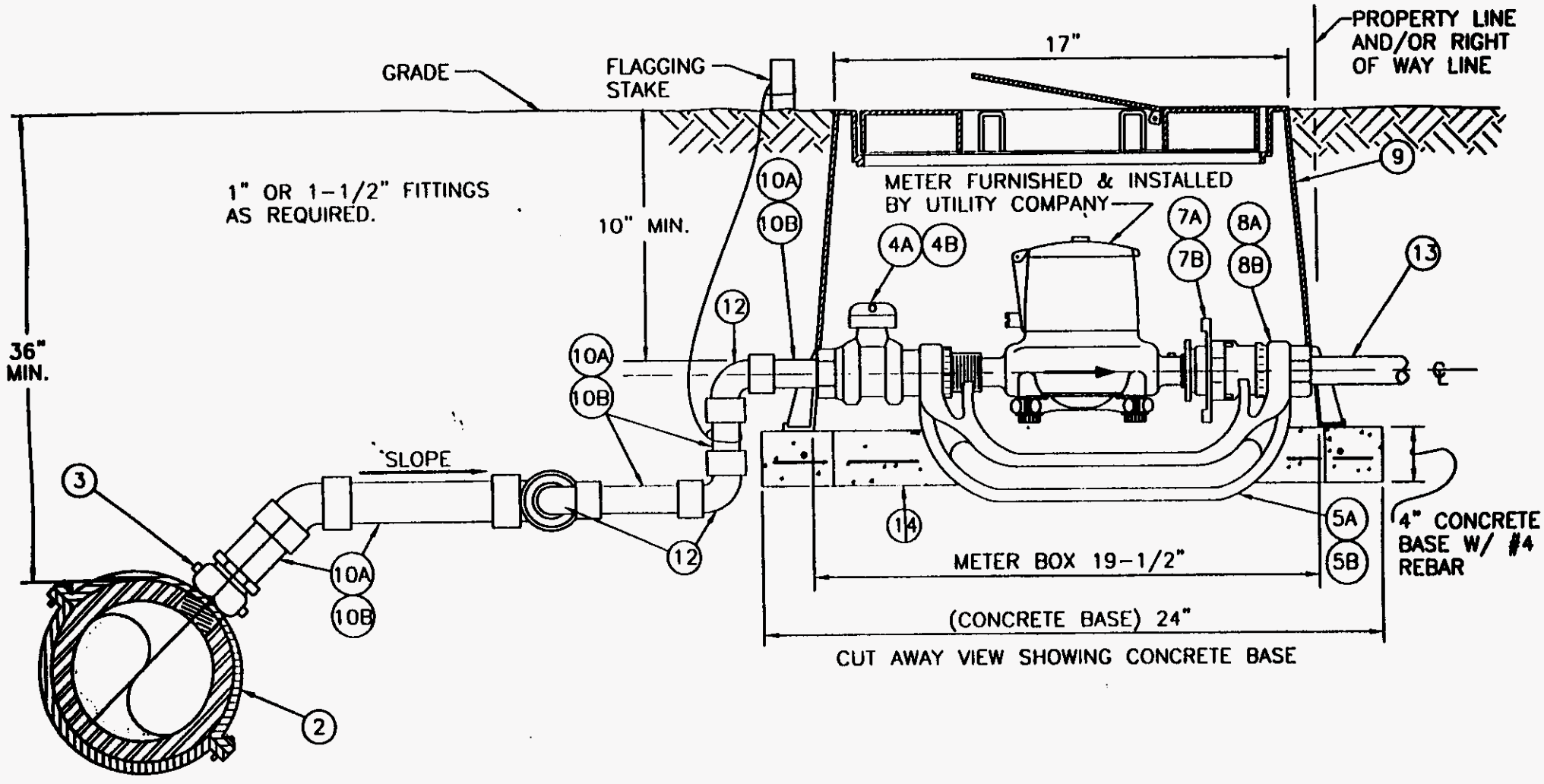
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DOUBLE SERVICE CONNECTIONS FOR 3/4" AND 1" METERS

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10-28-92

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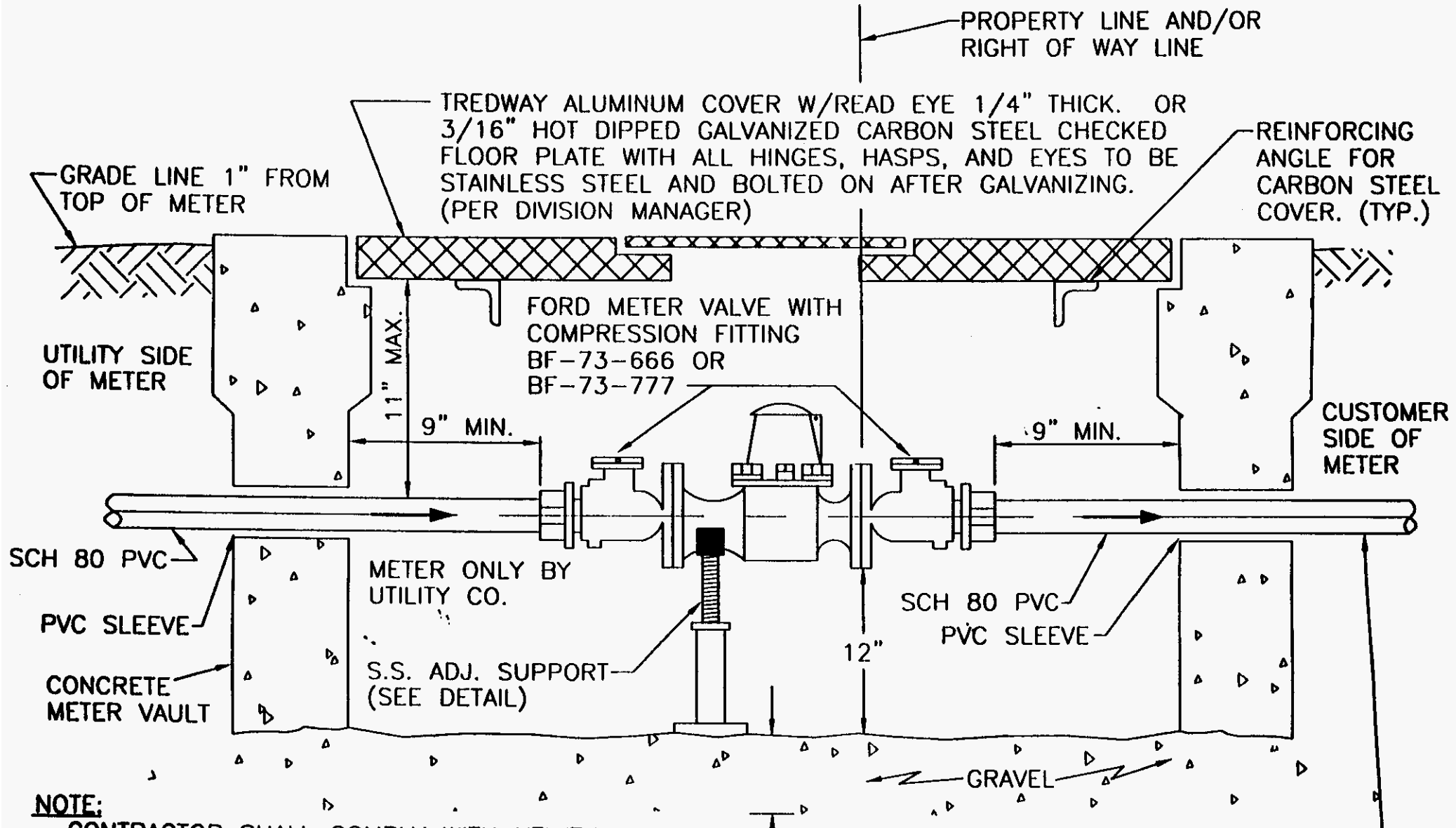


SINGLE AND DOUBLE WATER SERVICE CONNECTIONS FOR 3/4" AND 1" METERS

(DOUBLE SERVICE SHOWN)

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10-28-92

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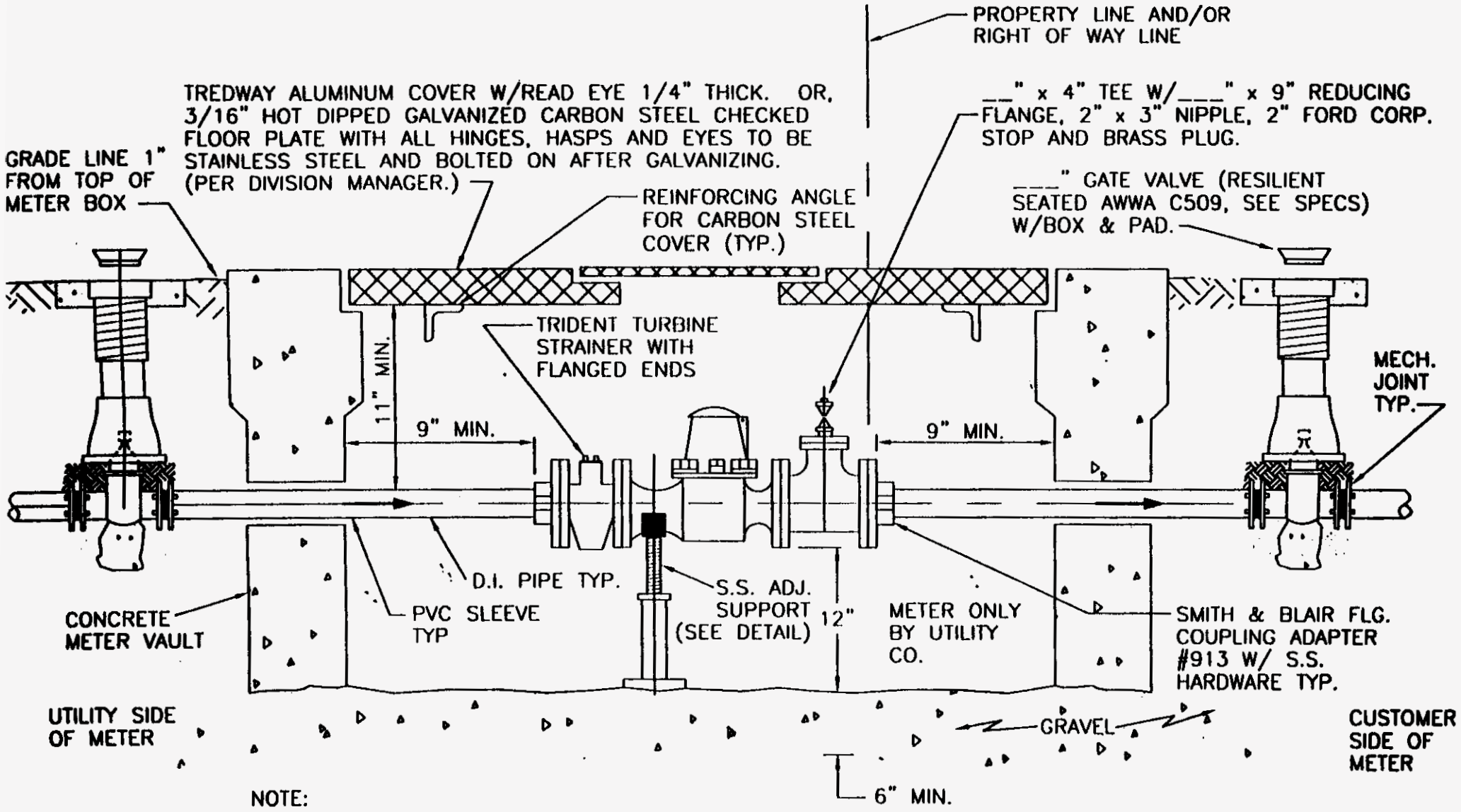
NOTE:

CONTRACTOR SHALL COMPLY WITH UTILITY COMPANY REQUIREMENTS FOR THIS WATER METER INSTALLATION
WIDTH OF VAULT 2"-0" INSIDE DIMENSION.

WATER METER INSTALLATION FOR 1 1/2" AND 2" SERVICES

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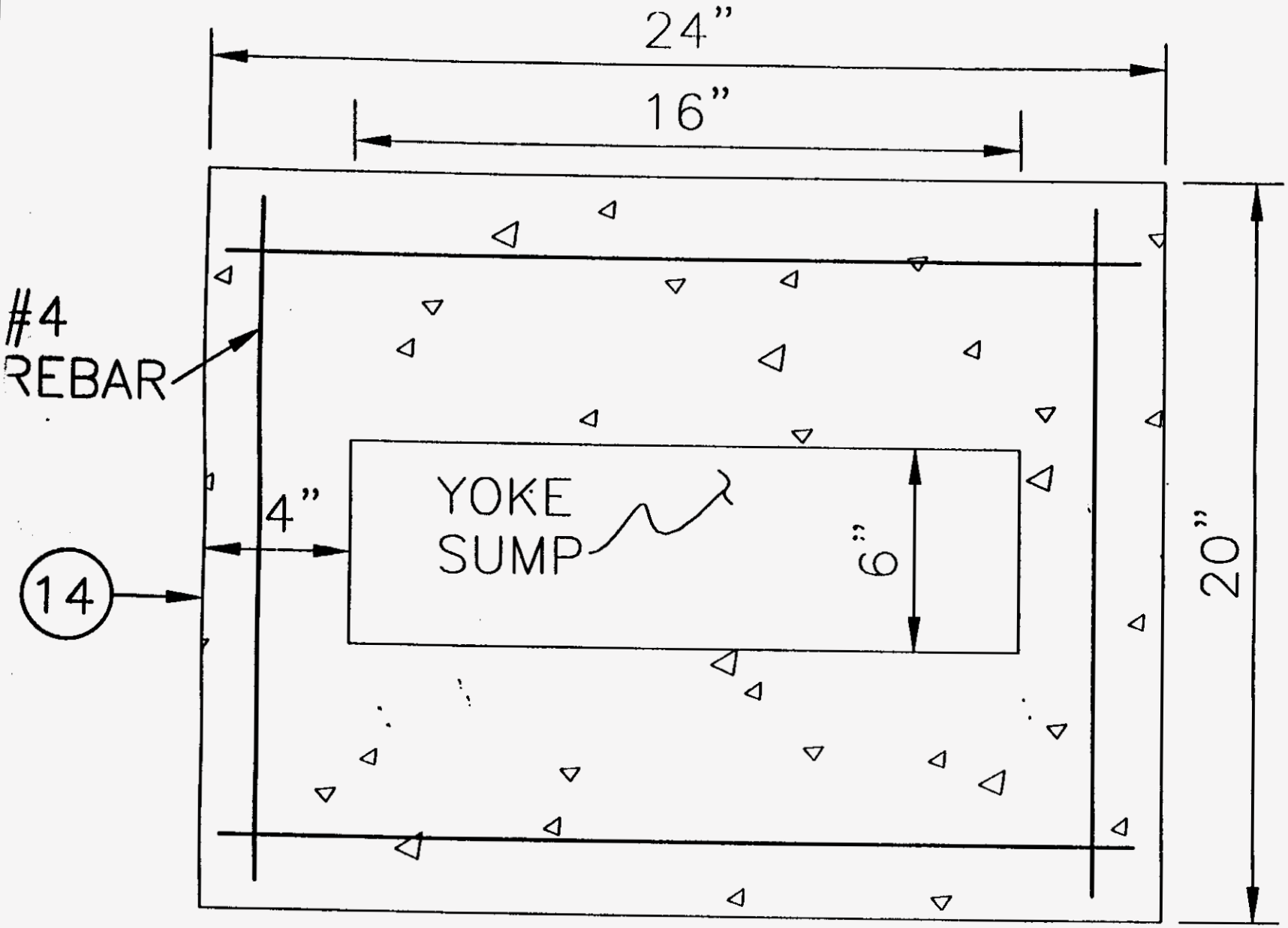
NOTE:

1. BACKFLOW PREVENTER AFTER METER PER UTILITY COMPANY SPECIFICATIONS AND FURNISHED & INSTALLED BY CUSTOMER.
2. CONTRACTOR SHALL COMPLY WITH UTILITY COMPANY REQUIREMENTS FOR THIS WATER METER INSTALLATION, MINIMUM WIDTH OF VAULT 2'-0" INSIDE DIMENSION. LARGER WIDTH MAY BE REQUIRED TO MAINTAIN MINIMUM CLEARANCES.

WATER METER INSTALLATION FOR 3" OR LARGER SERVICES

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08-31-92

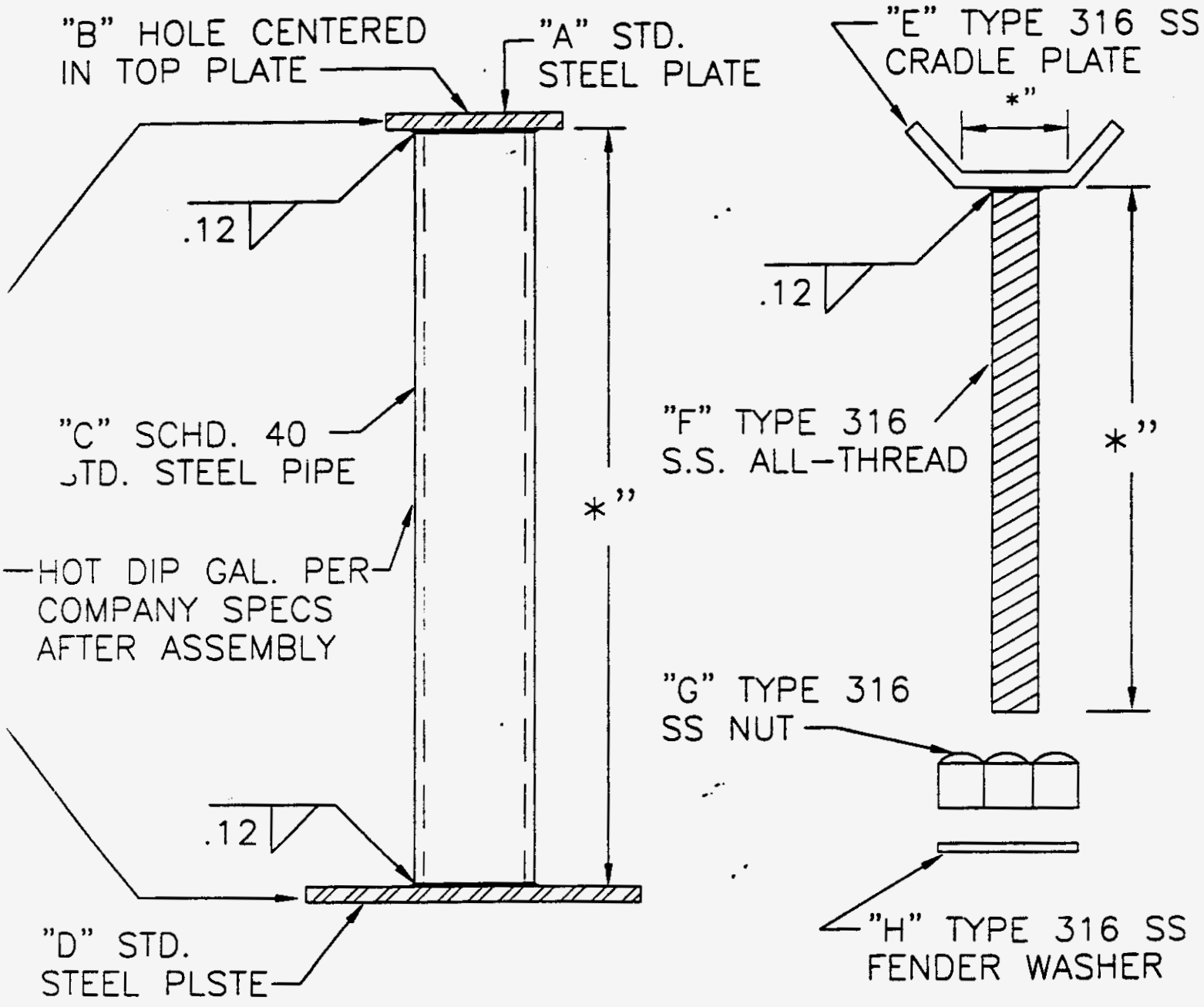
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PLAN VIEW
TOP OF CONCRETE BASE

WSC01-06
10-28-92

n.t.s.



* LENGTH VARIES DEPENDING ON OBJECT BEING SUPPORTED

SEE TABLE THIS SHEET FOR DIMENSIONS A THRU H

PIPING SUPPORT

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PIPING SUPPORT DIMENSIONS

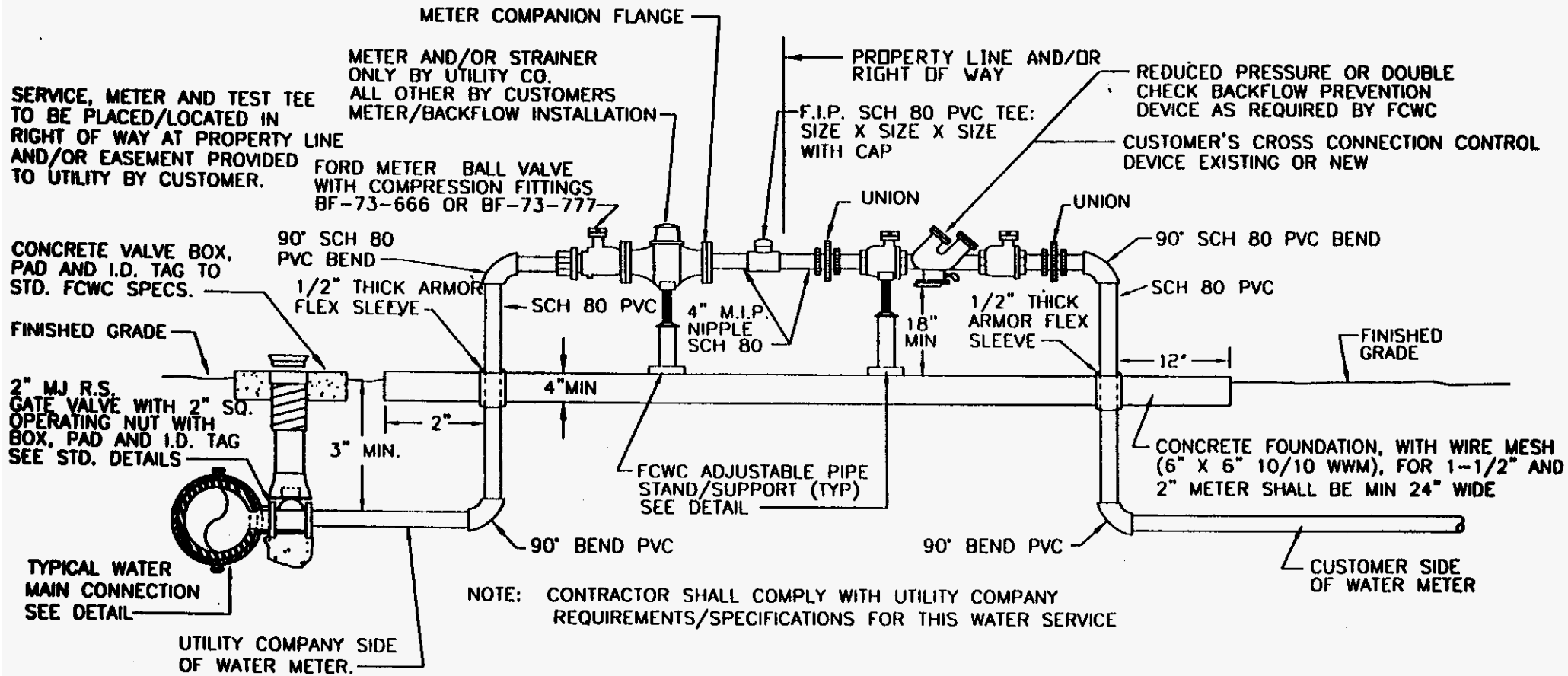
	FOR 3/4" & 1"	FOR 1-1/2" TO 3"	FOR 4" & LARGER
A	1/4" x 3" x 3"	1/4"x3-1/4"x3-1/4"	1/4" x 5" x 5"
B	1.0"	1.0"	1-1/2"
C	2.0"	2-1/2"	4"
D	1/4" x 6" x 6"	1/4" x 8" x 8"	1/4" x 10" x 10"
E	1/4" x 2" X 4"	1/2" x 2" X 4"	1/2" x 4" x 6"
F	3/4"	7/8"	1-1/4"
G	3/4"	7/8"	1-1/4"
H	1.0"	1.0"	1-1/2"

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10-28-92

GENERAL NOTES FOR 3/4" AND 1" SERVICE CONNECTION

WSC01-09
10-28-92

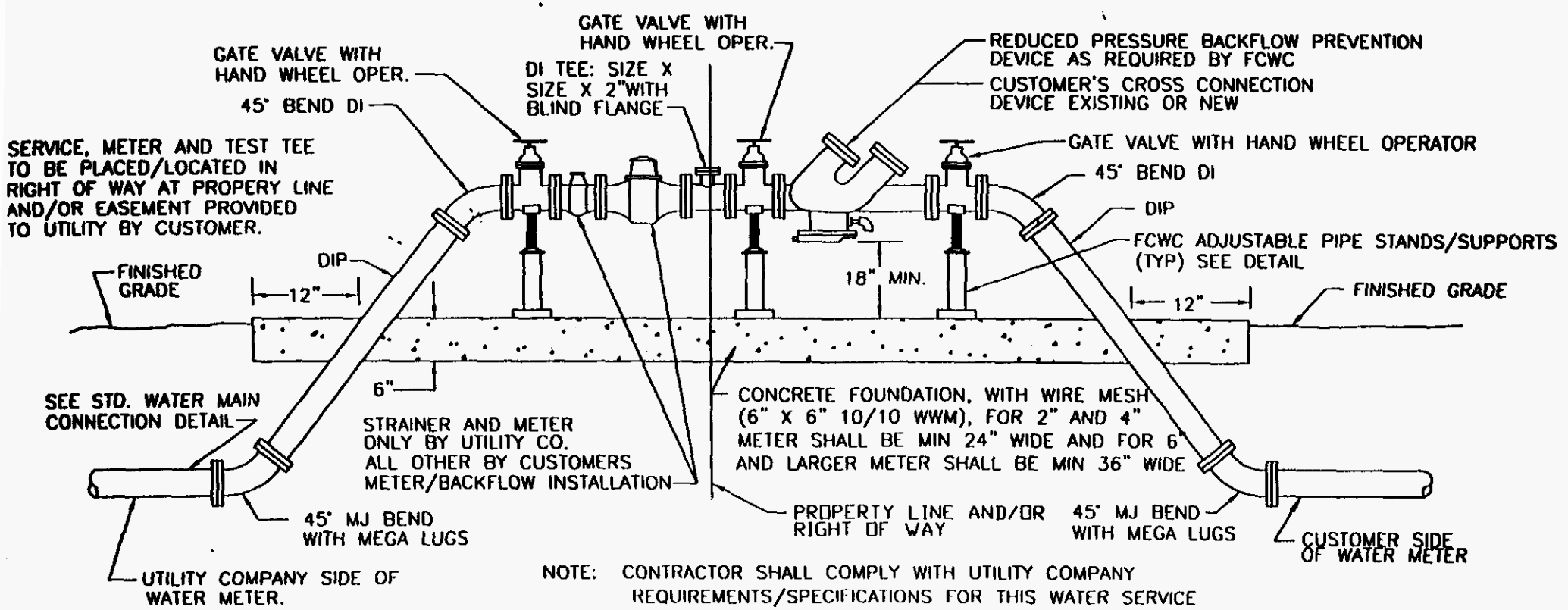
1. EXISTING OR NEW WATER MAIN LINE.
2. TAPPING SADDLE: SMITH BLAIR DOUBLE STRAP TAPPING SADDLE #313 OR APPROVED EQUAL.
3. CORP. STOP: FORD BALLCORP TYPE FB 1102 (PVC ONLY)
   A) SIZE 1" FOR SINGLE SERVICE
   B) SIZE 1-1/2" FOR DOUBLE SERVICE
4. BALL YOKE VALVE:
   A) FORD B91-324W, SIZE 1" FIP INLET x 5/8" x 3/4" OUTLET.
   B) FORDB91-344W, SIZE 1" FIP INLET x 1" OUTLET.
5. YOKE BAR:
   A) FORD Y502.
   B) FORD Y504.
6. 3/4" OR 1" METER AS REQUIRED BY CUSTOMER AND FURNISHED AND INSTALLED BY UTILITY COMPANY. (METER ONLY)
7. EXPANSION CONNECTION, FURNISHED AND INSTALLED BY UTILITY COMPANY:
   A) FORD EC-23, 3/4"STD, SIZE 5/8" x 3/4"
   B) FORD EC-4, 1" STD, SIZE 1" x 1"
8. YOKE OUTLET PIECE:
   A) FORD C91-23, SIZE 3/4" FIP OUTLET x 5/8" x 3/4" METER
   B) FORD C91-44, SIZE 1"FIP OUTLET x 1" METER
9. PLASTIC METER BOX WITH CAST IRON HINGED READING LID: BROOKS PRODUCTS INC., ASSY. #CI H1419MB12-CH4-2-BK OR APPROVED EQUAL.
10. ALL PIPING ON MAIN SIDE OF SERVICE CONNECTION SHALL BE:
    A) FOR SINGLE SERVICES: 1" SCH 80 PVC (SEE SPECS)
    B) FOR DOUBLE SERVICES: 1-1/2" SCH 80 PVC EXCEPT WHERE INDICATED. (SEE SPECS)
11. SCH 80 PVC, OR STEEL CASING AS REQUIRED BY F.D.O.T., COUNTY D.O.T. OR UTILITY COMPANY SPECIFICATIONS WHEN CROSSING UNDER PAVEMENT.
12. 1" SCH 80 PVC 90° ELBOWS
13. BACKFLOW PREVENTION DEVICE AS REQUIRED BY UTILITY COMPANY AND FURNISHED, INSTALLED, TESTED, AND CERTIFIED BY CUSTOMER (SEE STANDARD FCWC SPECS. AND DETAILS)
14. CONCRETE BASE



ABOVE GROUND WATER METER INSTALLATION FOR 1-1/2" AND 2" SERVICES

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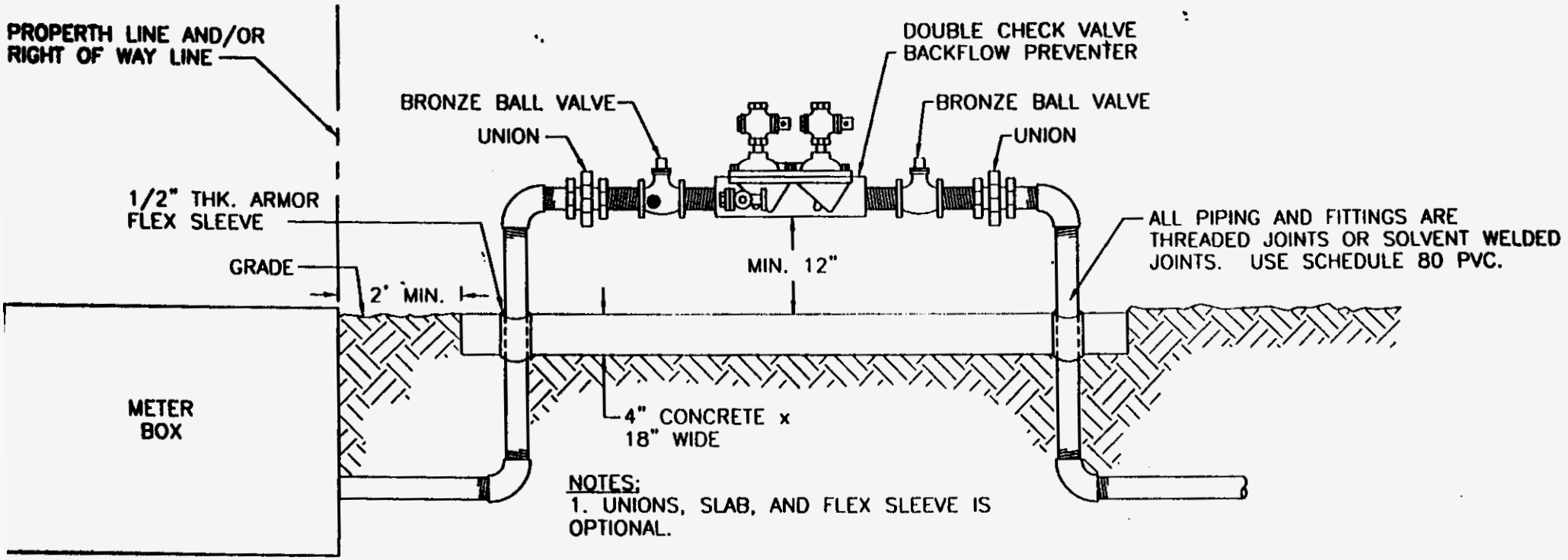


NOTE: CONTRACTOR SHALL COMPLY WITH UTILITY COMPANY REQUIREMENTS/SPECIFICATIONS FOR THIS WATER SERVICE

3OVE GROUND WATER METER ''STALLATION FOR 3" OR LARGF?

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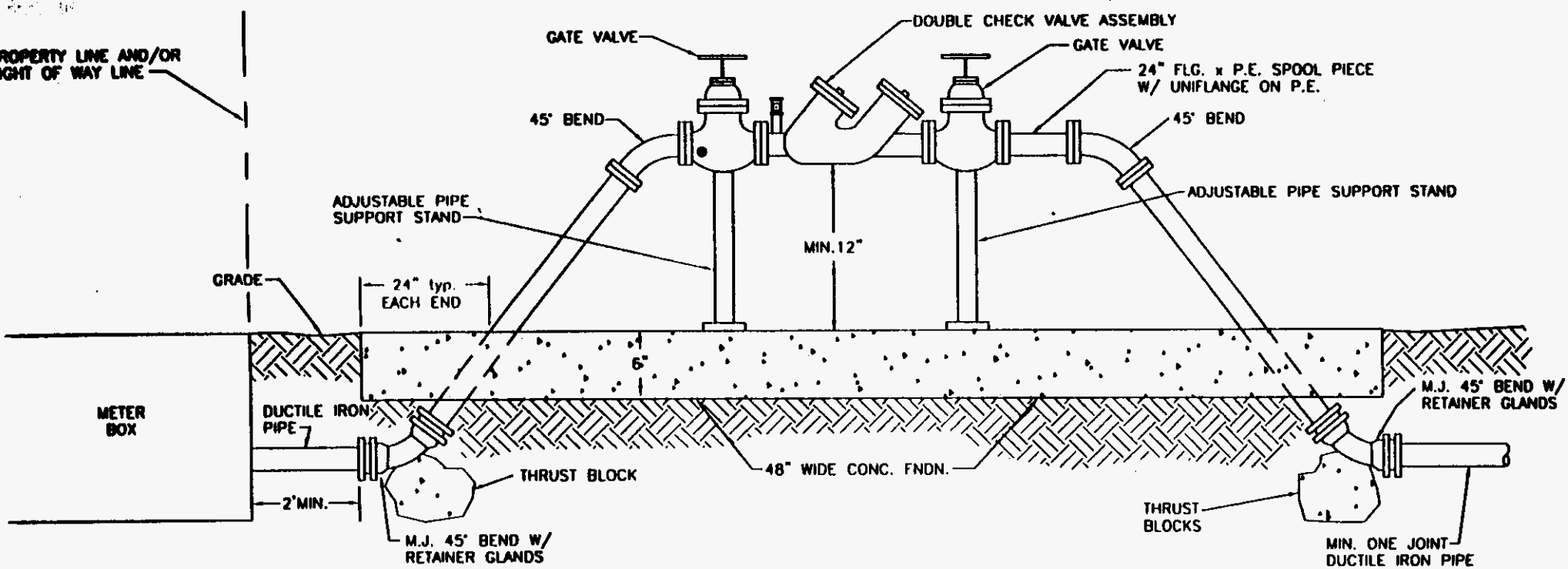
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CUSTOMER OWNED / MAINTAINED
3/4" TO 2" DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICE 'NSTALLATION

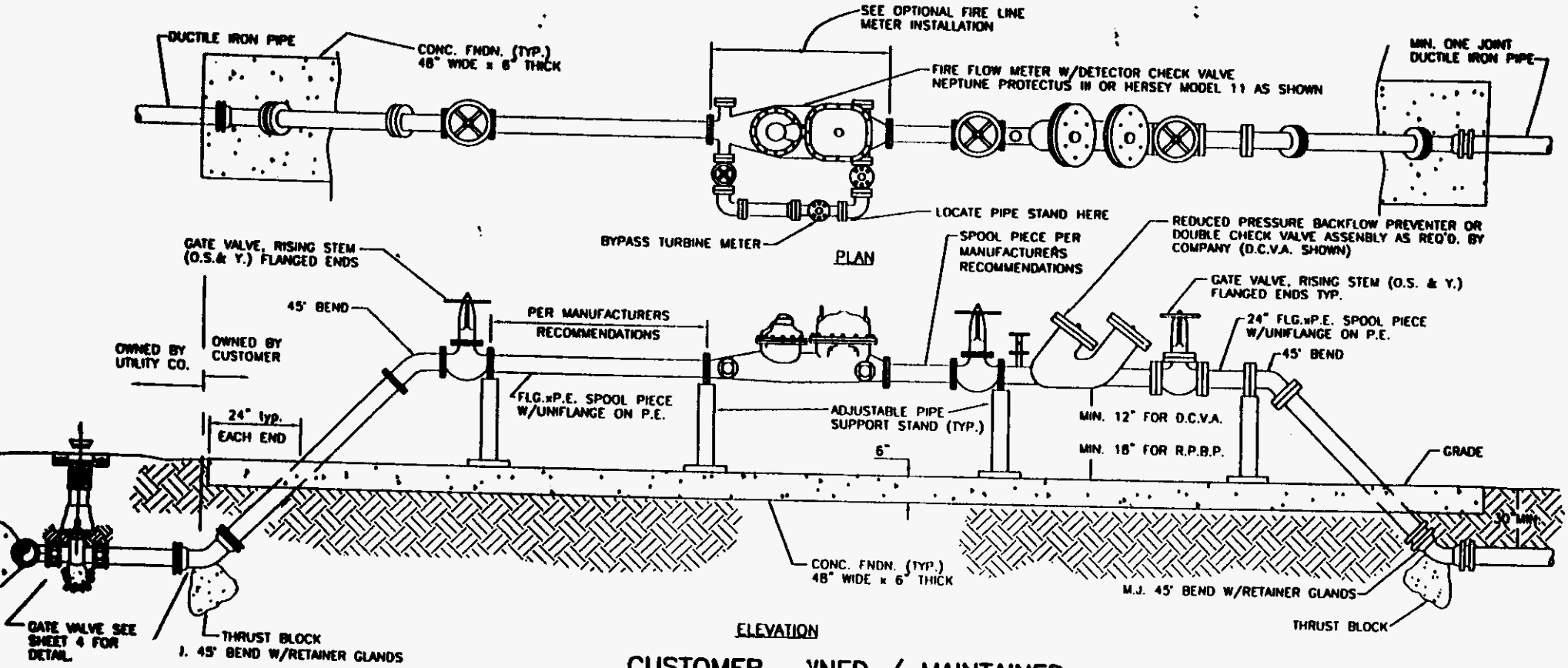
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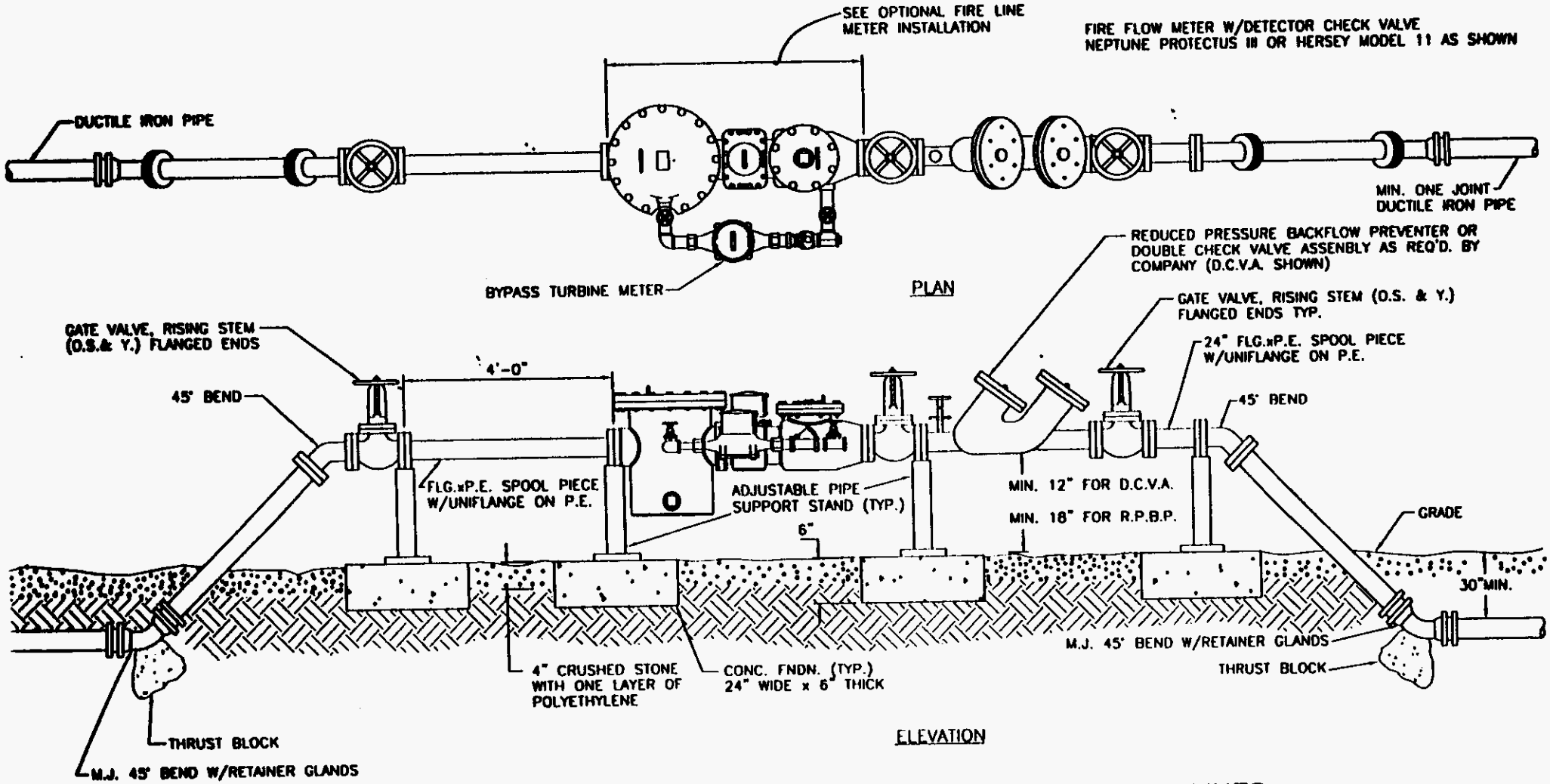


CUSTOMER OWNED / MAINTAINED
3" OR LARGER DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICE INSTALLATION

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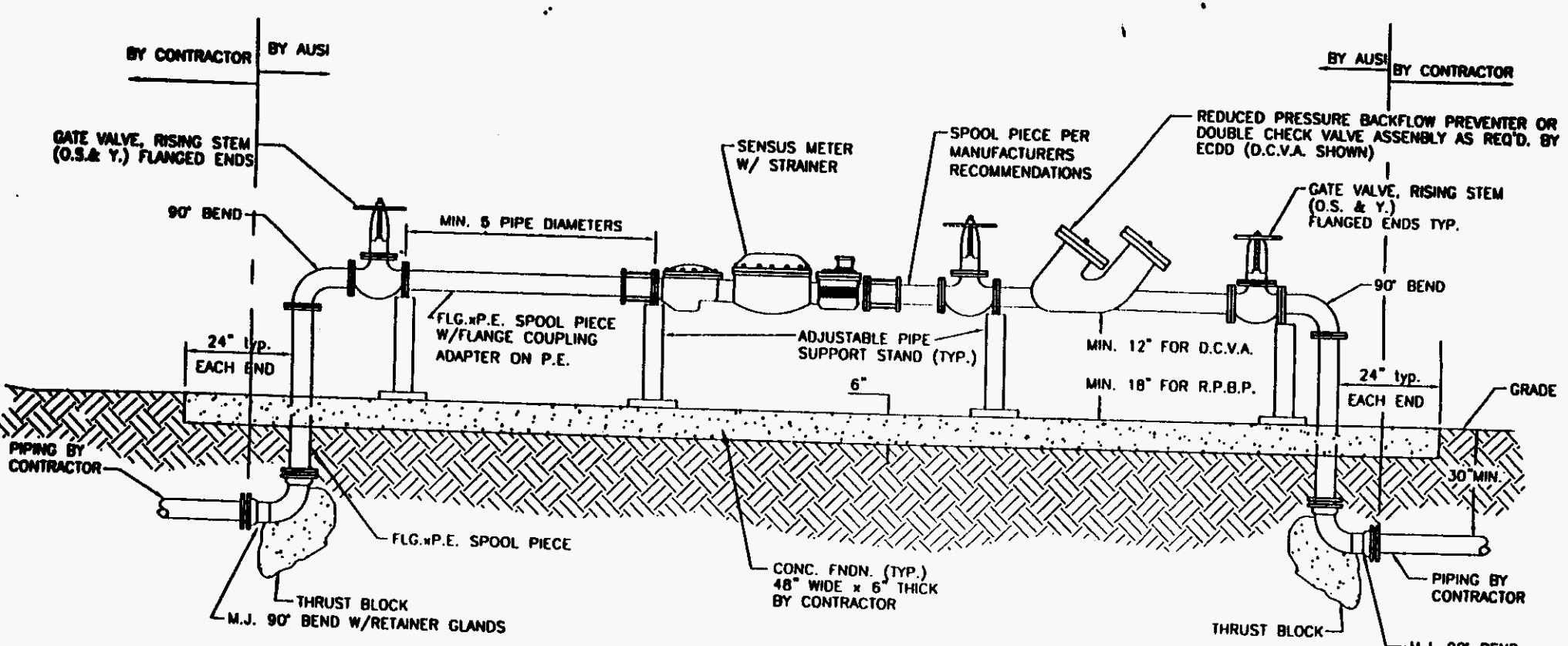


CUSTOMER VNED / MAINTAINED
FIRE METER & BACKFLOW PREVENTION DEVICE INSTALLATION FOR FIRE SYSTEM LINES



BACKFLOW PREVENTION DEVICE INSTA ATION FOR FIRE SYSTEM LINES

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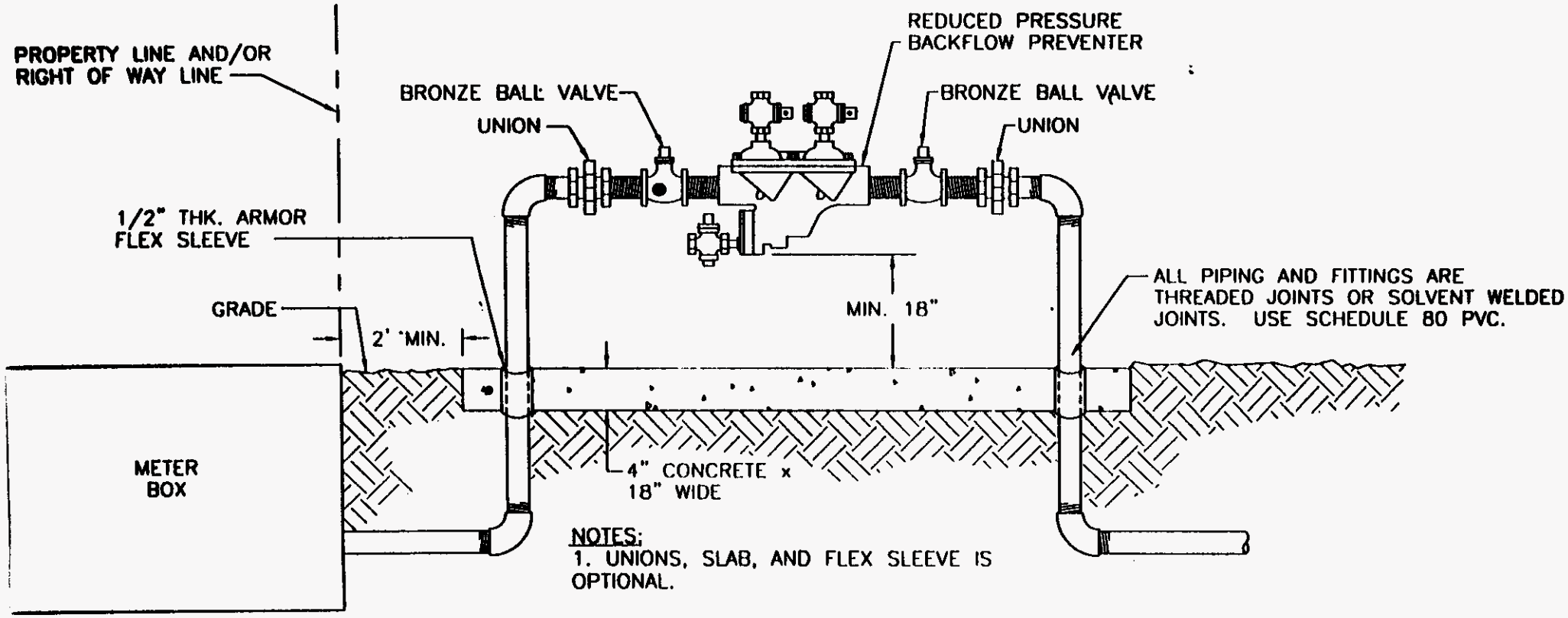


METER & BACKFLOW PREVENTION DEVICE INSTALLATION

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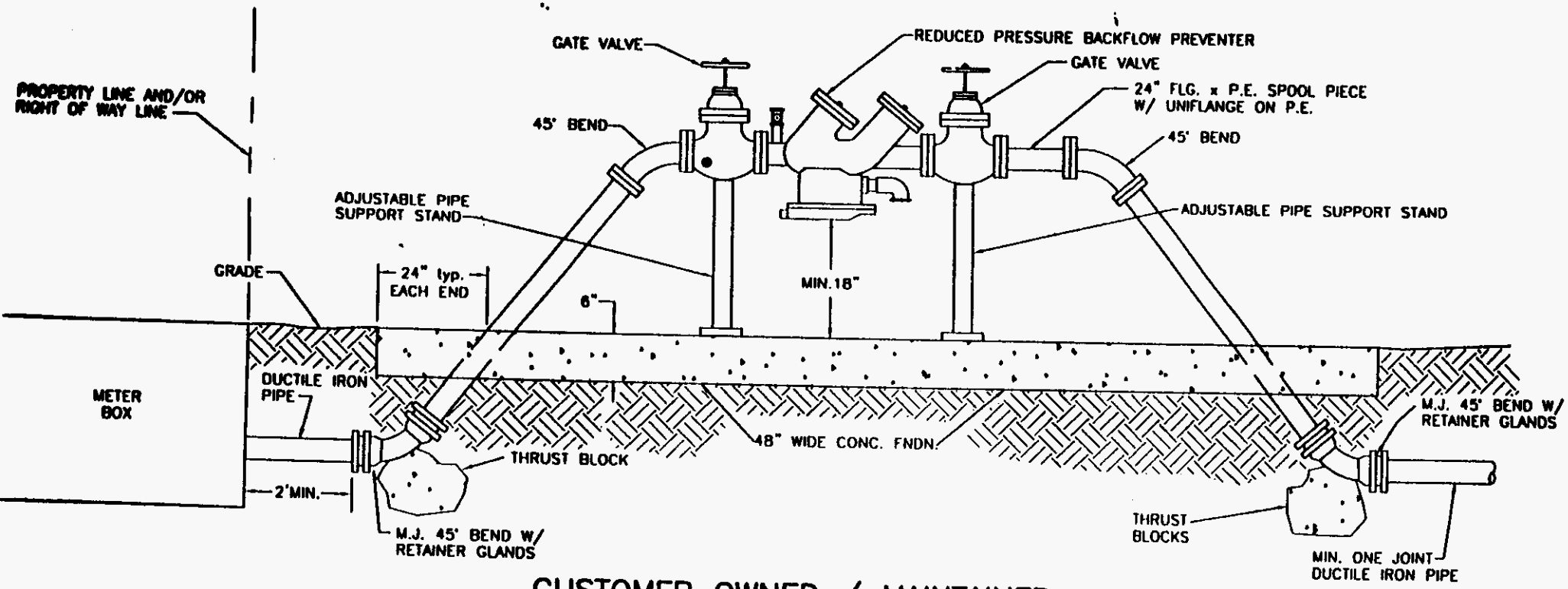
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CUSTOMER OWNED / MAINTAINED
3/4" TO 2" REDUCED PRESSURE BACKFLOW PREVENTION DEVICE NSTALLATION

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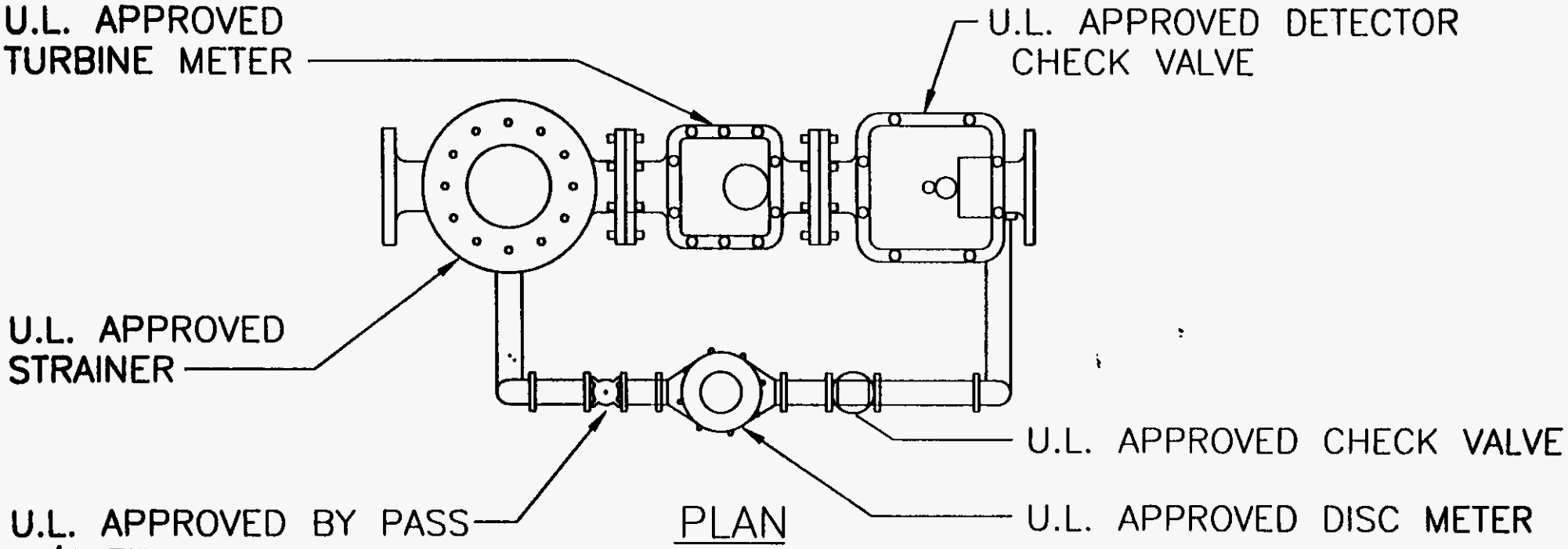
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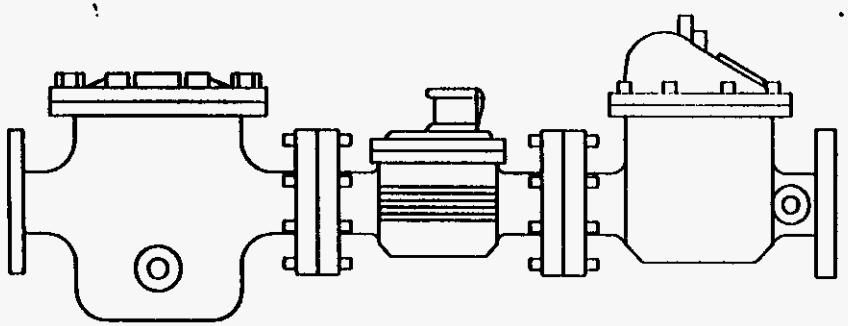
CUSTOMER OWNED / MAINTAINED 3" OR LARGER REDUCED PRESSURE BACKFLOW PREVENTION DE E INSTALLATION

\STDS\0702-05
08-31-92

n.t.s.



PLAN



ELEVATION

OPTIONAL FIRE LINE METER INSTALLATION

n.t.s.

\STDS\BF02-
07-27-92

WARNING

BACKFLOW PREVENTERS INSTALLED ON CLOSED SYSTEMS WITH WATER HEATERS MAY CAUSE EXCESSIVE PRESSURE INCREASES DUE TO THERMAL WATER EXPANSION AND/ OR WATER HAMMER DOWNSTREAM OF THE BACKFLOW PREVENTER. EXCESSIVE PRESSURE INCREASES MAY CAUSE DAMAGE OR FAILURE TO WATER HEATERS WHICH MAY BE HAZARDOUS. THE CUSTOMER OR THE PLUMBING CONTRACTOR SHOULD INSTALL ADEQUATE THERMAL EXPANSION DEVICES TO PREVENT POSSIBLE EXCESSIVE PRESSURE INCREASES WITHIN WATER HEATERS.

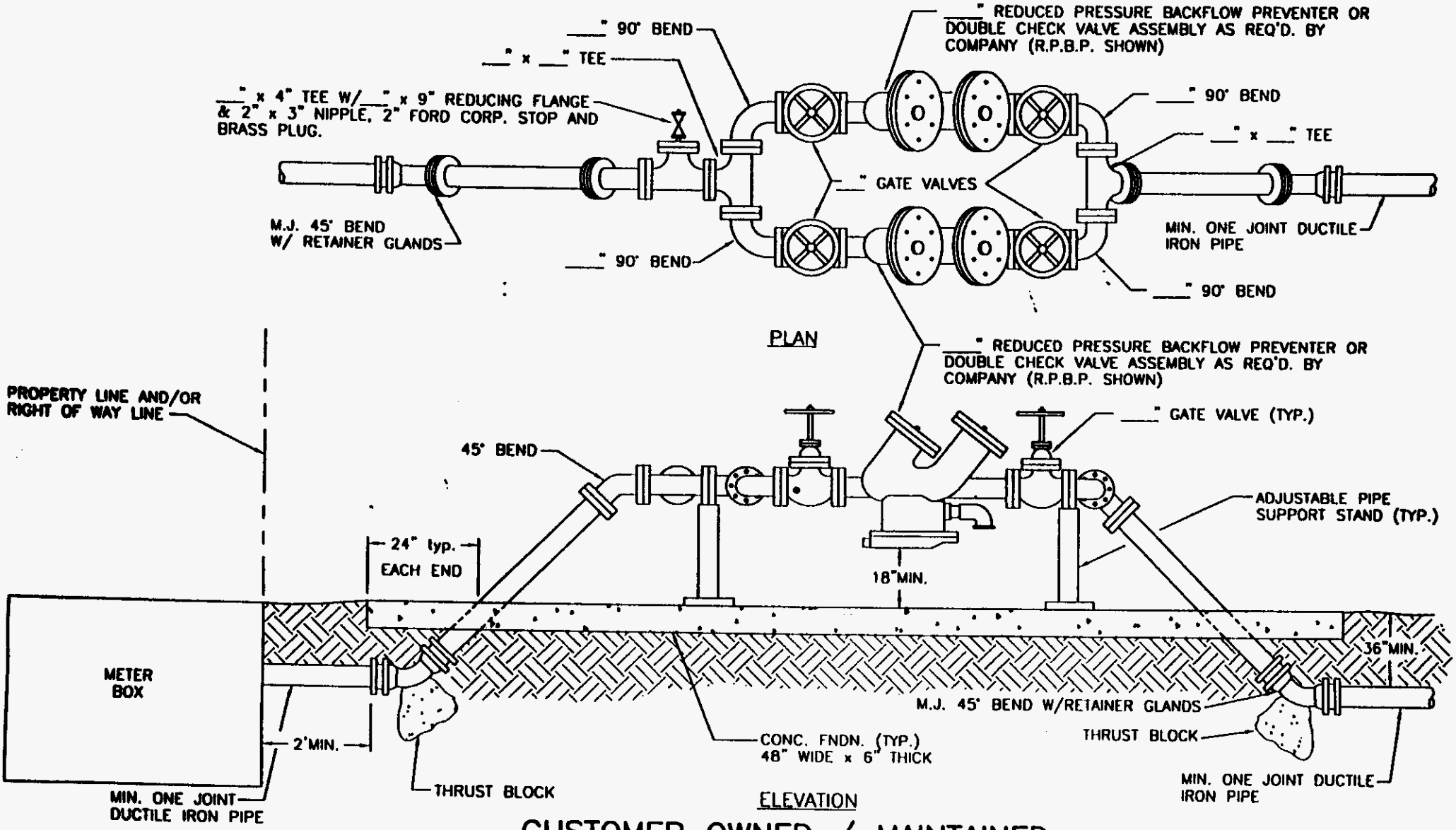
\STDS\BF `-07

07-27-92

GENERAL NOTES

\STDS\BF02-08
07-27-92

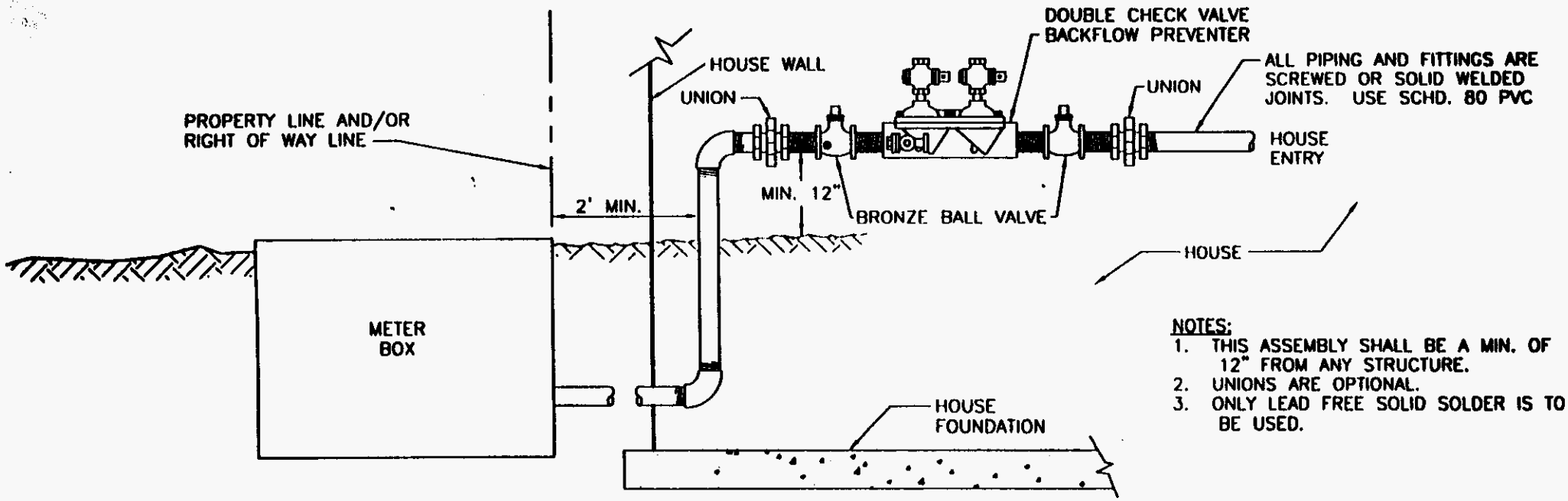
1. REDUCED PRESSURE BACKFLOW PREVENTERS SHALL BE AS FOLLOWS OR AN EQUAL APPROVED BY THE COMPANY.
   3/4 INCH TO 2 INCH:
   A.) AERGAP MODEL FRP-II AS MANUFACTURED BY HERSEY PROCUCTS (BEE CO)
   B.) MODEL 825Y AS MANUFACTURED BY FEBCO SALES INC.
   3 INCH OR LARGER:
   A.) AERGAP MODEL 6CM AS MANUFACTURED BY HERSEY PRODUCTS (BEE CO)
   B.) MODEL 825 AS MANUFACTURED BY FEBCO SALES INC.
2. DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTERS SHALL BE AS FOLLOWS OR AN EQUAL APPROVED BY THE COMPANY.
   3/4 INCH TO 2 INCH
   A.) MODEL FDC AS MANUFACTURED BY HERSEY PRODUCTS INC., EXCLUDING 1".
   B.) MODEL 805Y AS MANUFACTURED BY FEBCO SALES INC.
   3 INCH OR LARGER:
   A.) MODEL NO. 2 AS MANUFACTURED BY HERSEY PROCUCTS INC.
   B.) MODEL 805Y AS MANUFACTURED BY FEBCO SALES INC.
3. MATERIALS AND INSTALLATION FOR PIPE, FITTINGS & VALVES SHALL BE IN ACCORDANCE WITH CURRENT COMPANY SPECIFICATIONS.
4. ALL ABOVE GROUND JOINTS FOR 3" OR LARGER PIPE SHALL BE FLANGED.
5. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED LEVEL.
6. BACKFLOW PREVENTION DEVICES SHALL NOT BE INSTALLED IN A VAULT UNLESS OTHERWISE NOTED.
7. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS AND WITH THE STANDARD DETAILS.
8. FOLLOWING INSTALLATION, ABOVE GROUND PIPE, FITTINGS & VALVES SHALL BE PRIMED WITH ONE COAT, 1.5 MILS DRY FILM THICKNESS OF A RUST INHIBITIVE PRIME & FINISH. PAINTED WITH TWO COATS, 1.4 MILS DRY FILM THICKNESS EACH COAT OF A STRAIGHT LONG OIL ALKYD RESIN COATING. COLOR OF FINISH COATS SHALL BE O.S.H.A. YELLOW. COATINGS SHALL BE AS MANUFACTURED BY KOPPERS OR AN EQUAL APPROVED BY THE ENGINEER. ALL SURFACES SHALL BE CLEAN, DRY, & FREE OF RUST, GREASE, & ASPHALTIC COATINGS BEFORE PRIMING AND FINISH COATING.
9. ● SYMBOL ON DETAILS REPRESENTS TEST COCKS.



CUSTOMER OWNED / MAINTAINED BACKFLOW PREVENTION DEVICE INSTALLATION REQUIRING CONTINUOUS SERVICE PARALLEL INSTALLATION

\STDS\BF01-01

n.t.s.

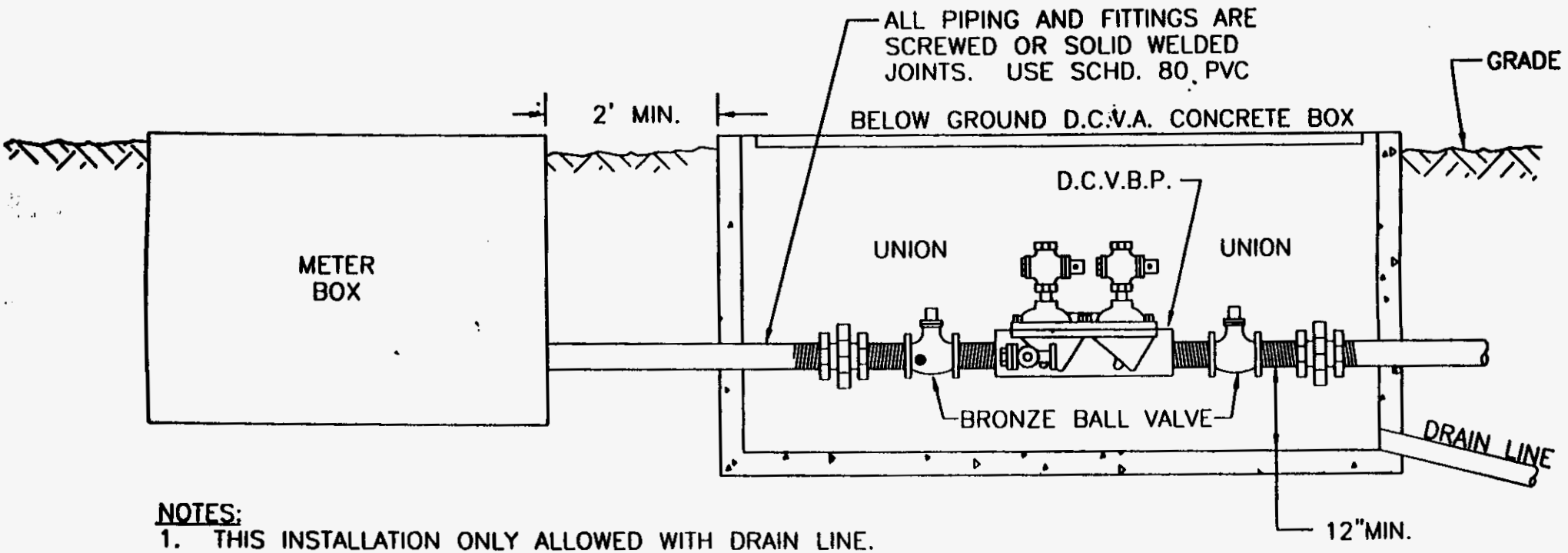


NOTES:
1. THIS ASSEMBLY SHALL BE A MIN. OF 12" FROM ANY STRUCTURE.
2. UNIONS ARE OPTIONAL.
3. ONLY LEAD FREE SOLID SOLDER IS TO BE USED.

OUTSIDE WALL MOUNTED, CUSTOMER OWNED / MAINTAINED 3/4" & 1" DOUBLE CHECK VALVE BACKFLOW PREVENTION INSTALLATION FOR SINGLE FAMILY RESIDENTIAL UNITS

\SIDS\RF03-02
08 11 92

n.t.s.



NOTES:

1. THIS INSTALLATION ONLY ALLOWED WITH DRAIN LINE.
2. DRAIN LINE SHALL BE 2"PVC SCHD. 80 TO GRADE WITH A HEAVY S.S. SCREEN ATTACHED ON BOTH ENDS.
3. ONLY LEAD FREE SOLID SOLDER IS TO BE USED.

3/4" & 1" DOUBLE CHECK VALVE BACKFLOW PREVENTION INSTALLATION FOR SINGLE FAMILY RESIDENTIAL UNITS

\STDS\BF03-03
08-31-92

t.t.s.

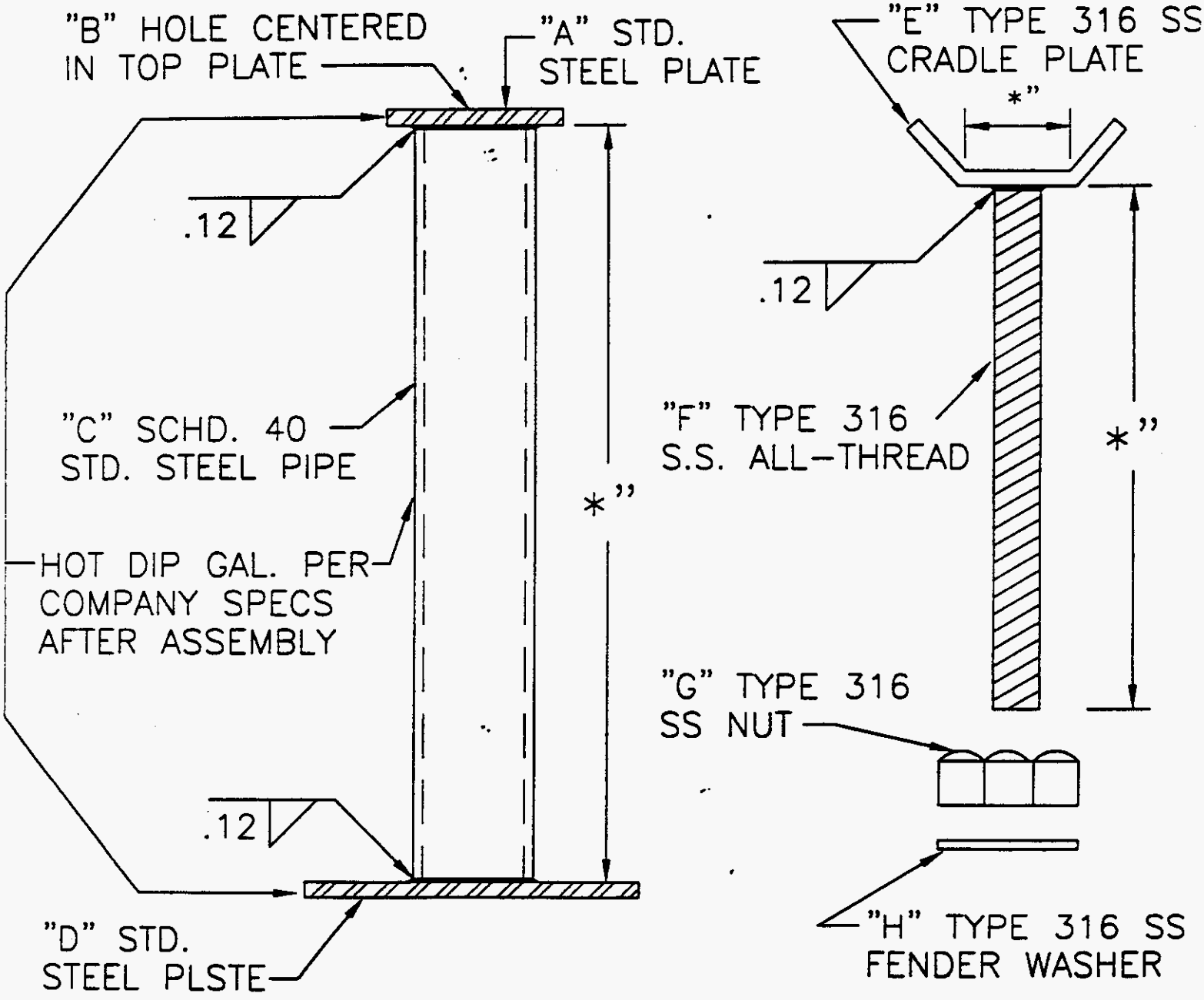
WARNING

BACKFLOW PREVENTERS INSTALLED ON CLOSED SYSTEMS WITH WATER HEATERS MAY CAUSE EXCESSIVE PRESSURE INCREASES DUE TO THERMAL WATER EXPANSION AND/ OR WATER HAMMER DOWNSTREAM OF THE BACKFLOW PREVENTER. EXCESSIVE PRESSURE INCREASES MAY CAUSE DAMAGE OR FAILURE TO WATER HEATERS WHICH MAY BE HAZARDOUS. THE CUSTOMER OR THE PLUMBING CONTRACTOR SHOULD INSTALL ADEQUATE THERMAL EXPANSION DEVICES TO PREVENT POSSIBLE EXCESSIVE PRESSURE INCREASES WITHIN WATER HEATERS.

GENERAL NOTES

\STDS\BF03-05
07-28-92

1. REDUCED PRESSURE BACKFLOW PREVENTERS SHALL BE AS FOLLOWS OR AN EQUAL APPROVED BY THE COMPANY.
   3/4 INCH TO 2 INCH:
   A) AERGAP MODEL FRP-II AS MANUFACTURED BY HERSEY PRODUCTS (BEECO)
   B) MODEL 825Y AS MANUFACTURED BY FEBCO SALES INC.
   3 INCH OR LARGER:
   A) AERGAP MODEL 6 CM AS MANUFACTURED BY HERSEY PRODUCTS (BEECO)
   B) MODEL 825 AS MANUFACTURED BY FEBCO SALES INC.
2. DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTERS SHALL BE AS FOLLOWS OR AN EQUAL APPROVED BY THE COMPANY.
   3/4 INCH TO 2 INCH:
   A) MODEL FDC AS MANUFACTURED BY HERSEY PRODUCTS INC., EXCLUDING 1".
   B) MODEL 805Y AS MANUFACTURED BY FEBCO SALES INC.
   3 INCH OR LARGER:
   A) MODEL NO. 2 AS MANUFACTURED BY HERSEY PRODUCTS INC.
   B) MODEL 805Y AS MANUFACTURED BY FEBCO SALES INC.
3. MATERIAL AND INSTALLATION FOR PIPE, FITTINGS, AND VALVES SHALL BE IN ACCORDANCE WITH CURRENT COMPANY SPECIFICATIONS.
4. ALL ABOVE GROUND JOINTS FOR 3" OR LARGER PIPE SHALL BE FLANGED UNLESS OTHERWISE NOTED.
5. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED LEVEL.
6. BACKFLOW PREVENTION DEVICES SHALL NOT BE INSTALLED IN A VAULT UNLESS OTHERWISE NOTED.
7. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS AND WITH THE STANDARD DETAILS.
8. FOLLOWING INSTALLATION, ABOVE GROUND PIPE, FITTINGS AND VALVES SHALL BE PRIMED WITH ONE COAT, 1.5 MILS DRY FILM THICKNESS OF A RUST INHIBITIVE PRIMER AND FINISH PAINTED WITH TWO COATS, 1.4 MILS DRY FILM THICKNESS EACH COAT OF A STRAIGHT LONG OIL ALKYD RESIN COATING. COLOR OF FINISH COATS SHALL BE OSHA YELLOW. COATINGS SHALL BE AS MANUFACTURED BY KOPPERS OR AN EQUAL APPROVED BY THE ENGINEER. ALL SURFACES SHALL BE CLEAN, DRY, AND FREE OF RUST, GREASE, AND ASPHALTIC COATINGS BEFORE PRIMING AND FINISH COATING.
9. • SYMBOL ON DETAILS REPRESENTS TEST COCKS.



* LENGTH VARIES DEPENDING ON OBJECT BEING SUPPORTED

SEE TABLE THIS SHEET FOR DIMENSIONS A THRU H

PIPING SUPPORT

\STDS\WSC01-07

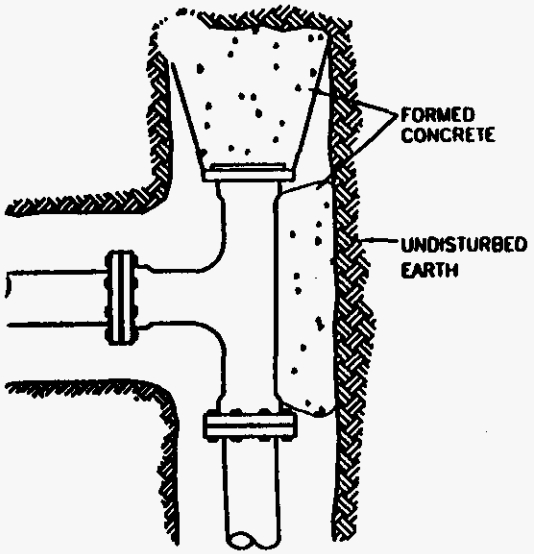
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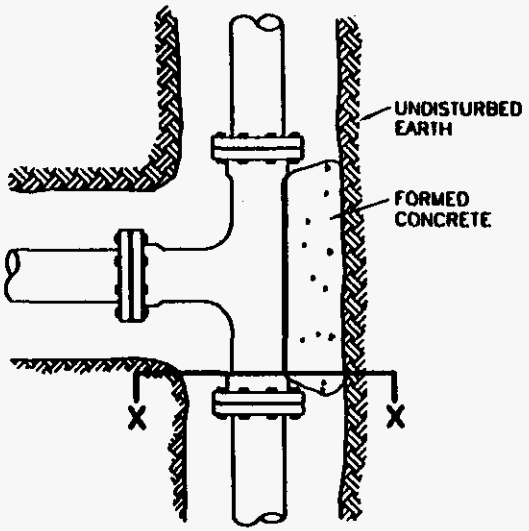
PIPING SUPPORT DIMENSIONS

	FOR 3/4" & 1"	FOR 1-1/2" TO 3"	FOR 4" & LARGER
A	1/4" x 3" x 3"	1/4"x3-1/4"x3-1/4"	1/4" x 5" x 5"
B	1.0"	1.0"	1-1/2"
C	2.0"	2-1/2"	4"
D	1/4" x 6" x 6"	1/4" x 8" x 8"	1/4" x 10" x 10"
E	1/4" x 2" X 4"	1/2" x 2" X 4"	1/2" x 4" x 6"
F	3/4"	7/8"	1-1/4"
G	3/4"	7/8"	1-1/4"
H	1.0"	1.0"	1-1/2"

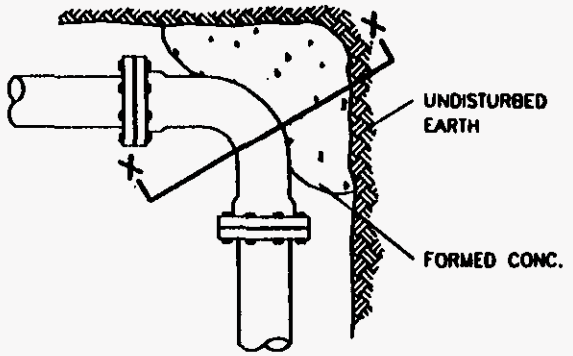
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10-28-92



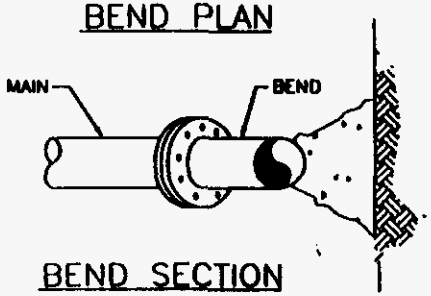
BLANKED TEE



TYPICAL TEE



BEND PLAN



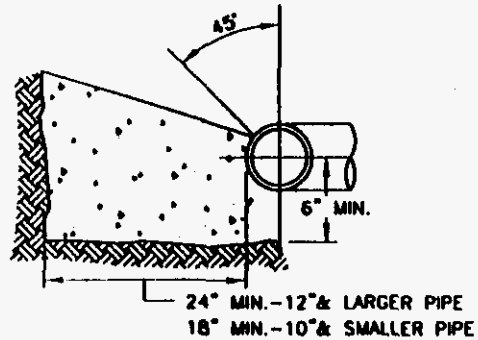
BEND SECTION

TYPICAL THRUST BLOCKING DETAIL FOR WATER MAINS

\STDS\PWH-01
07-30-02

n.t.s.

THRUST BLOCK BEARING AREA TABLE (SQ. FT.)					
SIZE OF PIPE	TEE & PLUGS	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4"	2.5	2.5	1.5	1.0	1.0
6"	5.0	5.0	3.0	1.5	1.0
8"	9.0	9.0	5.0	2.5	1.5
10"	14.0	14.0	7.5	4.0	2.0
12"	20.0	20.0	11.0	5.5	3.0
14"	27.0	27.0	15.0	7.5	4.0
16"	35.0	35.0	19.0	10.0	5.0



SECTION X-X

NOTE:

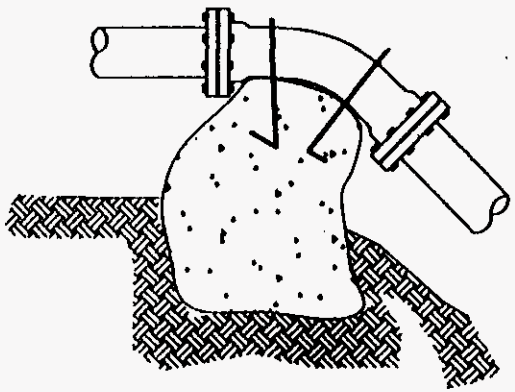
1.) WRAP ALL FITTINGS WITH PLASTIC BEFORE POURING THRUST BLOCKS. ALL THRUST BLOCKS MUST BE LEFT OPEN FOR INSPECTION BY THE ENGINEER & FLORIDA CITIES WATER COMPANY.

2.) ALL BEARING SURFACE TO BE CARRIED TO UNDISTURBED SOIL.

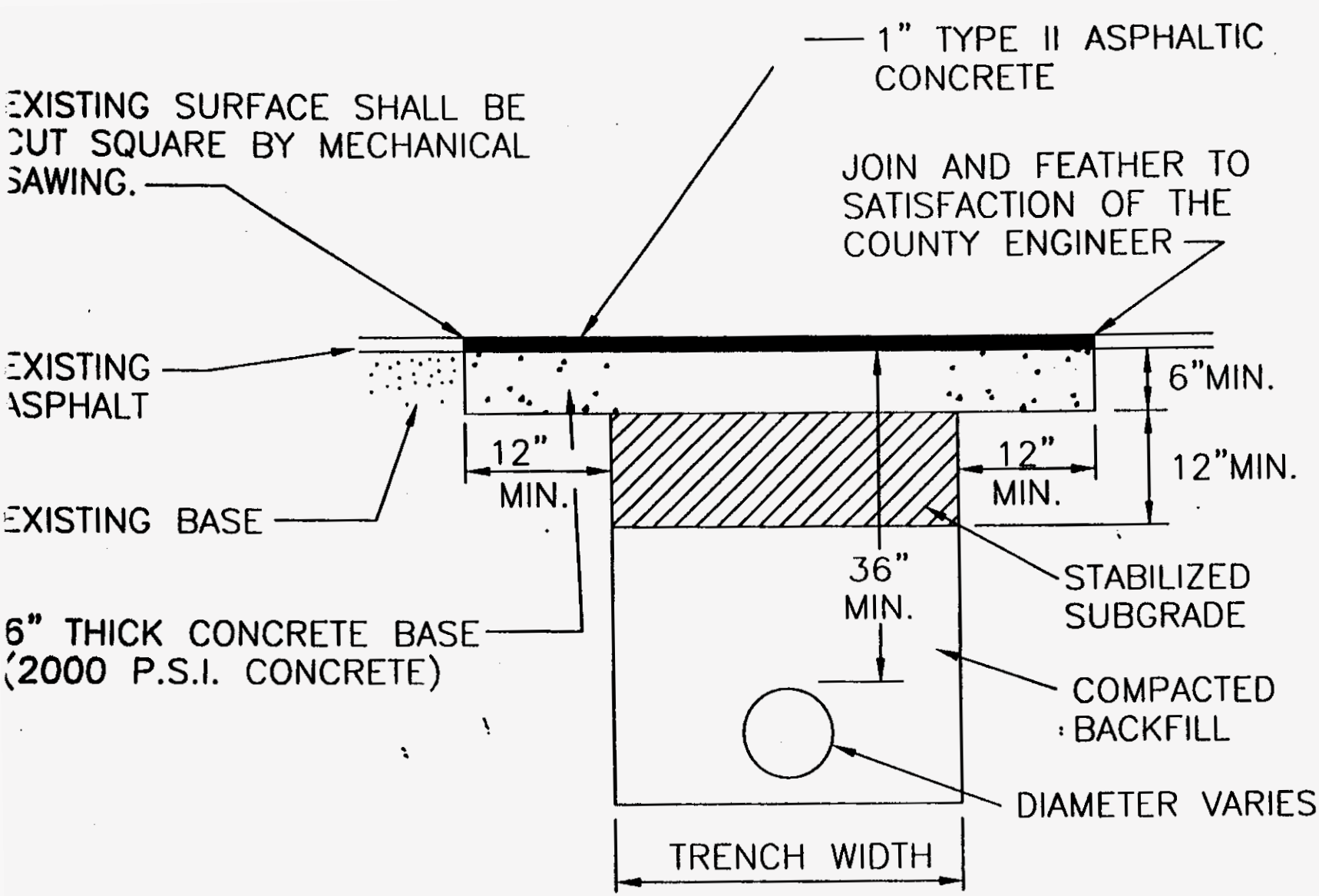
3.) THESE TABLES SHOW MINIMUM SIZE THRUST BLOCKS FOR GOOD SOIL WITH A 2,000 P.S.F. SOIL BEARING (A-1 THRU A-3 CLEAN SAND AND GRAVELS).

4.) POOR SOIL (A-1 THRU A-8, SILTY SOILS, CLAYS, MUCK & PEAT) WILL REQUIRE LARGER THRUST BLOCKS.

5.) THRUST BLOCK SIZES BASED ON 150 P.S.I. HYDROSTATIC TEST PRESSURE.



ANCHOR THRUST BLOCK

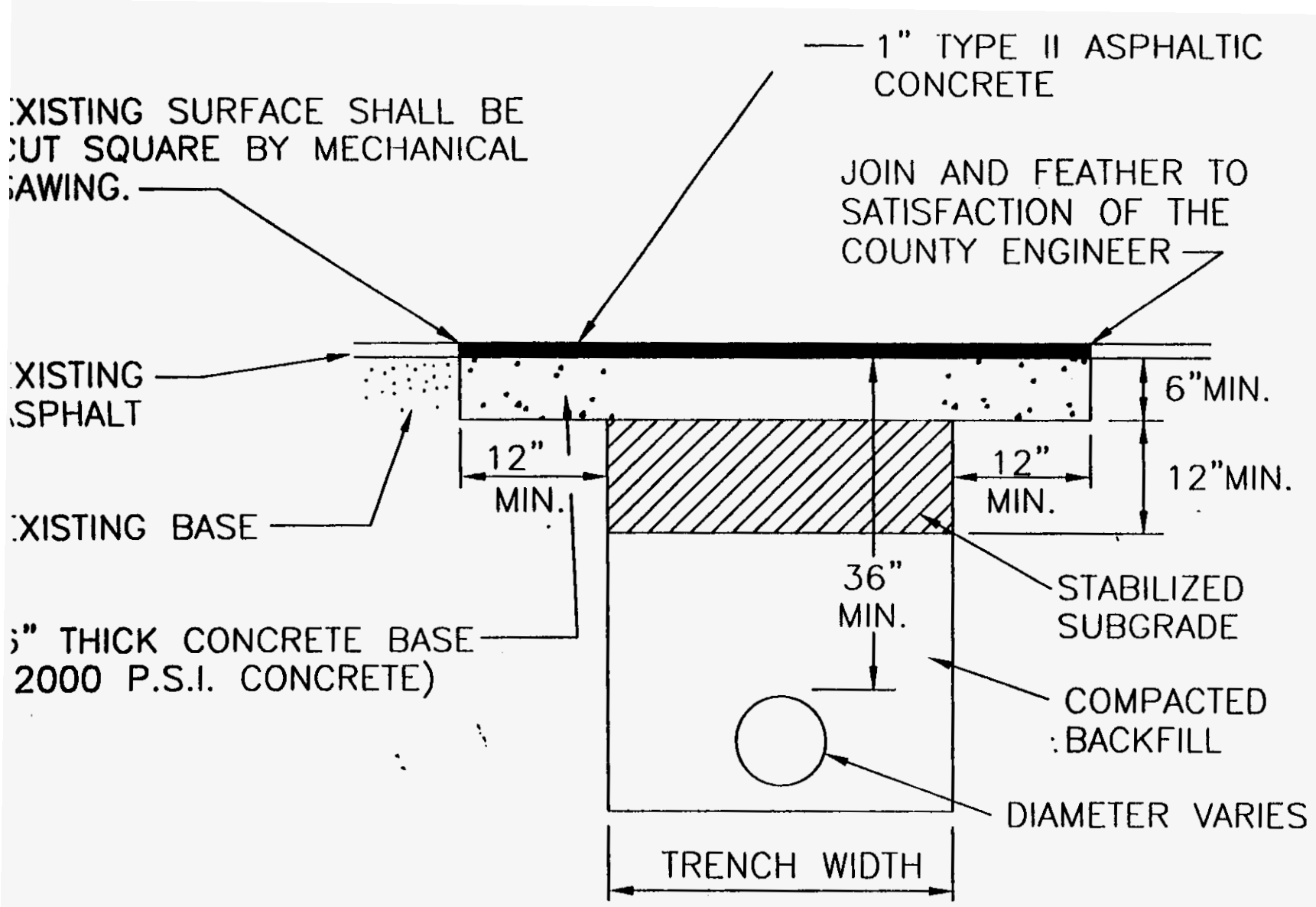


ALL BACKFILLING SHALL BE DONE WITH SUITABLE MATERIAL, TAMPED IN LAYERS NOT TO EXCEED 6", IN ACCORDANCE WITH DIVISION OF TRANSPORTATION'S SPECIFICATIONS.

PAVEMENT REPAIR DETAIL

\STDS\PW04-02
07-28-92

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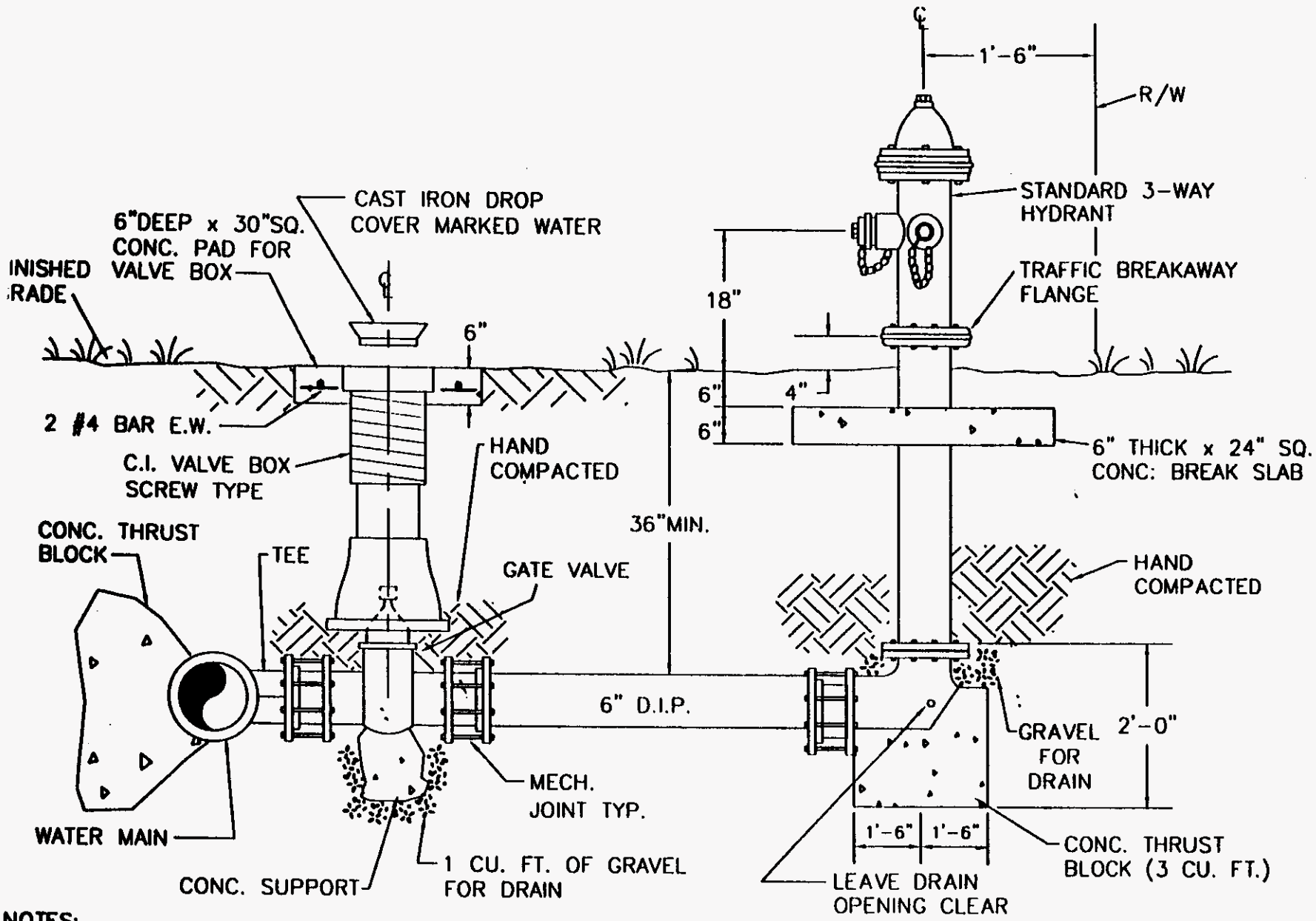
ALL BACKFILLING SHALL BE DONE WITH SUITABLE MATERIAL, TAMPED N LAYERS NOT TO EXCEED 6", IN ACCORDANCE WITH DIVISION OF RANSPORTATION'S SPECIFICATIONS.

PAVEMENT REPAIR DETAIL

\STDS\PW04-02

07-28-92

n.t.



NOTES:

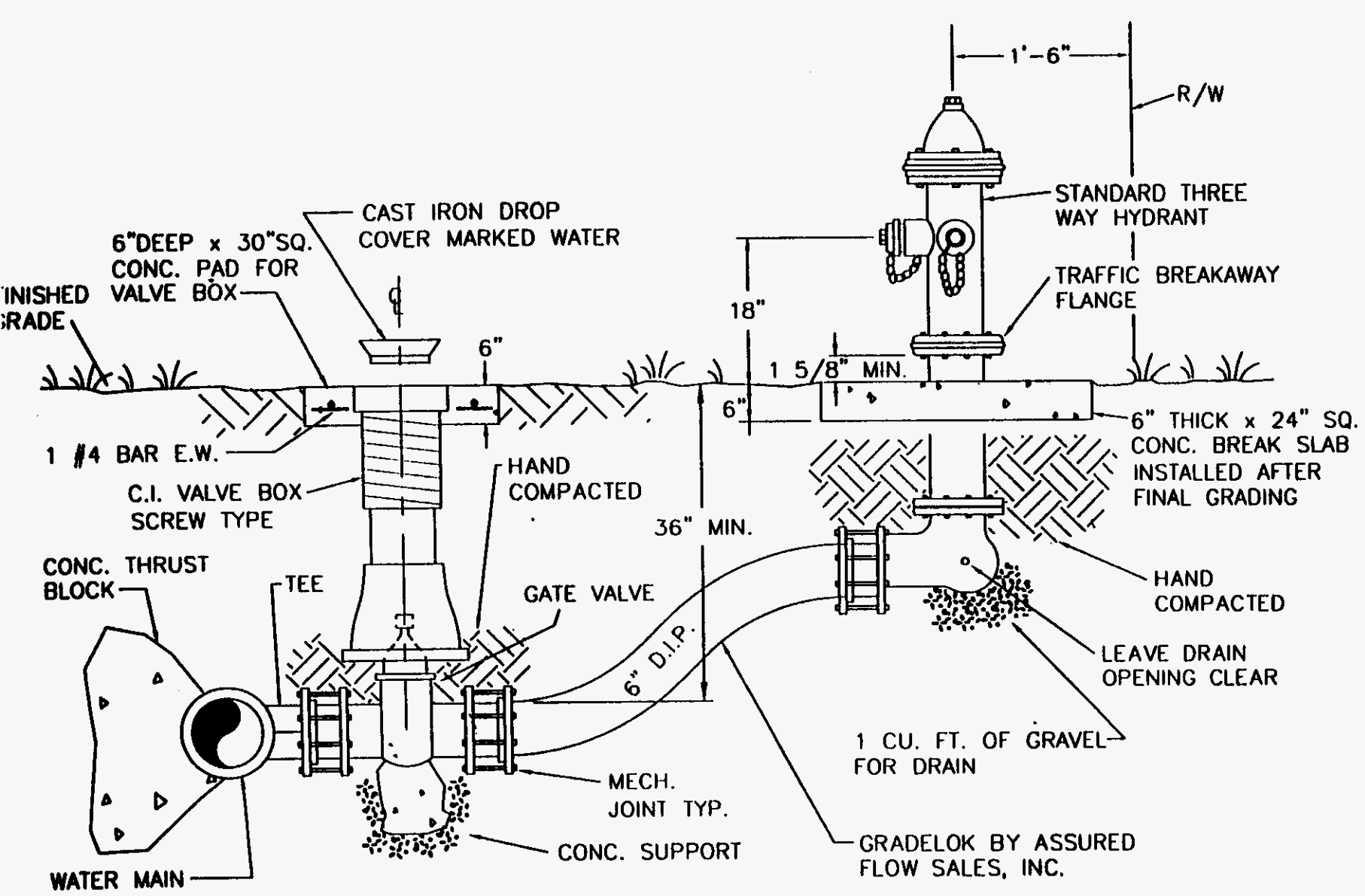
1.) FIRE HYDRANTS NEAR ROADWAYS AND PARKING AREAS ARE TO BE PROTECTED WITH TWO OR MORE, CONC. FILLED, 6" DIAM. STEEL PIPES, PAINTED O.S.H.A. YELLOW, EXTENDING FROM 6'-0" BELOW GRADE TO APPROX. 6" ABOVE TOP OF HYDRANTS.

2.) SEE VALVE DETAIL FOR PROPER HYDRANT VALVE INSTALLATION.

FIRE HYDRANT WITH TYPICAL GATE VALVE

.OS\PW04-03
08-17-93

n.t.s.



NOTES:

1.) FIRE HYDRANTS NEAR ROADWAYS AND PARKING AREAS ARE TO BE PROTECTED WITH TWO OR MORE, CONC. FILLED, 6" DIAM. STEEL PIPES, PAINTED O.S.H.A. YELLOW, EXTENDING FROM 6'-0" BELOW GRADE TO APPROX. 6" ABOVE TOP OF HYDRANTS.

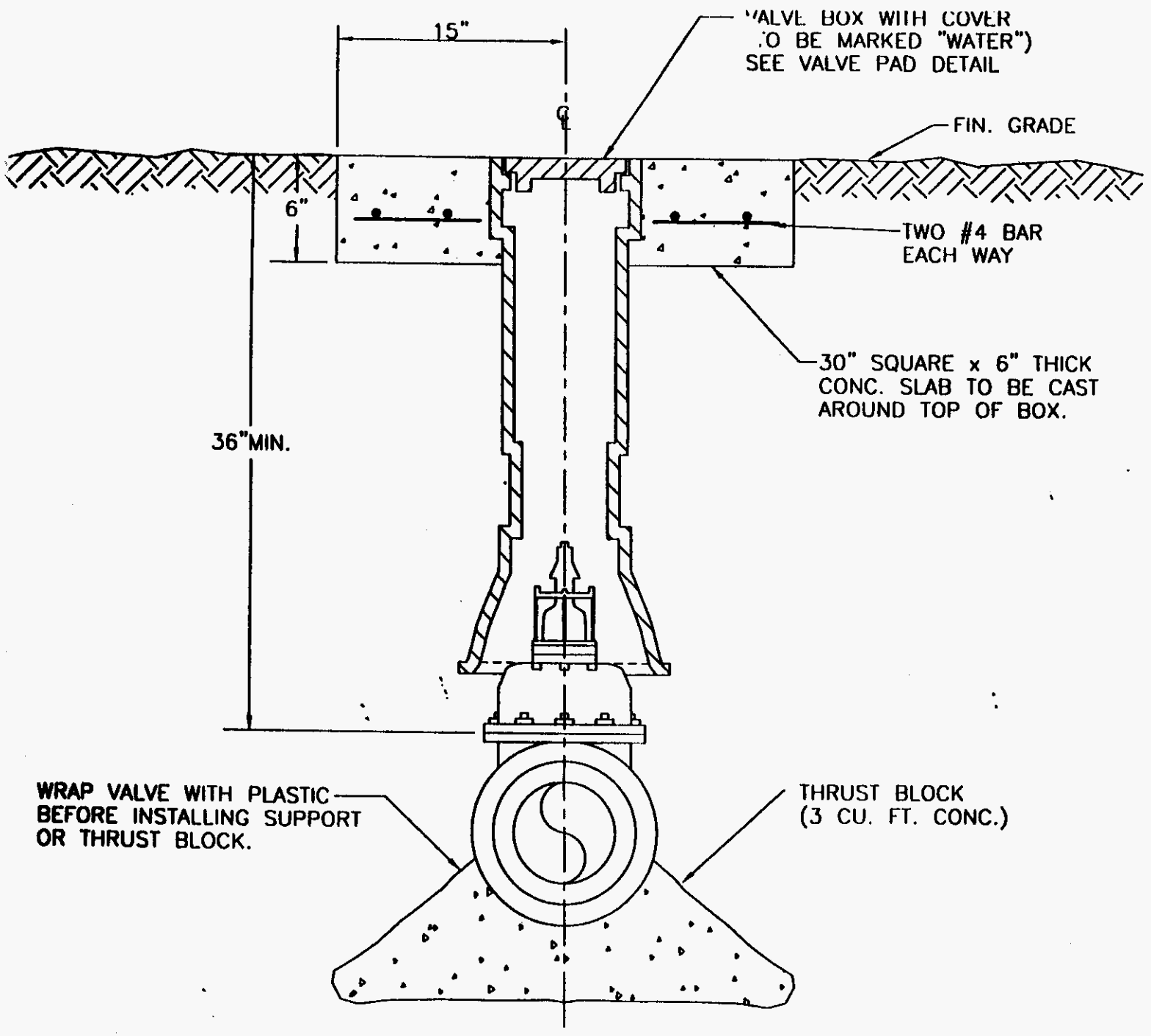
2.) SEE VALVE DETAIL FOR PROPER HYDRANT VALVE INSTALLATION.

FIRE HYDRANT WITH TYPICAL GATE VALVE

DS\PW04-03A

07-28-92

n.t.s.

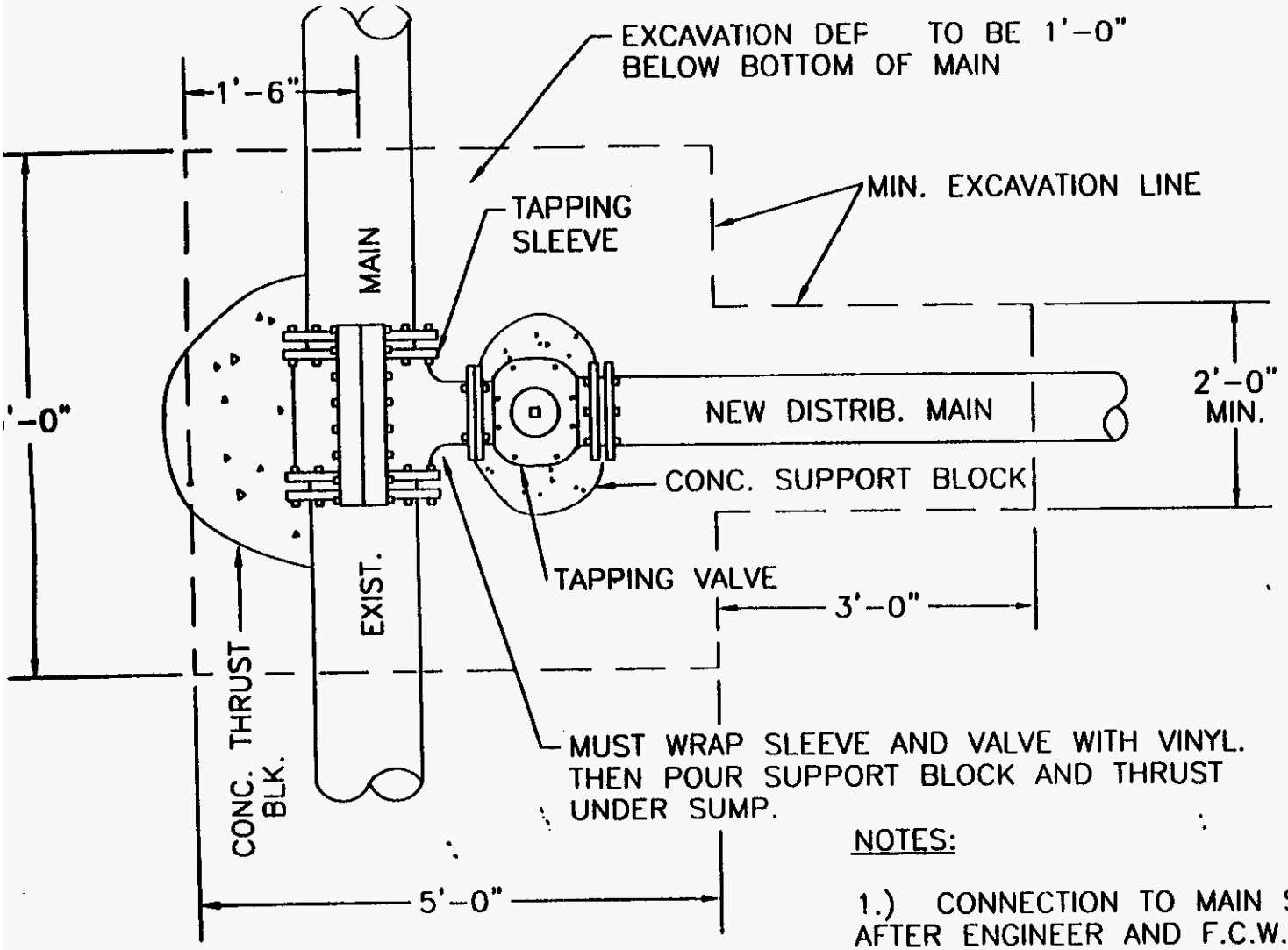


GATE VALVE INSTALLATION DETAIL

\STDS\PW04-04

07-28-92

n.t.s.



NOTES:

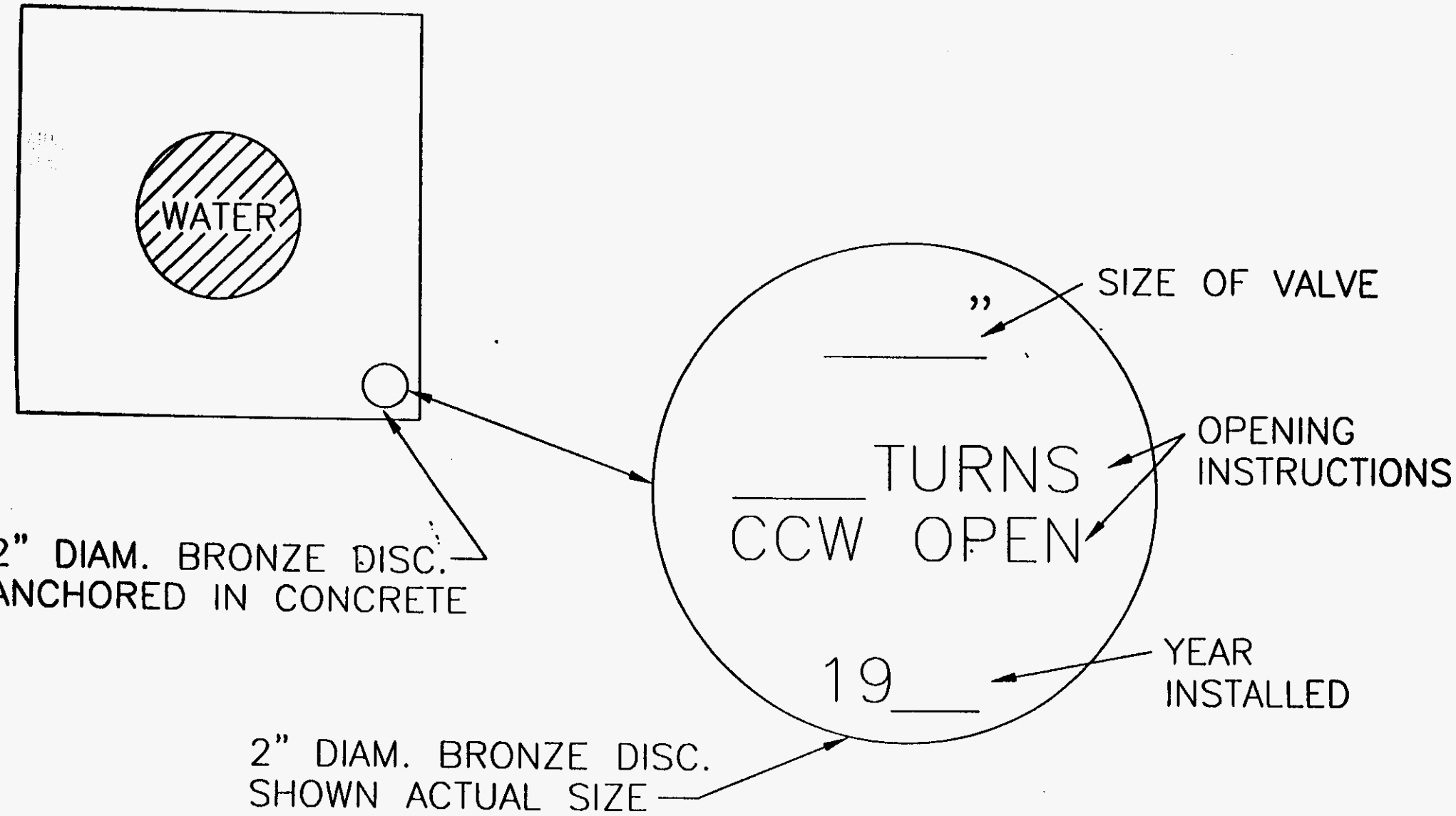
1.) CONNECTION TO MAIN SHALL BE MADE AFTER ENGINEER AND F.C.W.C. HAVE APPROVED ALL NEW WATER MAIN CONSTRUCTION. CONTRACTOR IS TO NOTIFY THE ENGINEER 48 HOURS PRIOR TO TAPPING.

2.) SEE SPECS. FOR TAPPING SLEEVE AND VALVE. ANY SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEER AND F.C.W.C. PRIOR TO CONSTRUCTION.

MAIN CONNECTION DETAIL (TAPPED)

\s PW04-05
07-28-92

n.t.s.

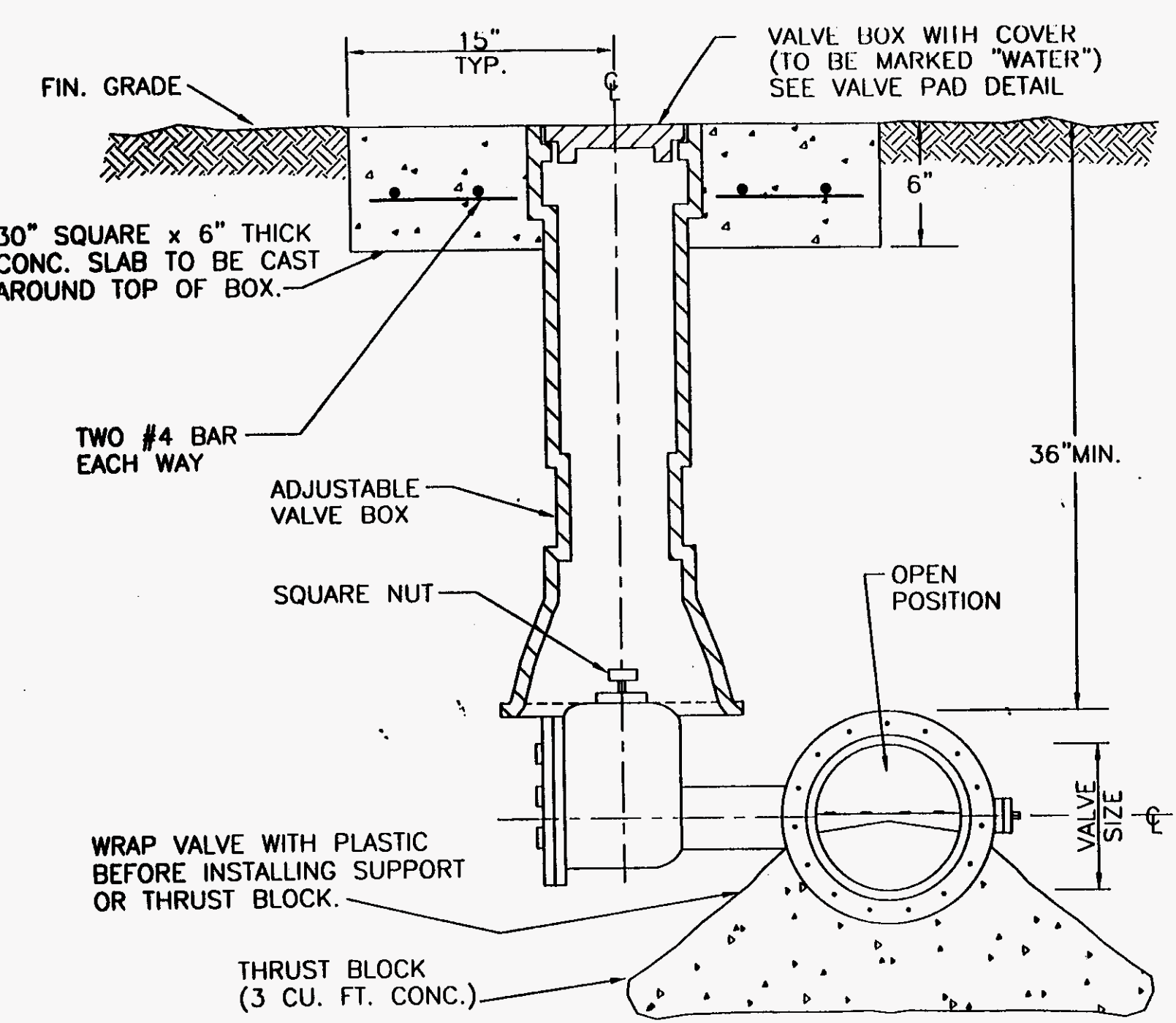


VALVE PAD DETAIL

\STDS\PW04-06

07-28-92

n.t.s

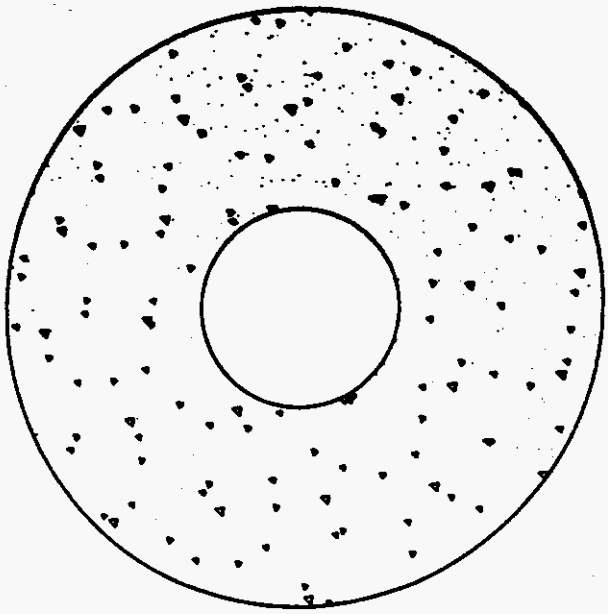


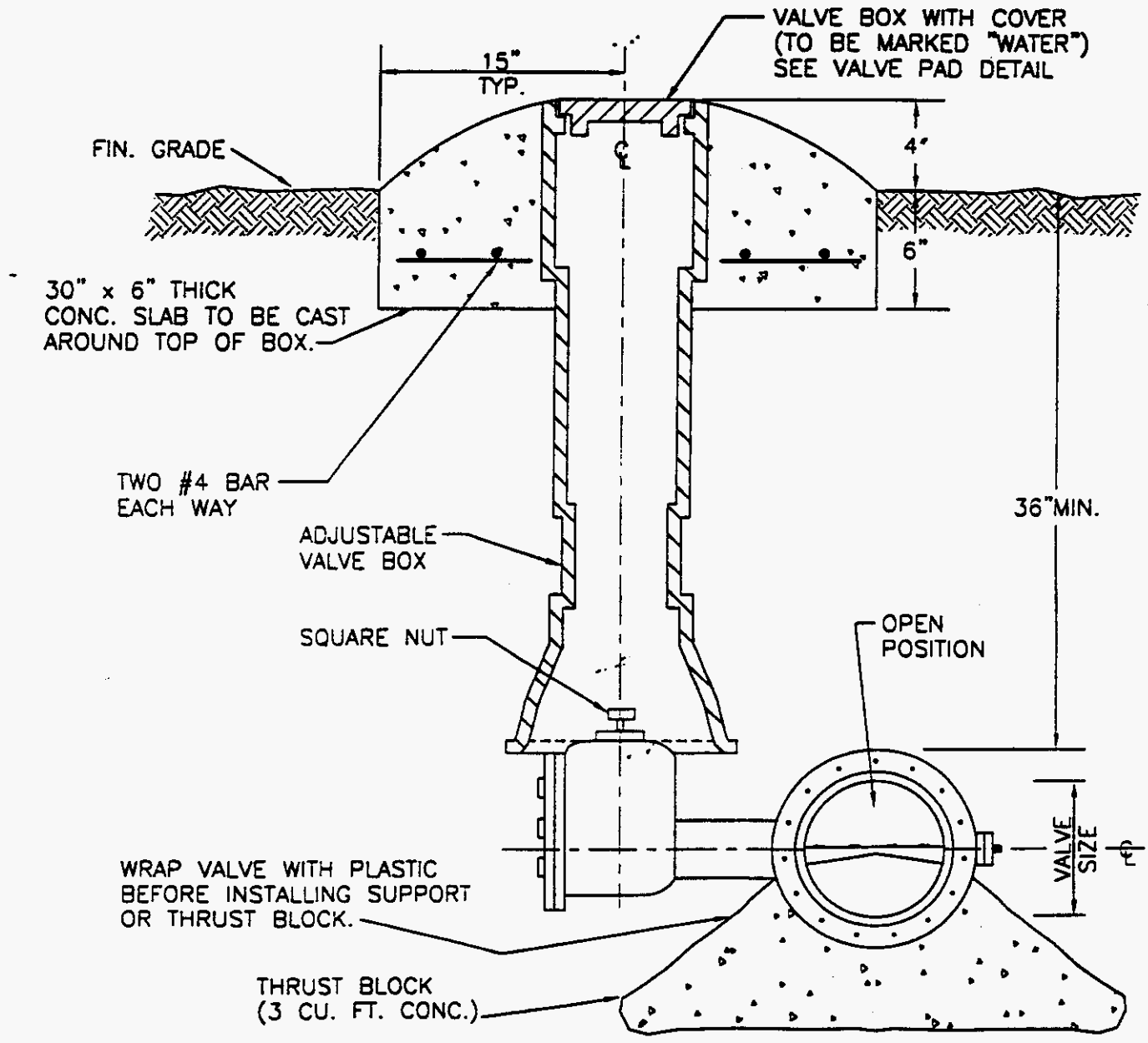
BUTTERFLY VALVE INSTALLATION DETAIL

;TDS\PW04-07

07-28-92

n.t.s.



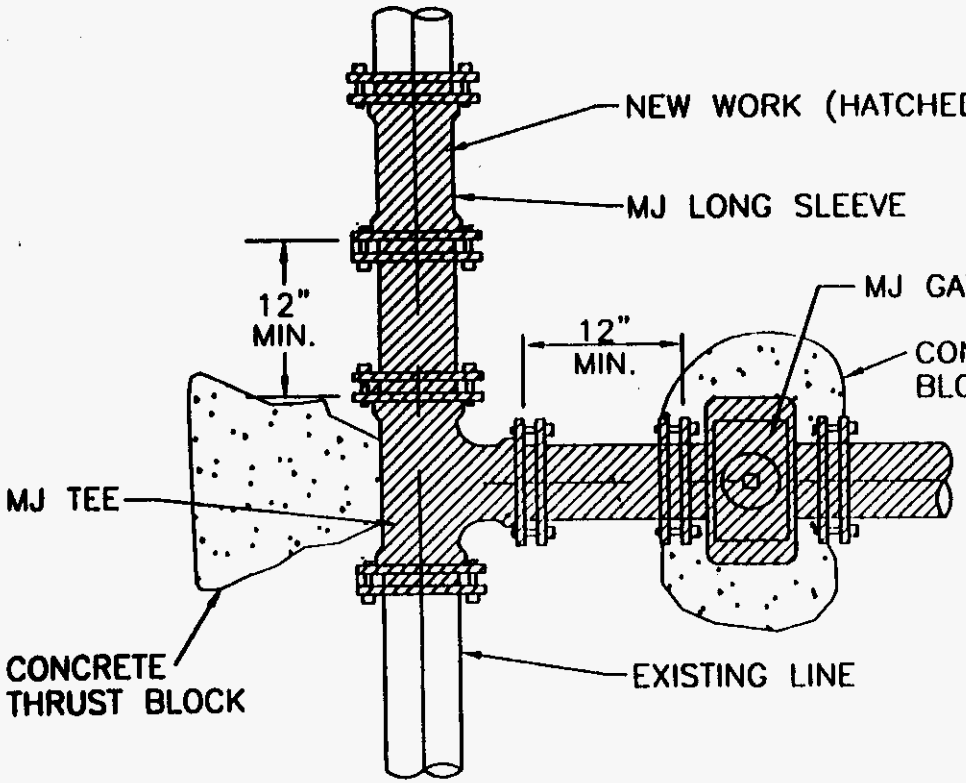


BUTTERFLY VALVE INSTALLATION DETAIL

PW04-07A
04-23-98

UNPAVED AREAS

n.t.s.



NOTES:

1. CONNECTION TO MAIN SHALL BE MADE AFTER ENGINEER & F.C.W.C. HAVE APPROVED ALL NEW WATER MAIN CONSTRUCTION. CONTRACTOR IS TO NOTIFY THE ENGINEER 72 HRS PRIOR TO CUTTING IN TEE.
2. SEE SPECS FOR FITTINGS, GATE VALVES, AND PIPE COUPLINGS. ANY SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEER AND F.C.W.C PRIOR TO CONSTRUCTION.
3. WRAP TEE AND VALVE WITH PLASTIC THEN POUR SUPPORT BLOCK AND THRUST BLOCK.

MAIN CONNECTION DETAIL (CUT-IN)

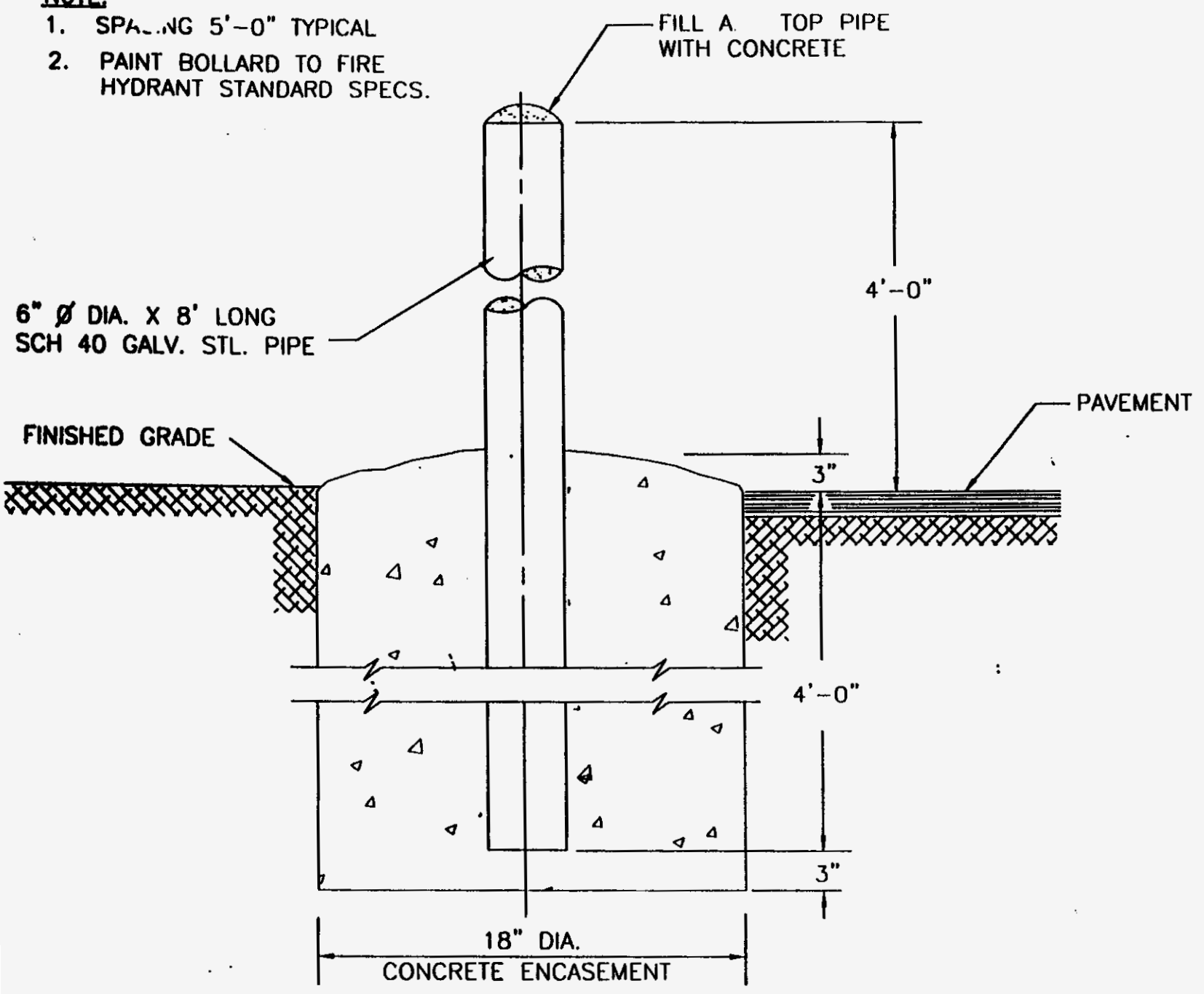
\STDS\PW04-08

07-28-92

n.t.s.

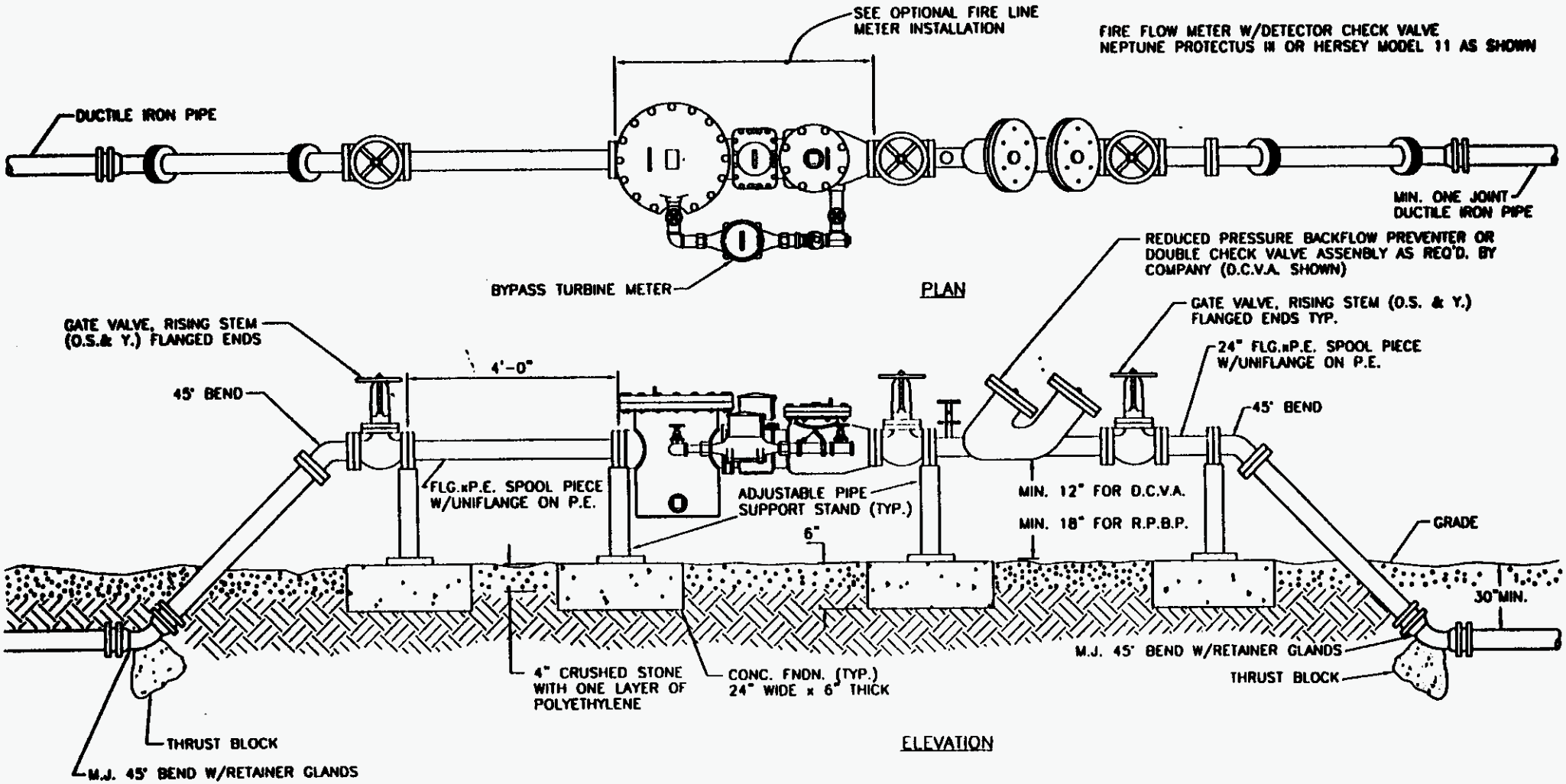
NOTE:

1. SPACING 5'-0" TYPICAL
2. PAINT BOLLARD TO FIRE HYDRANT STANDARD SPECS.



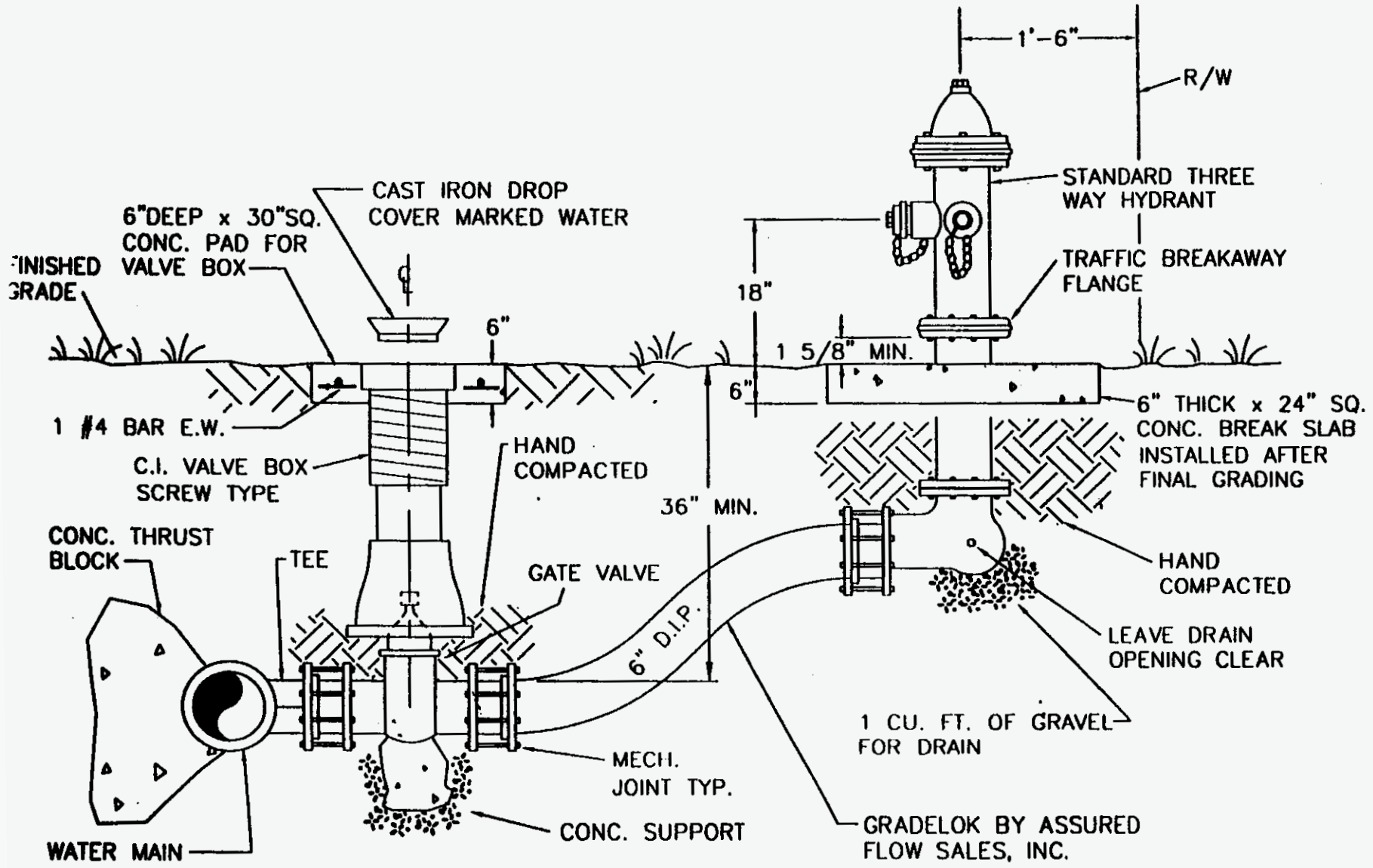
DETAIL – BOLLARD POST

n.t.s. PW4-9 7-15-92



BACKFLOW PREVENTION DEVICE INSTALLATION FOR FIRE SYSTEM LINES

n.t.s.



NOTES:

1.) FIRE HYDRANTS NEAR ROADWAYS AND PARKING AREAS ARE TO BE PROTECTED WITH TWO OR MORE, CONC. FILLED, 6" DIAM. STEEL PIPES, PAINTED O.S.H.A. YELLOW, EXTENDING FROM 6'-0" BELOW GRADE TO APPROX. 6" ABOVE TOP OF HYDRANTS.

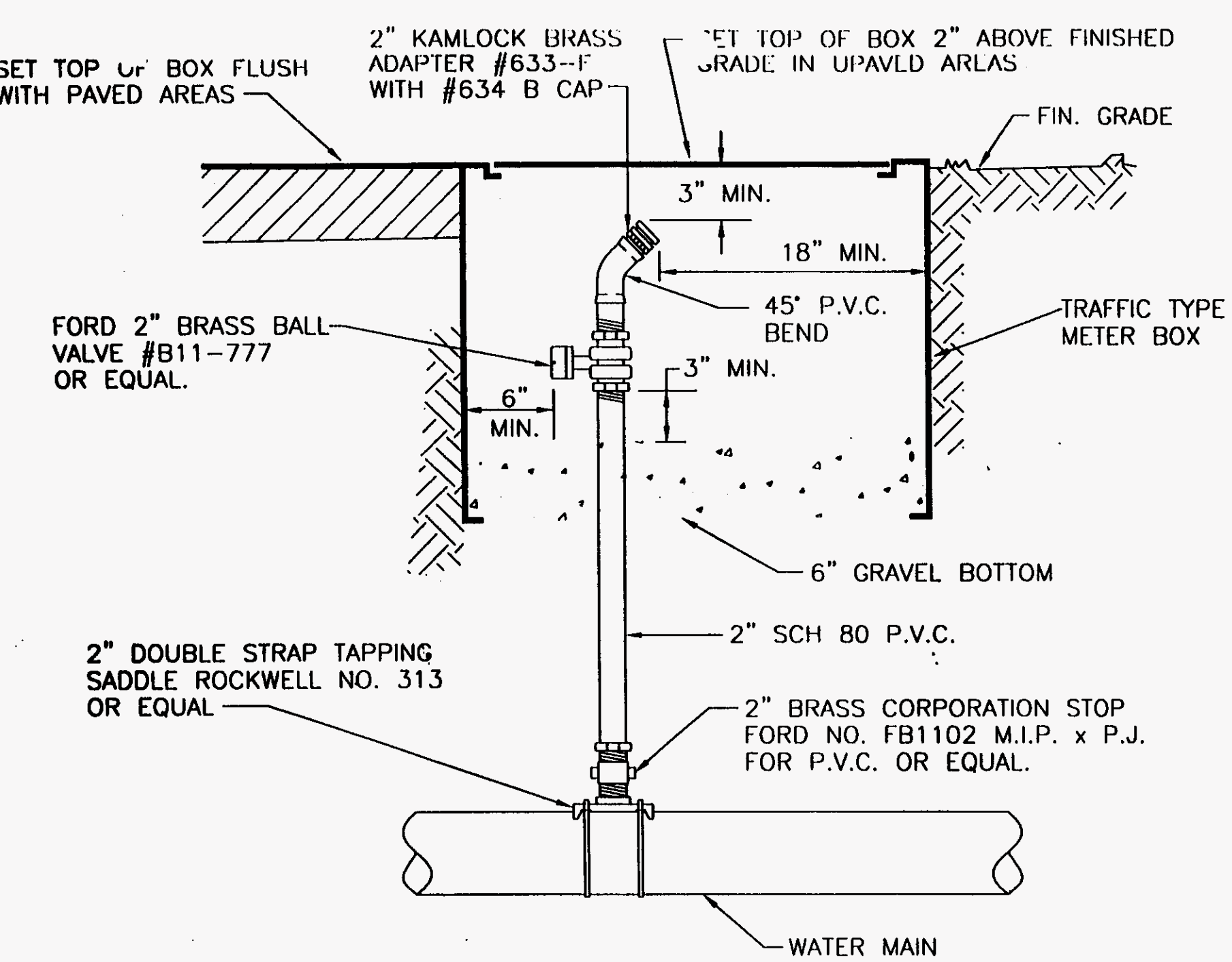
2.) SEE VALVE DETAIL FOR PROPER HYDRANT VALVE INSTALLATION.

FIRE HYDRANT WITH TYPICAL GATE VALVE

DS\PW04-03A

07-28-92

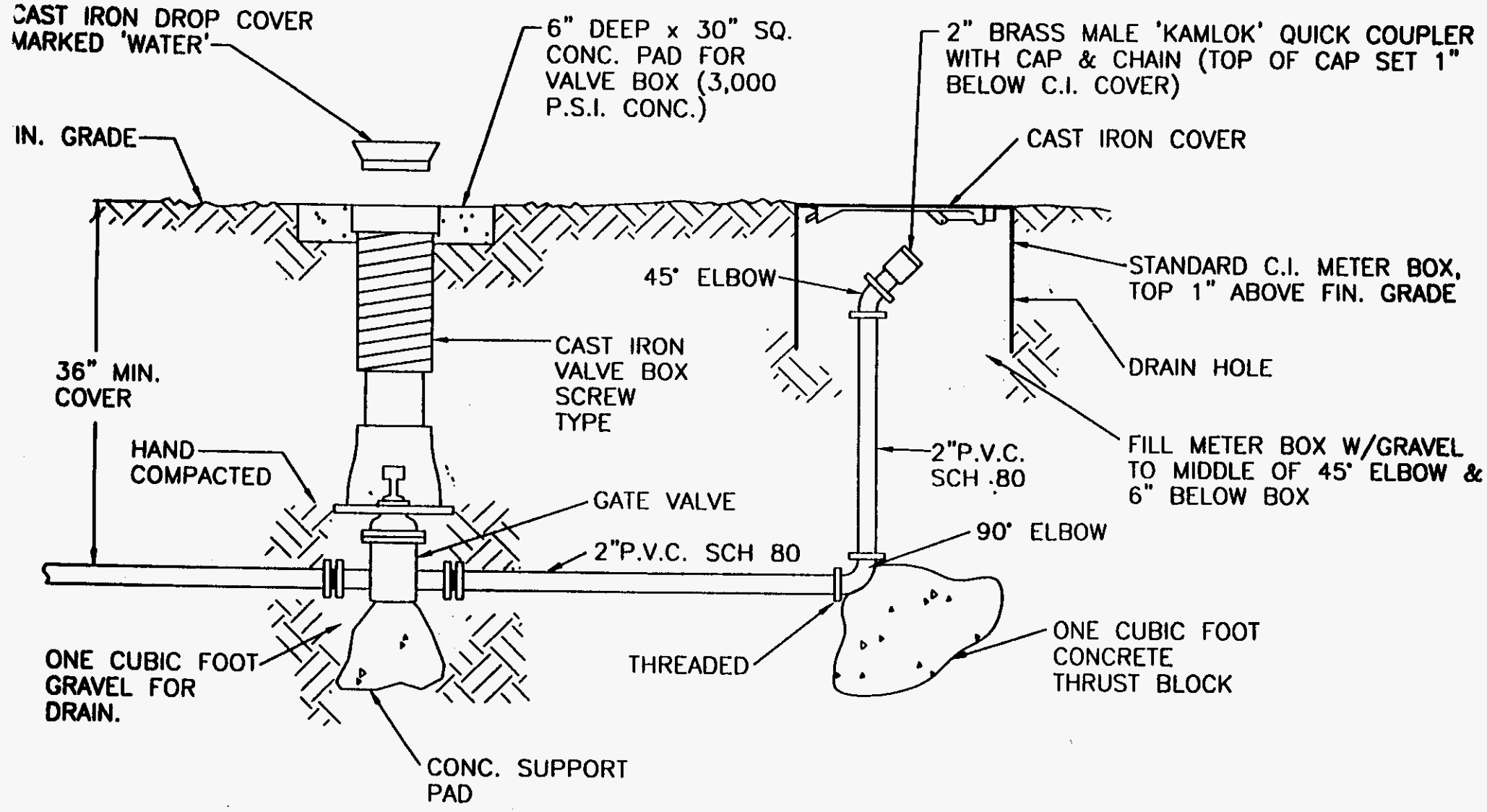
n.t.s.



MANUAL AIR RELEASE VALVE

\STDS\PW05-03A

n.t.s.

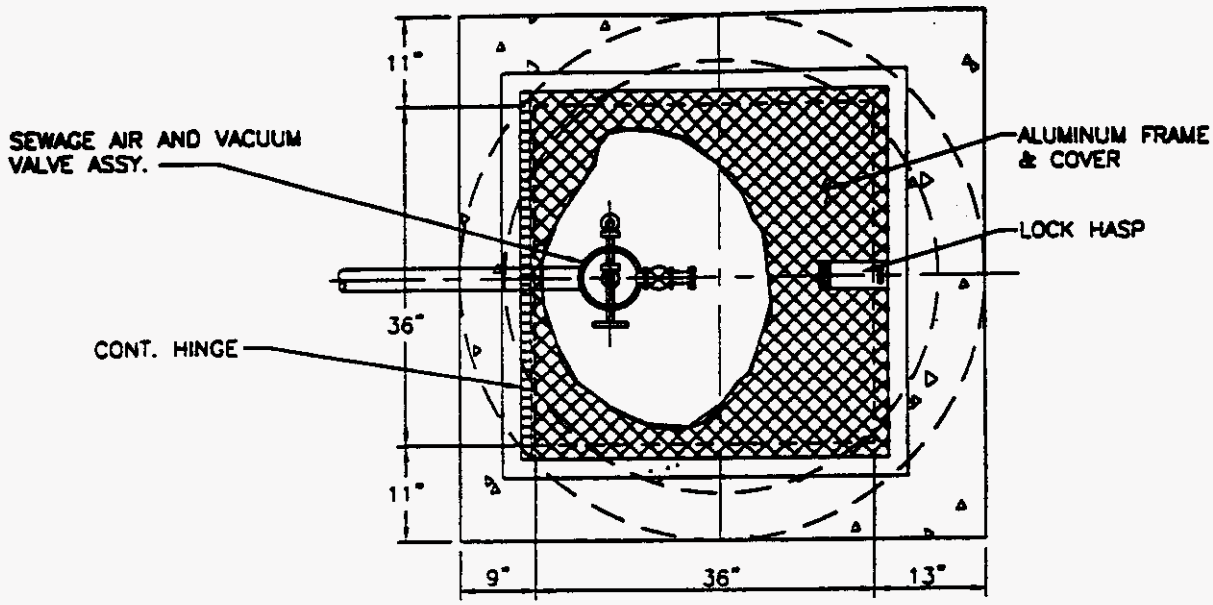


FLUSH VALVE AND VALVE BOX DETAIL

IDS\PW05-06A

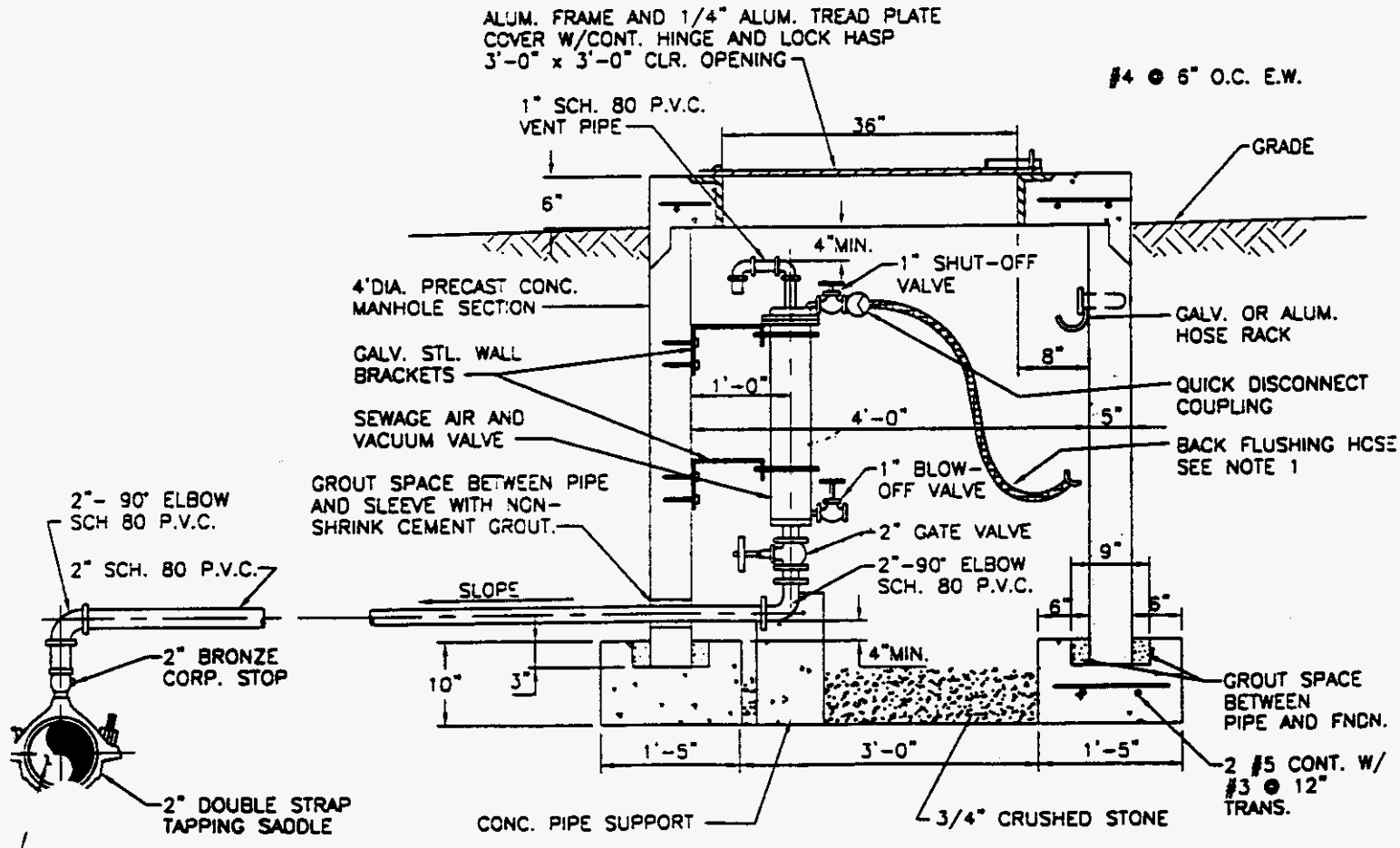
08-31-92

n.t.s.



PLAN

FOR NON TRAFFIC AREAS



TYPICAL SECTION

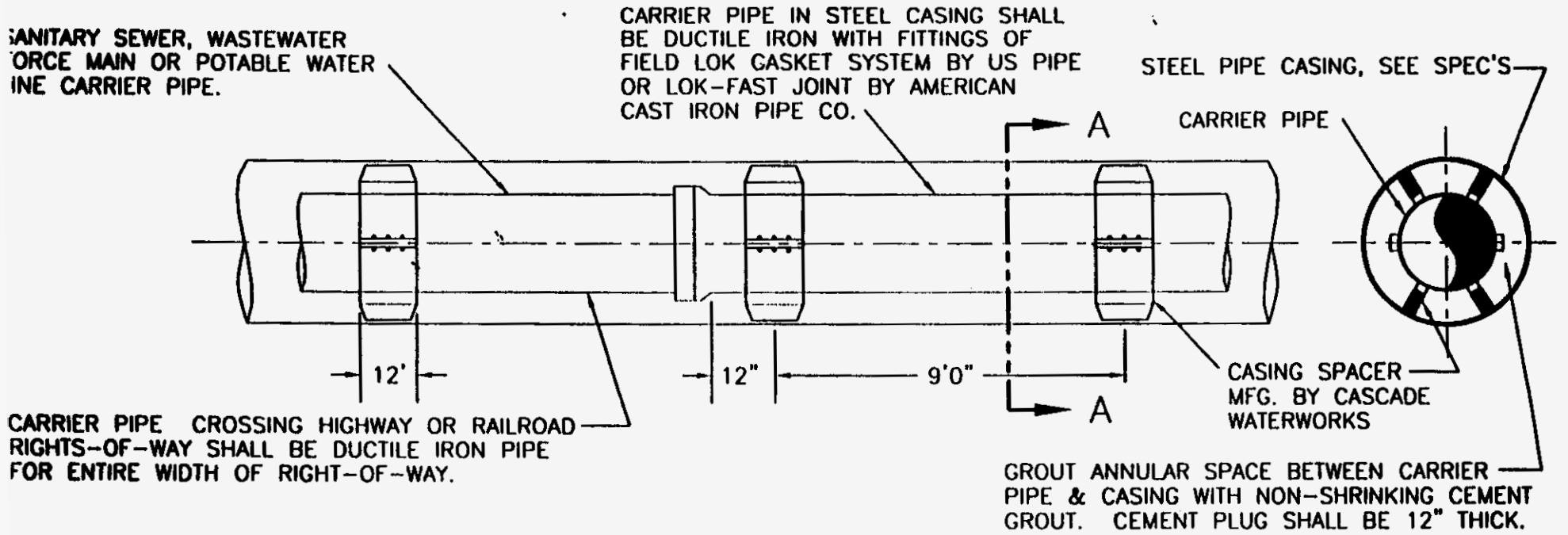
SEWAGE AIR AND VACUUM VALVE

NOTE:
1. CONTRACTOR SHALL FURNISH 50 L.F. OF 3/4 INCH FLUSHING HOSE.

\STDS\WAT08-07

07-29-92

n.t.s.



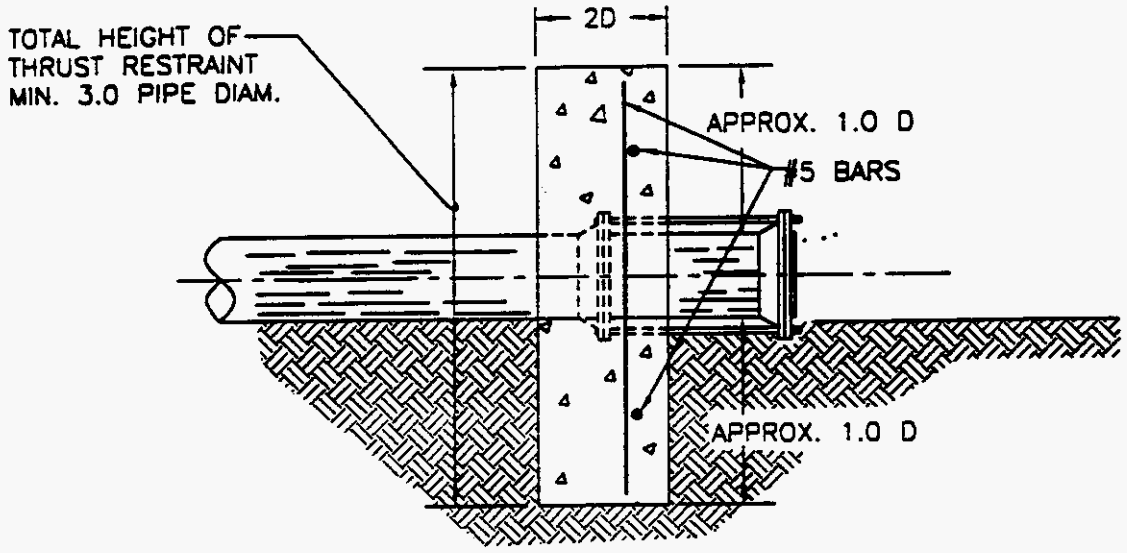
CASING & CARRIER PIPE DETAIL

\STDS\PW05-01

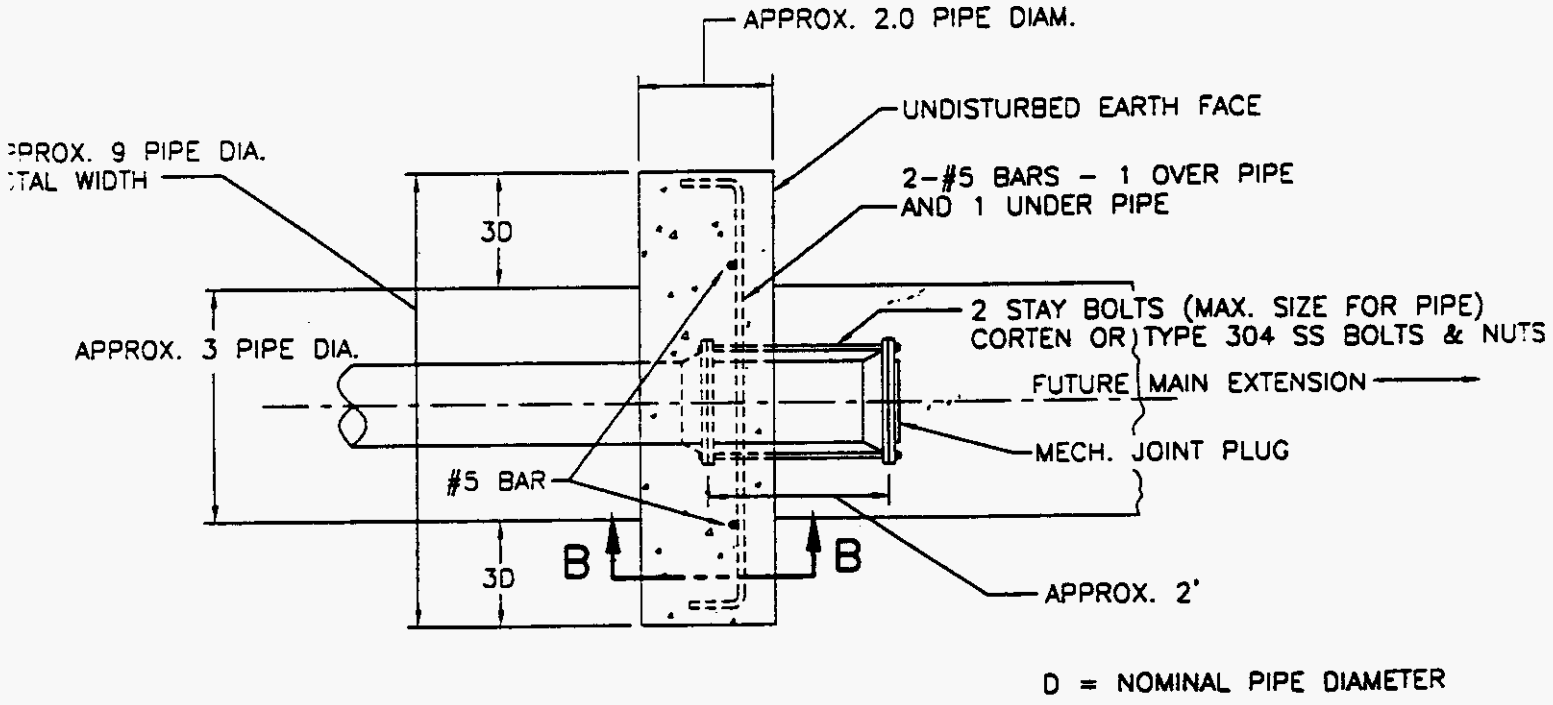
07-28-92

n.t.s.

CASING SECTION WITH POLYMER RUNNERS SECTION "A-A"



SECTION B–B

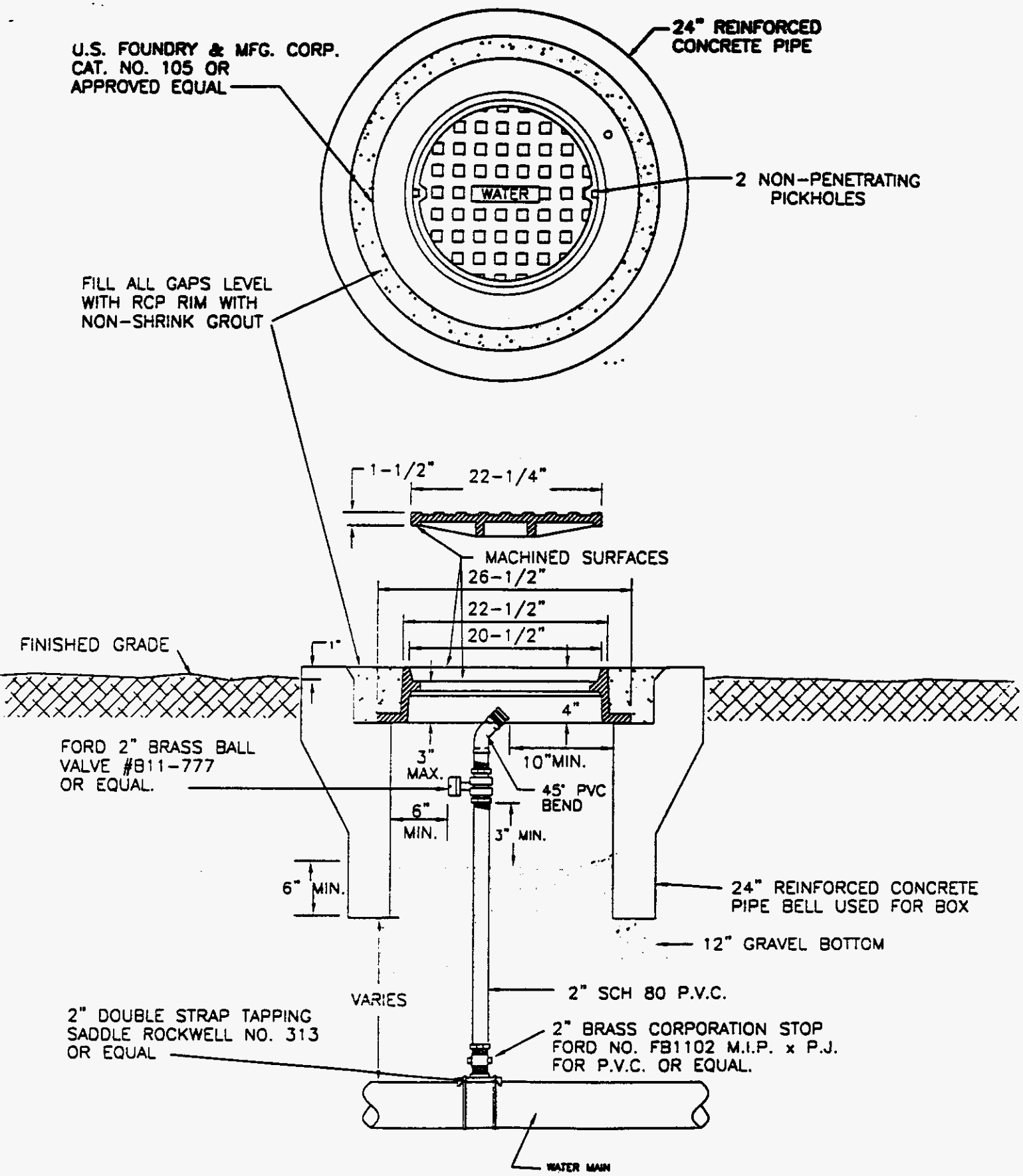


D = NOMINAL PIPE DIAMETER

TYPICAL MAIN ENDING TO PROVIDE FOR FUTURE EXTENSION

\STDS\PW05-02 n.t.s.

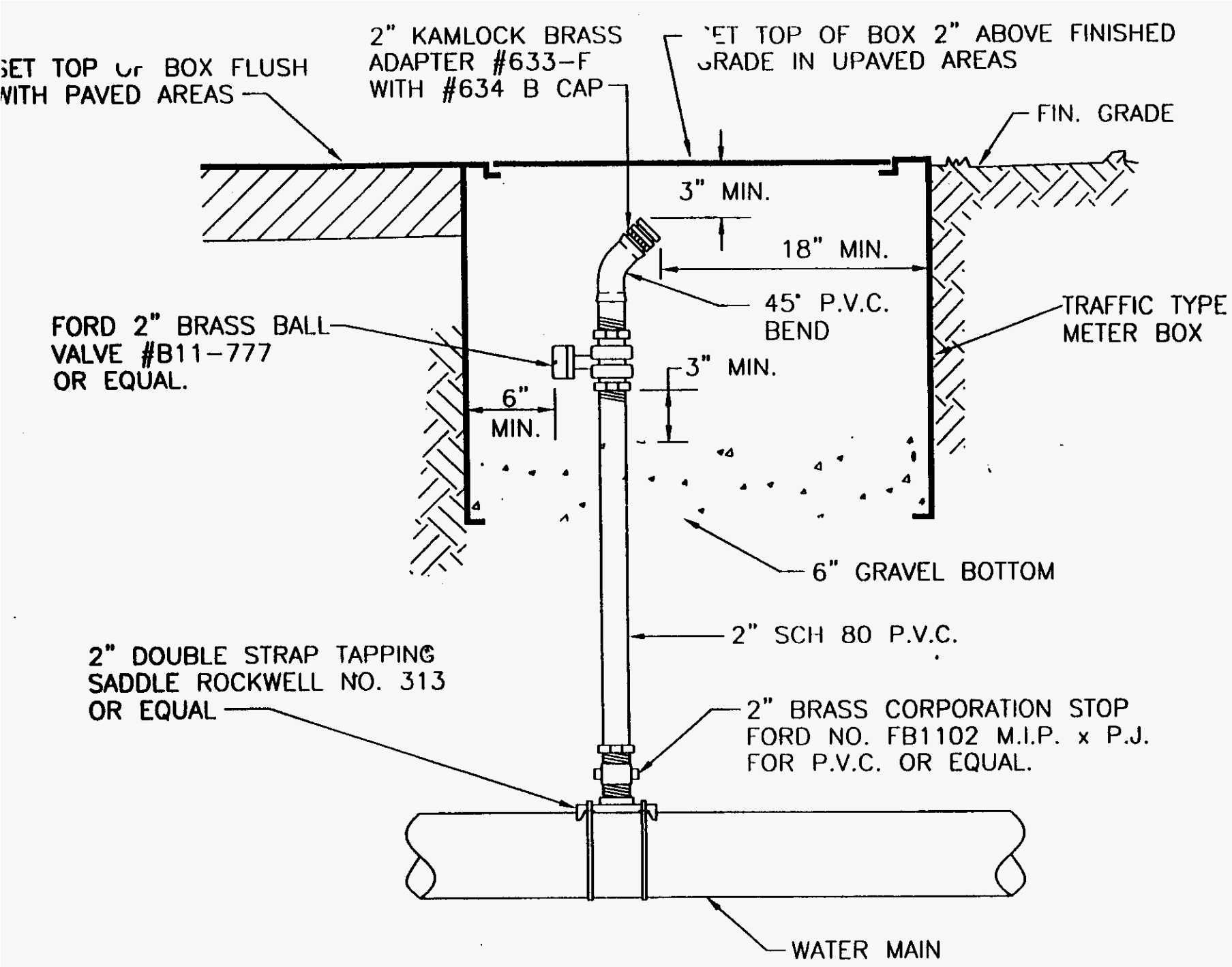
07-28-92



MANUAL AIR RELEASE VALVE

\STDS\PWDS-03
08-31-92

n.t.s.



MANUAL AIR RELEASE VALVE

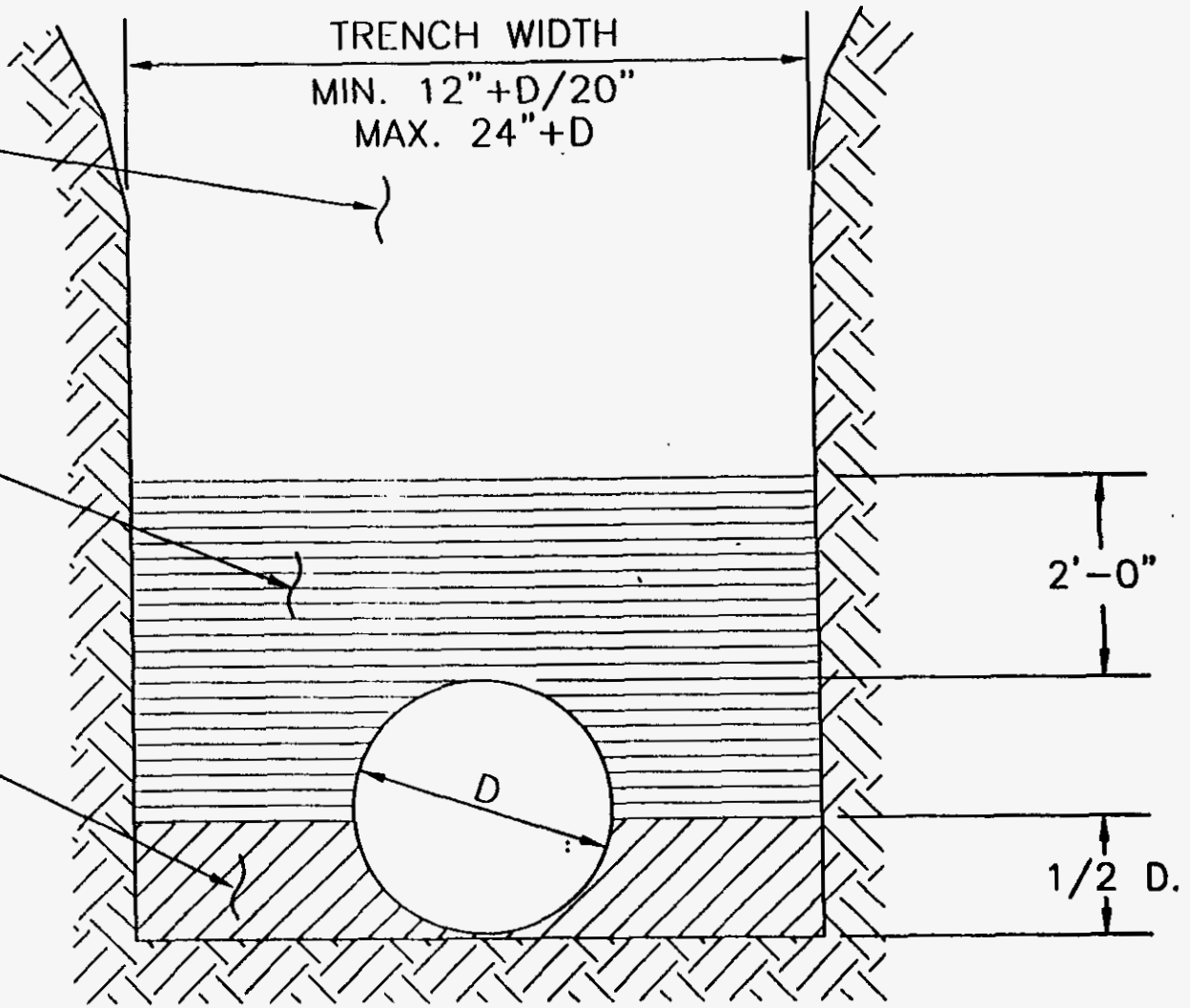
\STDS\PW05-03A

n.t.s.

TRENCH BACKFILL SHALL BE SATISFACTORY BACKFILL MATERIAL PLACED & COMPACTED IN 8-INCH LAYERS SEE SPEC.

BACKFILL AROUND PIPE SHALL BE HAND PLACED SELECT BACKFILL MATERIAL PLACED IN 6" LAYERS & COMPACTED TO 95% MIN.

PIPE BEDDING SHALL BE HAND PLACED SELECT BACKFILL MATERIAL UP TO SPRINGLINE OF PIPE COMPACTED TO 95% MIN.

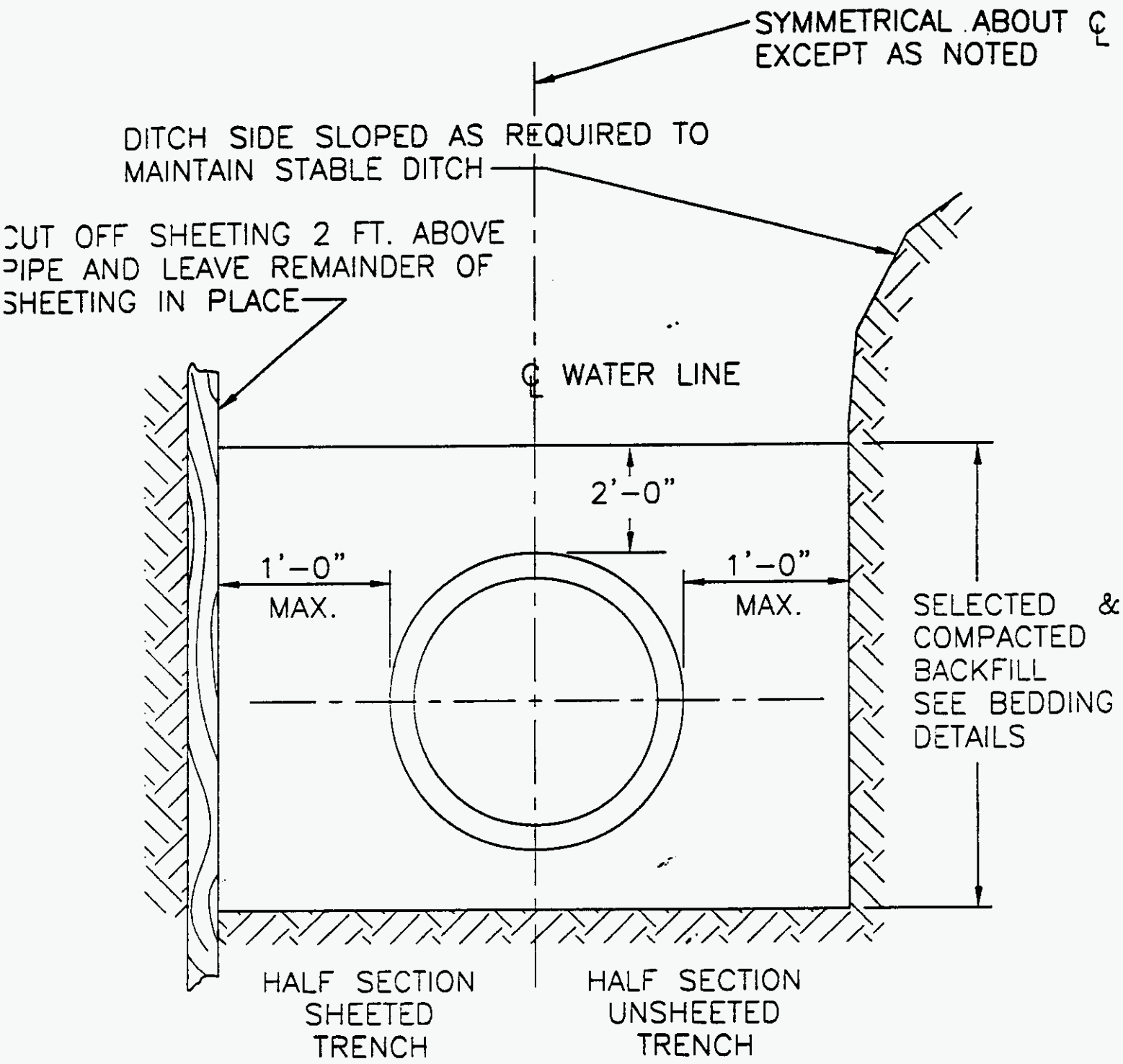


TYPE 2
PIPE BEDDING DETAIL
FOR DUCTILE IRON & P.V.C. PIPE

\STDS\PW05-04

n.t.s.

08-31-92



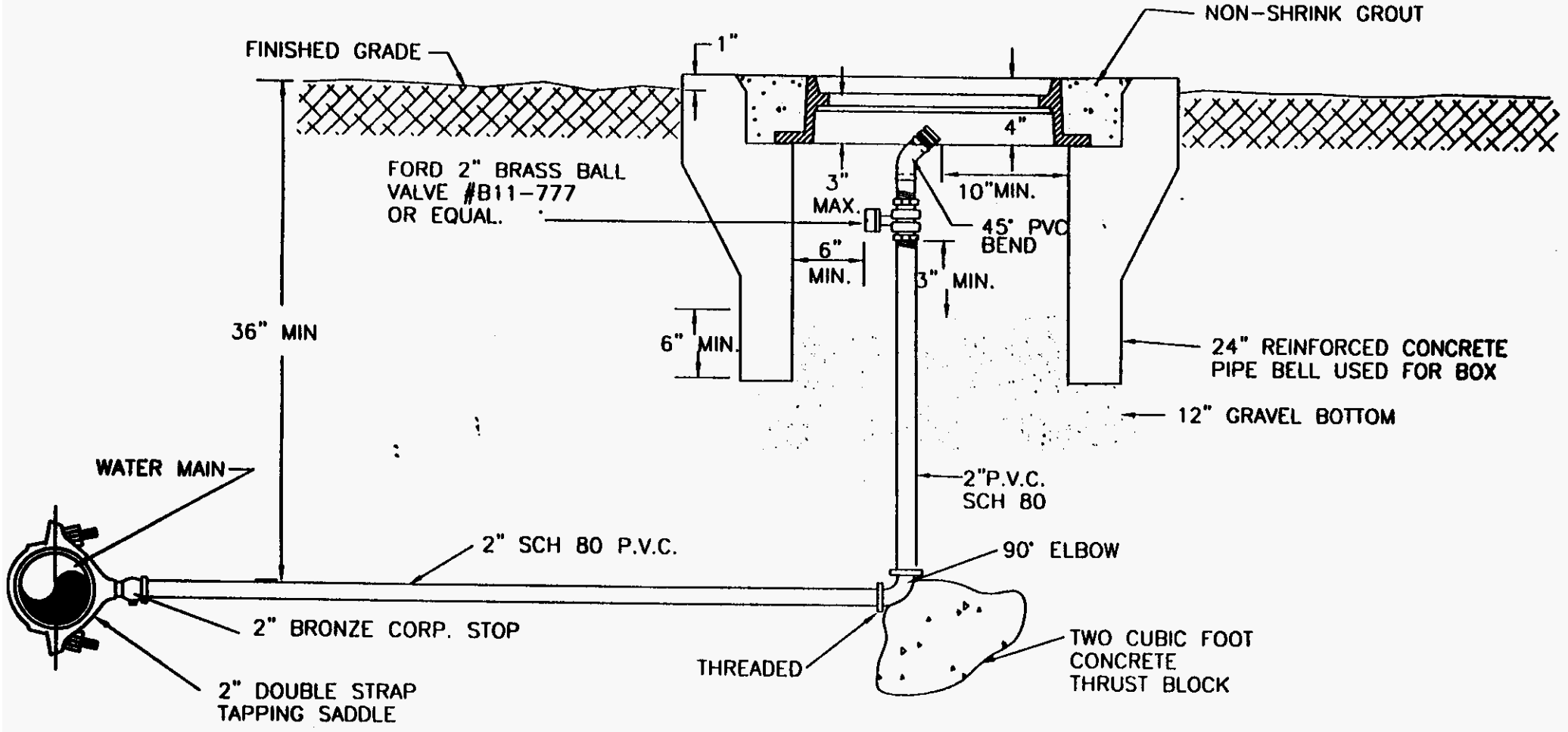
WATER LINE PIPE TRENCH DETAIL

\STDS\PW05-05 n.t.s.

07-28-92

NOTE:

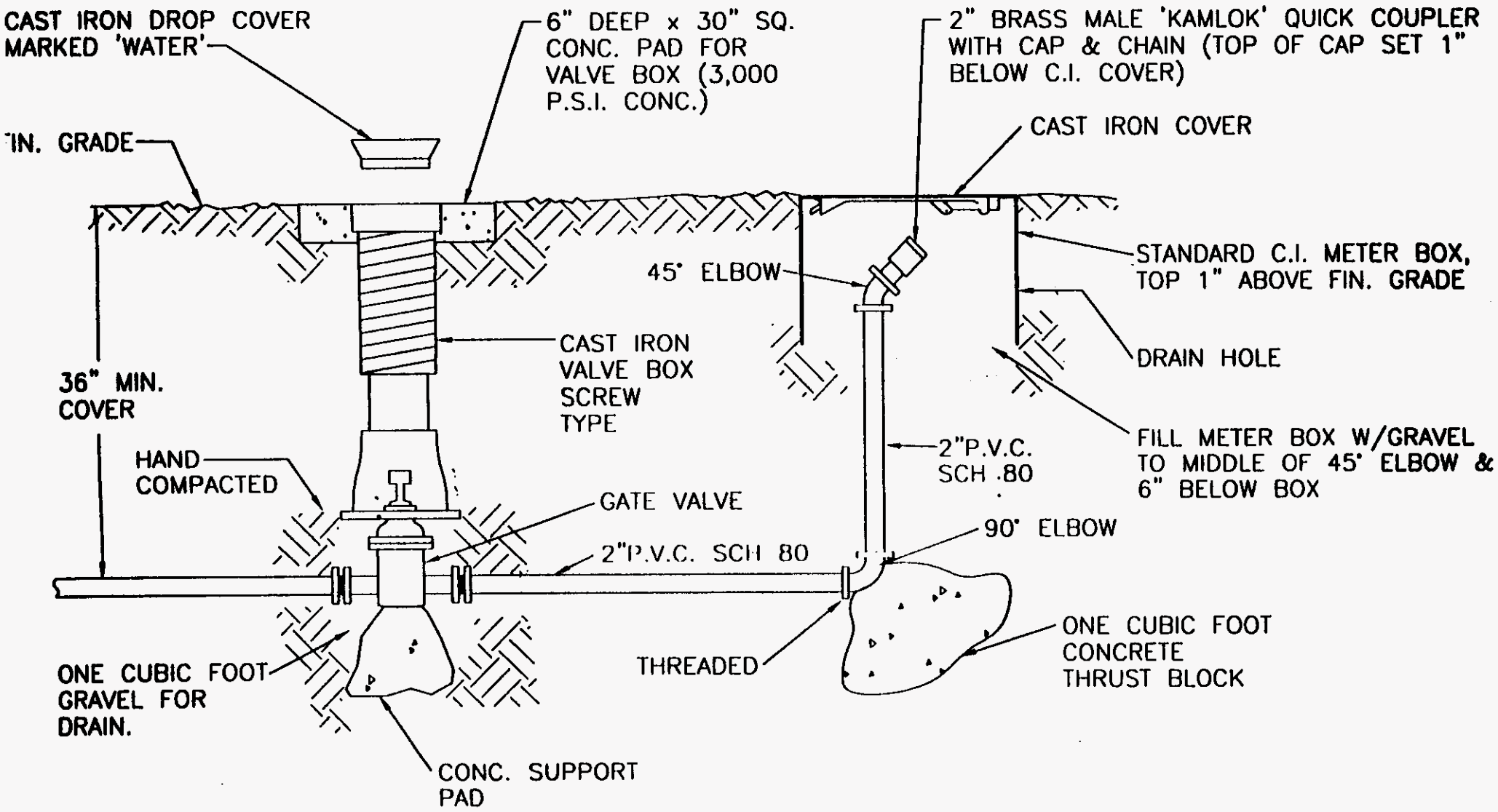
FOR COMPLETE DETAILS OF FLUSH VALVE BOX
SEE MANUAL AIR RELEASE VALVE BOX DETAIL.



FLUSH VALVE AND VALVE BOX DETAIL

PW05-06

08-31-92

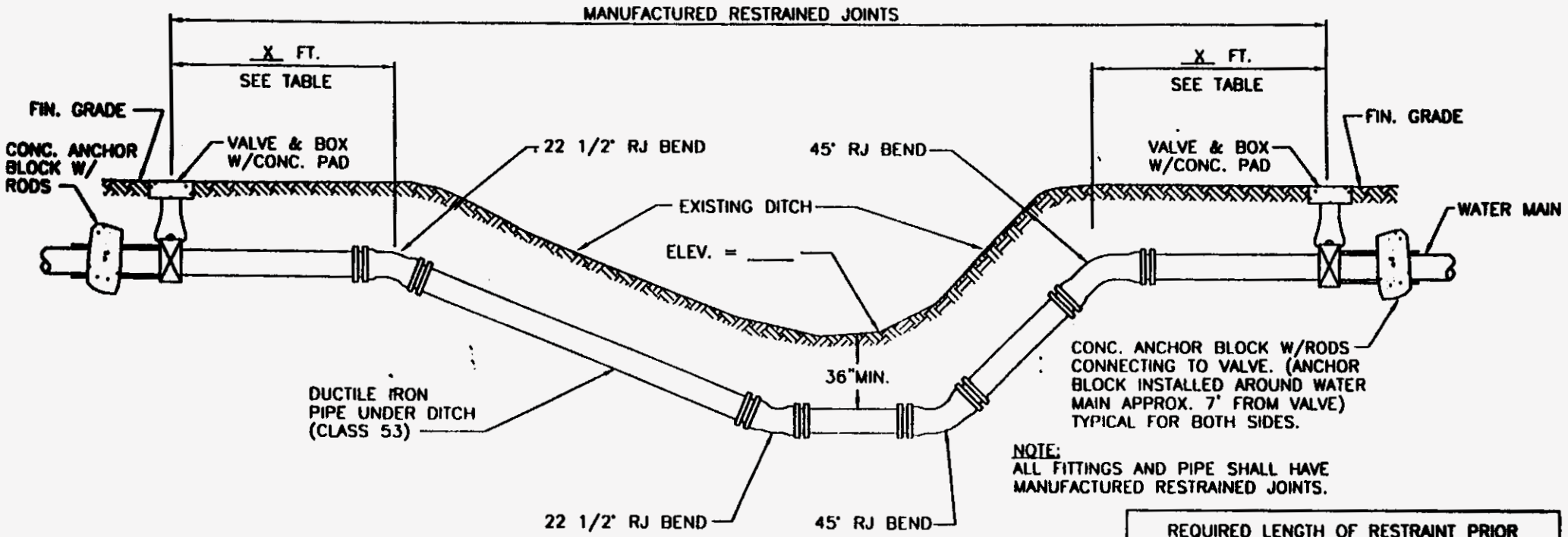


FLUSH VALVE AND VALVE BOX DETAIL

TDS\PW05-06A

08-31-92

n.t.s.



NOTE:
ALL FITTINGS AND PIPE SHALL HAVE MANUFACTURED RESTRAINED JOINTS.

TYPICAL DITCH CROSSING DETAIL

\SIDS\PW05-07

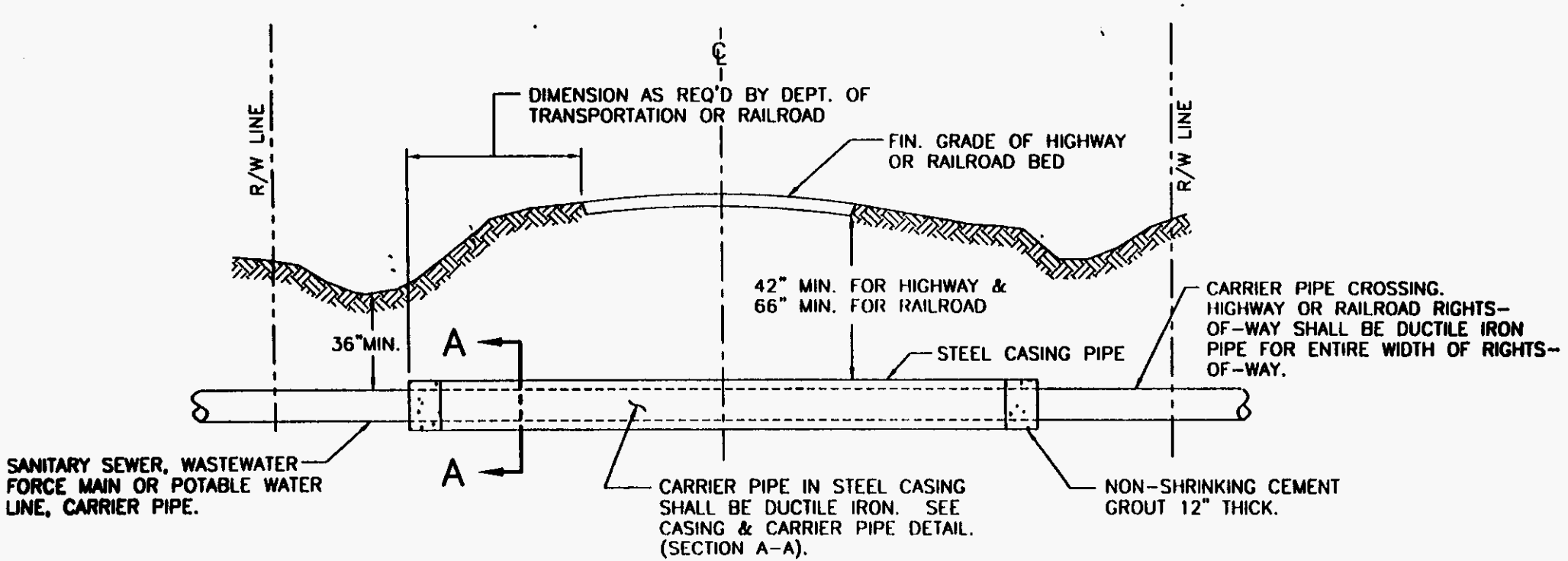
07-28-92

n.t.s.

REQUIRED LENGTH OF RESTRAINT PRIOR TO CONNECTION TO NON-RESTRAINED PIPE

PIPE SIZE	X. DIMENSION
4 IN.	9 FT.
6 IN.	12 FT.
8 IN.	15 FT.
10 IN.	18 FT.
12 IN.	21 FT.
14 IN.	24 FT.
16 IN.	27 FT.

NOTE: BASED ON 150 PSI TEST PRESSURE, 45° BEND AT FITTING' ND 3FT. MINIMUM COVER.



STEEL CASING PIPE DETAIL
FOR HIGHWAY & RAILROAD CROSSINGS

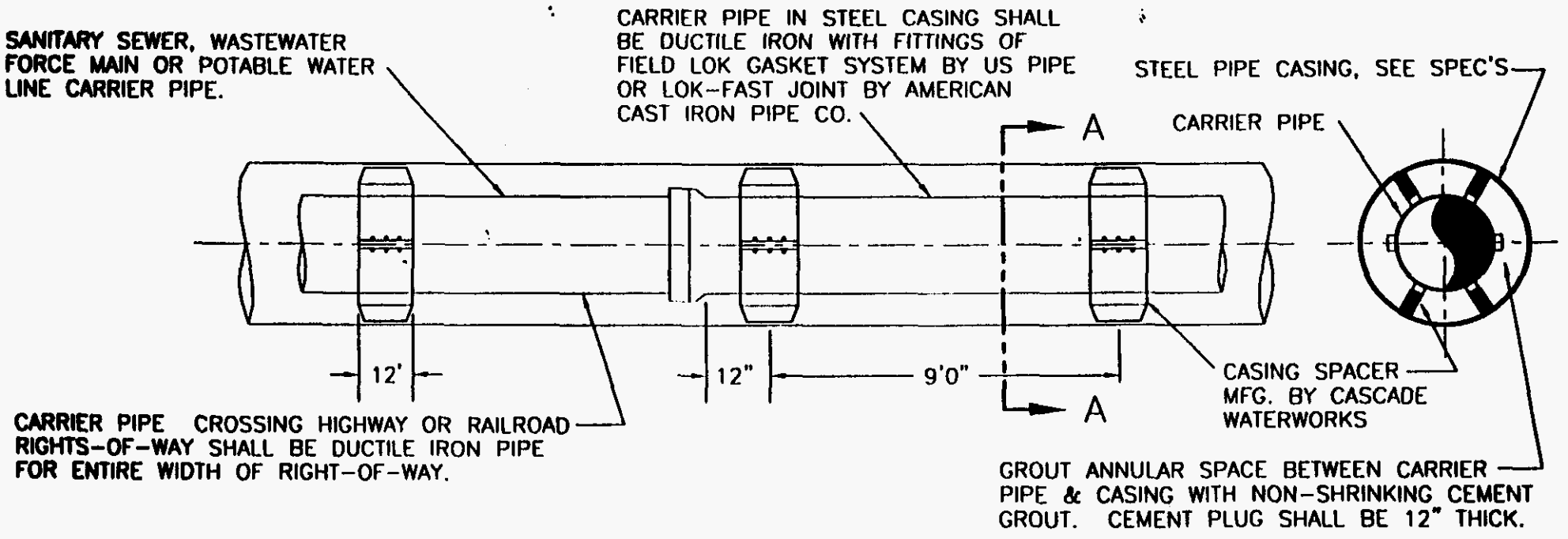
\SIDS\PW05 08

07-28 97

n.t.s.

STEEL CASING PIPE SCHEDULE

CARRIER PIPE NOMINAL DIAMETER	STEEL CASING PIPE NOMINAL DIAMETER
4"	14"
6"	16"
8"	18"
10"	20"
12"	24"
14"	26"
16"	28"
18"	30"
20"	33"
24"	37"
30"	45"



CASING & CARRIER PIPE DETAIL

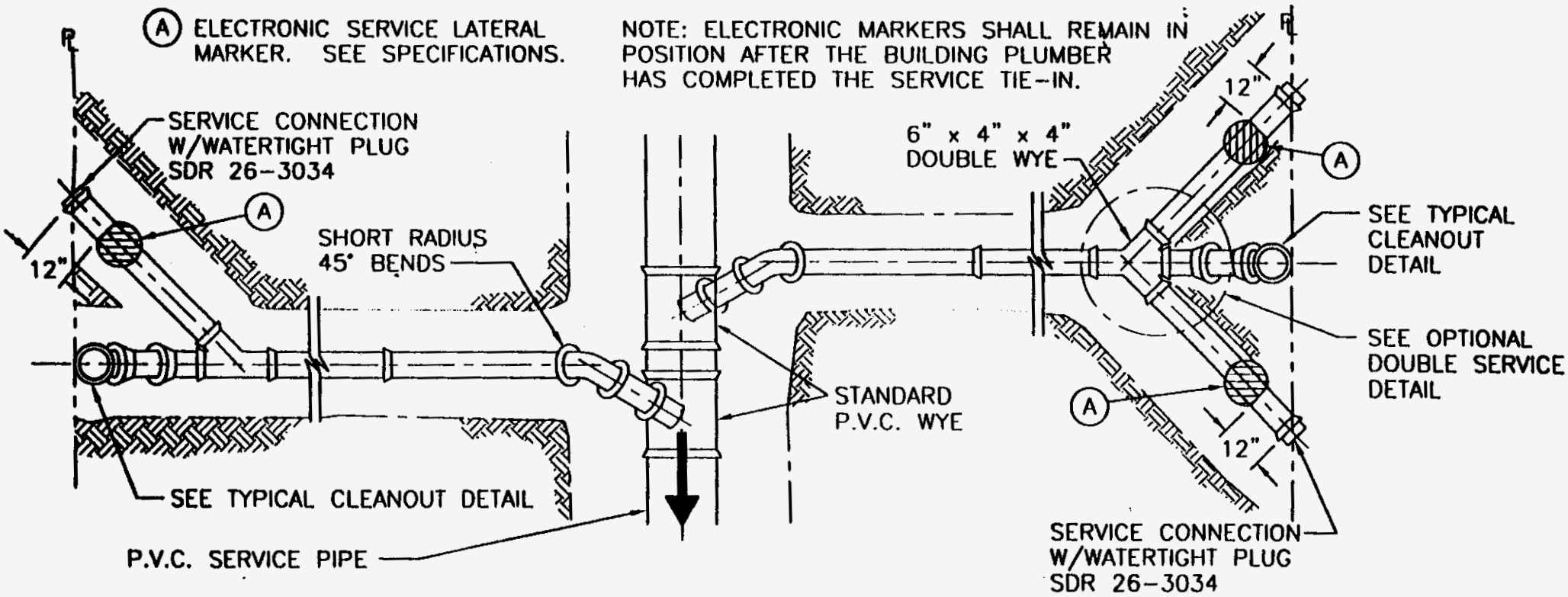
\STDS\WWC06-01

07-28-92

n.t.s.

CASING SECTION WITH POLYMER RUNNERS

SECTION "A- A"



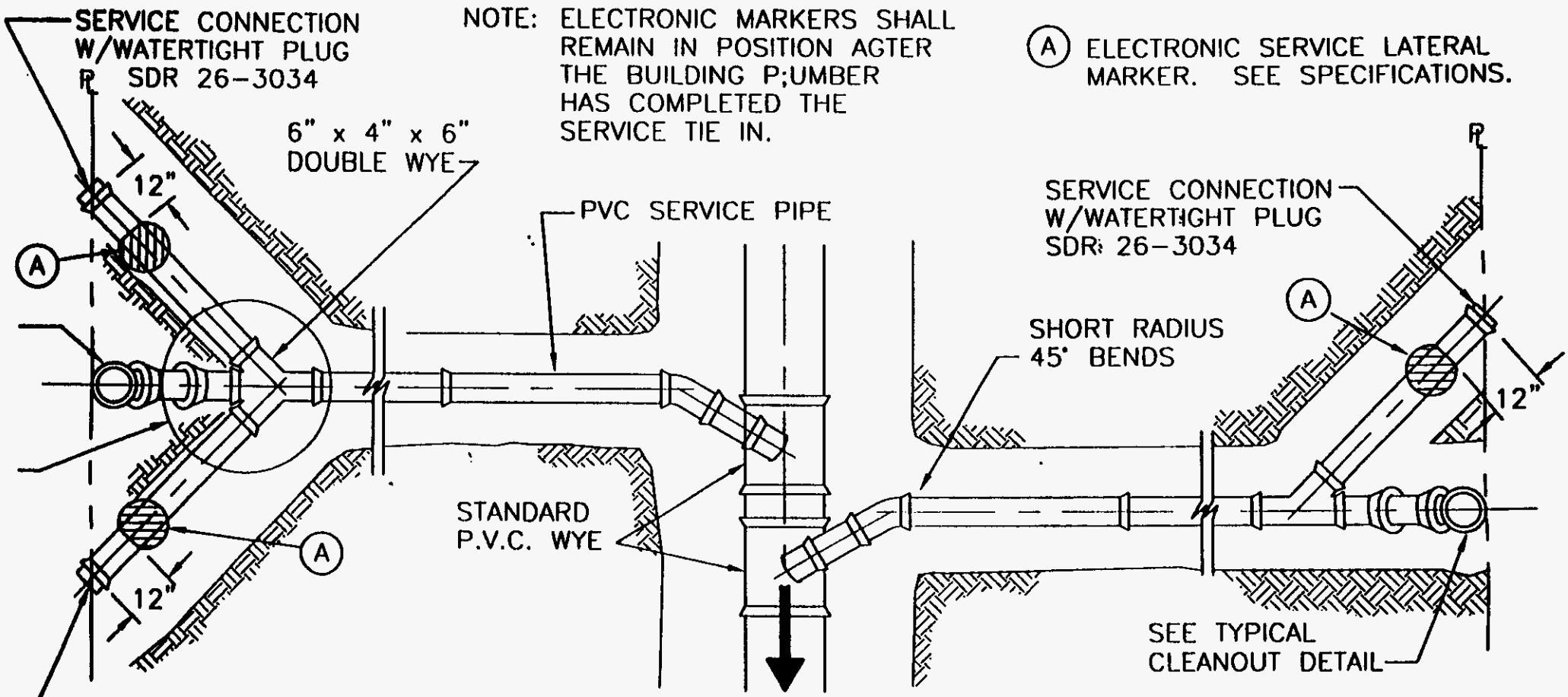
HOUSE SERVICE SEWER WITH RISER

TYPICAL PLAN

\STDS\WWG06-02

n.t.s.

NOTE:
ALL P.V.C. SANITARY GRAVITY SEWER PIPE SHALL BE ASTM D 3034 SDR 26



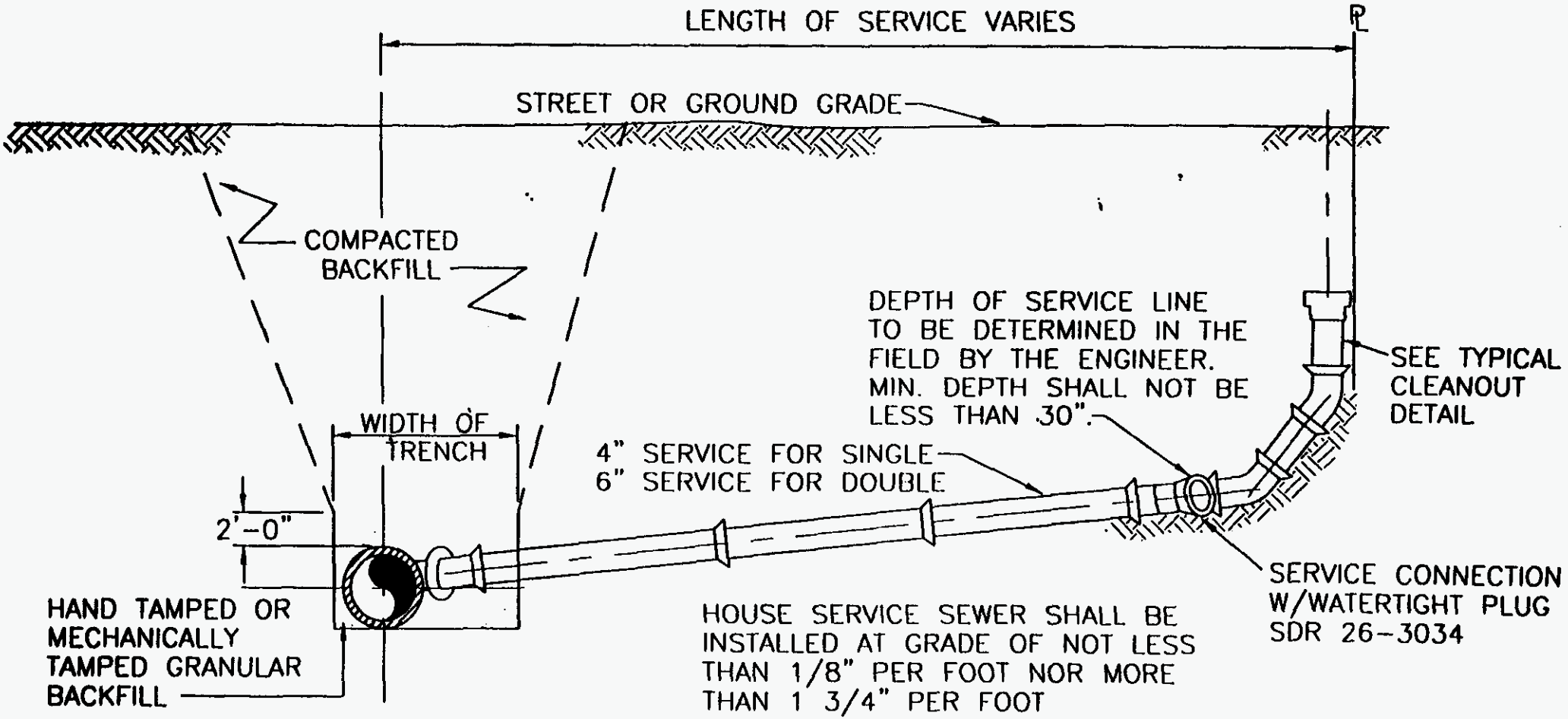
STANDARD HOUSE SERVICE SEWER

TYPICAL PLAN

\STDS\WWG06-03 n.t.s

10-29-92

NOTE:
ALL P.V.C. SANITARY GRAVITY SEWER F T SHALL BE ASTM D 3034 SDR 26



STANDARD HOUSE SERVICE SEWER

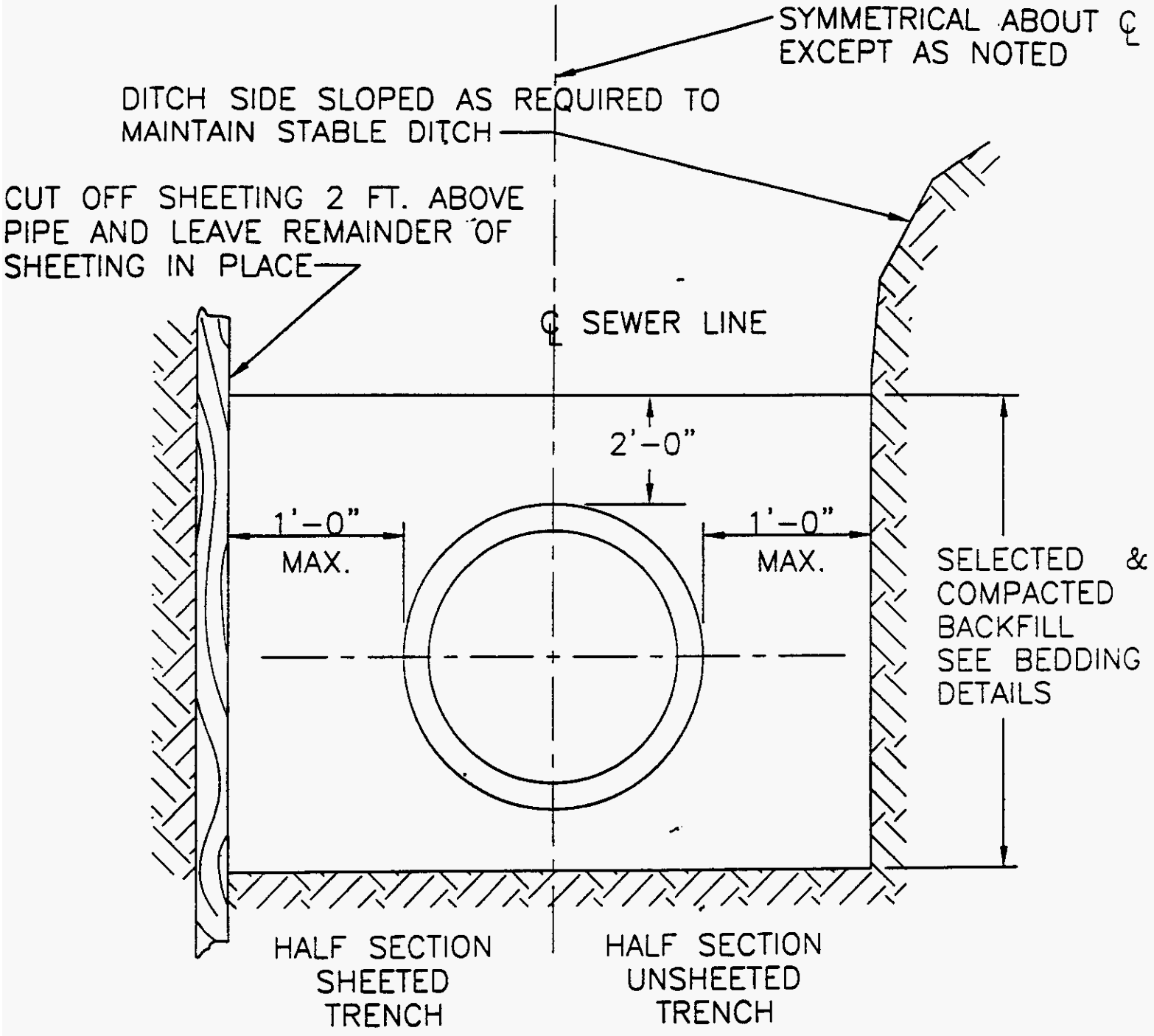
TYPICAL SECTION

\STDS\WWG06-04

n.t.s.

10-29-92

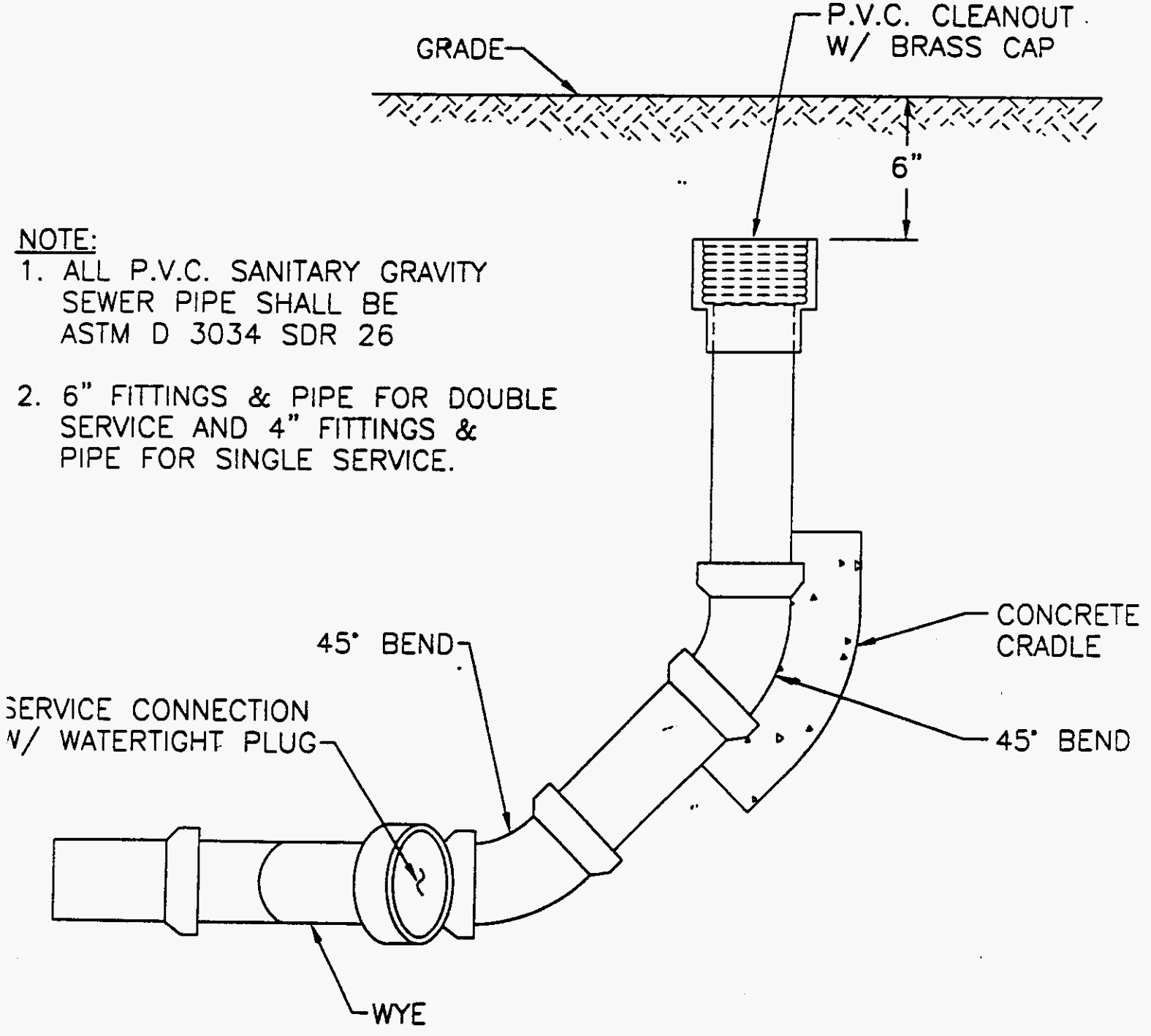
NOTE:
ALL P.V.C. SANITARY GRAVITY SEWER IPE SHALL BE ASTM D 3034 SDR 26



SEWER LINE PIPE TRENCH DETAIL

\STDS\WWG06-05 n.t.s.

08-31-92



TYPICAL CLEANOUT DETAIL

\STDS\WWG06-06

n.t.s.

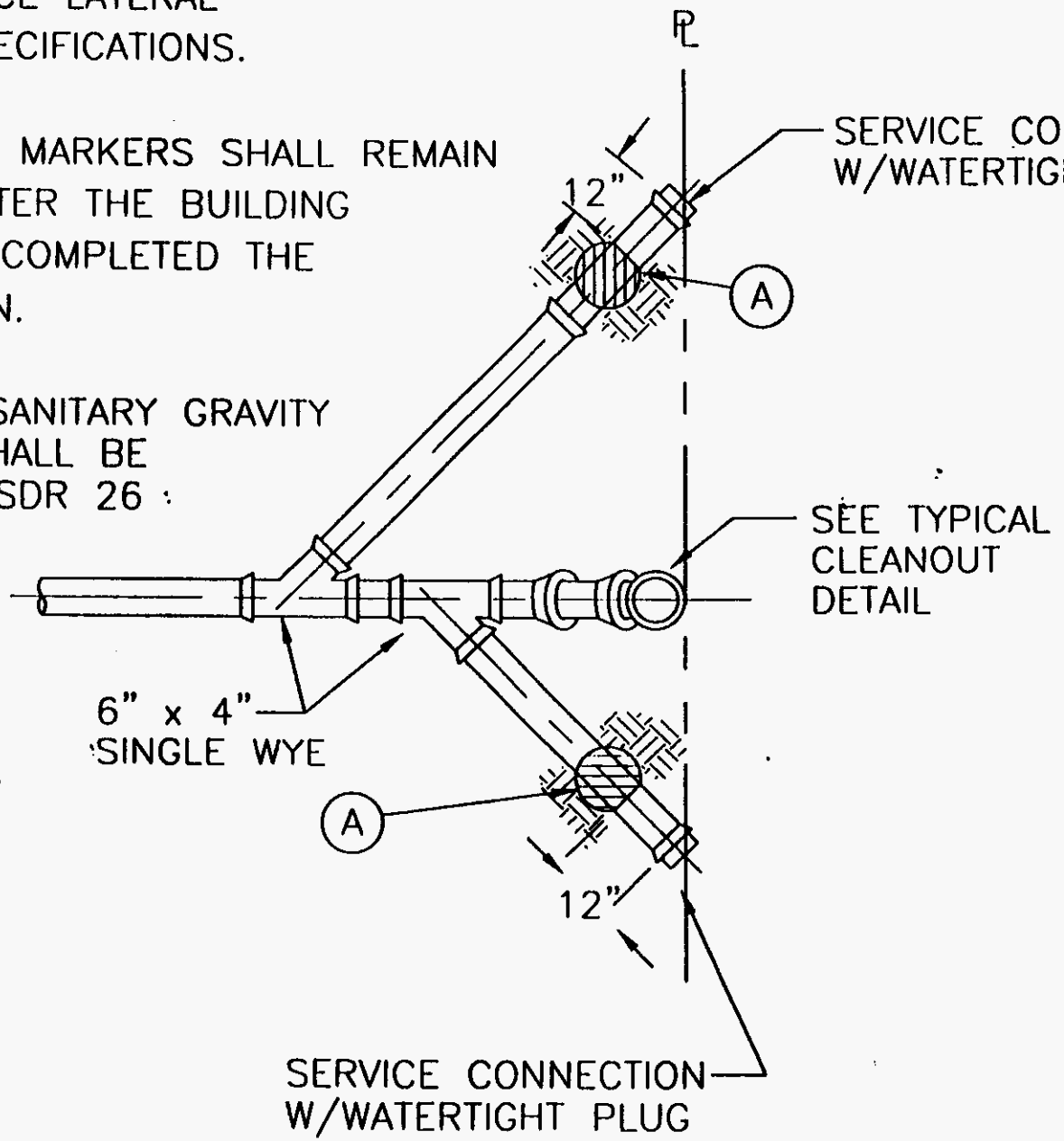
10-29-92

LEGEND

(A) ELECTRONIC SERVICE LATERAL MARKER. SEE SPECIFICATIONS.

NOTES: 1. ELECTRONIC MARKERS SHALL REMAIN IN POSITON AFTER THE BUILDING PLUMBER HAS COMPLETED THE SERVICE TILE IN.

2. ALL P.V.C. SANITARY GRAVITY SEWER PIPE SHALL BE ASTM D 3034 SDR 26



OPTIONAL DOUBLE SERVICE

\STDS\WWG06-07 n.t.s.

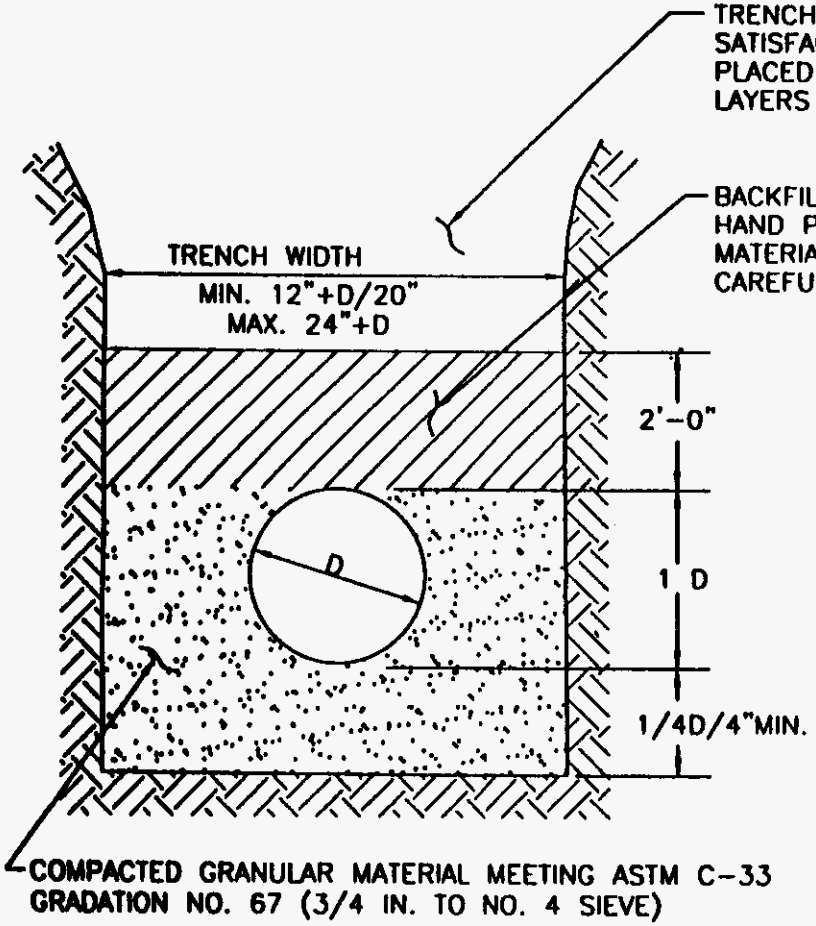
10-29-92

STEEL CASING PIPE SCHEDULE

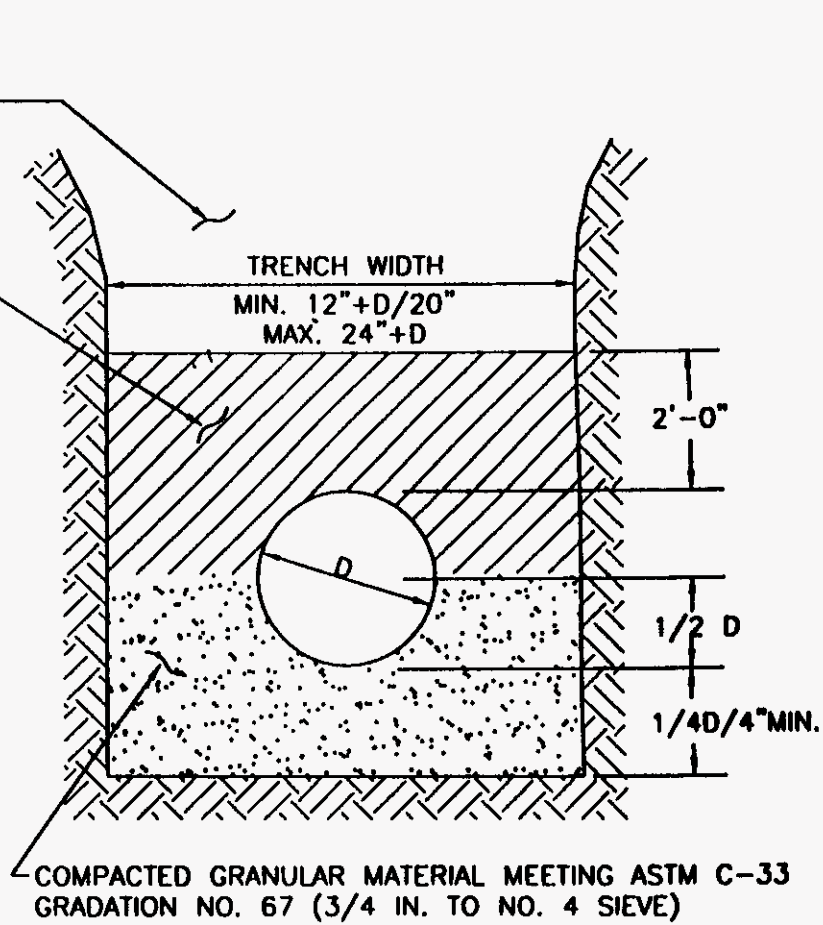
CARRIER PIPE NOMINAL DIAMETER	STEEL CASING PIPE NOMINAL DIAMETER
4"	14"
6"	16"
8"	18"
10"	20"
12"	24"
14"	26"
16"	28"
18"	30"
20"	33"
24"	37"
30"	45"

\STDS\WWG06-08

08-31-92



CLASS 1-A BEDDING FOR AREAS BELOW GROUNDWATER TABLE

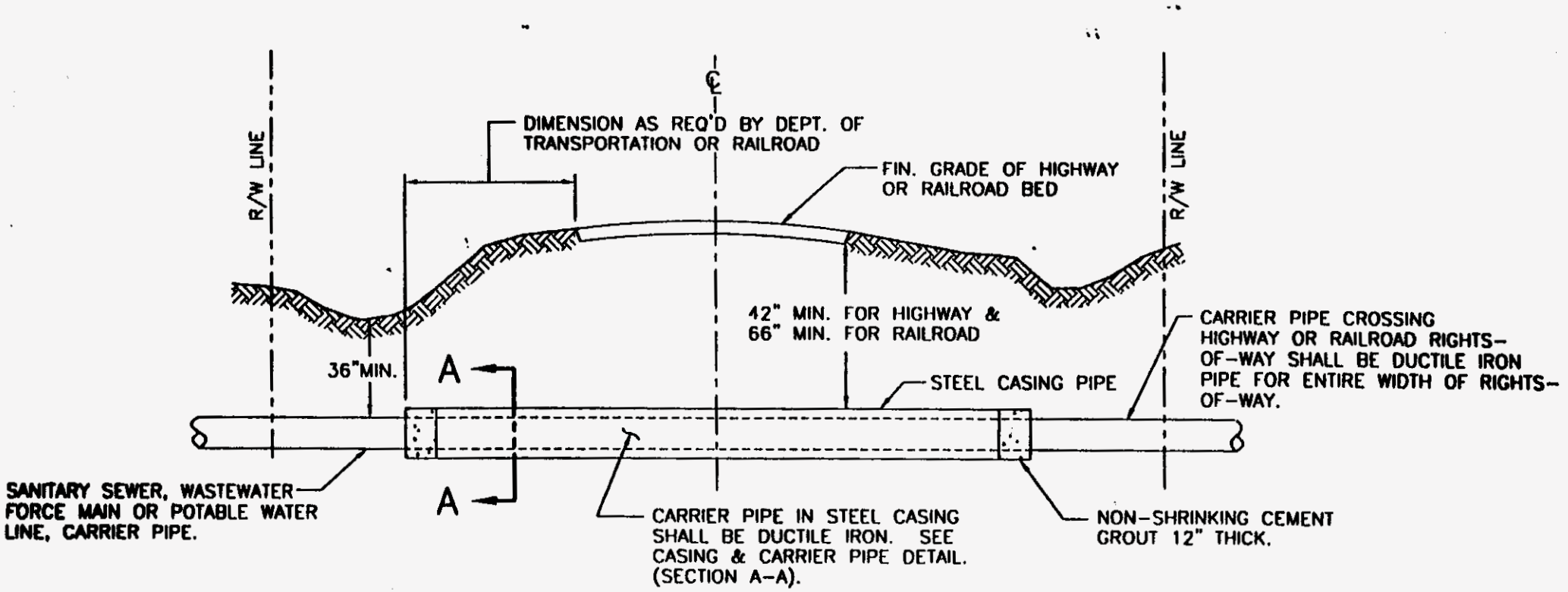


CLASS 1-B BEDDING FOR AREAS ABOVE GROUNDWATER TABLE

PIPE BEDDING DETAILS FOR PVC GRAVITY SEWERS

\STDS\WWG08-09

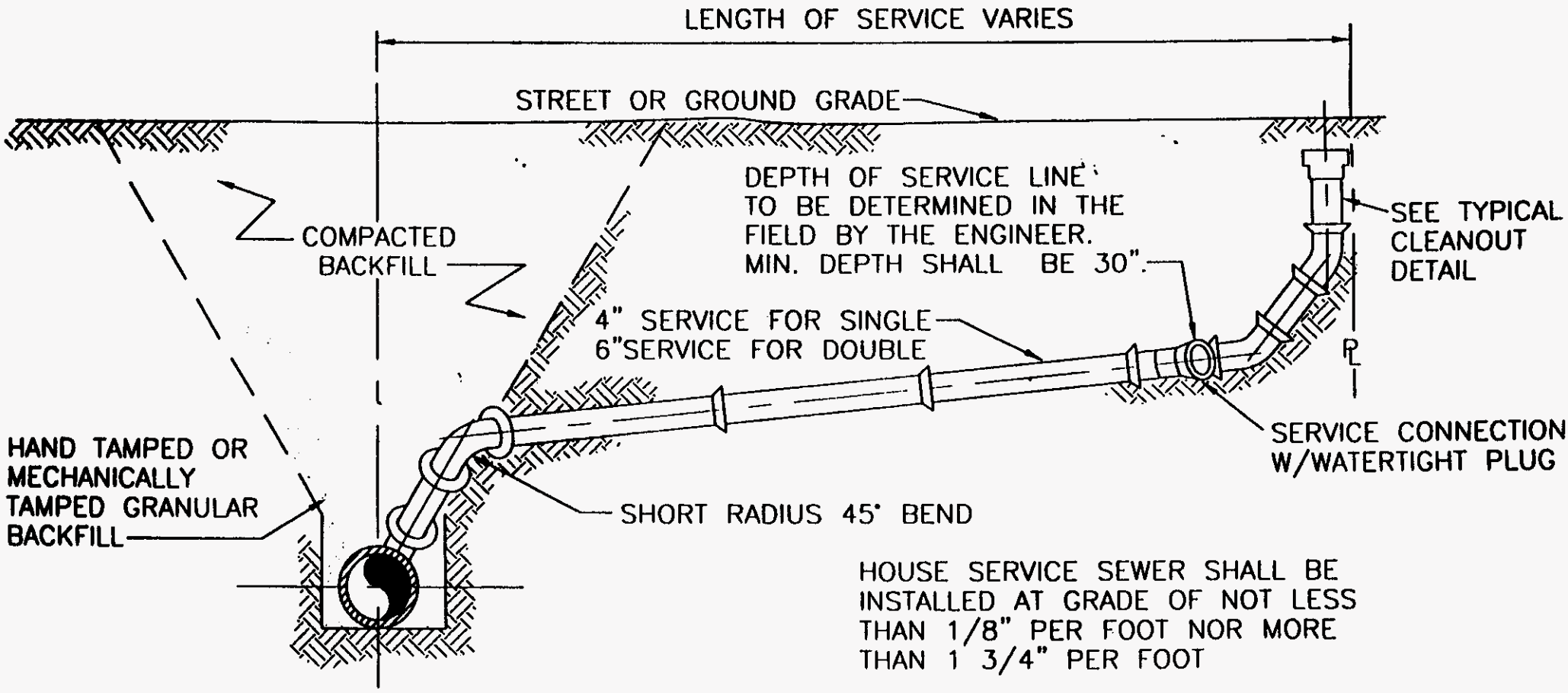
n.t.s.



STEEL CASING PIPE DETAIL
FOR HIGHWAY & RAILROAD CROSSINGS

\STDS\WWG08-10

n.t.s.



HOUSE SERVICE SEWER WITH RISER

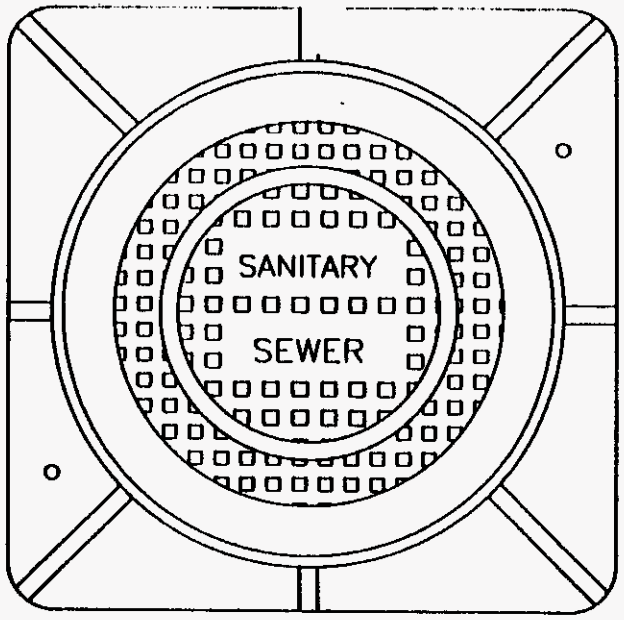
TYPICAL SECTION

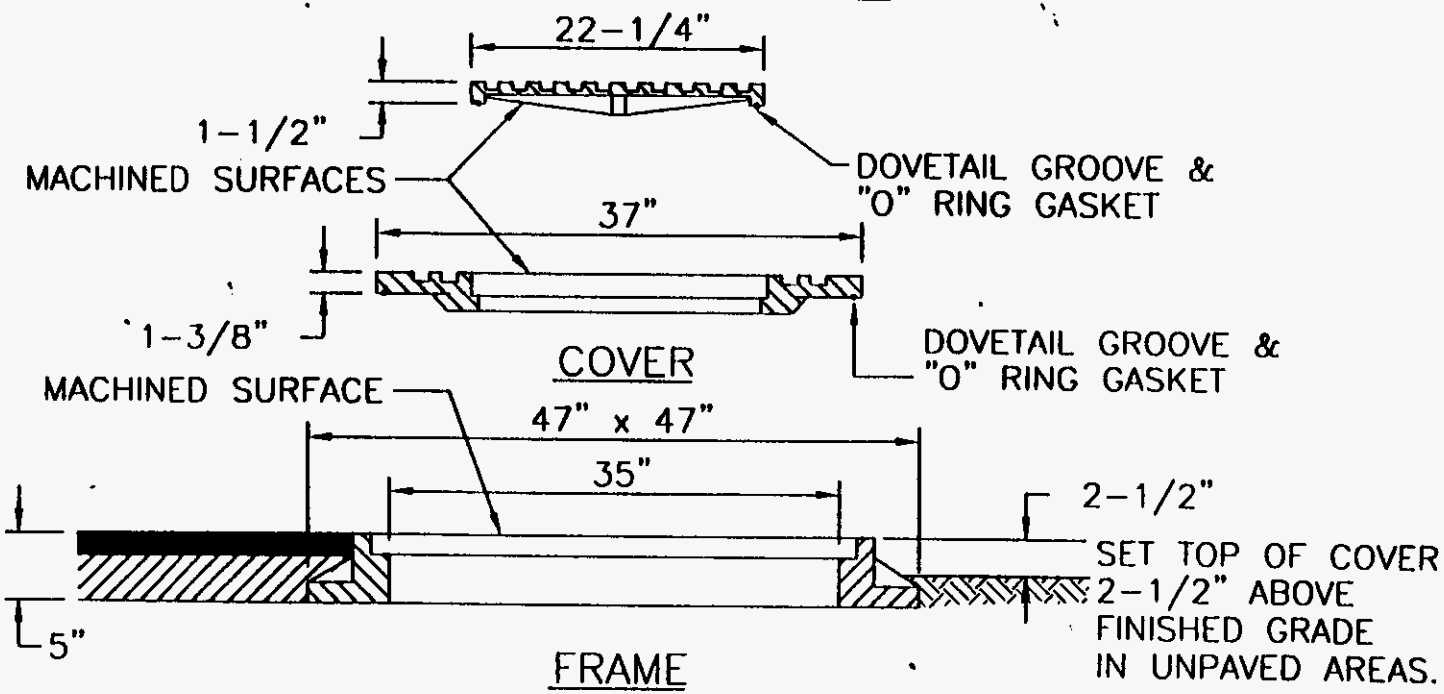
\STDS\WWG06-11 n.t.s.

NOTE:
ALL P.V.C. SANITARY GRAVITY SEWER PE SHALL BE
ASTM D 3034 SDR 26

US FOUNDRY & MFG. CORP.
CAT. NO. 682 OR
APPROVED EQUAL

13/16" ø HOLE FOR
3/4" ANCHOR BOLT
2 HOLES LOCATED
180° APART

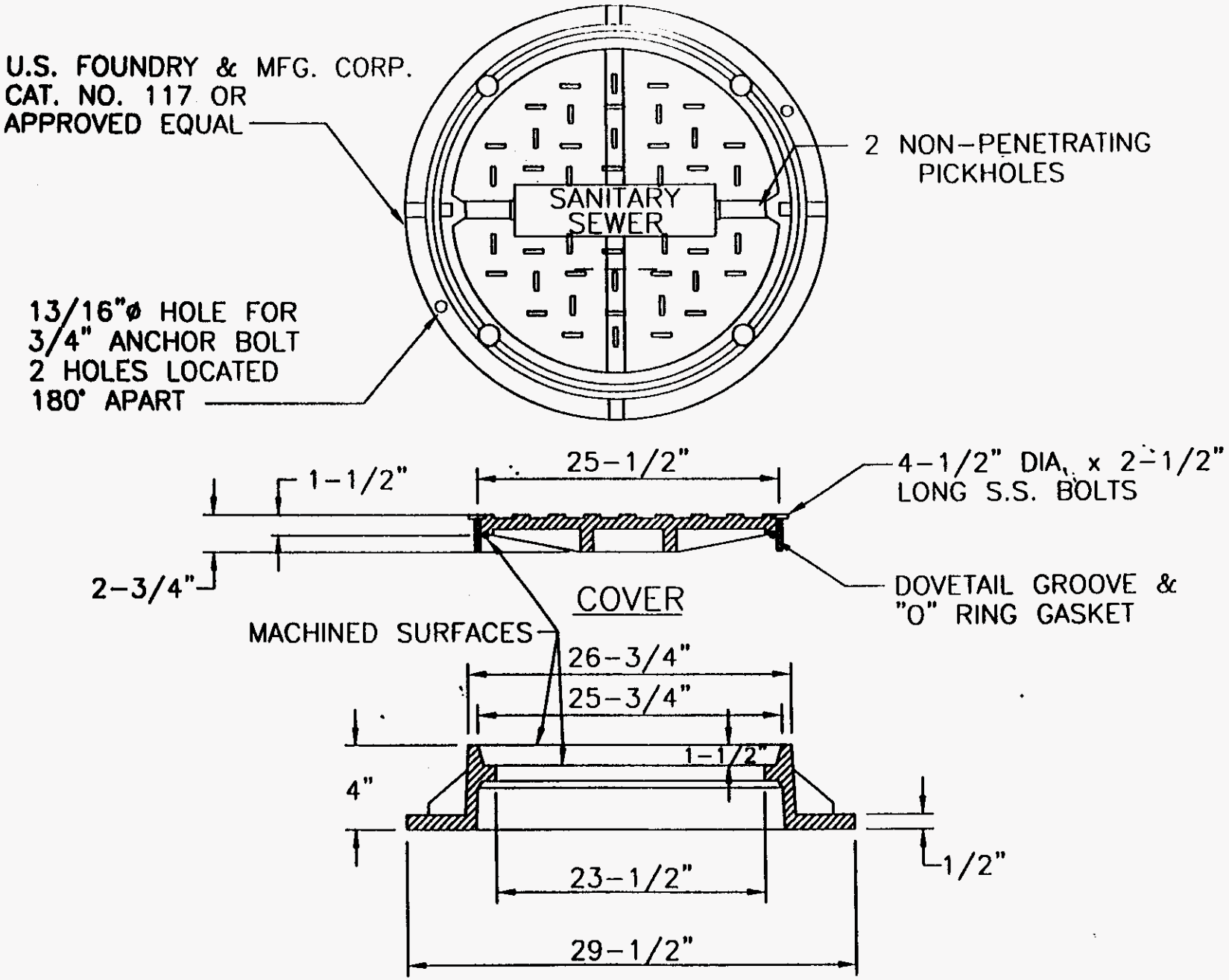




FOR TRAFFIC AREAS OR IN ROAD RIGHTS OF WAY

MASTER MANHOLE COVER

\STDS\WWG07-01 n.t.

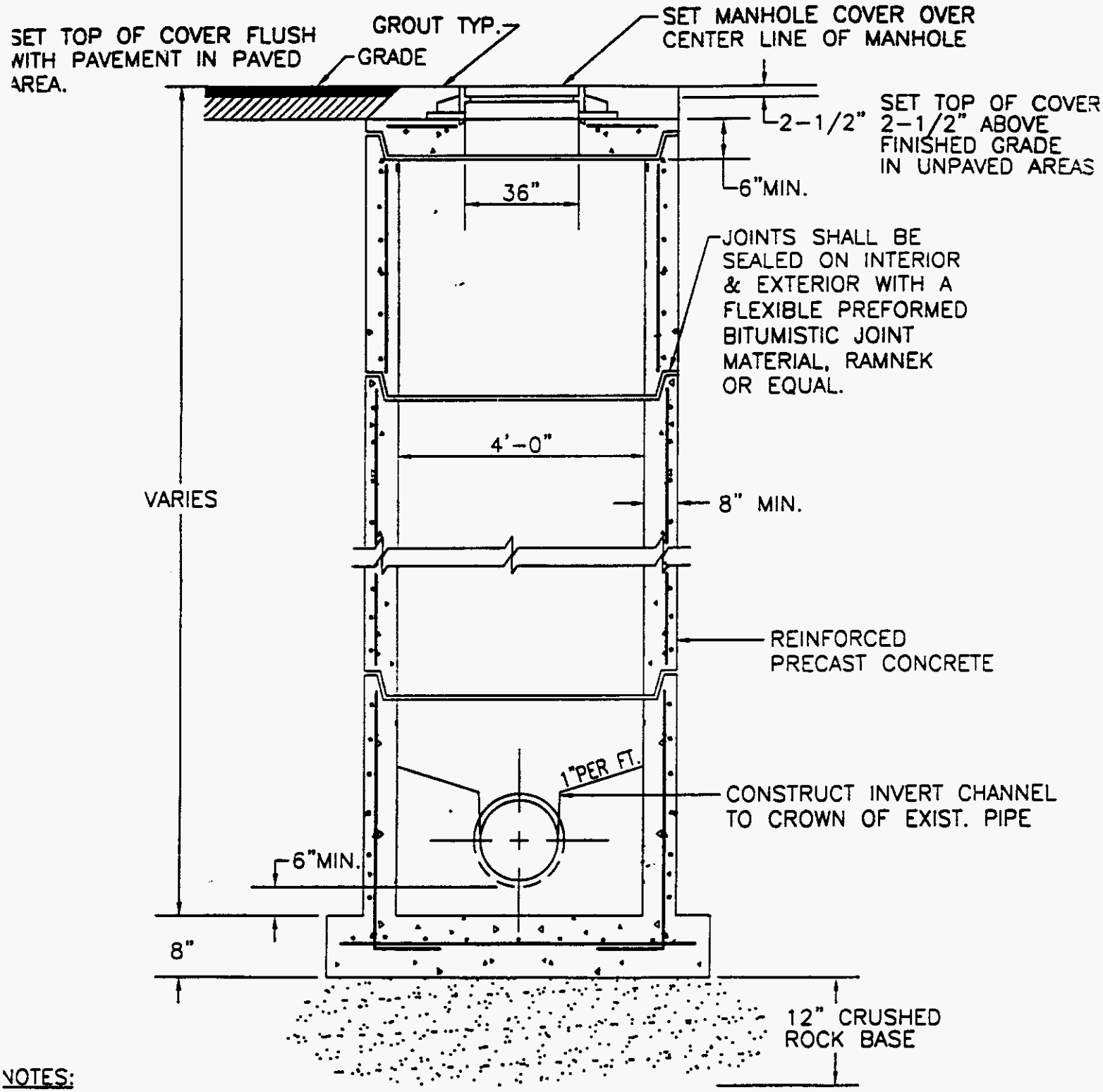


NOTE: MATERIAL: CAST IRON: ONE COAT OF ASPHALTIC PAINT.

STANDARD WATERPROOF MANHOLE COVER

\STDS\WWGL 02

n.t.s.



NOTES:

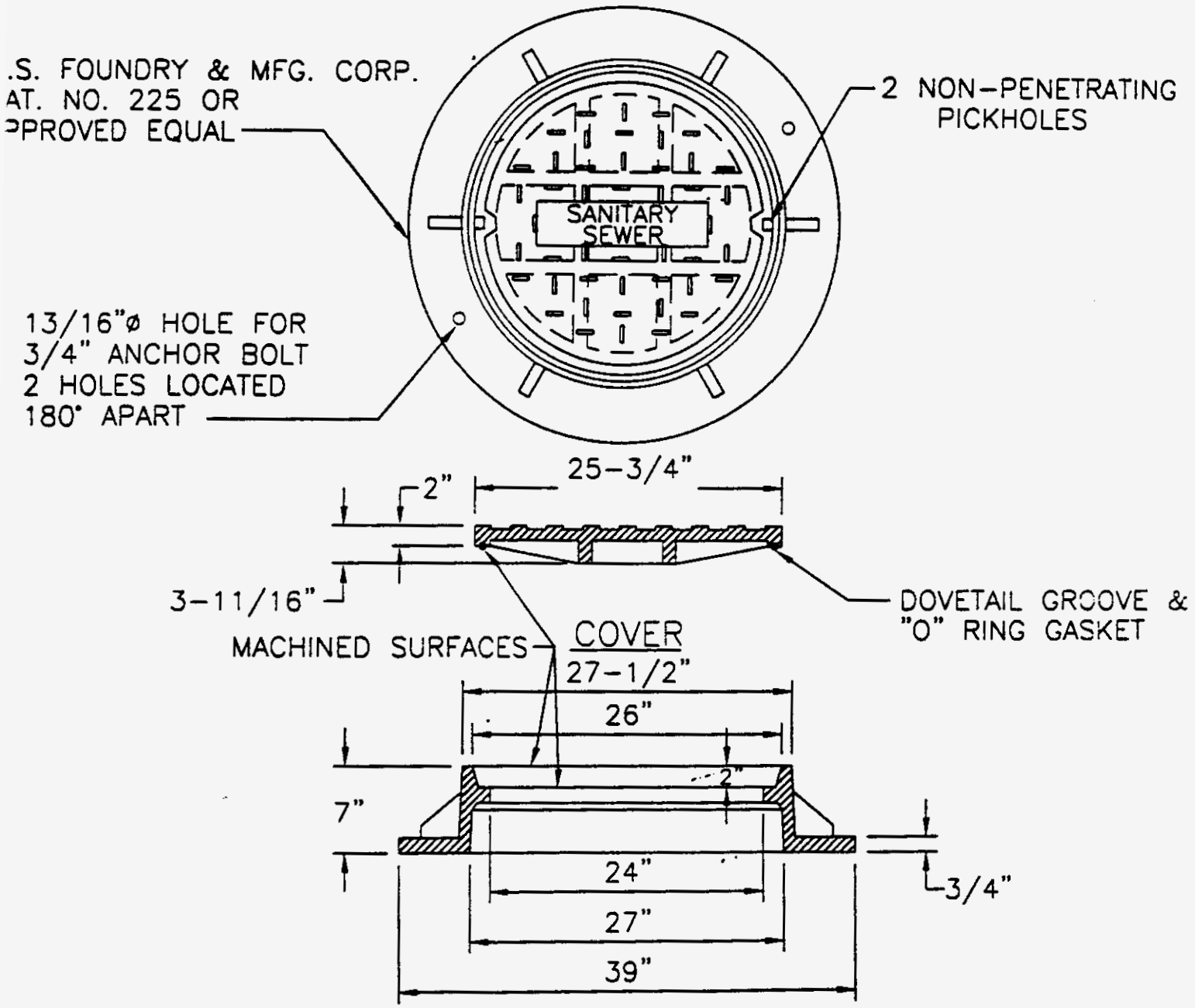
1. MASTER MANHOLES FOR WASTEWATER PUMPING STATIONS SHALL HAVE ONLY ONE INFLUENT AND ONE EFFLUENT PIPE.
2. FLEXIBLE, RESILIENT CONNECTIONS SHALL BE INSTALLED FOR ALL CONNECTIONS BETWEEN MANHOLE AND PIPES. SEE SPECIFICATIONS

MASTER PRECAST CONCRETE MANHOLE

\STDS\WWG07-03

10-28-98

n.t.s.



FRAME

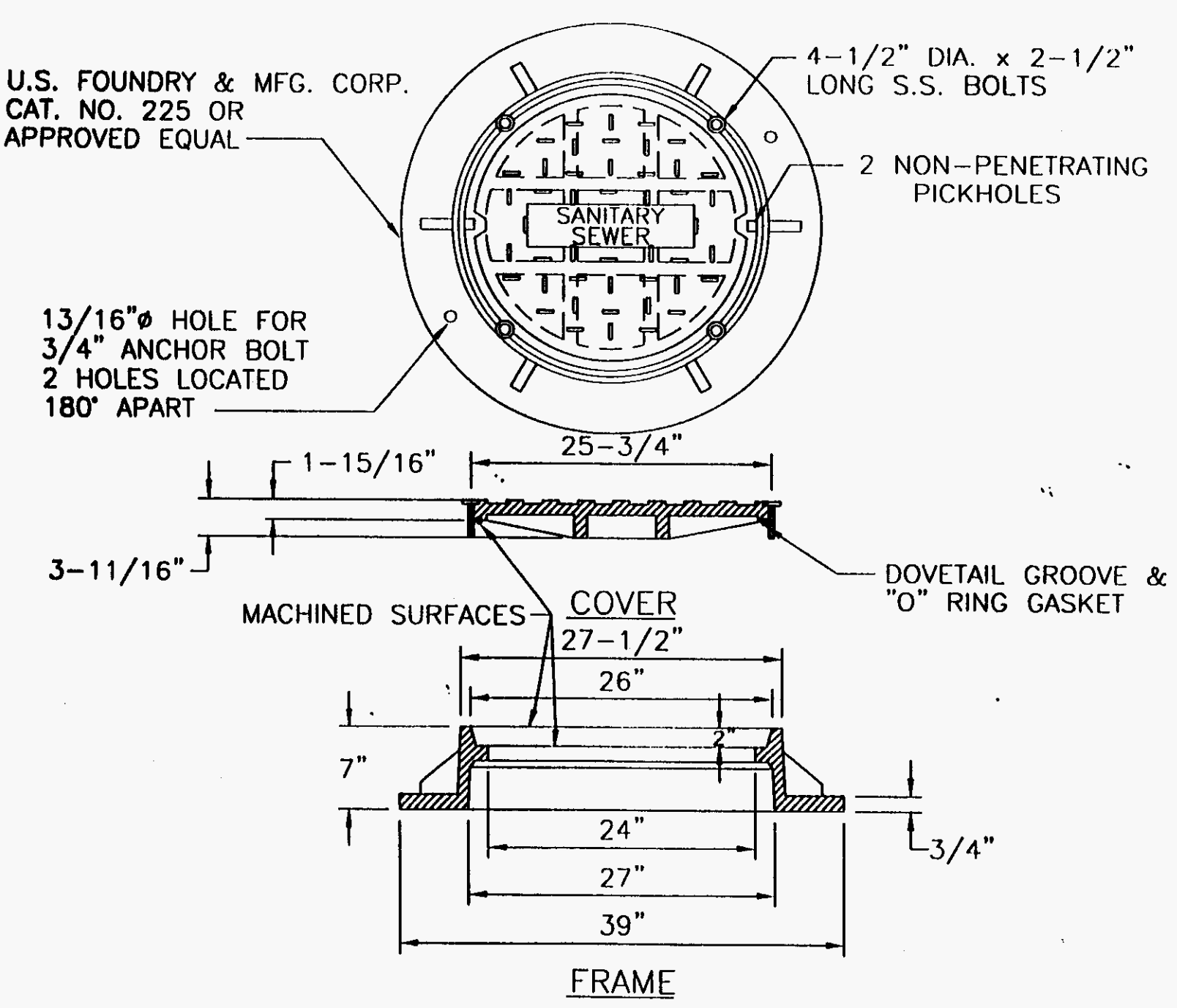
NOTE: MATERIAL: CAST IRON: ONE COAT OF ASPHALTIC PAINT.

HEAVY DUTY MANHOLE COVER

n.t.s.

\STDS\WWG07-04

08-31-92

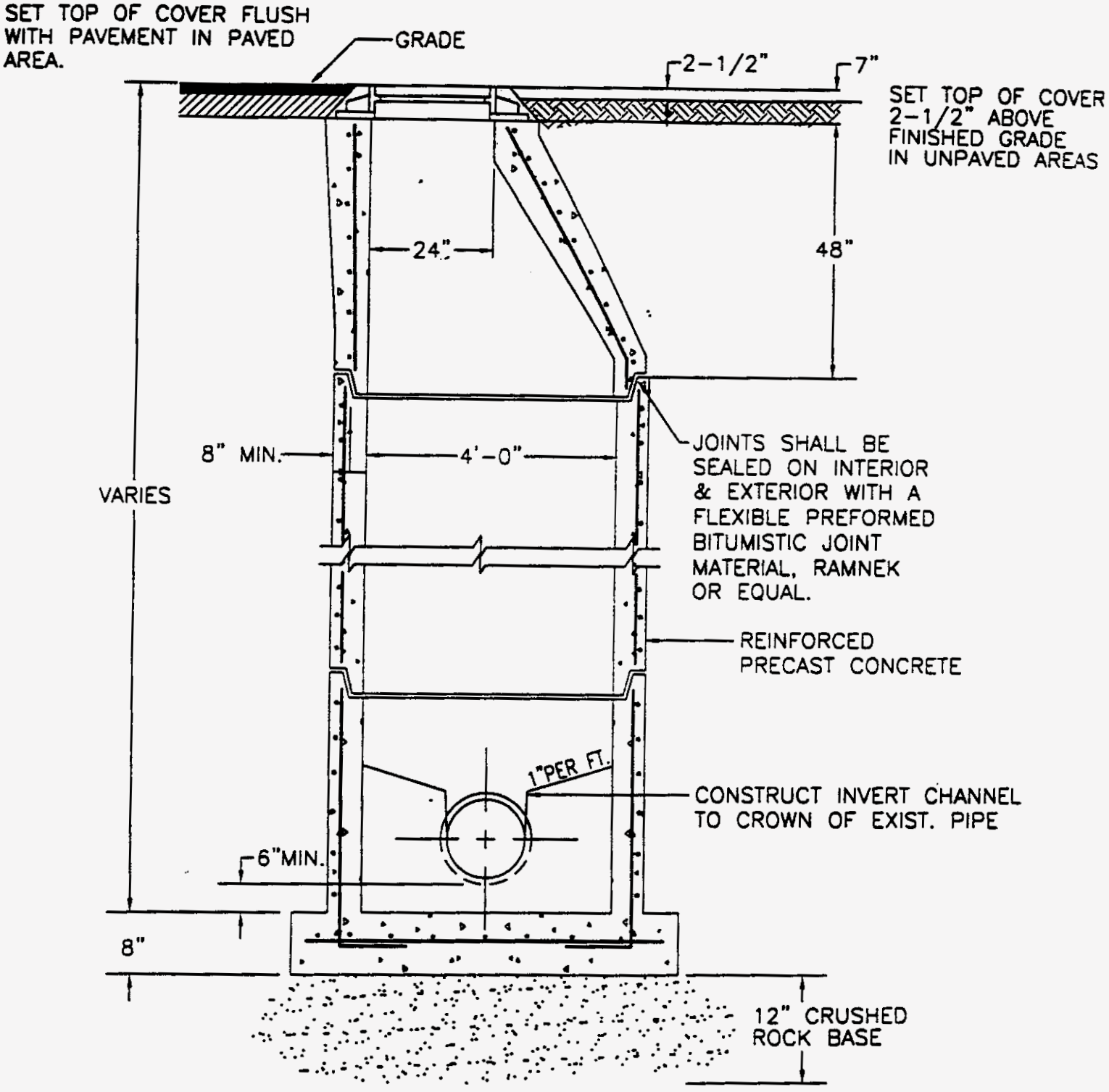


NOTE: MATERIAL: CAST IRON: ONE COAT OF ASPHALTIC PAINT.

HEAVY DUTY WATERPROOF MANHOLE COVER

\STDS\WWG. -05

n.t.s.



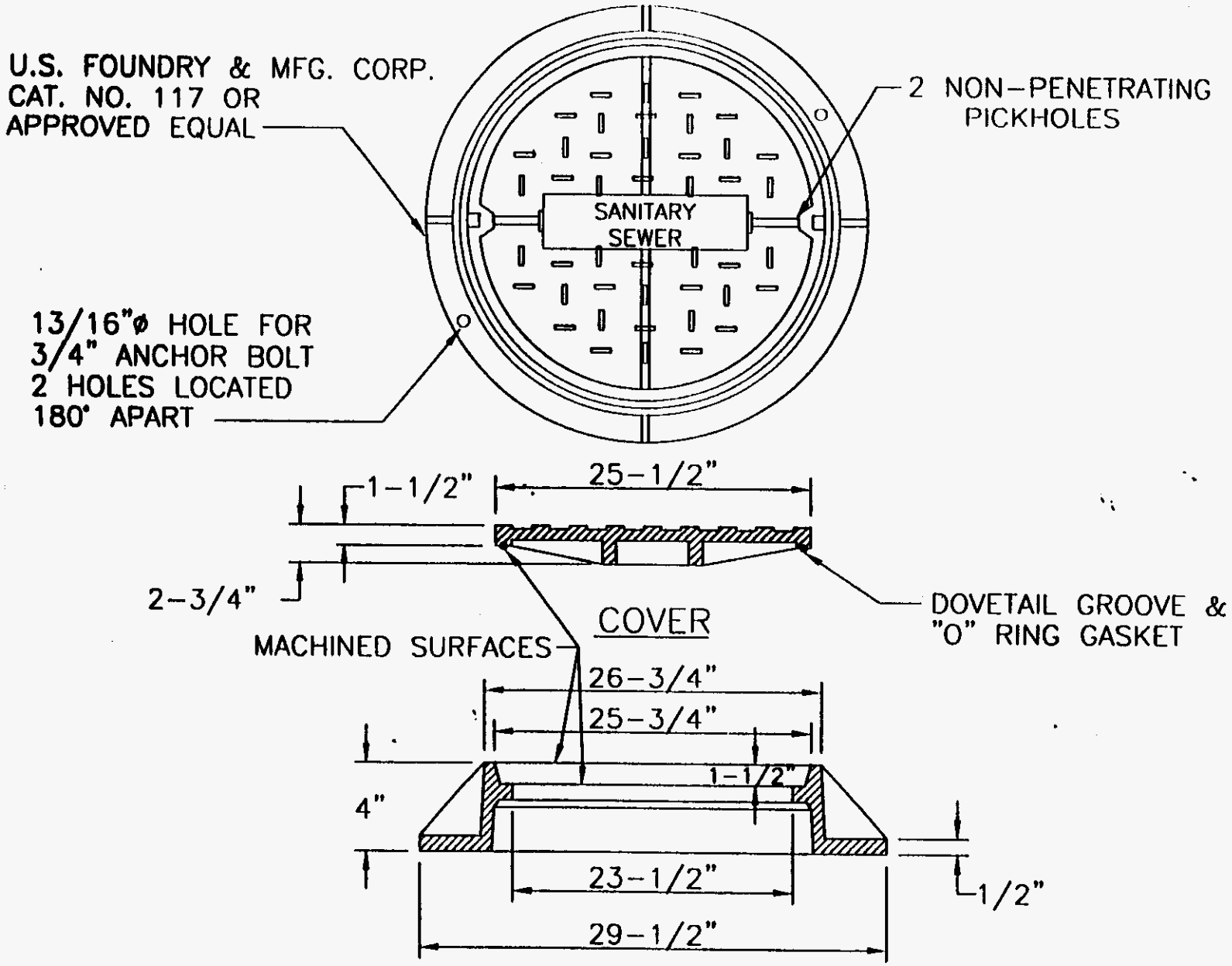
NOTE:
FLEXIBLE, RESILIENT CONNECTIONS SHALL BE INSTALLED FOR ALL CONNECTIONS BETWEEN MANHOLE AND PIPES. SEE SPECIFICATIONS

TYPICAL PRECAST CONCRETE MANHOLE

\STDS\WWG07-06

n.t.s.

10-28-98

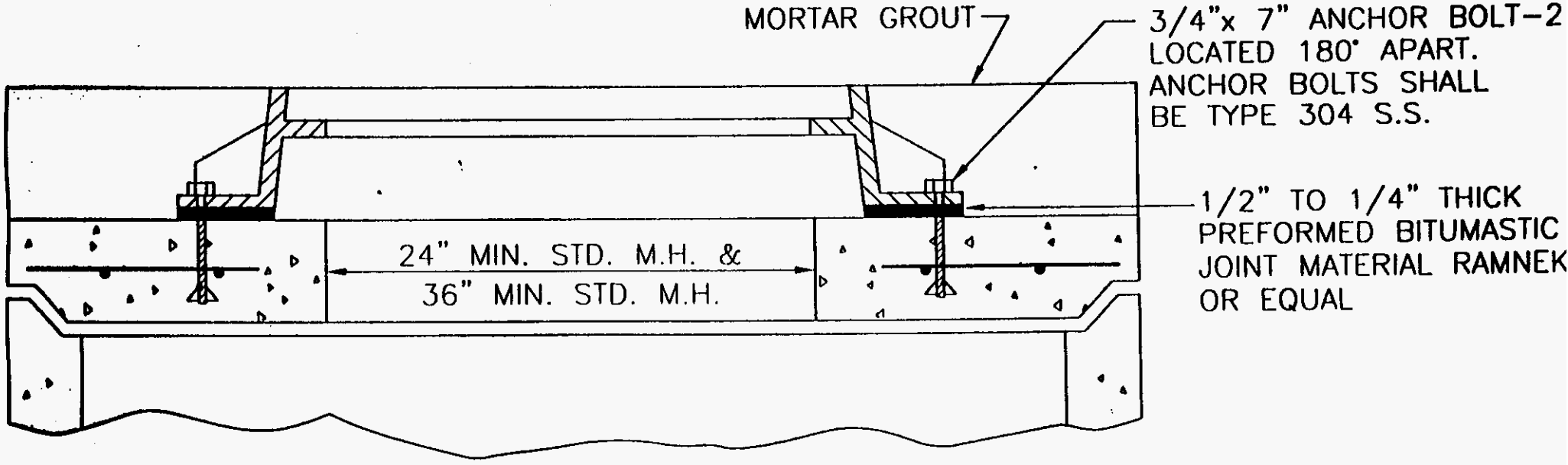


NOTE: MATERIAL: CAST IRON: ONE COAT OF ASPHALTIC PAINT.

STANDARD MANHOLE COVER

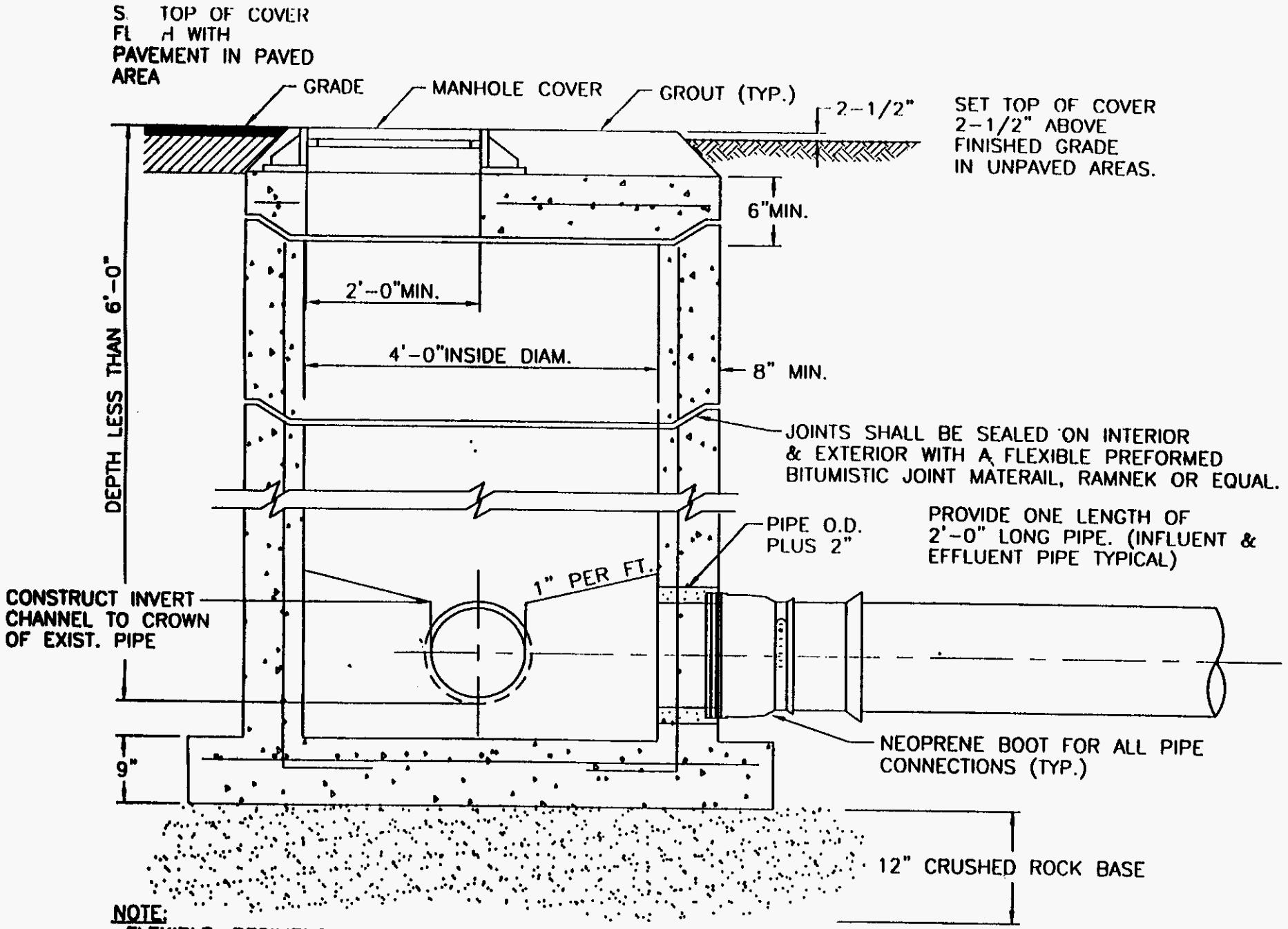
\STDS\WWG07-07

n.t.s.



STANDARD SETTING FOR MANHOLE FRAMES ON PRECAST CONCRETE MANHOLE

\STDS\WWG07-08

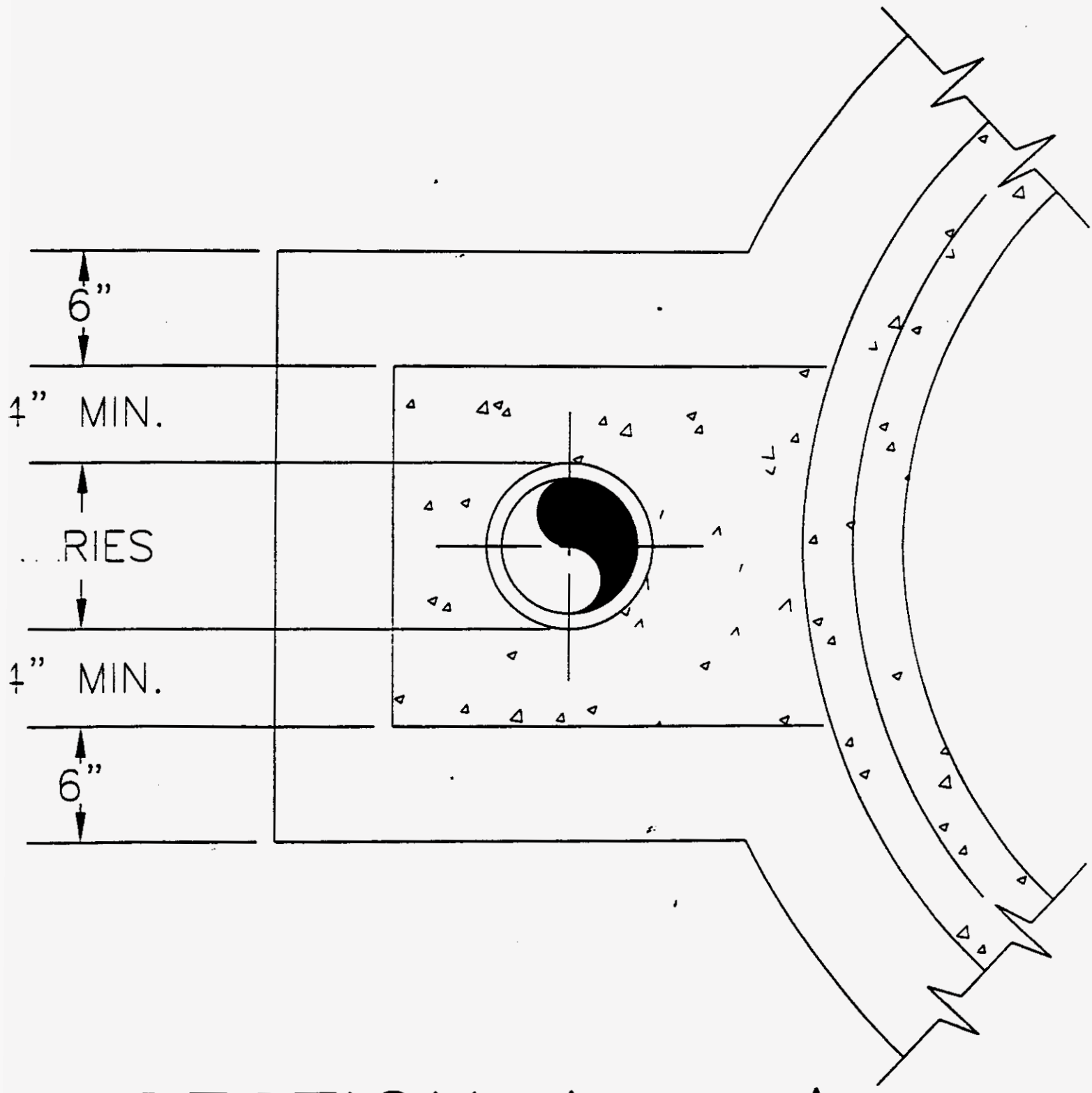


NOTE:
FLEXIBLE, RESILIENT CONNECTIONS SHALL BE INSTALLED FOR ALL CONNECTIONS BETWEEN MANHOLE & PIPES. SEE SPECIFICATIONS

TYPICAL MANHOLE LESS THAN 6'-0" DEEP

\STDS\WWC07-09

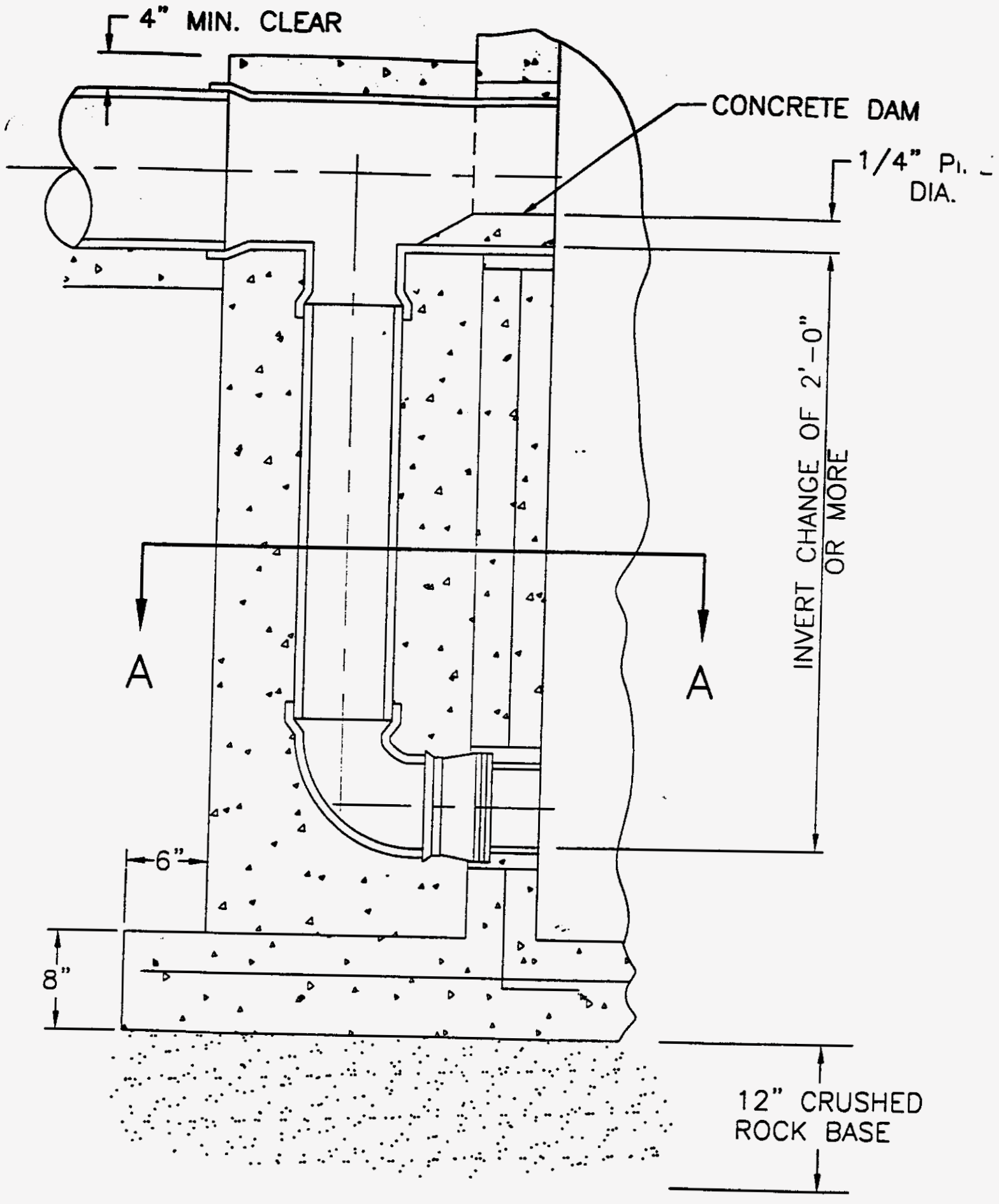
n.t.s.



SECTION A — A

\STDS\WWG07-10 n.t.s.

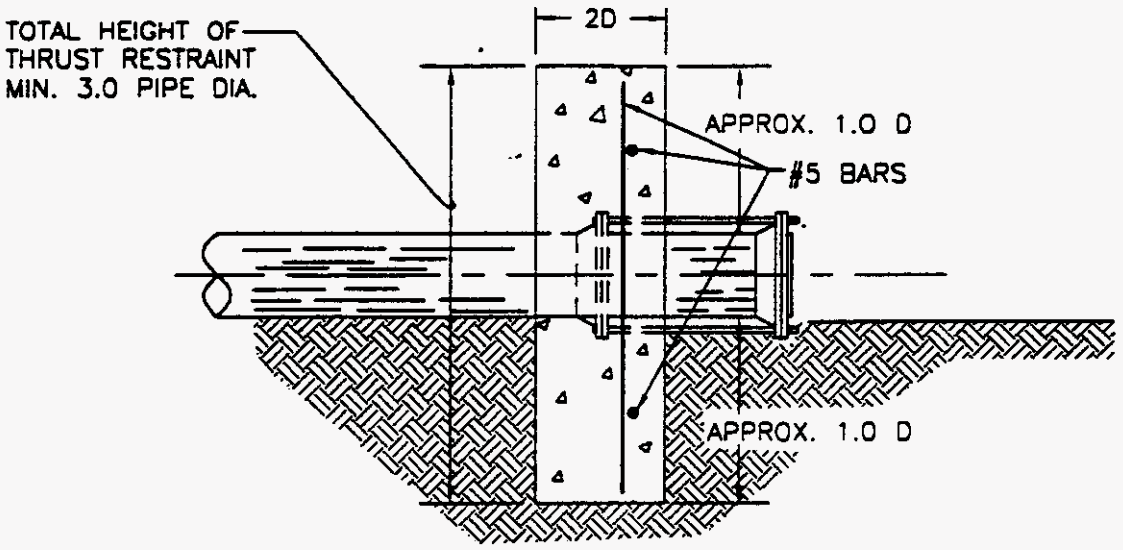
08-31-92



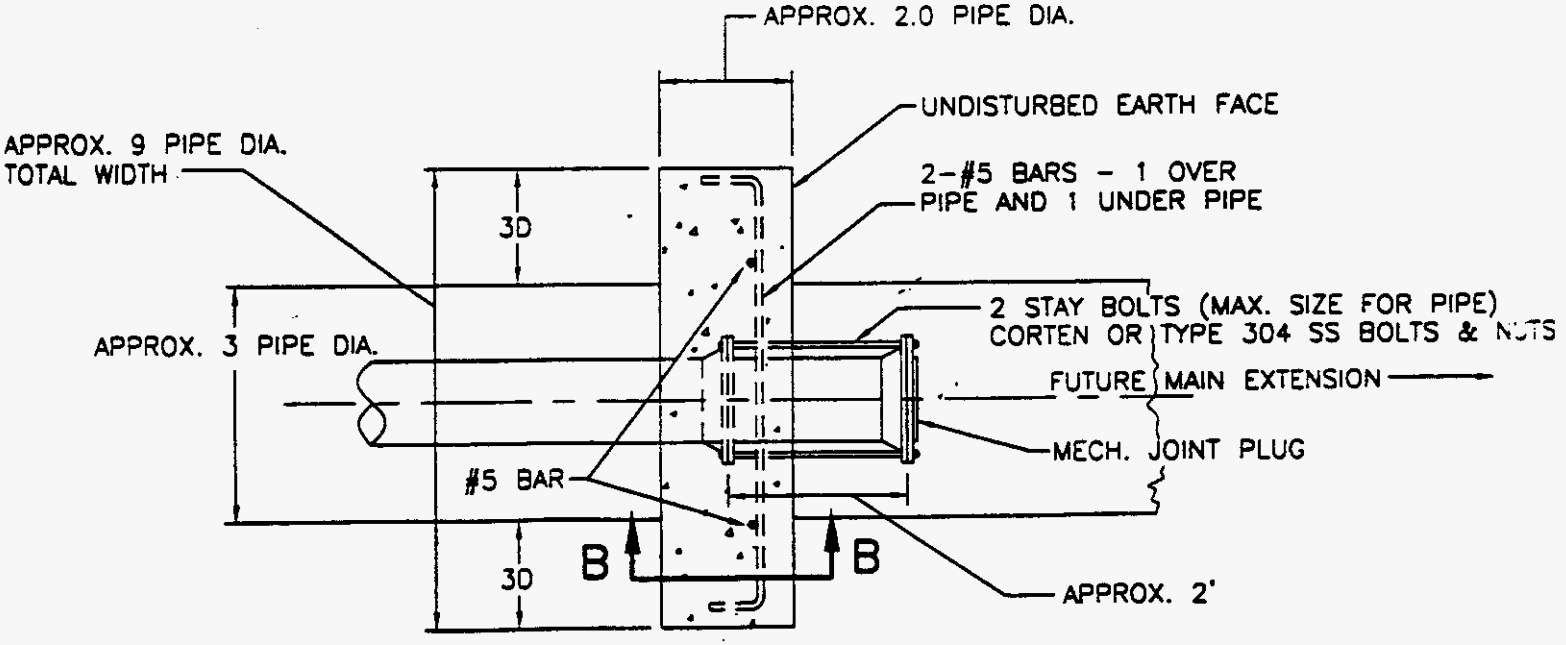
SECTION DROP PIPE DETAIL

\STDS\WWG07-11
08-31-92

n.t.s.



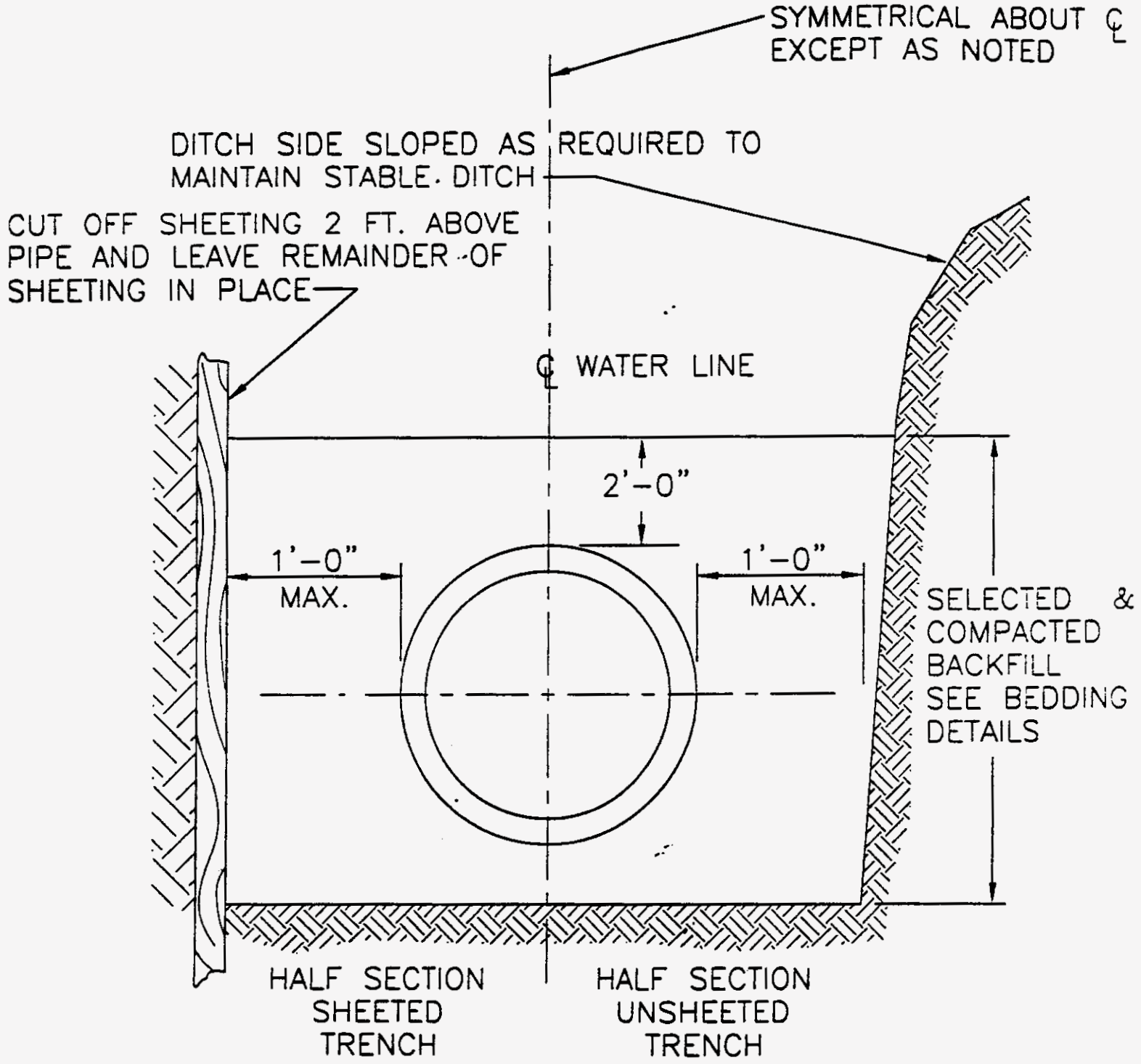
SECTION B–B



D = NOMINAL PIPE DIAMETER

TYPICAL MAIN ENDING TO PROVIDE FOR FUTURE EXTENSION

WWFDS-01 n.t.s.

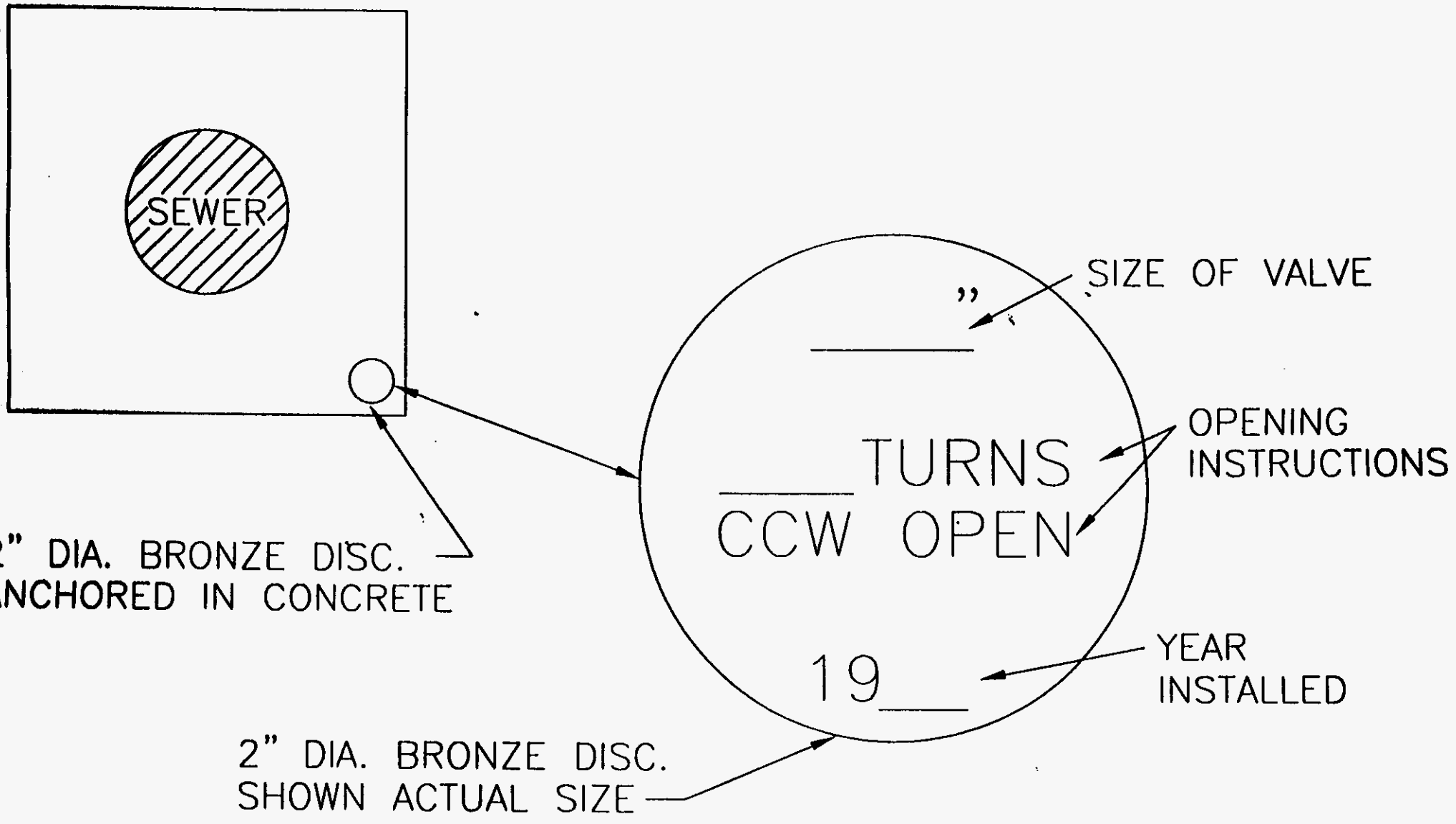


FORCE MAIN PIPE TRENCH DETAIL

WWF08-02

07-29-92

n.t.s.

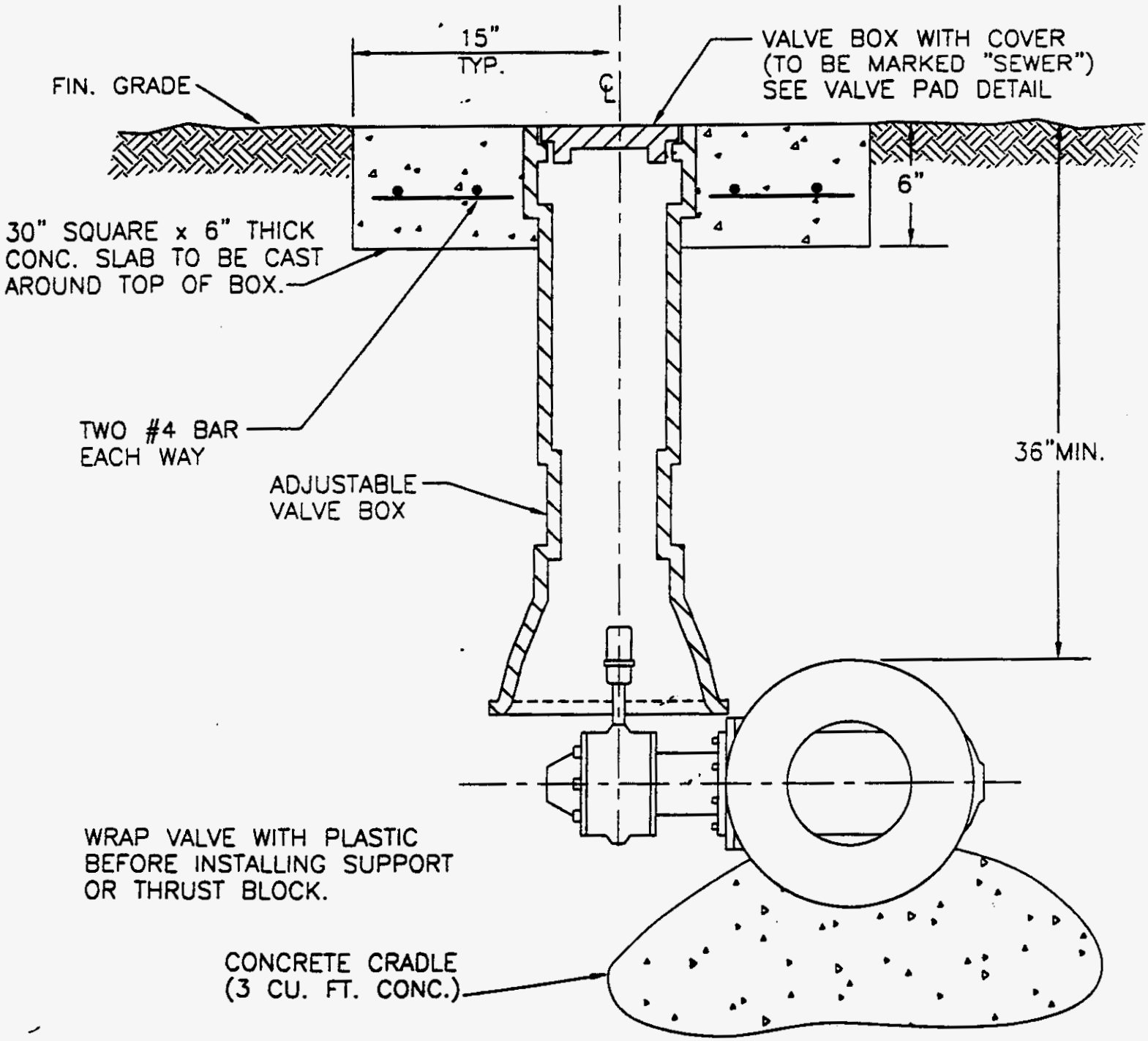


VALVE PAD DETAIL

WWF08-03

07-29-92

n.t.s



PLUG VALVE INSTALLATION DETAIL

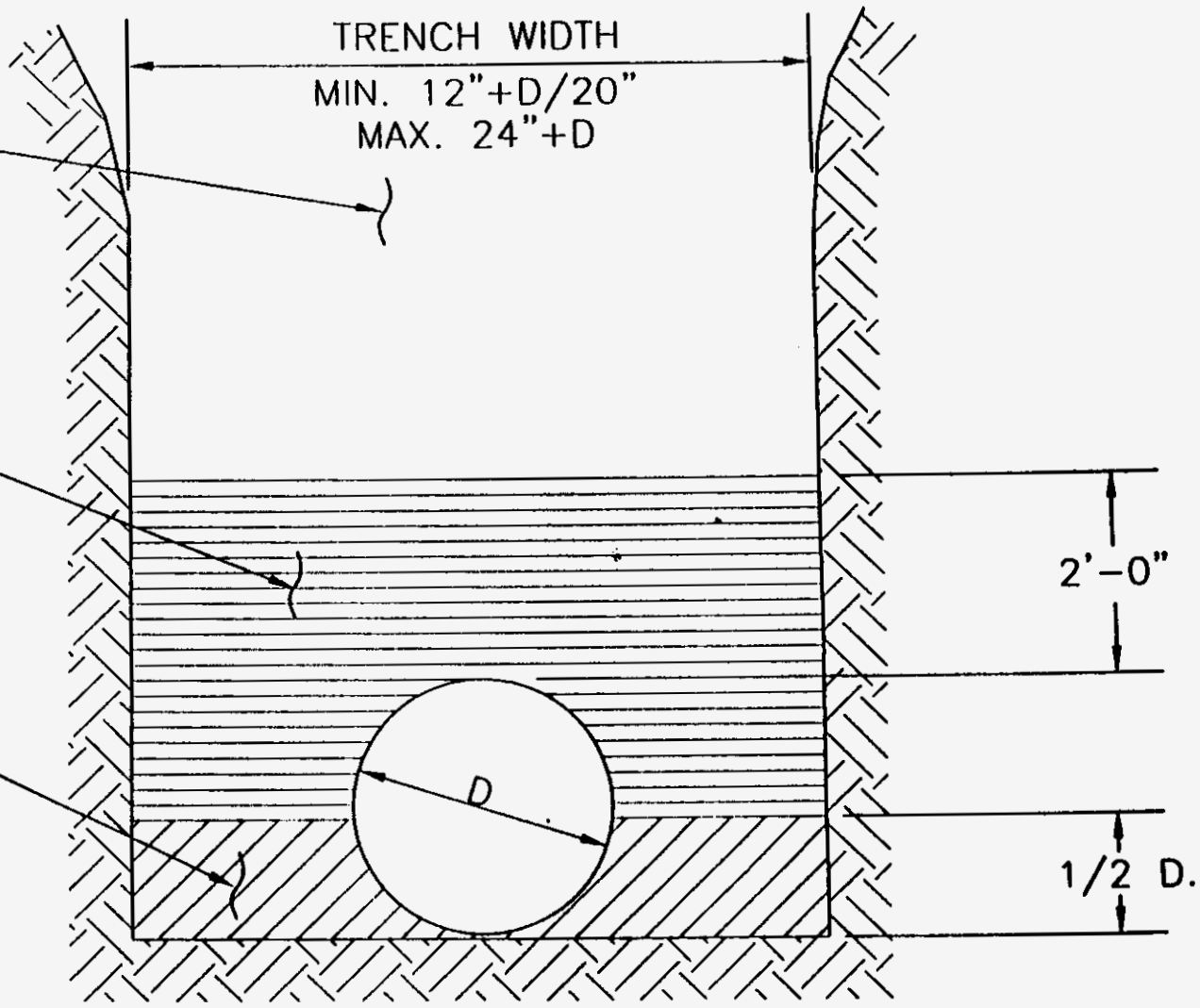
WWF08-04
07-29-92

n.t.s.

TRENCH BACKFILL SHALL BE SATISFACTORY BACKFILL MATERIAL PLACED & COMPACTED IN 8-INCH LAYERS SEE SPEC.

BACKFILL AROUND PIPE SHALL BE HAND PLACED SELECT BACKFILL MATERIAL PLACED IN 6" LAYERS & COMPACTED TO 95% MIN.

PIPE BEDDING SHALL BE HAND PLACED SELECT BACKFILL MATERIAL UP TO SPRINGLINE OF PIPE COMPACTED TO 95% MIN.

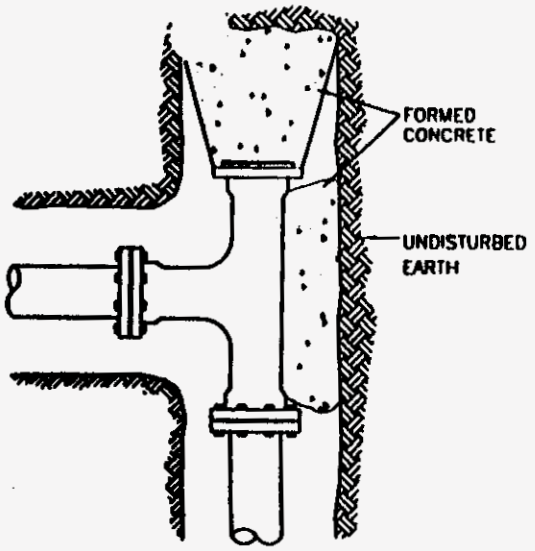


TYPE TWO
PIPE BEDDING DETAIL
FOR DUCTILE IRON & P.V.C. PIPE

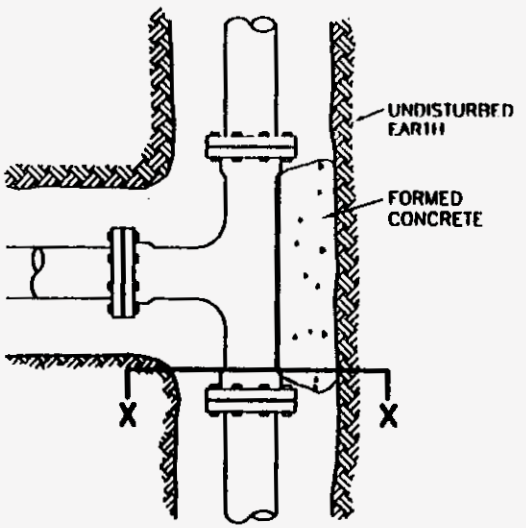
WWF08-05

07-29-92

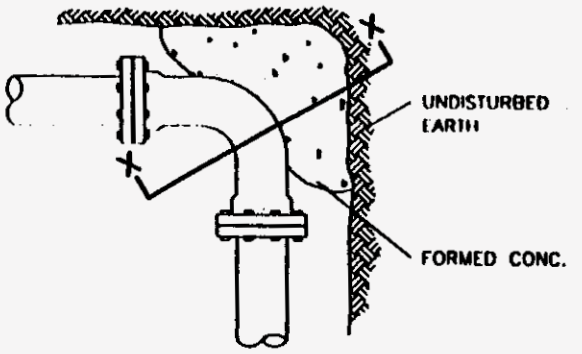
n.t.s.



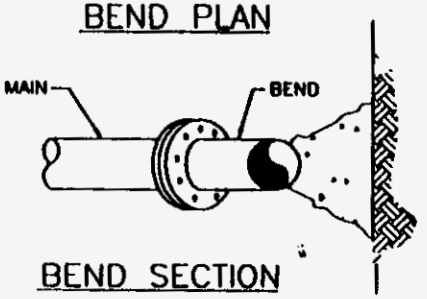
BLANKED TEE



TYPICAL TEE



BEND PLAN

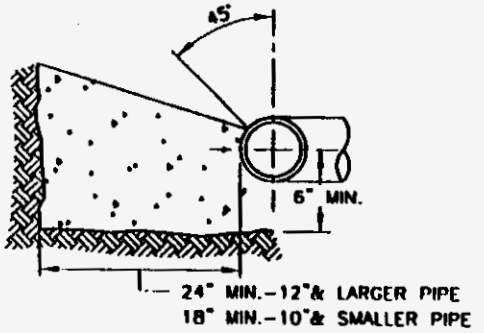


BEND SECTION

TYPICAL THRUST BLOCKING DETAIL FOR WASTEWATER MAINS

n.t.s.

THRUST BLOCK BEARING AREA TABLE (SQ. FT.)					
SIZE OF PIPE	TEE & PLUGS	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4"	1.0	1.0	1.0	1.0	1.0
6"	2.0	2.5	1.5	1.0	1.0
8"	3.0	4.0	2.5	1.5	1.0
10"	4.5	6.5	3.5	2.0	1.0
12"	6.5	9.0	5.0	2.5	1.5
14"	8.5	12.0	6.5	3.5	2.0
16"	11.0	15.5	8.5	4.5	2.5



SECTION X-X

NOTE:

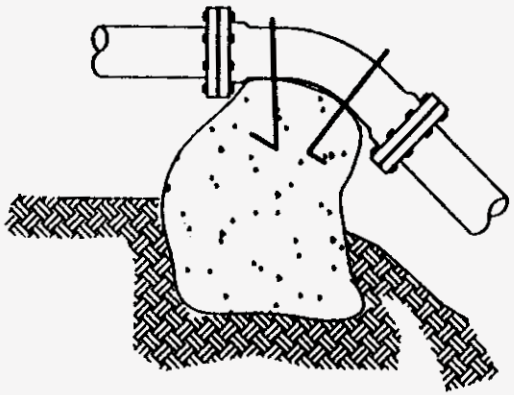
1.) WRAP ALL FITTINGS WITH PLASTIC BEFORE POURING THRUST BLOCKS. ALL THRUST BLOCKS MUST BE LEFT OPEN FOR INSPECTION BY THE ENGINEER & FLORIDA CITIES WATER COMPANY.

2.) ALL BEARING SURFACE TO BE CARRIED TO UNDISTURBED SOIL.

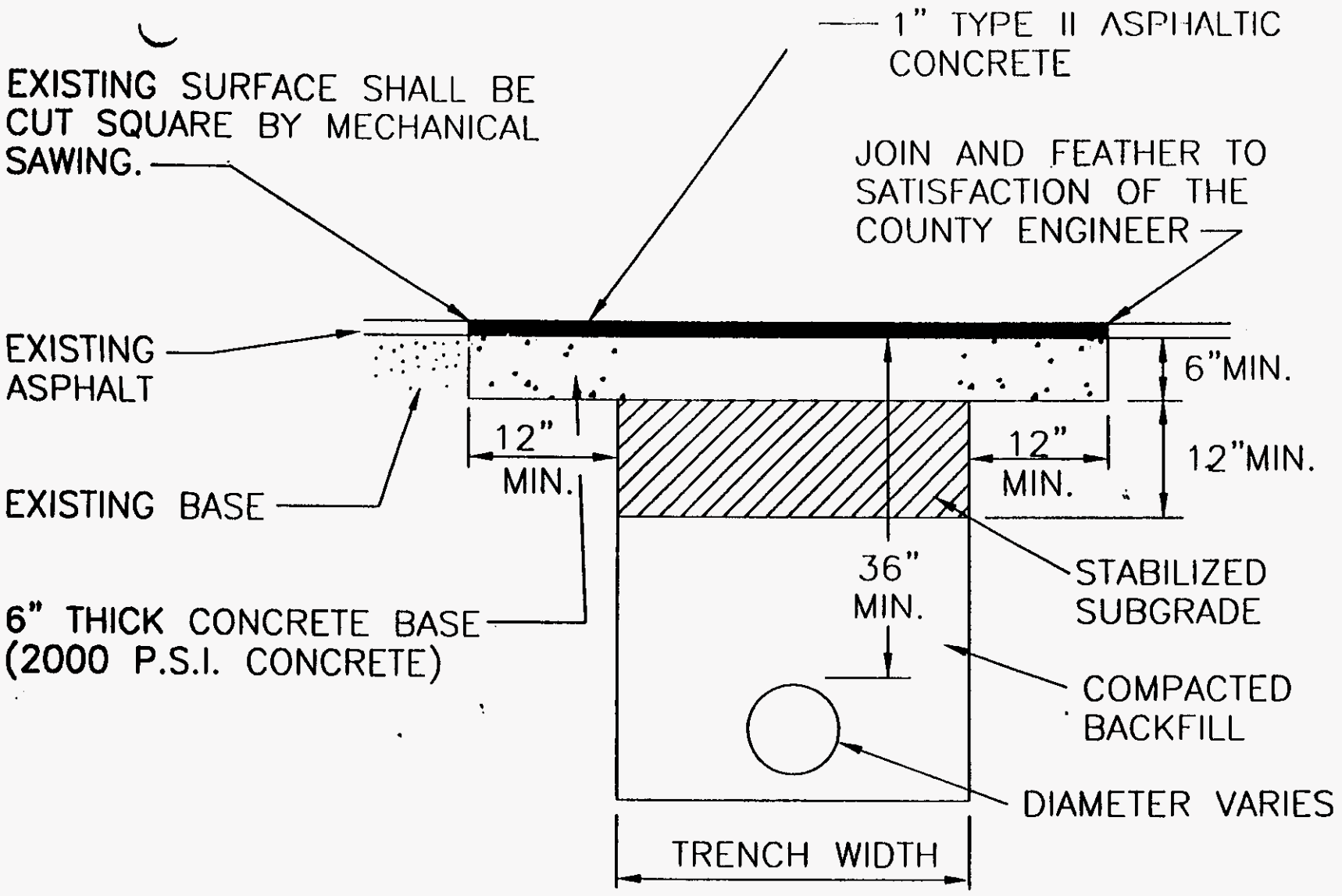
3.) THESE TABLES SHOW MINIMUM SIZE THRUST BLOCKS FOR GOOD SOIL WITH A 2,000 P.S.F. SOIL BEARING (A-1 THRU A-3 CLEAN SAND AND GRAVELS).

4.) POOR SOIL (A-1 THRU A-8, SILTY SOILS, CLAYS, MUCK & PEAT) WILL REQUIRE LARGER THRUST BLOCKS.

5.) THRUST BLOCK SIZES BASED ON 100 P.S.I. HYDROSTATIC TEST PRESSURE.



ANCHOR THRUST BLOCK



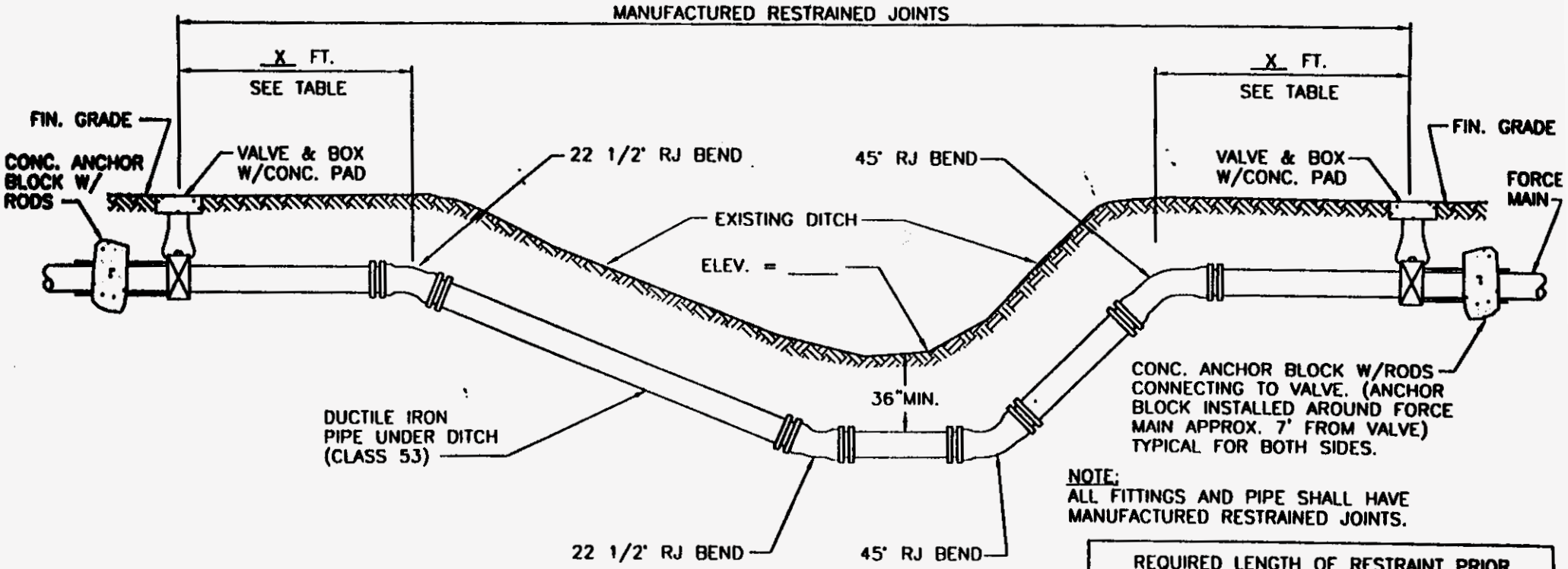
ALL BACKFILLING SHALL BE DONE WITH SUITABLE MATERIAL, TAMPED IN LAYERS NOT TO EXCEED 6", IN ACCORDANCE WITH DIVISION OF TRANSPORTATION'S SPECIFICATIONS.

PAVEMENT REPAIR DETAIL

\STDS\WWF08-07

07-29-97

n.t.s.



NOTE:
ALL FITTINGS AND PIPE SHALL HAVE MANUFACTURED RESTRAINED JOINTS.

TYPICAL DITCH CROSSING DETAIL

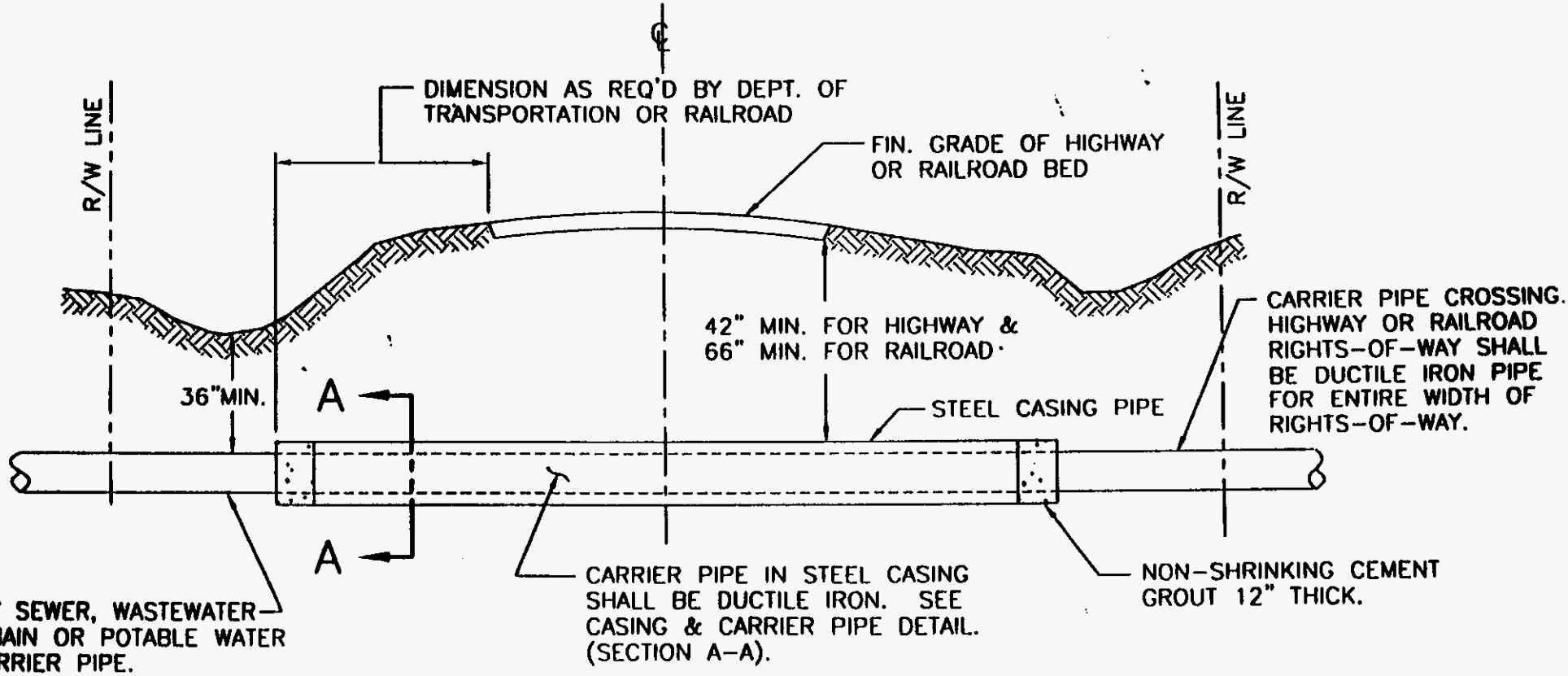
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07-29-92

n.t.s.

REQUIRED LENGTH OF RESTRAINT PRIOR TO CONNECTION TO NON-RESTRAINED PIPE

PIPE SIZE	X. DIMENSION
4 IN.	6 FT.
6 IN.	8 FT.
8 IN.	10 FT.
10 IN.	12 FT.
12 IN.	14 FT.
14 IN.	16 FT.
16 IN.	18 FT.

NOTE: BASED ON 100 PSI TE PRESSURE, 45° BEND AT FITTINGS D 3FT. MINIMUM COVER.



STEEL CASING PIPE DETAIL

FOR HIGHWAY & RAILROAD CROSSINGS

\STDS\WWF09-02

n.t.s.

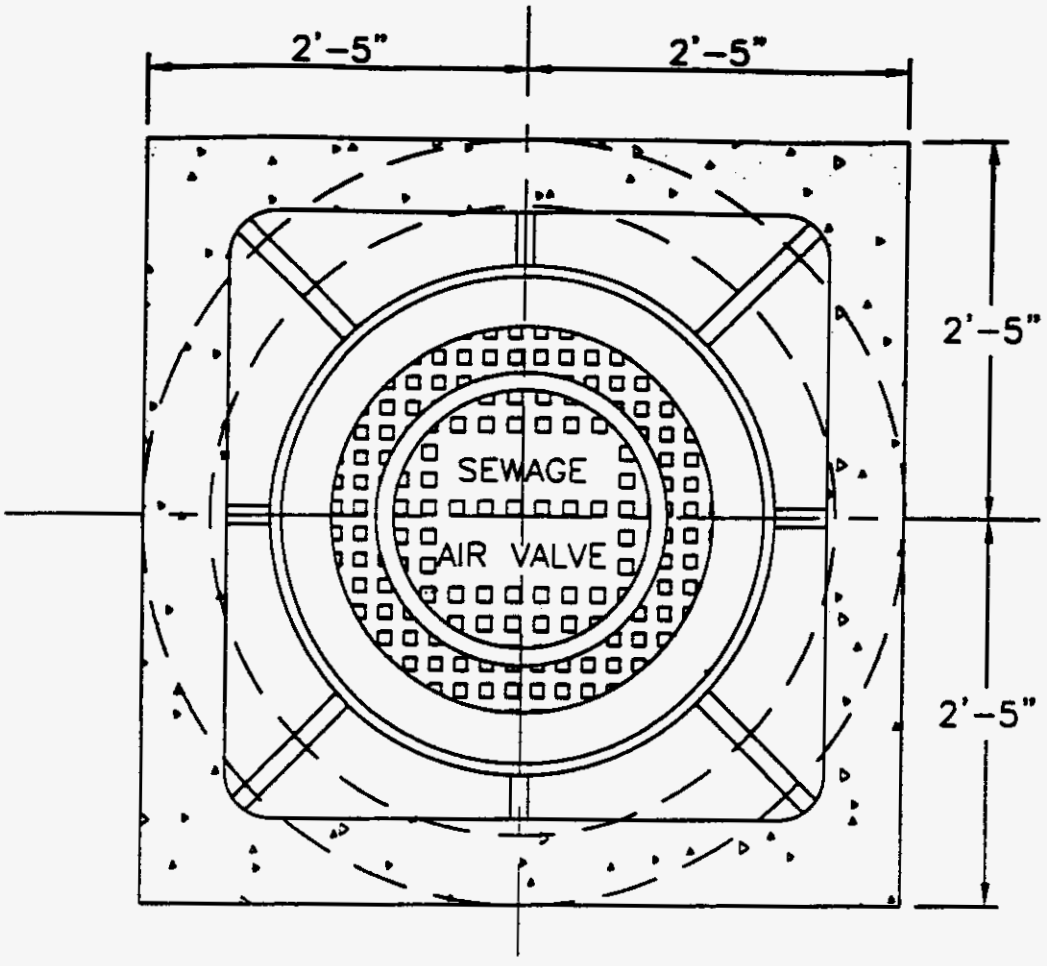
07-20-92

STEEL CASING PIPE SCHEDULE

CARRIER PIPE NOMINAL DIAMETER	STEEL CASING PIPE NOMINAL DIAMETER
4"	14"
6"	16"
8"	18"
10"	20"
12"	24"
14"	26"
16"	28"
18"	30"
20"	33"
24"	37"
30"	45"

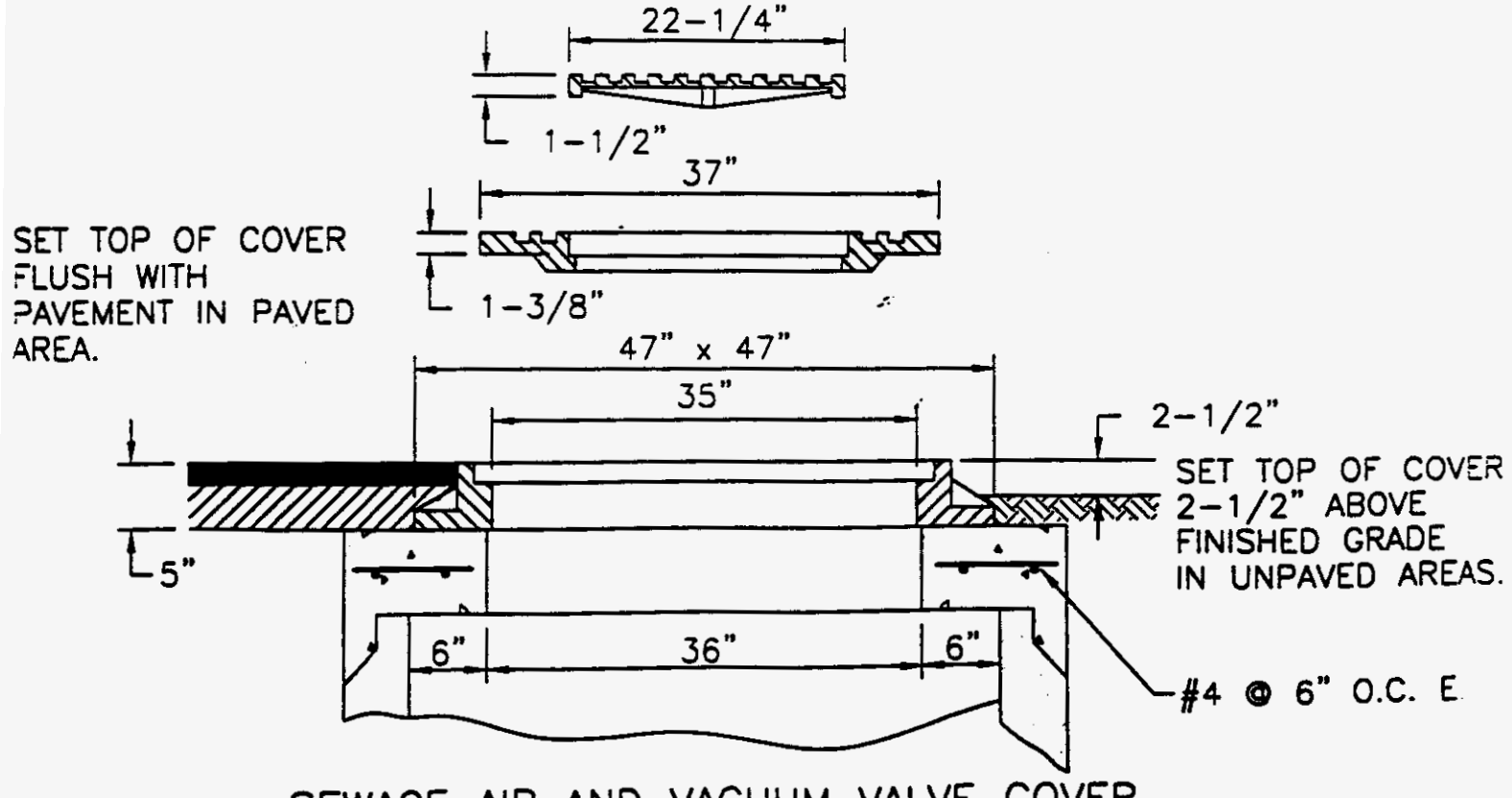
\STDS\WWF09-03

07-29-92



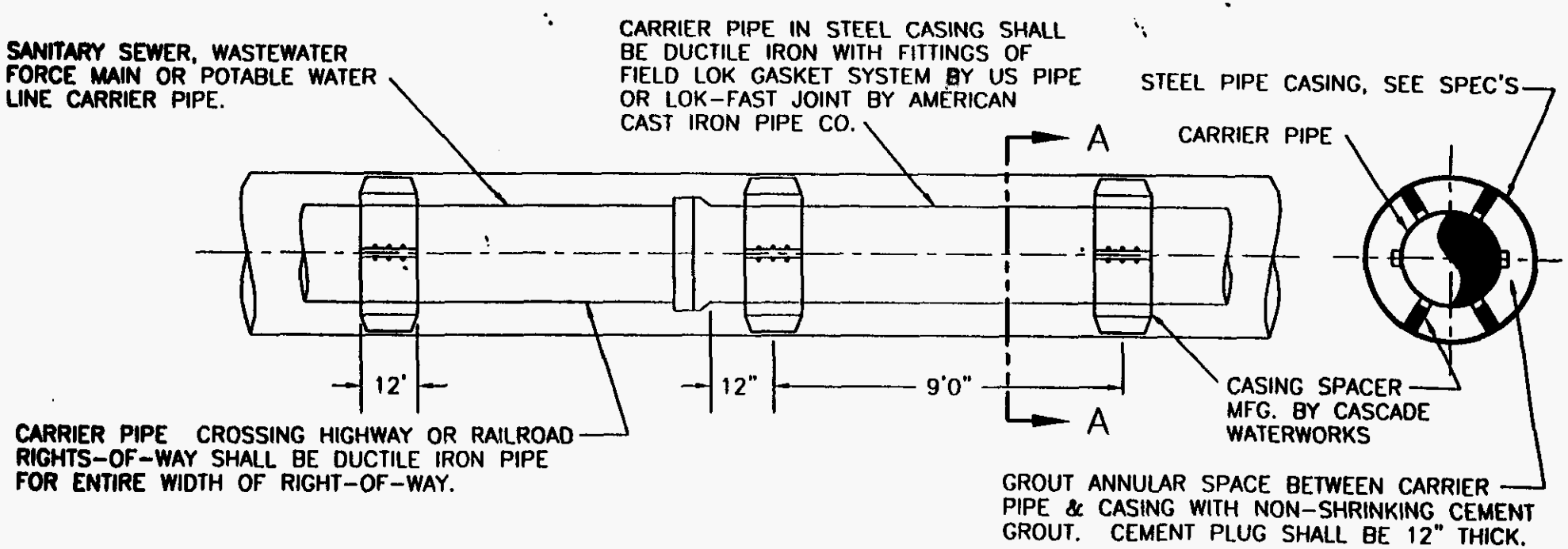
COVER

FOR TRAFFIC AREAS OR IN ROAD RIGHTS OF WAY



SEWAGE AIR AND VACUUM VALVE COVER

\STDS\WWF09-04 n.t.s.



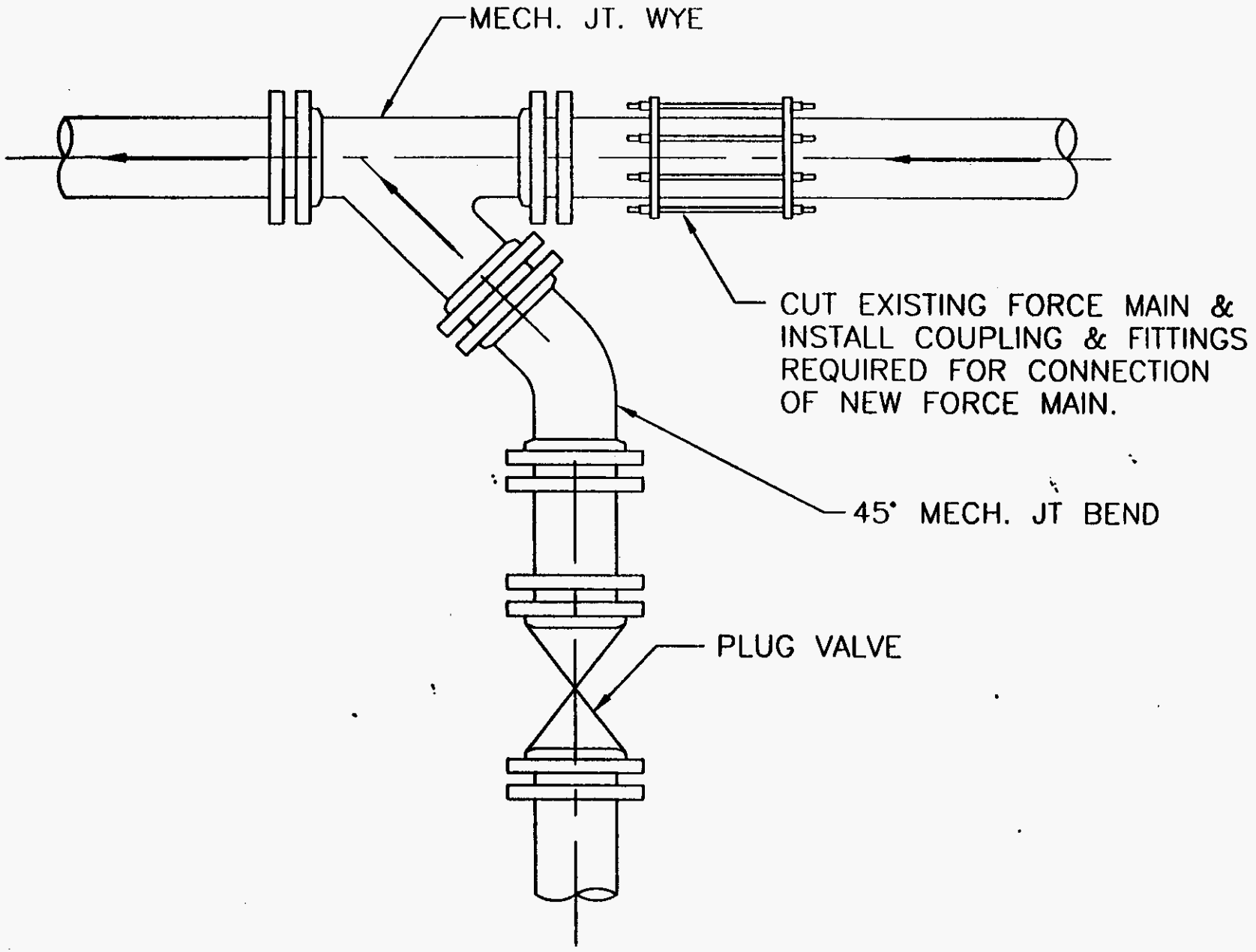
CASING & CARRIER PIPE DETAIL

\STDS\WWF09-05
07-29-92

n.t.s.

CASING SECTION WITH POLYMER RUNNERS

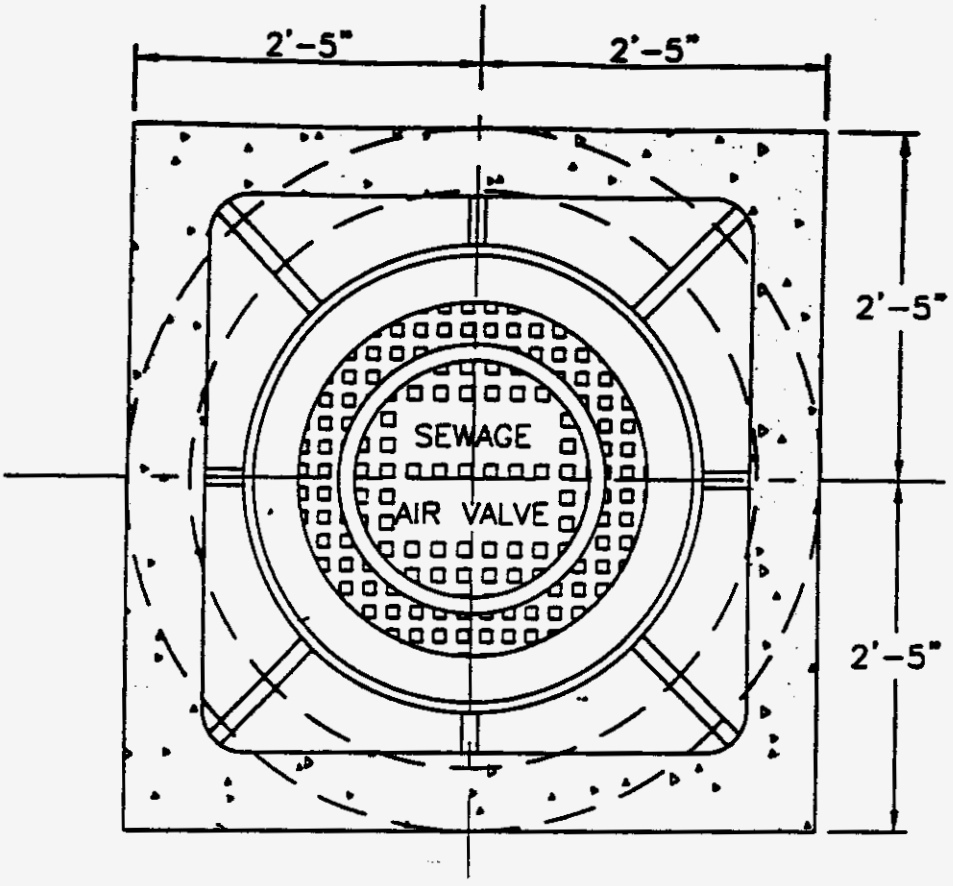
SECTION "A-A"



TYPICAL CONNECTION OF A FORCE MAIN TO AN EXISTING OR NEW HEADER FORCE MAIN

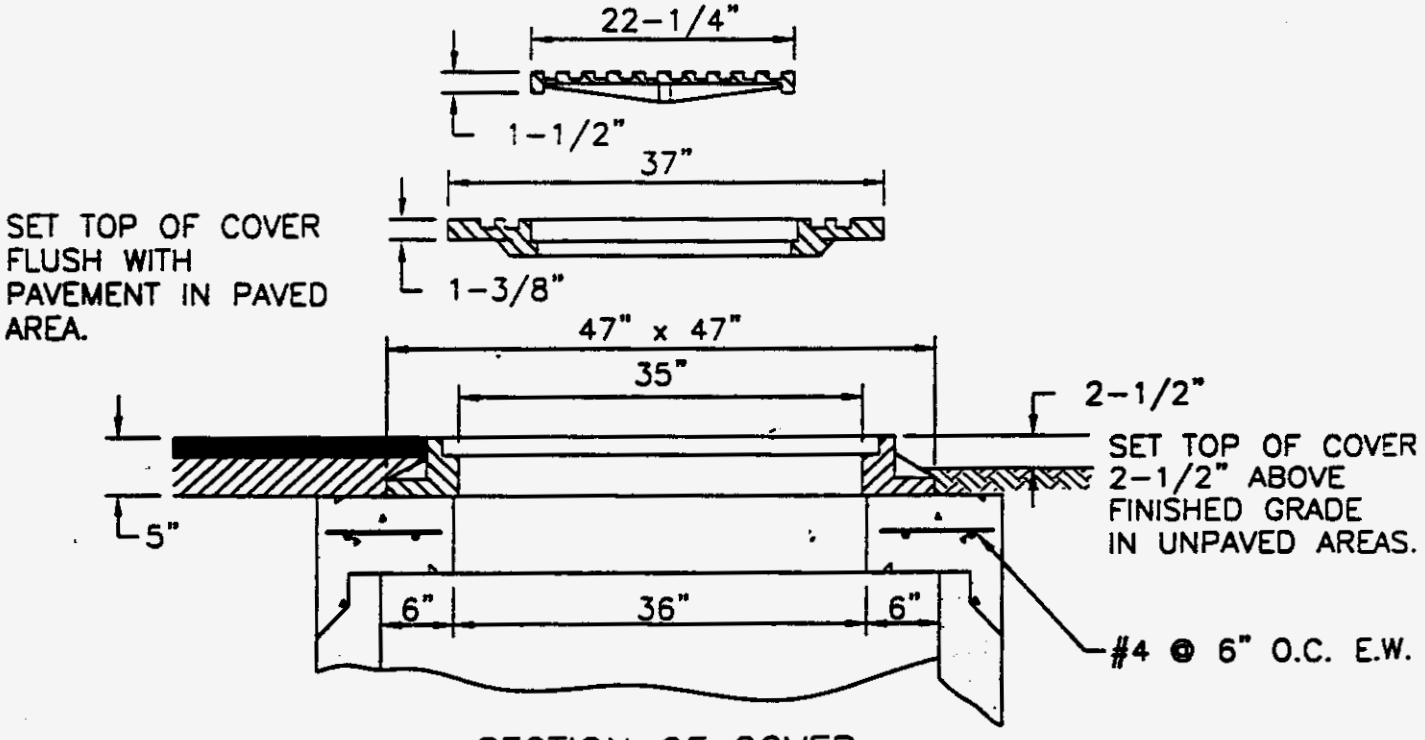
n.t.s.

\STDS\WWF09-
08-31-92



PLAN OF COVER

FOR TRAFFIC ALL AREAS



SECTION OF COVER

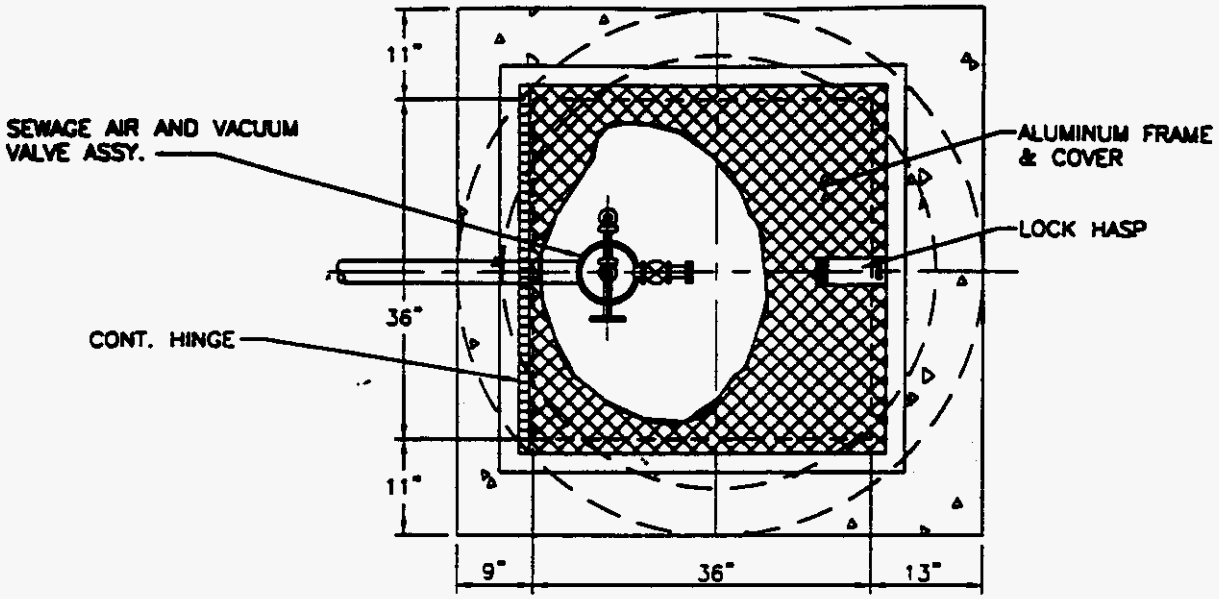
FOR TRAFFIC ALL AREAS

PLAN AND SECTION (SEWAGE AIR AND VACUUM VALVE)

WWF09-09

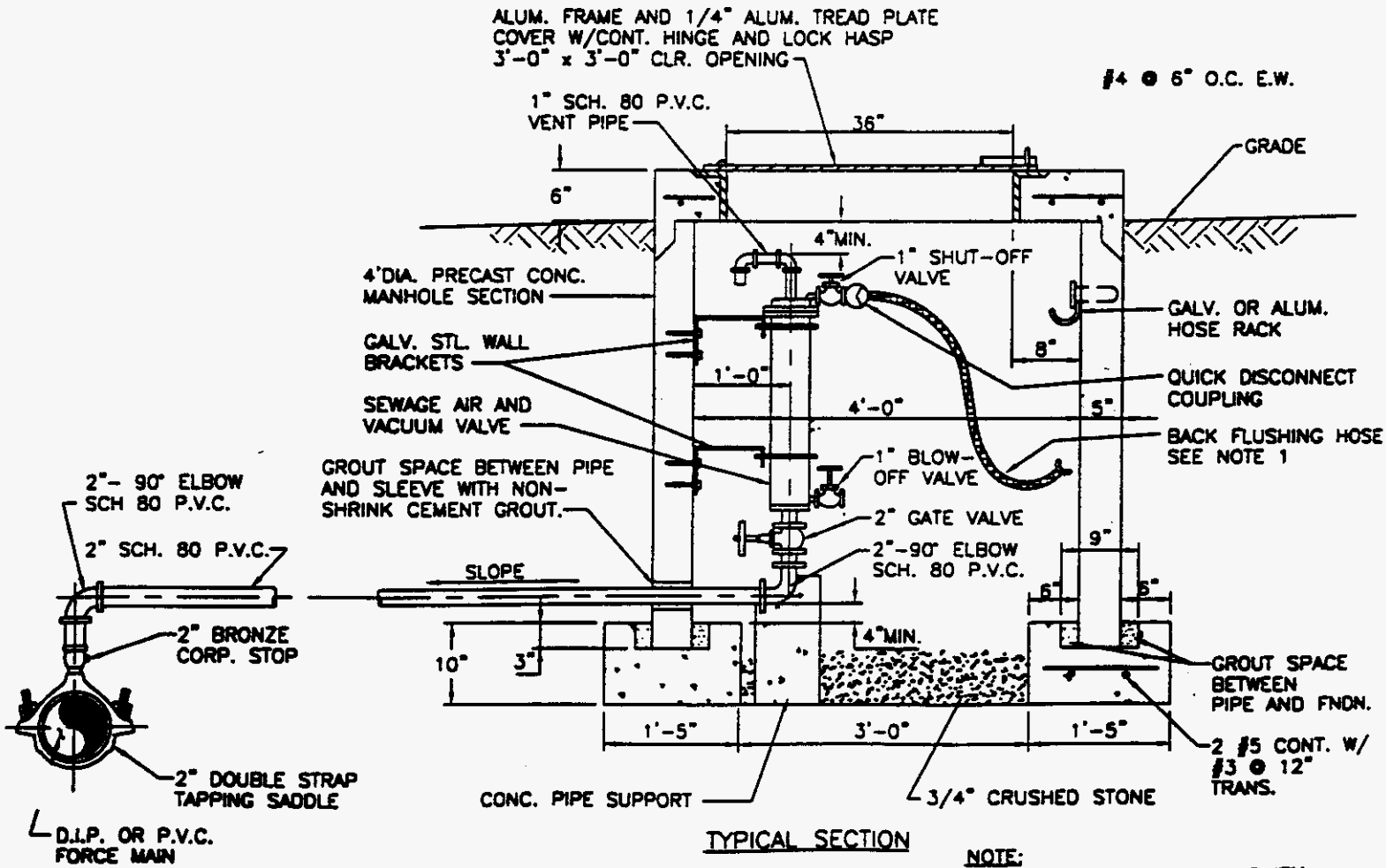
08-31-92

n.t.s.



PLAN

FOR NON TRAFFIC AREAS



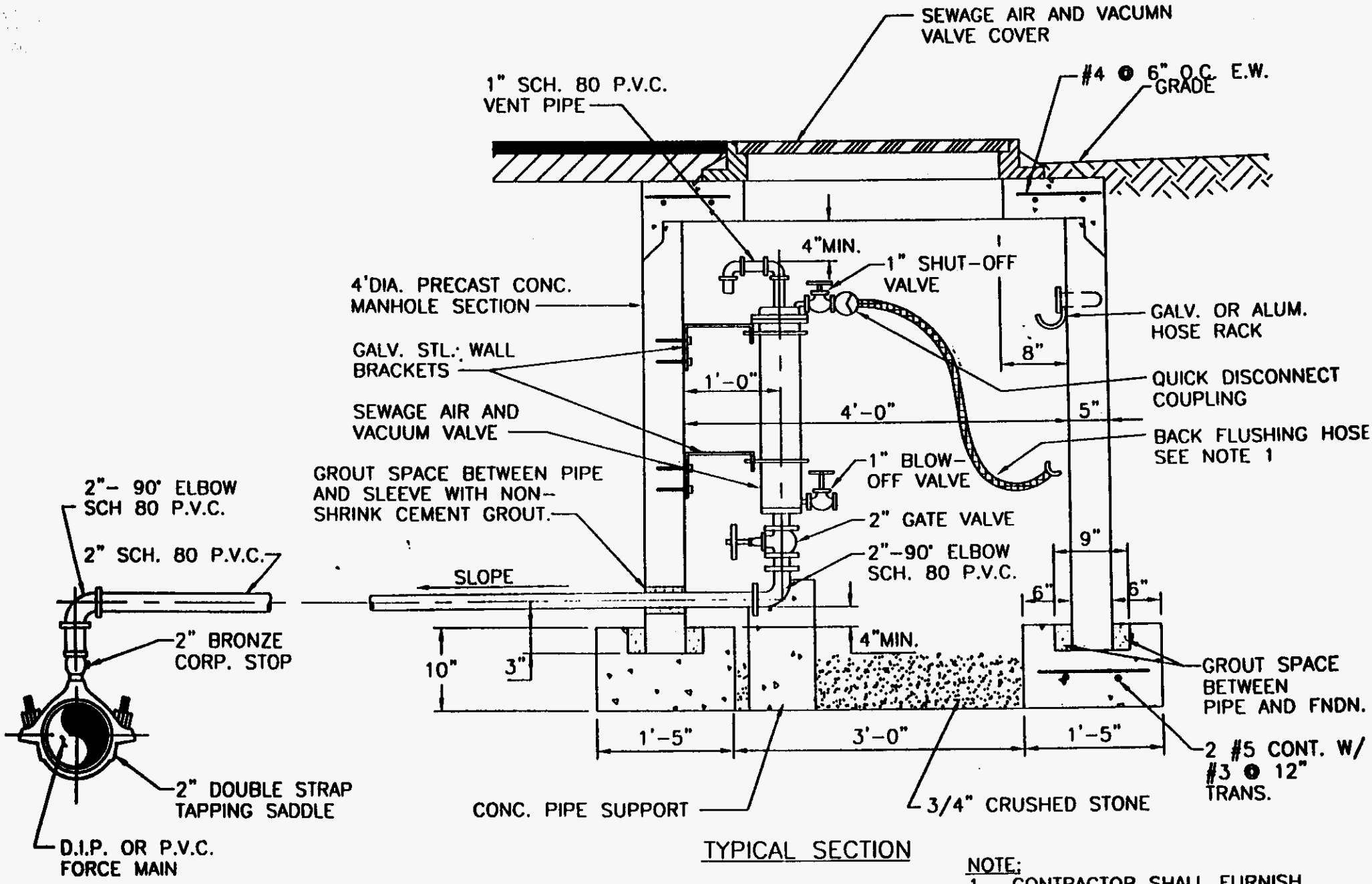
TYPICAL SECTION

NOTE:
1. CONTRACTOR SHALL FURNISH 50 L.F. OF 3/4 INCH FLUSHING HOSE.

SEWAGE AIR AND VACUUM VALVE

n.t.s.

07-25-02



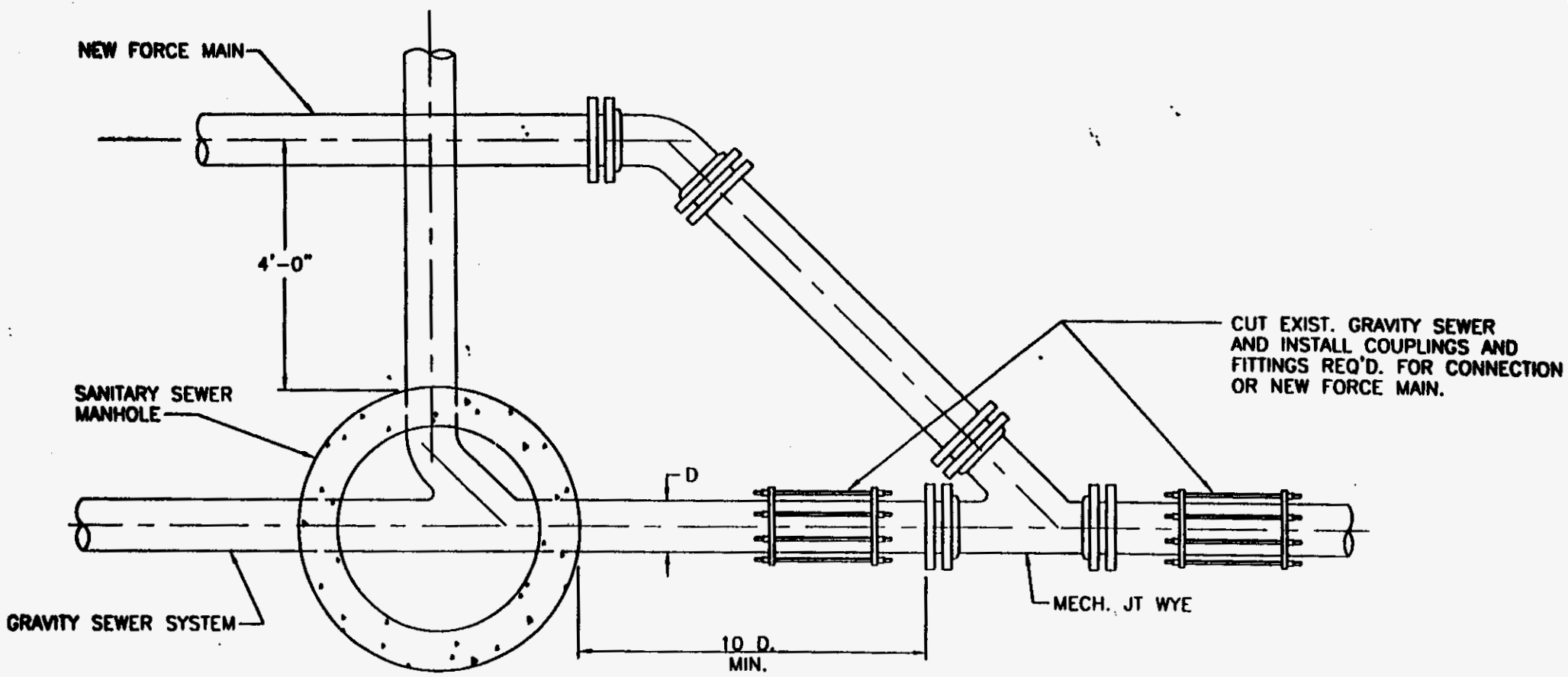
TYPICAL SECTION

NOTE:
1. CONTRACTOR SHALL FURNISH 50 L.F. OF 3/4 INCH FLUSHING HOSE.

SEWAGE AIR AND VACUUM VALVE

\STDS\WWF09-07

n.t.s.



TYPICAL CONNECTION OF A FORCE MAIN TO AN EXISTING OR NEW GR.''ITY SEWER SYSTEM

\STDS\WWF09-06

n.t.s.

07 20 02

UTILITY SYSTEM
ASSET ACQUISITION AGREEMENT

THIS AGREEMENT, is made and entered into as of this 1st day of April, 1999, by and between The Florida Governmental Utility Authority, a legal entity and public body created by interlocal agreement pursuant to section 163.01(7), Florida Statutes, (the "GUA"), and Florida Cities Water Company, a Florida corporation ("FCWC") and Poinciana Utilities Inc., a Florida corporation ("PUI").

W I T N E S S E T H:

WHEREAS, FCWC and PUI own potable water supply, treatment, and distribution systems and wastewater collection, transmission, treatment, disposal and reuse systems in Brevard County, Collier County, Hillsborough County, Lee County, Osceola County, Polk County, and Sarasota County, Florida; and

WHEREAS, FCWC and PUI had no intention of selling their respective utility assets, but received the threat of condemnation of its utility assets by members of the GUA, which threat FCWC and PUI determined it was inadvisable to resist and incur unnecessary time and expenses in defense of such proceedings, but instead, in lieu of condemnation, agreed to negotiate an amicable resolution of the threat of condemnation by entering into this Agreement;

WHEREAS, the GUA, pursuant to section 163.01, Florida Statutes (the "Florida Interlocal Cooperation Act"), and that certain interlocal agreement entered into and adopted by Brevard County, Lee County, Polk County and Sarasota County, (the "Interlocal Agreement") to acquire the utility assets of FCWC and PUI in lieu of condemnation by members of the GUA, has the power and authority to provide potable water and wastewater infrastructure and service throughout the State of Florida, and more specifically within Brevard County, Collier County,

Hillsborough County, Lee County, Osceola County, Polk County, and Sarasota County, Florida; and

WHEREAS, the GUA held a public hearing on the proposed purchase and sale of all or substantially all of the water and wastewater utility assets owned by FCWC and PUI, and made a determination that such a purchase and sale and privatization of such assets is in the public interest; and

WHEREAS, the GUA desires to acquire all or substantially all of the assets which are used by FCWC and PUI in providing services through the water and wastewater utility systems in Brevard County, Collier County, Hillsborough County, Lee County, Osceola County, Polk County, and Sarasota County, Florida, and FCWC and PUI have consented to sell those assets in lieu of condemnation by individual members of the GUA, and Avatar Utilities Services, Inc. has simultaneously agreed to enter into one or more operations, billing and customer service agreements to continue the private operation and maintenance by contract of such water and wastewater utility systems; and

WHEREAS, the GUA, in determining if such a purchase and sale and privatization of operations by contract is in the public interest considered, at a minimum, all of the factors required by law.

NOW, THEREFORE, in consideration of the mutual promises, covenants, representations and agreements contained herein, together with $10 and other good and valuable consideration exchanged between the parties, the parties to this Utility System Asset Acquisition Agreement do undertake, promise and agree for themselves, their permitted successors and assigns as follows:

ARTICLE I

DEFINITIONS AND CONSTRUCTION

SECTION 1.01. DEFINITIONS. As used in this Utility System Asset Aquisition Agreement, the following terms shall have the meanings as defined herein unless the context requires otherwise:

"Accounts Receivable Adjustment" has the meaning set forth in Section 5.05 of this Agreement.

"Agreement" means this Utility System Asset Acquisition Agreement, including any amendments and supplements hereto executed and delivered in accordance with the terms hereof.

"AUSI" means Avatar Utilities Services, Inc., a Florida corporation and its successors and assigns.

"Barefoot Bay System" means that portion of the Utility System and Purchased Assets located in Brevard County, Florida.

"Board" means the governing body of the GUA.

"Bonds" has the meaning set forth in Section 4.05 of this Agreement.

"Carrollwood System" means that portion of the Utility System and Purchased Assets located in Hillsborough County, Florida.

"Closing" has the meaning set forth in Section 5.01 of this Agreement.

"Document Escrow" has the meaning set forth in Section 5.09(A) of this Agreement.

"Due Diligence Adjustment" has the meaning set forth in Section 4.03 of this Agreement.

"Easements" means all rights, privileges, easements, licenses, prescriptive rights, rights-of-ways, and rights to use public and private roads, highways, streets, railroads and other areas owned or used by FCWC and PUI in connection with the construction, reconstruction, installation, expansion, maintenance and operation of the Utility System or the Purchased Assets.

"Escrow Closing" has the meaning set forth in Section 5.09(A) of this Agreement.

"Excluded Assets" means those assets, properties and rights, both tangible and intangible, real and personal, of FCWC and PUI described in Appendix **[N]** hereto which shall not be and are not to be sold, conveyed, or transferred to the GUA pursuant to this Agreement.

"GUA" means the Florida Governmental Utility Authority created by interlocal agreement initially entered into by and among Brevard County, Lee County, Polk County, and Sarasota County, Florida.

"Ft. Myers System" means that portion of the Utility Assets and Purchased Assets located in Lee County, Florida.

"Golden Gate System" means that portion of the Utility Assets and Purchased Assets located in Collier County, Florida.

"Net Interest Rate Adjustment" has the meaning set forth in Section 4.06(A) of this Agreement.

"Purchased Assets" has the meaning set forth in Section 3.02 of this Agreement.

"Permitted Exceptions" means those title exceptions described in Appendix **[O]** hereto.

"Poinciana System" means that portion of the Utility System and Purchased Assets located in Polk County, Florida, and Osceola County, Florida.

"Sarasota System" means that portion of the Utility System and Purchased Assets located in Sarasota County, Florida.

"Transaction Cost" means the costs, fees and expenses incurred by the GUA in connection with the creation of the GUA, the negotiation, structure or due diligence leading up to the GUA's acquisition of the Utility System or the Purchased Assets, issuance of bonds or the use of any other interim financing alternative contemplated in Section 4.03 hereof, including but not limited to (A) rating agency and other financing fees; (B) the fees and disbursements of bond counsel; (C) the discount taken by the underwriter; (D) the fees and disbursements of the GUA's financial advisor; (E) the fees and disbursements of the GUA's consulting engineers; (F) the fees and disbursements of the GUA's water and wastewater counsel and consultants; (G) the costs of preparing or printing the bonds and the documentation supporting issuance of the bonds; (H) the fees payable in respect of any municipal bond insurance policy; and (I) any other costs of a similar nature incurred in connection with issuance of the bonds.

"Utility System" means the potable water supply, treatment, storage, and distribution systems and wastewater collection, transmission, treatment, disposal and reuse systems owned by FCWC and PUI, which provide services to portions of Brevard County, Collier County, Hillsborough County, Lee County, Osceola County, Polk County, and Sarasota County, Florida. The Utility System is comprised of the Barefoot Bay System, the Carrollwood System, the Ft. Myers System, the Golden Gate System, the Poinciana System, and the Sarasota System (each a "System").

SECTION 1.02. CONSTRUCTION AND INTERPRETATION

(A) Words that indicate a singular number shall include the plural in each case and vice versa, and words that import a person shall include legal entities, firms and corporations.

(B) The terms "herein," "hereunder," "hereby," "hereof," and any similar terms, shall refer to this Agreement; the term "heretofore" shall mean before the date of execution of this Agreement; and the term "hereafter" shall mean on or after the initial date of execution of this Agreement.

(C) Words that reference only one gender shall include all genders.

(D) This Agreement shall be construed as resulting from joint negotiation and authorship. No part of this Agreement shall be construed as the product of any one of the parties hereto.

SECTION 1.03. INCORPORATION. The Appendices hereto and each of the documents referred to therein are incorporated and made a part hereof in their entirety by reference.

SECTION 1.04. SECTION HEADINGS. Any headings preceding the texts of the several Articles, Sections, Appendices, or Exhibits in this Agreement and any table of contents or marginal notes appended to copies hereof, shall be solely for the convenience of reference and shall neither constitute a part of this Agreement nor affect its meaning, construction or effect.

ARTICLE II

REPRESENTATIONS

SECTION 2.01. REPRESENTATIONS OF THE GUA. The GUA makes the following representations, which representations shall not survive the closing of this Agreement.

(A) The GUA is duly organized and validly existing as an independent special district created by interlocal agreement pursuant to section 163.01(7), Florida Statutes.

(B) The GUA has full power and authority to enter into the transactions contemplated by this Agreement.

(C) Whether or not applicable, the GUA has fulfilled and complied with the provisions of section 125.3401 (as to Lee County) and section 189.423, Florida Statutes, relative to the purchase and sale and privatization of the operations of a water, sewer or wastewater reuse utility by a governmental agency, or will do so prior to closing.

(D) The GUA is not in default under any provisions of the laws of the State of Florida material to the performance of its obligations under this Agreement. The execution and delivery and performance of this Agreement and the consummation by the GUA of the transactions contemplated hereby have been duly authorized by all necessary action on the part of the GUA. Assuming the due authorization, execution and delivery by other parties hereto, this Agreement constitutes a valid and legally binding obligation of the GUA, enforceable against the GUA in accordance with its terms, except to the extent that the enforceability thereof may be limited by any applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally, or by the exercise of judicial discretion of a court of competent jurisdiction in accordance with general principles of equity.

(E) The authorization, execution, performance and delivery of this Agreement and the consummation by the GUA of the transactions contemplated hereby will not conflict with, violate or constitute a material breach of, or default under, any existing law, court or administrative regulation, decree, order, or any provision of the Constitution or the laws of the State of Florida relating to the GUA or its affairs, or any ordinance, resolution, agreement, lease or other instrument to which the GUA is subject or by which it is bound.

(F) There is no action, suit, investigation or proceeding pending or, to the GUA's knowledge, threatened against or affecting the GUA, at law or in equity or before any federal, state, municipal or other governmental department, commission, board, bureau, agency or instrumentality, wherein any decision, ruling or finding would adversely affect the transactions contemplated hereby or which in any way would adversely affect the validity of this Agreement or any other agreement or instrument to which the GUA is a party and which is used or contemplated for use in the consummation of the transactions contemplated hereby.

(G) The GUA has not dealt with any broker, salesman or finder in connection with the transactions contemplated herein and no sales commissions or finder's fees are due or payable as a result hereof.

(H) The GUA has no material assets or liabilities except as contemplated by this Agreement.

SECTION 2.02. REPRESENTATIONS OF FCWC AND PUI. FCWC and PUI make the following representations and warranties, which representations and warranties shall not survive the closing of this Agreement.

(A) FCWC and PUI are corporations, each duly organized, validly existing and in good standing in the State of Florida and authorized to do business in such jurisdiction, and have all requisite corporate power and authority to enter into and fully perform this Agreement. FCWC is a wholly-owned subsidiary of FCWC Holdings, Inc. FCWC Holdings, Inc. is a majority-owned subsidiary of Consolidated Water Company. Consolidated Water Company is a majority-owned subsidiary of Avatar Utilities Inc. PUI is a wholly-owned subsidiary of Avatar Utilities Inc. Avatar Utilities Inc. is a wholly-owned subsidiary of Avatar Holdings Inc.

(B) The execution, delivery and performance of this Agreement and the consummation by FCWC and PUI of the transactions contemplated hereby have been duly authorized by all necessary corporate action on the part of FCWC and PUI. Assuming the due authorization, execution and delivery by the GUA, this Agreement will be valid and enforceable against FCWC and PUI in accordance with its terms, except to the extent that the enforceability thereof may be limited by any applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally, or by the exercise of judicial discretion of a court of competent jurisdiction in accordance with the general principles of equity.

(C) There is no action, suit, investigation, or proceeding pending or, to FCWC or PUI's knowledge, threatened against or affecting FCWC and PUI, at law or in equity or before any federal, state, municipal, or other governmental department, commission, board, bureau, agency or instrumentality, wherein any decision, ruling or finding would adversely and materially

affect the transactions contemplated hereby or which in any way would adversely and materially affect the validity of this Agreement or any other agreement or instrument to which FCWC and PUI are a party which is used or contemplated for use in the consummation of the transactions contemplated hereby.

(D) To the best of its knowledge and belief, neither the execution and delivery of this Agreement by FCWC and PUI, nor the consummation by FCWC and PUI of the transactions contemplated hereby, will violate the provisions of any applicable law or any applicable order or regulation of any governmental authority having jurisdiction over FCWC and PUI or conflict with or result in a breach of any terms, conditions or provisions of any agreement or instrument to which FCWC and PUI are now a party, or constitute a default thereunder, except, in each case, for violations, conflicts, breaches and defaults which in the aggregate would not have material adverse effect on the Purchased Assets as a whole or the business of the Utility System as a whole.

(E) FCWC and PUI have not dealt with any broker, salesman or finder in connection with the transactions contemplated herein and no sales commissions or finder's fees are due or payable as a result hereof.

(F) FCWC and PUI has prepared, completed and delivered to the GUA the following Appendices, subject to any qualifications stated in the Appendices:

(1) Appendix **[A]** is a schedule providing a complete legal description or recording references for all real property owned by FCWC and PUI and used in the operation of the Utility System.

(2) Appendix **[B]** is a schedule identifying in reasonable detail all private Easements known to FCWC and PUI at the time of execution of this Agreement.

(3) Appendix **[C]** contains a list of the locations at which can be examined the plans and specifications which substantially describe the Utility System's water and wastewater plants, lift or pump stations, wastewater collection system and major transmission and reuse facilities.

(4) Appendix **[D]** is a schedule of the separately stated written third party warranties that have been located by FCWC and PUI that relate to completed or in-progress construction. This schedule does not include manufacturer's warranties.

(5) Appendix **[E]** is a schedule of all current or active permits, applications or other documents, together with effective dates and any expiration dates, which authorize the operation of the Utility System's water and wastewater treatment facilities by all applicable governmental authorities, and which are material to the continued operation of the Utility System.

(6) Appendix **[F]** is a series of location maps of the Utility System which generally depict the areas served by each operating System.

(7) Appendix **[G]** is an inventory of the equipment, vehicles, tools, parts, laboratory equipment, computer equipment and other personal property, other than the Excluded Assets, used by FCWC and PUI in connection with the operation of Utility System.

(8) Appendix **[H]** is a schedule of all operating and vendor contracts affecting the Utility System.

(9) Appendix **[I]** is a schedule of all executory reuse or effluent disposal agreements entered into by FCWC and PUI for sale or reuse of effluent delivered through the Utility System.

(10) Appendix **[J]** is a schedule of all executory agreements, sometimes referred to as developer agreements, entered into by FCWC and PUI and owners or developers of real property for the provision of water or wastewater disposal services through the Utility System for which all customers connections have not been completed.

(11) Appendix **[K]** is a schedule which sets forth all executory agreements under which FCWC and PUI as owners of the Utility System have any continuing or outstanding water or wastewater service obligations relating to the Utility System as of December 18, 1998, and the total number of (1) contractual connections; (2) contractual connections paid for and not yet connected; (3) contractual connections not yet paid for and not yet connected; and (4) any contractual connections for which FCWC and PUI have or expect to begin collecting a periodic minimum or base charge prior to Closing.

(12) Appendix **[L]** is a schedule of all other agreements entered into between FCWC or PUI and third parties which would reasonably be considered to be a material encumbrance upon the Purchased Assets, including without limitation, any leasehold agreements or oral agreements, if any. Any such agreements that have not been reduced to writing are identified on said schedule with a narrative of the terms thereof included therein. This schedule does not include agreements pertaining to AUSI's privatization contract operations that do not relate to the Utility System or the Purchased Assets.

(13) Appendix **[M]** is a schedule of all current tariffs and collectively setting forth the most current schedule of rates, fees and charges that FCWC and PUI are authorized to impose.

(G) To their knowledge, FCWC and PUI are not in violation of any governmental rule, regulation, permitting condition, or other governmental requirement of any type or nature which would have a material adverse effect on the Purchased Assets as a whole or on the maintenance, construction or operation of the Utility System.

(H) To the knowledge of FCWC and PUI, there are no hazardous substances (as that term is defined in the Comprehensive Environmental Response and Compensation and Liability Act, the Resource Conservation and Recovery Act or analogous Florida Law), located upon or beneath the real estate to be conveyed to the GUA at concentrations that could reasonably be expected to result in the owner or operator of such real estate incurring material liabilities under environmental laws to remediate such hazardous substances.

(I) There are no facts actually known to the management, officers and directors of FCWC and PUI materially adversely affecting the physical condition of the Utility System or Purchased Assets which are not readily observable or which have not been disclosed or provided to the GUA in connection with this transaction or otherwise.

(J) FCWC and PUI have undertaken steps to identify and correct or minimize potential Year 2000 computer and software problems ("Y2K") that relate to the Purchased Assets. FCWC and PUI are not aware of any material Y2K compliance issues it has not addressed. Y2K relates to the fact that many existing computer programs and embedded computer chips recognize only the last two digits of the year, and are unable to distinguish

between the year 1900 and the year 2000. Because of the unprecedented nature of the Y2K issue, its effects and the success of related remediation efforts will not be fully determined until the year 2000 and thereafter. FCWC and PUI can provide no assurance that the Utility System is or will be year 2000 ready, or that their remediation efforts will be successful in whole or in part; nor can FCWC and PUI provide any assurance that vendors, government agencies, paying agents or other third parties providing service to FCWC and PUI have or are effectively dealing with Y2K issues in a timely manner.

ARTICLE III

PURCHASE AND SALE OF ASSETS

SECTION 3.01. PURCHASE AND SALE COVENANT. At Closing, the GUA shall purchase and FCWC and PUI shall sell and convey the Purchased Assets to the GUA upon the terms and subject to the conditions set forth in this Agreement. At Closing, the GUA shall assume responsibility for the performance and satisfaction of the liabilities and obligations of FCWC and PUI set forth on Appendices A, B, E, H, I, J, K and L to this Agreement.

SECTION 3.02. PURCHASED ASSETS.

(A) The Purchased Assets, exclusive of the Excluded Assets, shall consist of those assets, business properties, and rights both tangible and intangible that FCWC and PUI own or possess as of December 18, 1998, in connection with the operation of the Utility System, or any ownership interest which it has or hereafter acquires until the Closing, relating thereto, including the following:

(1) All fee simple real property owned by FCWC and PUI as described in Appendix **[A]** hereof.

(2) All water and wastewater treatment plants, including reuse and reclaimed water wells, water supplies, wells, collection, transmission, and distribution system piping, pumping, and effluent and disposal facilities of every kind and description whatsoever including without limitation, all trade fixtures, leasehold improvements, lift stations, pumps, generators, controls, tanks, distribution, collection or transmission pipes or facilities, valves, meters, service connections, and all other physical facilities, appurtenances and property installations used in the operation of the Utility System, together with an assignment of all existing and assignable third party warranties that relate to completed or in progress construction.

(3) All equipment, vehicles, tools, parts, laboratory equipment, and other personal property owned by FCWC and PUI in connection with the operation of the Utility System as more particularly described in Appendix **[G]** of this Agreement.

(4) All Easements as more particularly described in Appendix **[B]** of this Agreement.

(5) All current customer records, as-built surveys and water and wastewater plans, plats, engineering and other drawings, designs, blueprints, plans and specifications, maintenance and operating manuals, engineering reports, calculations, computer studies, non-corporate accounting, and non-corporate business records and all other non-corporate information, in each case, controlled by or in the possession of FCWC and PUI that relate to the description and operation of the Utility System, inclusive of all pertinent computer records.

(6) All necessary regulatory approvals subject to all conditions, limitations or restrictions contained therein; all existing permits and other governmental authorizations and approvals of any kind necessary to construct, operate, expand, and maintain the Utility System

according to all governmental requirements, to be more specifically described in Appendix **[E]** to this Agreement.

(B) The Purchased Assets, except Easements, shall be conveyed by FCWC and PUI to the GUA free and clear of all liens or encumbrances, subject to the Permitted Exceptions.

(C) At Closing, all revenue derived from the Purchased Assets shall be free and clear of all liens and encumbrances.

(D) The Purchased Assets do not and shall not include the Excluded Assets.

SECTION 3.03. PURCHASE PRICE AND REVENUE GUARANTEES.

(A) The aggregate purchase price shall be Two Hundred Twenty-Six Million Dollars ($226,000,000.00) ("Purchase Price"), subject to the terms, adjustments and prorations as provided herein. Such adjustments shall include, but not be limited to, the Due Diligence Adjustment, the Accounts Receivable Adjustment, the Net Interest Rate Adjustment and the Defeasance Adjustment. The Purchase Price shall be payable by the GUA to FCWC and PUI in immediately available funds at Closing by wire transfer pursuant to wire instructions to be provided by FCWC and PUI at or prior to Closing. The Purchase Price for each of the operating Systems is as follows:

(1)	Barefoot Bay System	$16,443,300;
(2)	Carrollwood System	$5,022,500;
(3)	Ft. Myers System	$135,885,000;
(4)	Golden Gate System	$27,126,000;
(5)	Poinciana System	$26, 958,200; and
(6)	Sarasota System	$14,565,000.

(B) FCWC and PUI have agreed to guarantee certain revenues of the Poinciana System and the Golden Gate System as follows:

(1) FCWC and PUI shall guarantee that the billed revenue of the Poinciana System from the application of monthly rates for water and wastewater service as set forth in the current PUI Florida Public Service Commission Water and Wastewater Tariff for the twelve month period commencing on the date of Closing is at least equal to the amount of $3,992,280.00 and shall guarantee that the billed revenue of the Golden Gate System from the application monthly rates for water and wastewater service and other miscellaneous revenue as set forth in the current Florida Cities Water Company Golden Gate Division Water and Wastewater Tariffs approved by the Collier County Utility and Franchise Regulation Department (excluding meter installation revenue, interest income and impact fees) for the twelve month period commencing on the date of Closing is at least equal to the amount of $3,396,350.00.

(2) In addition to the Poinciana System revenue guarantee in subsection (1) above, FCWC and PUI shall guarantee the receipt by the GUA from the operation of the Poinciana System of other revenues in the form of line maintenance charges in effect as of December 18, 1998, based upon the existing Poinciana System tariff in an amount at least equal to $316,000.00 for the twelve month period commencing on the date of Closing; an amount at least equal to $300,000.00 for the next successive twelve month period, an amount at least equal to $284,000.00 for the next successive twelve month period, an amount at least equal to $268,000.00 for the next successive twelve month period, and an amount at least equal to $252,000.00 for the next successive twelve month period, for a total amount of $1,420,000.00 over a period of sixty months from the date of Closing.

(3) To secure the revenue guarantees in subsection (1) and (2) above, FCWC and PUI shall deposit with the trustee serving under the Indenture of Trust for the Bonds ("Trustee") in separate escrow accounts or provide separate irrevocable letters of credit, in form reasonably acceptable to the underwriter of the Bonds, the amount of $800,000.00 for the Poinciana System subsection (1) guarantee, the amount of $680,000.00 for the Golden Gate System subsection (1) guarantee, and the amount of $1,420,000.00 for the Poinciana System subsection (2) guarantee. Notwithstanding subsection (1) and (2) above, the maximum liability of FCWC and PUI under the revenue guarantees in subsection (1) and (2) above shall be the amounts provided for as security pursuant to this subsection (3). The revenue guarantees in subsection (1) and (2) above shall not apply in the event of a catastrophic event or "Act of God" which reduces usage.

(4) In the event that the Poinciana System does not meet the guarantee amounts set forth in subsection (2) above for any identified fiscal year, then the Trustee is authorized to withdraw on behalf of the GUA from the Poinciana System escrow or draw on the Poinciana System letter of credit as applicable the amount required to meet that fiscal year's guarantee amount. In the event that the Poinciana System exceeds the guarantee amounts set forth in subsection (2) above for any identified fiscal year, then the GUA shall deposit in the Poinciana System escrow an amount of cash equal to the lesser of (i) such surplus billed revenues actually received by the GUA or (ii) the net amount previously withdrawn or drawn by the GUA as a result of the failure of the Poinciana System to meet the applicable guarantee amount during preceding fiscal years. At the end of the guarantee period, any balance remaining in the Poinciana System escrow account, including interest earned, shall be refunded to FCWC and PUI, in the

case of an escrow. In the case of a letter of credit, to the extent not drawn upon, the Poinciana System letter of credit shall lapse at the end of the guarantee period. In the event that the Golden Gate System does not meet the guarantee amounts set forth in subsection (1) above for the identified fiscal year, then the Trustee is authorized to withdraw on behalf of the GUA from the Golden Gate System escrow or draw on the Golden Gate System letter of credit, as applicable, the amount required to meet that fiscal year's guarantee amount. At the end of the guarantee period, any balance remaining in the Golden Gate System escrow account, including interest earned, shall be refunded to FCWC and PUI, in the case of an escrow. In the case of a letter of credit, to the extent not drawn upon, the Golden Gate System letter of credit shall lapse at the end of the guarantee period.

ARTICLE IV

CONDITIONS PRECEDENT TO CLOSING

SECTION 4.01. PROVISION OF INFORMATION BY FCWC AND PUI.

(A) FCWC and PUI has gathered, and delivered to the GUA, at FCWC and PUI's expense, the information described and to be encompassed by Appendices **[A through M]** hereof, which are more particularly described in Section 2.02(F)(1) through (13) hereof.

(B) FCWC and PUI shall make any plans or specifications for the Utility System available to the GUA, or its representatives, for inspection during normal business hours.

SECTION 4.02. FINANCIAL DUE DILIGENCE. The GUA has had the opportunity to examine the billing analysis and cause to be prepared at its expense a due diligence investigation of the revenues of the Utility System by a GUA rate consultant or fiscal agent

selected by it. GUA has relied upon its own financial due diligence investigation in entering into this Agreement.

SECTION 4.03. DUE DILIGENCE ADJUSTMENT. The GUA has had the opportunity to cause at its expense a due diligence investigation of the Utility System and the Purchased Assets. As a result of the due diligence investigation, the parties have agreed to an aggregate Purchase Price adjustment of seven million dollars ($7,000,000.00) (the "Due Diligence Adjustment") to be payable by FCWC and PUI to the GUA as a reduction to the Purchase Price at Closing. No further payment shall be due from FCWC and PUI for deficiencies of the Utility System or the Purchased Assets and FCWC and PUI shall have no obligations or liabilities to the GUA with respect to the condition of the Utility System and the Purchased Assets after Closing. The GUA has relied upon its own engineering due diligence investigation in entering into this Agreement.

The GUA has directed FCWC and PUI to allocate the Due Diligence Adjustment among the operating Systems of the Utility System as follows, for which allocation FCWC and PUI make no representations:

(a)	Barefoot Bay System	$150,000;
(b)	Carrollwood System	$90,000;
(c)	Ft. Myers System	$2,830,000
(d)	Golden Gate System	$635,000;
(e)	Poinciana System	$1,190,000; and
(f)	Sarasota System	$2,105,000.

SECTION 4.04. [INTENTIONALLY LEFT BLANK]

SECTION 4.05. ISSUANCE OF BONDS.

(A) The GUA agrees to use all reasonable commercial efforts to issue a series of bonds (the "Bonds") for each operating System of the Utility System with at least an "investment grade" rating by Moody's Investors Service, Inc. or Standard and Poor's Ratings Group (based upon the current FCWC and PUI water and wastewater rates for each of the respective operating Systems of the Utility System) payable solely from the net revenues of each of the respective Systems of the Utility System, in a principal amount sufficient to fund (A) the respective allocable portion of the Purchase Price set forth in Section 3.03(A) hereof, after adjustments and prorations as provided herein, (B) a deposit from Bond proceeds for the establishment of required reserve accounts, and (C) payment of the Transaction Cost. The GUA's obligation to close the transactions contemplated in this Agreement shall be and is expressly conditioned upon the issuance of such Bonds. In the event the GUA, in good faith, determines, in its sole discretion, that such Bonds cannot be delivered on a date that permits the Closing to occur on or prior to April 16, 1999, then the GUA shall immediately notify FCWC and PUI in writing of such determination, with such notice setting forth in reasonable detail the bases upon which such determination was made. Upon receipt of such notice both the GUA and FCWC and PUI shall have the option of canceling this Agreement, and, if cancelled, thereupon the GUA and FCWC and PUI shall have no liabilities and no further obligations to each other under this Agreement.

(B) The use of an interim financing as an alternative to the GUA's obligations in subsection (A) of this section by the GUA shall be solely within the GUA's discretion. Under no circumstances whatsoever shall the exploration of any interim financing alternative be interpreted or construed to require the GUA to utilize interim financing to provide funds to close the

transaction contemplated in this Agreement and, notwithstanding the availability of any interim financing, the GUA shall retain its sole discretion to determine in good faith that Bonds cannot be delivered on or prior to April 16, 1999, and its right to exercise its option to cancel this Agreement as provided in subsection (A) of this Section.

SECTION 4.06 INTEREST RATE ADJUSTMENT.

(A) The Purchase Price provided for in Section 3.03(A) of this Agreement was arrived at based on a bondable cash flow pro-forma. That pro-forma assumes an effective net interest rate (the arbitrage yield under federal tax regulations) of 4.8% ("Initial Interest Rate") based upon a 30-year maturity schedule of level principal and interest payments, AAA rated, bond insured, municipal tax-free revenue bond issue, with a debt service coverage of 110%. The parties agree that the Purchase Price shall be adjusted at Closing ("Net Interest Rate Adjustment") to reflect the actual arbitrage yield achieved on the Bonds issued by the GUA to finance the acquisition ("Arbitrage Yield"). The GUA shall direct the underwriters for the Bonds in the agreement in which the underwriters agree to purchase the Bonds (the "Bond Purchase Agreement") to use all reasonable efforts to attain the lowest possible Arbitrage Yield on the Bonds. In the event FCWC and PUI, in good faith, determine, in their sole discretion, that the underwriters have not attained the lowest possible Arbitrage Yield on the Bonds, then FCWC and PUI shall immediately notify GUA in writing of such determination, with such notice setting forth in reasonable detail the bases upon which such determination was made. Upon receipt of such notice both the GUA and FCWC and PUI shall have the option of canceling this Agreement, and, if canceled, thereupon the GUA and FCWC and PUI shall have no liabilities and no further obligations to each other under this Agreement.

(B) The Net Interest Rate Adjustment shall be determined based upon the following formula: Net Interest Rate Adjustment equals the result of multiplying the Purchase Price ("PP") times the sum of one and the amount resulting from subtracting the Arbitrage Yield expressed as a percentage ("AY") from the Initial Interest Rate expressed as a percentage ("IRR") times eleven hundred fifty-three ten thousandths (0.1153); i.e. (APP = PP*(1+((IRR-AY)*0.1153)). As an example, if the Arbitrage Yield equals 5.0%, then the adjusted Purchase Price formula equals $226,000,000*(1+((4.8 - 5.0)*.1153) = $226,000,000*.97694 = $220,788,440. If the Arbitrage Yield equals 4.6%, then the adjusted Purchase Price equals $226,000,000*(1+((4.8 - 4.6)*.1153) = $226,000,000*1.02306 = $231,211,560.

(C) In the event that the Net Interest Rate Adjustment results in a Purchase Price less than $215,000,000, then FCWC and PUI shall have the option of canceling this Agreement by providing written notice to the GUA of such cancellation, and, if canceled, thereupon the GUA and FCWC and PUI shall have no liabilities and no further obligations to each other under this Agreement.

(D) In the event that any of the Bonds for any of the operating Systems are defeased or refunded or otherwise restructured by the GUA, or its successors or assigns, on or before one year from the date of Closing, at an actual arbitrage yield achieved on the defeased or refunded or otherwise restructured Bonds less than the Arbitrage Yield on the Bonds, then the net monetary benefit achieved as a result of such defeasance or refunding or otherwise restructuring shall be paid to FCWC and PUI as an additional adjustment to the Purchase Price (the "Defeasance Adjustment"). The Defeasance Adjustment shall be paid to FCWC and PUI by wire transfer immediately upon closing of the defeasance or refunding issue.

SECTION 4.07. ENVIRONMENTAL ASSESSMENT.

(A) Prior to the execution of this Agreement, the GUA has directed and authorized ARCADIS Geraghty and Miller to cause an environmental assessment of the real property to be conveyed hereunder. The environmental assessment shall be in general accordance with the scope and limitations of the American Society for Testing and Materials Designation: E 1527-97 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process) and shall verify that the real property and other facilities to be conveyed hereunder appear to be in material compliance with all applicable state and federal environmental laws, and that the real property to be conveyed to the GUA is free of unlawful contamination and, if necessary, provide an itemized estimate of all costs associated with bringing the subject real property and facilities into material compliance and the response cost for clean-up, removal and remediation of hazardous substances to the extent required by applicable environmental laws. The environmental assessment cost shall be initially funded by FCWC and PUI, provided, however, that upon Closing, the GUA shall reimburse FCWC and PUI for the amount paid for the environmental assessment.

(B) The environmental assessment is expected to be completed and delivered to the GUA and FCWC and PUI, not less than 15 days prior to Closing.

(C) If the environmental consultant's aggregate estimate of the costs associated with bringing the subject real property and facilities into material compliance and the response costs for clean-up, removal, and remediation is in excess of $25,000, then the GUA shall have the option of either (1) waiving this condition precedent to Closing or (2) canceling this Agreement, thereupon

the GUA and FCWC and PUI shall have no liabilities and no further obligations to each other under this Agreement.

SECTION 4.08. SURVEY. FCWC and PUI have provided the GUA any existing surveys of the real property to be conveyed to the GUA. The GUA shall have the option to order a new or updated survey of any or all real property being insured by the title insurance policies hereunder. Such surveys shall be at the GUA's expense. Any such surveys shall, (A) time permitting, be received not less than 15 days prior to Closing and updated thereafter as required by the title insurer; (B) be satisfactory and sufficient for the title insurer to delete the standard exceptions of title insurance coverage concerning encroachments, overlays, boundary line disputes or any other adverse matter which would be disclosed by an accurate survey; (C) be certified as of the current date to the GUA, FCWC and PUI, the title insurer or any other parties requested by the GUA; and (D) show the location of all improvements and easements. Material adverse matters (i.e., other than matters shown on existing or updated surveys or any state of facts a personal inspection of the real property would disclose which do not materially interfere with the present use of the real property) disclosed by such surveys and disclosed to FCWC and PUI in writing not less than 10 days prior to Closing may be resolved by FCWC and PUI in their sole and absolute discretion so that such matters may be removed as an exclusion to coverage on the title insurance commitment, at FCWC and PUI's expense, prior to the issuance of any policy after Closing. Nothing shall obligate FCWC or PUI to expend any monies to resolve such survey matters. If FCWC and PUI are unable or unwilling to resolve such material adverse matters prior to Closing, the GUA shall have the option of either (1) waiving this condition precedent to

Closing or (2) canceling this Agreement, thereupon the GUA and FCWC and PUI shall have no liability and no obligation to each other under this Agreement.

SECTION 4.09. TITLE VERIFICATION.

(A) FCWC and PUI have obtained and delivered to the GUA title commitments for the real property to be conveyed hereunder as set forth in Appendix **[A]** for each operating System for an ALTA form owner's title insurance policy from Lawyers Title Insurance Corporation (the "Title Policy"). Subject to subsection (D) of this section, any encumbrances or defects in title must be removed from any title insurance commitment prior to Closing and the subsequent title insurance policy issued free and clear of encumbrances, title defects, materialman's liens or other adverse matters, created or potentially created by FCWC and PUI, with the exception of (1) taxes for the current year which are not yet due and payable, (2) the Permitted Exceptions reflected in the schedule attached hereto as Appendix **[O]**, and (3) any encumbrance of or created by the GUA, including any instruments evidencing debt executed by the GUA at Closing.

(B) The estate or interests to be insured by the Title Insurance Policy shall consist of all real property identified in Appendix **[A]**.

(C) At Closing or upon issuance of any Title Insurance Policy after Closing, the owner's title insurance policy shall show marketable title to the insured estate or interests vested in the GUA. All charges for the issuance of the owner's title insurance commitment and policy shall be paid by FCWC and PUI.

(D) Marketable title shall be determined according to applicable Title Standards adopted by authority of The Florida Bar and in accordance with law. If the title commitment

reflects title exceptions other than those shown on the schedule attached hereto as Appendix **[O]**, the GUA shall thereafter by March 19, 1999, notify FCWC and PUI in writing specifying the defects. If the defects are other than the Permitted Exceptions, FCWC and PUI shall, time permitting, have no more than 15 days from receipt of notice within which to remove the defects, failing which the GUA shall have the option of either (1) waiving this condition precedent to Closing or (2) canceling this Agreement, thereupon the GUA and FCWC and PUI shall have no liability and no further obligations to each other under this Agreement. Nothing shall obligate FCWC or PUI to expend monies to remove such defects.

(E) FCWC and PUI have ordered a search of the Official Records of Brevard County, Collier County, Hillsborough County, Lee County, Osceola County, Polk County, and Sarasota County, Florida and the records of the Secretary of State for uniform commercial code financing statements evidencing a secured interest in the Purchased Assets other than the real property. Such search shall be the FCWC and PUI's expense. Time permitting, the results of such a search shall be delivered to the GUA not less than 5 days prior to Closing. Any secured interests in the Purchased Assets other than Permitted Exceptions and those relating to real property must be paid off, released or terminated at FCWC and PUI's expense. In the event such secured interests in the Purchased Assets other than Permitted Exceptions and those relating to real property are not paid off, released or terminated at or prior to Closing, the GUA shall have the option of either (1) waiving this condition precedent to Closing or (2) canceling this Agreement, thereupon the GUA and FCWC and PUI shall have no liability and no further obligation to each other under this Agreement.

SECTION 4.10. REGULATORY COMPLIANCE. To the extent that FCWC and PUI have any regulatory rate relief proceedings pending before the Florida Public Service Commission or other county regulatory authority at the time of Closing, all financial responsibility or liability for any rate relief, refund or other obligations imposed by the Florida Public Service Commission or other county regulatory authority shall remain with FCWC and PUI after Closing, and shall expressly not be assumed by the GUA, including specifically the proceedings pending before the Florida Public Service Commission, Docket No. 950387-SU, on the application for a rate increase for the North Ft. Myers Division in Lee County.

SECTION 4.11. TRANSFER OF PERMITS. Within 5 days after execution of this Agreement, FCWC and PUI shall commence all requisite action to notify, apply for and seek the transfer of the permits and governmental approvals described in Appendix **[E]** hereof, including, but not limited to the procedures referenced in Rule 62-4.120, Florida Administrative Code (1990), 40 C.F.R. ' 122.63(d) (1998) and 47 C.F.R. ' 73 (1998) and shall use all reasonable efforts to obtain the transfer of such permits. The GUA shall timely cooperate and provide all reasonably necessary assistance in this endeavor, including, but not limited to, execution at Closing of the permit transfer applications prepared by FCWC and PUI. Upon Closing, the GUA shall assume all obligations under the permits and governmental approvals necessary for the continued operation of the Utility System. The GUA acknowledges that the transfer of permits cannot be effectuated until after the Closing of this Agreement, and as such shall constitute a post-closing obligation of the parties until completed.

SECTION 4.12. DEADLINE TO CLOSE AND DISBURSE. Notwithstanding any other provision in this Agreement, if the Closing and disbursement to FCWC and PUI of the Purchase Price, subject to the terms, adjustments and prorations as provided herein, does not occur on or before April 16, 1999, then FCWC and PUI shall have the option of (1) waiving this condition precedent to closing or (2) canceling this Agreement, thereupon the GUA and FCWC and PUI shall have no liability and no further obligations to each other under this Agreement.

ARTICLE V

CLOSING PROCEDURES

SECTION 5.01. CLOSING DATE AND PLACE. The closing shall be held at such place or offices and on such date on or before April 16, 1999, as mutually agreed among the parties (the "Closing").

SECTION 5.02. DOCUMENTS FOR THE CLOSING.

(A) At Closing, FCWC and PUI shall furnish at Closing a certificate reaffirming FCWC and PUI's representations and warranties as set forth in this Agreement up to the date of Closing and shall furnish a release of documents from the Escrow Closing.

(B) At Closing, the GUA shall furnish the closing statement, a certificate reaffirming the GUA's representations and warranties under this Agreement up to the date of Closing and shall furnish a release of documents from the Escrow Closing.

(C) From time to time after Closing, each party hereto shall, upon request of the other, execute, acknowledge and deliver, or shall cause to be executed, acknowledged and delivered, all such further acts, deeds, assignments, transfers or other documentation for (1) confirming or correcting title in the name of the GUA or perfecting possession by the GUA of any or all of the Purchased Assets, including the establishment of record of Easements without resort to litigation, expenditure of monies or other extraordinary means, for all water and wastewater utility facilities and appurtenances which are a part of the Utility System and in existence or use at the time of closing, or (2) otherwise fulfilling the obligations of the parties hereunder.

SECTION 5.03. RECORDING FEES AND DOCUMENTARY TAXES.

(A) Recording fees to record the deed and any other instruments necessary to deliver title to the GUA shall be paid by the GUA.

(B) The Purchased Assets are being purchased by the GUA for public purposes in lieu of eminent domain and condemnation by Brevard County, Collier County, Hillsborough County, Lee County, Osceola County, Polk County, or Sarasota County, Florida, and therefore this transaction is immune from documentary stamp tax in accordance with the ruling in Department of Revenue v. Orange County, 605 So. 2d 1333 (Fla. 5th DCA 1992), approved 620 So. 2d 991 (Fla. 1993). The purchase price being given by the GUA hereunder constitutes the total consideration to be paid or given by the GUA in connection with the acquisition of the Purchased Assets.

SECTION 5.04. PROPERTY TAXES. FCWC and PUI shall be required to escrow with the Tax Collector of Brevard County, Collier County, Hillsborough County, Lee County, Osceola County, Polk County, and Sarasota County, Florida an amount equal to the current ad valorem taxes, prorated through the date of closing in accordance with section 196.295, Florida Statutes. The GUA shall cooperate with FCWC and PUI in their effort to recover any taxes paid in excess of that due through the date of closing. However, in no event, shall the GUA be responsible for any ad valorem taxes (real or personal) for the current year, which are not cancelled after the date of closing.

SECTION 5.05. ACCOUNTS RECEIVABLE, UNBILLED REVENUES, DEPOSITS.

(A) At Closing, the accounts receivable and unbilled revenues due FCWC and PUI in the following amounts shall be credited to FCWC and PUI as additional Purchase Price:

1.	Golden Gate	$350,000;
2.	Barefoot Bay	$260,000;
3.	Carrollwood	$120,000;
4.	Sarasota	$545,000; and
5.	Poinciana	$400,000.

B. At Closing, credit shall be given to the GUA for the liabilities assumed for customer deposits, including any interest due thereon through the date of Closing, and the water management charges held by FCWC for the Carrollwood System pursuant to the Carrollwood System water tariff, in the following amounts:

1.	Golden Gate System	$186,000;
2.	Barefoot Bay System	$61,000;
3.	Carrollwood System	$35,000;
4.	Sarasota System	$173,000;
5.	Poinciana System	$251,000; and
6.	Ft. Myers System	$830,000.

The credits in subsections (A) and (B) collectively shall be referred to as the "Accounts Receivable Adjustment."

(C) With respect to the Ft. Myers System, the accounts receivable, whether bill or unbilled, due FCWC, including those amounts guaranteed under prior agreements with certain developers, for which services were provided prior to the date of Closing shall remain FCWC's sole and separate property with no claim of the GUA therefore and FCWC shall be solely responsible for collecting and retaining all such accounts receivable. The following estimates will be utilized for the purposes of this subsection: billed accounts receivable of $900,000.00 and unbilled accounts receivable of $885,000.00. The GUA will assist FCWC in collecting such accounts receivable by hereby authorizing AUSI under the Lee County System Operations and Maintenance Contract to assume collection of FCWC accounts receivable payments in accordance to the following schedule:

(1) From the first payments received on accounts receivable during the first 30 day period subsequent to the date of Closing, AUSI is authorized to transfer $855,000.00 to FCWC, which is equal to 95% of the estimated billed accounts receivable.

(2) From the first payments received on accounts receivable during the second 30 day period subsequent to the date of Closing, AUSI is authorized to transfer $881,250.00 to FCWC which is equal to 4.5% of the estimated billed accounts receivable plus 95% of the estimated unbilled accounts receivable.

(3) From the first payments received on accounts receivable during the third 30 day period subsequent to the date of Closing, AUSI is authorized to transfer $39,825.00 to FCWC which is equal to 4.5% of the estimated unbilled accounts receivable.

(D) Upon Closing, except as provided in subsection 5.05 (B) above, the GUA shall be entitled to all revenue collected and derived from the Utility System and Purchased Assets from

that date forward. At Closing, FCWC and PUI shall assign to the GUA all interest in any accounts receivable and unbilled revenue, except as provided in subsection 5.05 (B) above, and GUA shall assume all liabilities for customer deposits and Carrollwood System water management charges.

SECTION 5.06. CONNECTION CHARGES.

(A) Sums collected by FCWC and PUI in the ordinary course of business for connection charges, including capacity and deferred standby fees, up to and including December 18, 1998, shall remain FCWC and PUI's sole and separate property with no claim of the GUA therefore. FCWC and PUI shall not solicit, encourage or take any action to materially increase or advance physical connection to the Utility System and payment of connection or other similar capacity or deferred standby fees prior to Closing subsequent to December 18, 1998.

(B) Sums collected by FCWC and PUI in the ordinary course of business for connection charges, including capacity and deferred standby fees, after December 18, 1998, and up to the date of Closing shall remain FCWC and PUI's sole and separate property with no claim of the GUA therefore to the extent that such connections are physically connected to the Utility System prior to Closing. To the extent such connections are not physically connected to the Utility Systems prior to Closing, then FCWC and PUI shall transfer the connection charges for such connections to the GUA at Closing.

(C) All sums collected from and after the date of Closing relative to the use of, or connection to, the Utility System shall be paid to the GUA, with no claim of FCWC and PUI therefor.

SECTION 5.07. PROFESSIONAL FEES; COSTS.

(A) Each party shall be responsible for securing its own counsel for representation in connection with the negotiation of this Agreement, and all other matters associated with performance, cancellation or closing hereunder; unless otherwise specified herein, and each party shall be responsible for the payment of the fees of its own attorneys, bankers, engineers, accountants, and other professional advisors or consultants in connection therewith.

(B) In any litigation arising out of this Agreement, the prevailing party in such litigation shall be entitled to recover reasonable attorney's fees and costs at all judicial levels.

SECTION 5.08. RISK OF LOSS. At all times prior to and through the time of Closing, FCWC and PUI shall maintain adequate fire and extended insurance coverage for the cost of any repairs to the Purchased Assets that may be required by casualty damage. The risk of loss during the said period of time shall fall upon FCWC and PUI. The risk of loss shall pass to the GUA at Closing.

SECTION 5.09. PROCEEDS OF SALE; CLOSING PROCEDURE.

(A) FCWC and PUI and GUA shall execute and place all documents necessary to close in escrow prior to GUA closing the issuance of the Bonds to pay the Purchase Price (the "Escrow Closing"). At the Escrow Closing, the parties shall execute and enter into a document Escrow Closing Agreement in substantially the form attached as Appendix **[R]** to this Agreement; and FCWC and PUI shall furnish a non-foreign affidavit, a no-lien affidavit, a "gap" affidavit, the special warranty deed, and the bill of sale, all in substantially the form attached as Appendix P to this Agreement. FCWC and PUI shall also furnish at the Escrow Closing any necessary assignments, estoppel letters, releases, satisfactions, terminations and any corrective instruments,

and enter into a Transfer, Assignment and Assumption Agreement in substantially the form attached as Appendix **[Q]** to this Agreement. GUA shall also enter into at the Escrow Closing the Transfer, Assignment and Assumption Agreements, the Utility Operating Agreements and the Poinciana Water and Wastewater Facility Extension and Capacity Expansion Agreement in substantially the forms attached as Appendices **[Q]**, **[S]** and **[T]**. At the Escrow Closing, AUSI shall enter into the Utility Operating Agreements for each operating System and Avatar Properties Inc. shall enter into the Water and Wastewater Facility Extension Capacity Expansion Agreement for the Poinciana System in substantially the form attached as Appendix **[S]** and **[T]** to this Agreement.

(B) In order to secure title insurance coverage against the existence of material adverse matters recorded during the period of time between the effective date of the title insurance commitment and the date of recording of the documents creating the estate to be insured, FCWC and PUI and the GUA agree that the escrow agent for the Escrow Closing may also be the title insurer, or the title insurer's agent, selected by FCWC and PUI to issue the owner's title insurance policy insuring the real property identified in Appendix **[A]** of this Agreement.

(C) The parties shall execute or cause to be executed and tender the following documents effecting the transfer of the Purchased Assets to the GUA at the Closing; these documents shall be in final form, together with any exhibits or appendices thereto:

(1) Special warranty deed for the conveyance of all real property to be conveyed hereunder;

(2) Conveyance instruments for all Easements set forth in Appendix **[B]**;

(3) The Transfer, Assignment and Assumption Agreement covering all other interests in the Purchased Assets, together with a general assignment of all contracts, agreements, permits and approvals in substantially the form attached as Appendix **[Q]** to this Agreement;

(4) Bill of Sale or other documents of assignment and transfer, with full warranties of title, to all Purchased Assets, other than the property set forth in Appendix **[A]** and Appendix **[B]**;

(5) A Florida Department of Revenue Form DR-219 completed and executed by FCWC and PUI in a manner satisfactory to the GUA;

(6) Any affidavits, certificates, estoppel certificates, corrective instruments, releases, satisfactions or terminations necessary to close including but not limited to those instruments identified by the title insurer insuring the real property set forth in Appendix **[A]**; and

(7) The Utility Operating Agreements for each System, and the Poinciana System Water and Wastewater Facilities Extension and Capacity Expansion Agreement, in substantially the forms attached hereto as Appendices **[S]** and **[T]**.

(D) FCWC and PUI each acknowledge that the GUA will issue the Bonds to generate proceeds to pay the Purchase Price as described in Section 3.03 hereof. Therefore, all closing procedures shall be subject to the customary and reasonable requirements of the underwriter selected by the GUA, the purchasers of the revenue bonds or the provider of any interim financing. The disbursement of proceeds shall be at the direction of the title insurer, or its agent, in order to secure coverage against material adverse matters or defects in title which are recorded during the period of time between the effective date of the title insurance commitment and the date of recording of the document creating the estate or interest to be insured.

(E) Within 90 days after Closing, upon written request by the GUA, FCWC and PUI shall reconcile any accounts receivable, unbilled revenues, customer deposits or other charges not otherwise considered or accounted for at the time of the Escrow Closing. Within 90 days after Closing, upon written request by FCWC and PUI, the GUA shall reconcile any accounts receivables, unbilled revenue, customer deposits or other charges not otherwise considered or accounted for at the time of the Escrow Closing. Any amounts determined due from a party as a result of the reconciliation process shall be paid within 120 days after the Closing. The amount due shall be the amount by which the reconciled accounts receivable, unbilled revenues, customer deposits and water management charges vary from the amounts paid pursuant to Section 5.05.

ARTICLE VI

GENERAL PROVISIONS

SECTION 6.01. RIGHT TO ENTER. Prior to Closing, the GUA shall have the right, at any reasonable time during normal business hours with prior notice to FCWC and PUI, to enter upon FCWC and PUI's property to inspect the Utility System and the Purchased Assets, to familiarize itself with day-to-day operations, to review the operational practices of FCWC and PUI, and to ensure compliance with any and all federal and state regulatory requirements; provided, however, that such access shall not be had or done in any such manner so as to unreasonably interfere with the normal conduct of the Utility System and Purchased Assets.

SECTION 6.02. CONDUCT BETWEEN EXECUTION AND CLOSING.

(A) After the date of execution of this Agreement until the Closing, FCWC and PUI shall continue to provide water and wastewater treatment to its current customers in the ordinary and usual manner.

(B) After the date of execution of this Agreement until the Closing, FCWC and PUI shall maintain the Utility System in the ordinary course of business, consistent with prior practice.

(C) After the date of the execution of this Agreement until the Closing, FCWC and PUI shall not, without prior written consent of the GUA, which shall not be unreasonably withheld or delayed, dispose of or encumber any of the Purchased Assets, with the exception of transactions occurring in the ordinary course of business.

(D) After the date of execution of the Agreement until the Closing, FCWC and PUI shall not, except in the ordinary course of business or as required by law, (1) enter into or modify any effluent reuse or disposal agreements affecting the Utility System, or (2) enter into or modify any developer, water, or wastewater service agreement affecting the Utility Systems, without the prior written consent of the GUA, which consent shall not be unreasonably withheld.

(E) After the date of execution of this Agreement until the date of Closing, FCWC and PUI will cooperate with the GUA in identifying Easements as provided in this Agreement.

SECTION 6.03. TIME IS OF THE ESSENCE. Time is of the essence in this Agreement. Time periods specified in this Agreement shall expire at midnight on the date stated unless the parties agree in writing to a different date or time. Any time period provided for herein which ends on Saturday, Sunday or a legal holiday shall extend to 5:00 p.m. on the next business day.

SECTION 6.04. APPLICABLE LAW; JURISDICTION AND VENUE.

(A) This Agreement shall be governed by and construed in accordance with the laws of the State of Florida.

(B) The parties to this Agreement expressly consent to the jurisdiction of and agree to suit in any court of general jurisdiction in the State of Florida, whether state, local or federal, and further agree that venue shall lie in Sarasota County, Florida.

SECTION 6.05. NOTICE.

(A) All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when hand delivered or mailed by registered or certified mail, postage prepaid, or by courier service, charges prepaid, to the parties at the following addresses:

To the GUA:
Government Services Group, Inc.
315 south Calhoun Street, Suite 860
Tallahassee, Florida 32301
Attention: Robert Sheets

with a copy to:
Nabors, Giblin & Nickerson, P.A.
Suite 800, 315 South Calhoun Street
Tallahassee, Florida 32301
Attention: Mark G. Lawson

To FCWC and PUI:
c/o Avatar Utilities, Inc.
4837 Swift Road, Suite 100
Sarasota, Florida 34231
Attention: Gerald S. Allen, P.E.

with a copy to:
Avatar Utilities, Inc.
201 Alhambra Circle, 12th Floor
Miami, Florida 33134
Attention: General Counsel

with a copy to:
Greenberg Traurig, P.A.
777 South Flagler Drive, Suite 300 East
West Palm Beach, Florida 33401
Attention: Phillip C. Gildan

(B) Any written notice given to one person in subsection (A) of this section shall also be copied and provided to all other persons identified in subsection (A).

(C) The parties may, by notice in writing given to the others, designate any future or different addresses to which the subsequent notices, certificates or other communications shall be sent. Any notice shall be deemed given on the date such notice is delivered by hand or by facsimile transmission or 5 days after the date mailed.

SECTION 6.06. ASSIGNMENT AND JOINDER.

(A) In accordance with this section, this Agreement and the transactions contemplated in this Agreement are severable. Provided all of the operating Systems which comprise the Utility System are purchased and sold as provided for in this Agreement, the rights, duties and obligations of the parties as to the individual operating Systems are assignable to the general purpose county government(s) in which each operating System is located, provided however, that any such assignments shall not be effective unless and until the assignee and the GUA have executed and delivered to FCWC and PUI an assignment and assumption agreement satisfactory to FCWC and PUI. In the event of such an assignment, all reference in this Agreement to the GUA shall mean and include the respective general purpose county government, unless the context requires otherwise.

(B) Except as expressly provided for in this Agreement, neither FCWC and PUI nor the GUA shall have the power or authority to assign this Agreement or any of their rights, duties or obligations hereunder to a third party and this Agreement shall be construed as solely for the benefit of the GUA and FCWC and PUI, and their successors by law, and no claim or cause of action shall accrue to or for the benefit of any other third party by reason hereof.

SECTION 6.07. AMENDMENTS AND WAIVERS. No amendment, supplement, modification or waiver of this Agreement shall be binding upon any party hereto

unless executed in writing by such party. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision of this Agreement, whether or not similar, unless otherwise expressly provided.

SECTION 6.08. ENTIRE AGREEMENT. This Agreement is the entire agreement between the parties and supersedes all prior and contemporaneous agreements, understandings, negotiations and discussions of the agreements, understandings, negotiations and discussions of the parties, whether oral or written, pertaining to the subject matter hereof, and there are not warranties, representations or other agreements between the parties in connection with the subject matter hereof, except as specifically set forth herein.

SECTION 6.09. PUBLIC ANNOUNCEMENTS. Neither the GUA nor any of its affiliates, employees or agents shall make any public statement, including, without limitation, any press release, with respect to this Agreement and the transactions contemplated in this Agreement, without the prior written consent of FCWC and PUI, which consent may not be unreasonably withheld or delayed, except as required by law.

SECTION 6.10. EFFECT OF TERMINATION. In the event of the termination of this Agreement in accordance with its terms, this Agreement shall then become void and have no effect, with no liability on the part of any of the parties to this Agreement or their affiliates, except that nothing shall relieve a party from liability for any breach of this Agreement.

IN WITNESS WHEREOF, the GUA and FCWC and PUI have caused this Agreement to be duly executed and entered into on the date first above written.

FLORIDA GOVERNMENTAL UTILITY AUTHORITY:

By: Leathum Thomas
Its: Chairman

Attest:

FLORIDA CITIES WATER COMPANY

By: Michael E. Murphy
Its: V. P.

Attest:

POINCIANA UTILITIES INC.

By: Michael E. Murphy
Its: V. P.

Attest: