Item No. 1/2

AGENDA ITEM REQUEST FORM

Municipal Services
Department Submitting Request

Don Prince & Pat Himelberger
Dept Head's Signature

REGULAR COMMISSION MTG Meeting Dates - 7:00 PM	DEADLINE TO Town Clerk	ROUNDTABLE MEETING Meeting Dates – 7:00 PM	DEADLINE TO Town Clerk
☐ April 27, 2011	April 15 (5:00 pm)	☐ April 12, 2011	April 1 (5:00 pm)
☐ May 24, 2011	May 13 (5:00 pm)	☐ May 10, 2011	April 29 (5:00 pm)
☒ June 28, 2011	June 10 (5:00 pm)	☐ June 14, 2011	June 3 (5:00 pm)
☐ July 26, 2011	July 15 (5:00 pm)	☐ July 12, 2011	July 1 (5:00 pm)

SUBJECT ☐ Presentation ☐ Reports ☒ Consent ☐ Ordinance ☐ Resolution ☐ Quasi Judicial ☐ Old Business ☐ New Business **TITLE:**

☒ **FY2011 DESIGNATED HIGH PRIORITY ITEM**
Sewer System

Selection of the Ranked Proposers to Provide Sanitary Sewer System Evaluation, Analysis and Engineering Services

EXPLANATION: The Town issued an RFP to select an engineering firm or firms to enter into a continuing contract(s) to provide professional services to the Town for evaluation, analysis, and engineering services of and for the Town's sanitary sewer system. Professional services under these contracts are for three year initial terms and an option for up to two one-year extensions as agreed to by Consultant and the Town. These proposals were solicited by RFP so, over the term of the contract, services and related design may exceed $200,000 in study costs and/or $2,000,000 in total project costs, but no single project can exceed $200,000 in study costs and/or $2,000,000 in construction costs.

The main reason we issued this RFP was to select a firm(s) to evaluate the overall condition of the Town's wastewater system components. In addition, the RFP provided that we might also use this firm or firms to: identify capital repairs and replacements projects that are needed to be done, create a recommended time frame for those projects based on the projected useful life of the current infrastructure, and provide a preliminary cost estimate by project. Additionally, the RFP included:

- prepare bidding/construction documents for sanitary sewer system capital repair and replacement projects, assist in evaluating bids and making bid award recommendations for construction contract(s).
- provide engineering, management, administration and inspection services for projects.

An evaluation committee consisting of Don Prince, LBTS Municipal Services Director, Paul Bohlander, Fort Lauderdale Assistant Utilities Services Director and Steve Almyda, Pompano Beach's Wastewater Collection Supervisor met on June 2, 2011 to rank the proposals. Pat Himelberger acted as Purchasing Administrator. The Town received proposals from nine firms: Craven Thompson & Assoc.Inc.; GAI Consultants, Inc; Flynn Engineering Services, PA; Keith & Schnars; Chen & Assoc.; Eckler Engineering Assoc. Inc; King Engineering Assoc., Inc.; Craig A. Smith Associates; Mathews Consulting. Although varied in size, all firms proposed qualified engineers and staffing to provide the scope of services as requested although there were differences in the size and numbers of similar jobs previously completed. The Committee asked that the following four firms make presentations to assist them with ranking.

Item No. _____

AGENDA ITEM REQUEST FORM

Municipal Services
Department Submitting Request

Don Prince & Pat Himelberger
Dept Head's Signature

Craven Thompson & Associates
GAI Consultants, Inc.
King Engineering Associates, Inc.
Chen Moore

On June 14, 2011 the firms made their presentations at Jarvis Hall and the Committee had the opportunity to question them. Following the presentation, the Committee discussed the firms and ranked the top three as King Engineering, Inc., GAI Consultants, Inc. and Chen Moore and Associates. Staff followed up with reference checks. Minutes of both meetings are attached.

Table 1- Ranking

Ranking	Firm	Location
1	King Engineering Associates, Inc.	Doral
2	GAI Consultants, Inc.	Boca Raton
3	Chen Moore and Associates	Fort Lauderdale

Recommendation: We recommend the Commission approve the ranking of the proposers and authorize the Town Manager to enter into continuing contracts with number one and two ranked firms, King Engineering Associates, Inc. and GAI Consultants, Inc. Any work orders to be issued under these contracts valued in excess of $15,000.00 will require Commission approval.

EXHIBITS: Minutes from Selection Committees Meetings
Proposals from three top ranked firms.

Reviewed by Town Attorney
☐ Yes ☐ No

Town Manager Initials _____

EXHIBIT A:

MINUTES FROM
SELECTION COMMITTEE MEETINGS

TOWN OF LAUDERDALE-BY-THE-SEA
SELECTION COMMITTEE MEETING MINUTES

Jarvis Hall
4505 Ocean Drive
Thursday, June 2, 2011- 10:00 am

The Selection Committee meeting for RFP 11-04-02 Sanitary System Evaluation, Analysis and Engineering Services convened at 10:00 am at Jarvis Hall. Present were Don Prince, LBTS Municipal Services Director, Paul Bohlander, Ft. Laud. Assistant Utility Services Director, Steve Almyda, Pompano Beach Wastewater Collection Supervisor. Pat Himelberger, acting as Purchasing Admin for the RFP was also present. No members of the public were present. The members of the committee were appointed by Bud Bentley, Acting Town Manager.

The following firms submitted proposals: GAI Consultants, Inc.; Craven Thompson & Associates, Inc.; Flynn Engineering Services, PA; Keith & Schnars; Chen & Associates; Eckler Engineering Associates, Inc.; King Engineering Associates, Inc.; Craig A. Smith Associates; Mathews Consulting.

The members summarized their reviews of the submissions and due to the number of highly qualified proposals, the committee requested that four of the firms be asked to give 20 minute presentations, at a time to be arranged by Ms. Himelberger.

The four firms chosen to give presentations in no particular order are:

Craven Thompson & Associates, Inc.
Chen & Associates
King Engineering Associates, Inc.
GAI Consultants

The firms will be asked to include the following in their presentations:

1. Relevant experience of the assigned project team;
    a. Does the team include PACP(Pipeline Assessment Certification Program & MACP(Manhole Assessment Certification Program) certifications
2. Grant writing experience, successful awards
3. Project Timeline
4. List of relevant projects, size of projects ($), completion dates

The meeting adjourned at 11:15 am.

The Committee will meet and rank the firms following the presentations with a recommendation to the Commission at the June 28, 2011 meeting.

Pat Himelberger

Pat Himelberger, Acting Purchasing Administrator

TOWN OF LAUDERDALE-BY-THE-SEA
SELECTION COMMITTEE MEETING MINUTES

Jarvis Hall
4505 Ocean Drive
Tuesday, June 14th at 9:00 am

The Selection Committee meeting for RFP 11-04-02 Sanitary System Evaluation, Analysis and Engineering Services convened at 9:00 am at Jarvis Hall. Present were Don Prince, LBTS Municipal Services Director, Paul Bohlander, Ft. Laud. Assistant Utility Services Director, Steve Almyda, Pompano Beach Wastewater Collection Supervisor. Pat Himelberger, acting as Purchasing Admin for the RFP was also present.

The purpose of the meeting was to view presentations from four firms previously selected at the June 2, 2001 RFP Selection Committee Meeting.

The four firms presented as follows:

Chen Moore & Associates	9:00 AM
Craven Thompson &Associates	9:45 AM
GAI Consultants	10:30 AM
King Engineering Associates, Inc.	11:15 AM

The firms were asked to include the following in their 20 minute presentations:

1. Relevant experience of the assigned project team;
    a. Does the team include PACP(Pipeline Assessment Certification Program & MACP(Manhole Assessment Certification Program) certifications
2. Grant writing experience, successful awards
3. Project Timeline
4. List of relevant projects, size of projects ($), completion dates

The Committee listened to the presentations and though all firms were highly qualified, they were ranked as follows:

1. King Engineering Associates, Inc.
2. GIA Consultants
3. Chen Moore and Associates
4. Craven Thompson & Associates

The meeting adjourned at 12:15 PM.

Pat Himelberger

Pat Himelberger, Acting as Purchasing Administrator

EXHIBIT B:

PROPOSALS FROM

THREE TOP RANKED FIRMS

King
ENGINEERING ASSOCIATES, INC.

SERVICES
Civil Engineering
Environmental Engineering
Transportation Planning & Engineering
Pavement Management
Land Planning
Ecological Services
Surveying & Mapping
Construction Management
GIS Mapping
Landscape Architecture
(FL #LC26000183)

OFFICE LOCATIONS

FLORIDA
Jacksonville
Miami
Sarasota
Tampa

TEXAS
Austin
Dallas

8390 NW 53rd Street
Suite 200
Doral, Florida 33166

305.392.9979 phone
305.392.9912 fax

www.kingengineering.com

May 19, 2011

Town of Lauderdale-By-The-Sea
Town Clerk
4510 Ocean Drive
Lauderdale-By-The-Sea, Florida 33308

Subject: RFQ 11-04-02 – Sanitary Sewer Evaluation, Analysis and Engineering Services

Dear Selection Committee Members:

King Engineering Associates, Inc. (King) is pleased to submit this proposal to provide professional engineering services to the Town for the evaluation, analysis, and repair of the Town's sanitary sewer system. King is committed to professional excellence, providing clients with exceptional, innovative and cost-effective engineering services. King personnel are uniquely qualified to assist the Town with all phases of the scope of work, as follows:

- **Reviewing the Town's video documentation of the sewer system**
- **Reviewing Reports of Town-owned Manholes**
- **Evaluating wastewater flow meter at the Seagrape lift station**
- **Inspection of Town's two pump stations**
- **Inflow/Infiltration Determination**
- **Identifying Capital Repairs and Replacements Projects**
- **Estimating Future Flow Rates/Hydraulic Sewer Model Development**
- **Grant Assistance**
- **Preparing Preliminary / Feasibility Design Reports**
- **Project Scheduling / Phasing**
- **Preparing Bidding/Construction Documents**
- **Attending Pre-design, Design, Bidding and Award Meetings**
- **Providing Engineering, Construction Management, Administration and Inspection Services**
- **Proving Project- Close out Services**
- **Presentations**
- **Project Management**
- **Others as required by the Town**

Our engineering team has performed well on similar contracts and engineering projects that require advanced knowledge in Sanitary Sewer Evaluation Survey (SSES), Pump Station Analysis, design and Construction, I/I Studies, Grant Assistance, Hydraulic Model and Engineering services. Specifically, King recently completed the MDWASD's City of Miami Springs, Florida SSES project which is very similar to the Town's. In addition, our project manager, Franklin A Torrealba, P.E., has work for MDWASD's $17M Comprehensive Lateral Investigation Program (CLIP), MDWASD's $240 Million Pump Station Improvement Program, and MDWASD's $2.5 Million Wastewater Hydraulic Computer Model.

Therefore, he is extremely familiar with all the required analysis, such as I&I determination, and Rain Dependent Inflow/Infiltration (RDII). Our team has the advantage to be able to perform all the required services extremely well, with no learning curve, and hit the ground floor running, in a very cost effective manner.

We are aware of the importance of being responsive, cost-effective, and innovative. To that end, we have assembled a team with the following characteristics:

- **Highly Qualified** – The team offers a wide range of capabilities and expertise and is capable of addressing all the needs and requirements of the Town, large or small, in all the required disciplines of SSES/Pump Station/Force Main/Gravity Sewer/Modeling.
- **Local Proven Team** – Key members of the team have worked successfully together in the completion of similar assignments within Broward County and are very familiar with the local wastewater/water systems, infrastructure, field conditions/characteristics, design standards, construction methods, agencies and permitting requirements.
- **Responsive/Local Offices** – the work will be performed in our Doral office, located less than one hour from the Town.
- **Cost-effective** – Having completed numerous similar projects within Miami-Dade and South Florida, this team is well positioned to deliver efficient and cost-effective services.
- **Innovative** – This team has implemented innovative practices in the areas of wastewater in South Florida and can bring a fresh perspective to addressing the issues facing the.
- **Local permitting experience** - includes the Broward County EPD, Florida DEP, FDOT, and the US EPA.
- **Funding track record – Grant Funding** – we bring a commitment to enhance value in every project that we undertake by seeking opportunities to attract governmental funding from local, State and Federal Sources.

The following personnel are authorized to make representations on behalf of King:

Agustin E. Maristany, PE, VP	8390 NW 53 Street, Suite 200 Doral Fl 33166	305-392-9979
Franklin A. Torrealba, PE, Eng Mgr	8390 NW 53 Street, Suite 200 Doral Fl 33166	305-392-9979
Chris F. Kuzler, PE, SVP	8390 NW 53 Street, Suite 200 Doral Fl 33166	305-392-9979

We are confident on our team's ability to bring a fresh perspective and cost-effective, innovative approaches to insure the Town's sewer system is maintained and operated in an efficient and cost effective manner. We are committed to providing exceptional service to the Town.

We appreciate the opportunity to present our qualifications for your consideration and look forward to meeting with you at a future time.

Sincerely,

A. Maristany

Agustin E. Maristany, PE
Vice President

Statement of Qualifications for
The Town of Lauderdale-By-The-Sea

Sanitary Sewer System Evaluation, Analysis and Engineering Services
RFQ #11-04-02

Dated: May 19, 2011

Submitted By:

King
ENGINEERING ASSOCIATES, INC.

King Engineering Associates, Inc.
8390 NW 53rd Street
Suite 200
Doral, Florida 33166
Phone 305-392-9979
Fax 305-392-9912

Contact Person:
Agustin Maristany, PE
Vice President
amaristany@kingengineering.com

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King History and Background

King, established in 1977, is a Florida-based corporation licensed to provide multi-discipline professional engineering services per State of Florida certification number #2610. King is also licensed by the State of Florida to provide surveying and landscape architecture services under license numbers LB2610 and LC26000183, respectively. Over the last 33 years, King Engineering Associates has applied its talents and resources to the implementation of innovative engineering projects. What began as a small engineering firm has grown into a **full-service, employee-owned firm** with expertise in engineering, planning, ecological services, surveying, and construction management. With four offices in Florida and two in Texas, King's success is reflected in our work and our client's loyalty. King is able to provide you with a cohesive multi-disciplinary team that understands every aspect of your project, and is committed to delivering to your satisfaction. **King provides engineering, planning, ecological and surveying services for civil, transportation, water resources, water/wastewater/reclaimed water related projects, and sanitary sewer evaluation survey (SSES).**

Tax Status: FL Corp. 59-1782900

Years in Business: 33 Years

Owners:

Keith Appenzeller, PE
Thomas O'Connor, PE
Christopher Kuzler, PE
Michael Ross, PE
Scott Sheridan, RLA
Agustin Maristany, PE
Denise Greer, PE
William Moriarty, PE
Aaron Googins, PE
James Orchard, CPA
Lara Bartholomew, PE
Sandra Gorman, PE
William Holloway, PE
Larry Kistler
Kevin LeBlanc
John Seals, PE
Loc Truong, PE
Brian Skidmore
Franklin Torrealba, PE
Thomas Traina, PE
Tuyen Tran, PE
Peter Zent

Principals / Officers / Board of Directors:

CEO/Chairman: Keith Appenzeller, PE
President: Thomas O'Connor, PE
Sr. Vice President: Christopher Kuzler, PE
Sr. Vice President: Michael Ross, PE
Sr. Vice President: Scott Sheridan, RLA
Vice President: Agustin Maristany, PE
Vice President: Denise Greer, PE
Vice President: William Moriarty, PE
Vice President: Aaron Googins, PE
Chief Financial Officer: James Orchard, CPA

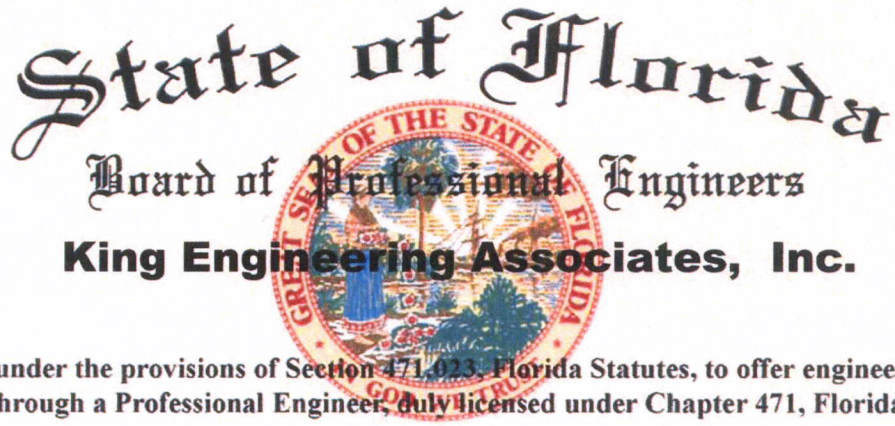
Primary Markets Served:
Local Municipal Governments
Water Management Districts
State Agencies
Private Developers

Professional Employees by Classification:
Engineers: 43
Planners: 10
Landscape Architects: 2
Scientists: 4
Surveyors: 8

Total Number of Employees: 86

Licenses and Registrations

Florida Professional Engineering


State of Florida
Board of Professional Engineers
King Engineering Associates, Inc.
Is authorized under the provisions of Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes.

Certificate of Authorization

EXPIRATION: 2/28/2013
AUDIT NO: 228201303063

CA. LIC. NO: 2610

Florida Corporate Certificate

State of Florida
Department of State

I certify from the records of this office that KING ENGINEERING ASSOCIATES, INC. is a corporation organized under the laws of the State of Florida, filed on December 19, 1977.

The document number of this corporation is 555540.

I further certify that said corporation has paid all fees due this office through December 31, 2011, that its most recent annual report was filed on January 7, 2011, and its status is active.

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

Given under my hand and the Great Seal of Florida, at Tallahassee, the Capital, this the Eighth day of January, 2011

Jennifer Kennedy

Secretary of State

Authentication ID: **300190363643-010811-555540**

To authenticate this certificate,visit the following site, enter this ID, and then follow the instructions displayed.
https://efile.sunbiz.org/certauthver.html

Environmental Engineering (water, wastewater and reclaimed water) Project Experience:

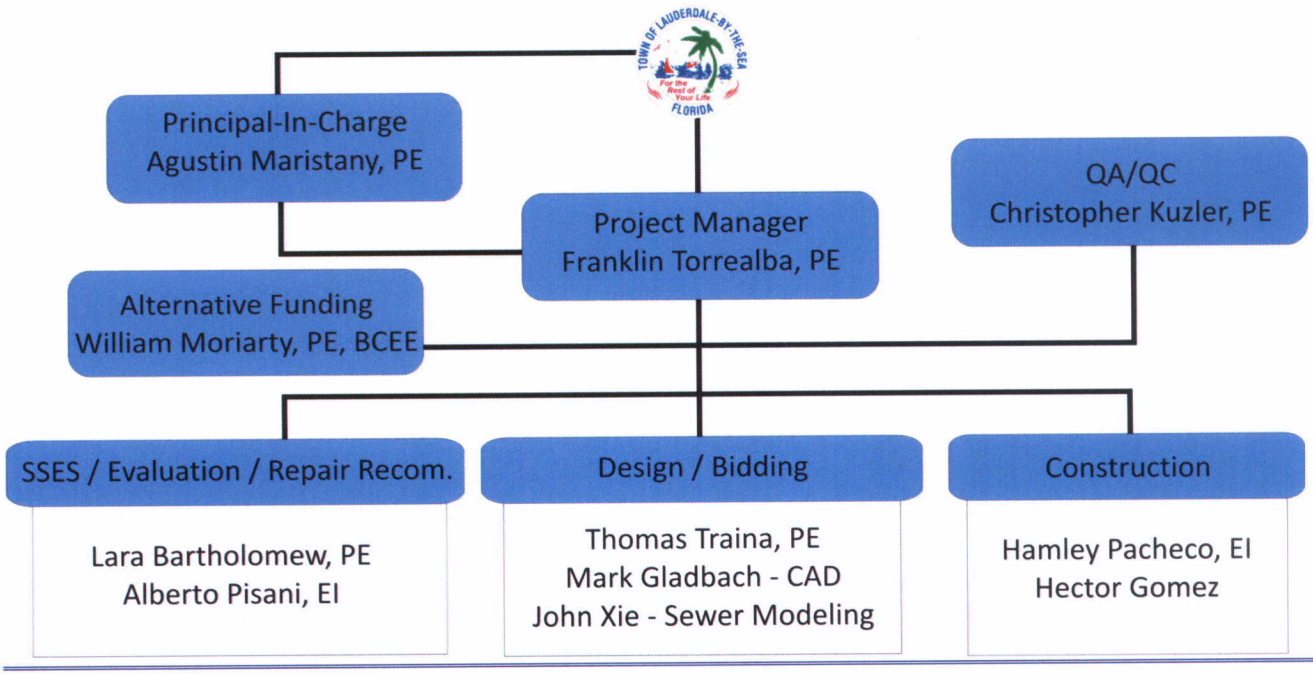
Water supply, wastewater treatment, effluent disposal and reclaimed water reuse have become and will continue to be critical issues for Florida. Tighter environmental regulations are requiring municipalities to implement more innovative treatment methods to maintain compliance. At the same time, population growth is demanding that the capacities of municipalities' facilities increase and that distribution and collection systems extend to provide service. King's staff of environmental engineers work diligently with clients to design, permit and construct treatment systems and solid waste systems that address the needs of the latest regulatory developments.

KING recently completed (January 2011) the SSES services for Miami-Dade County Water Sewer Department within the City of Miami Springs, Florida and has the knowledge and experienced personnel ready to start immediately on the efficient implementation of this project for the Town. In addition, we have done numerous SSES projects and Pump Station evaluation and design, and I/I studies.

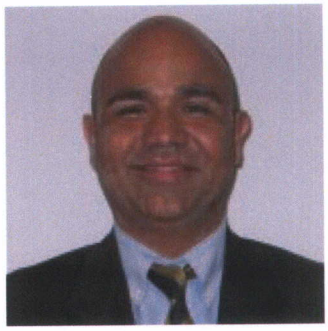
In addition to treatment systems, our staff has extensive utility planning, design and construction experience for more than **300 miles of utility mains, numerous pump stations and utility relocations in the past 5 years.** These projects range from 2-inch water main replacements to 24-inch reclaimed water mains, 36-inch force mains and 36-inch potable water transmission mains. We also have unparalleled experience with the design of reclaimed water distribution systems having designed ±30 systems for the City of Dunedin, 5 systems for the City of Largo, a ±23 mile reclaimed water distribution system throughout north Pinellas County, ±25 miles of 24" transmission mains in Pasco County.

We are familiar with and able to address important issues that affect local communities and businesses the including how to minimize disruption to residents and businesses, water service down time, traffic congestion, and other utility disruptions.

Organizational Chart



Key Team Members



Franklin Torrealba, PE
% of Time Contribution for this project: 60%

Mr. Torrealba will serve as King's Project Manager for this contract. Mr. Torrealba has managed over 500 projects from conception to completion in over the past 14 years, including sanitary sewer evaluation survey (SSES), water/wastewater facilities and gravity sewer system projects, water/sewer modeling and design, pump station evaluations, preliminary/feasibility design reports, permitting, trenchless technologies, and cost estimating. He has spearheaded the design of 185 miles of pipeline ranging from 8- to 144-inch in diameter, and the construction of 45 miles of pipelines ranging 8- to 36-inch in diameter. Mr. Torrealba has functioned in the capacity of Contract Manager, Deputy Program Manager/CM, Deputy Program Manager/Engineering Manager, Program Manager/CM and Project Manager for five of the largest MDWASD renewal, replacement and rehabilitation programs including the SDWWTP HLD, CLIP, PMT/PSIP, NAP, and the Government Cut D/B Criteria package. Under these programs, he cumulatively managed the design and construction of over 150,000 lf of water and sewer mains, 500 pump stations, managed 1700 deliverables, and satisfied all EPA consent decree settlement agreements and deadlines. In the process, he has assisted MDWASD in avoiding millions of dollars in potential penalties.

Mr. Torrealba has managed multiple projects which are critical and require special handling of stakeholders, public relations, multiple governmental entities, and environmental permitting combined with specialized technical requirements. He has earned the reputation as a leader having continually delivered projects on schedule and within budget at no sacrifice to quality and responsiveness. His profound experience and his dedication make him the optimal candidate to serve as project manager for the Town's Sanitary Sewer System Evaluation, Analysis and Engineering Services Project.

Following please find Mr. Torrealba's reason for selection:

- Recently completed the SSES for the City of Miami Springs, Florida (January 2011)
- Extensive knowledge of systems, procedures, needs and requirements
- Designed and managed many pipeline projects involving several trenchless technologies with water and land crossings
- 21 years of experience in engineering design, project management, and construction management for interdisciplinary projects
- Successfully managed many large infrastructure projects involving multiple permitting requirements and stakeholders
- Track record for delivering multidisciplinary key projects on time and within budget

Lara Bartholomew, PE
% of Time Contribution for this project: 50 %

Ms. Bartholomew, PE will serve as SSES/Evaluation/Repair Recommendation Engineering Lead for this Project. Ms. Bartholomew has fifteen years of experience as a civil engineer. Her experience includes sanitary sewer rehabilitation and extension projects, potable water, reclaimed water and sanitary master plan development, pipeline, lift station, well and septic projects, flood routing calculations and modeling, TMDL development, residential and commercial site design, design of large-scale mixed use developments and associated infrastructure, and presentation of public information to governing authorities as well as to the general public.

Ms. Bartholomew served as the Senior Project Engineer responsible for QC of the final evaluation report prepared in conjunction with the construction management and inspection of a portion of the Miami-Dade Water and Sewer Department's (MDWASD) wastewater collection system within the City of Miami Springs, Florida. The sanitary sewer collection system consists of approximately 46 miles of gravity pipes, 912 manholes, and 17 separate wastewater collection basins. The project included daily field inspections during the cleaning, video and visual inspections, and smoke testing.

Ms. Bartholomew was also the Project Manager for the Sanitary Sewer Rehabilitation Program (48-inch through 156-inch diameter) in Indianapolis, Indiana. She was responsible for overseeing plans, specifications and bid document development for large diameter sanitary sewer rehabilitation projects, ensuring projects are designed to bid on time, under budget, and meet the project objective. In addition, she reviewed condition assessment reports in order to identify project priority for CIP development and funding.

Ms. Bartholomew has used numerous software programs to assist with design and presentation of project information, including MicroStation, AutoCAD, ArcView, HEC-RAS, TR-20, TR-55, Ad.I.C.P.R., StormCAD, Hydraflow, CulvertMaster, FlowMaster, H_2ONet, H_2OMap, and Microsoft Office.

Thomas Traina, PE
% of Time Contribution for this project: 40%

Mr. Traina, P.E. will serve as the design engineering lead for this contract. For these services, Mr. Traina will draw upon his 30 years of consulting experience in environmental engineering on projects ranging from lift stations and pipelines to complex treatment and storage facilities. He has provided consulting engineering services on wastewater collection and treatment systems of various capacities, including some of the largest facilities in the world. He has provided services to clients in 10 states and Puerto Rico. He has over 20 years of project management experience involving all components of water, wastewater and reclaimed water.

Mr. Traina has been responsible for the design of over 100 miles of large diameter pipe (24"- 84" in diameter). Specifically, as Project Engineer for the Tampa Bay Desalination project, he assisted in the design of 15 miles of 42-inch transmission pipeline and ±2 miles of 54-inch seawater intake piping and 36-inch concrete discharge piping. Mr. Traina's recent relevant experience includes serving as Project Manager for the design, permitting, and construction of several transmission main projects, including three Central Pasco Water System pipelines

improvements projects. This project included 135,000 lf of 16-, 24- and 36-inch water mains and force mains, and a potable water booster station. The booster station includes a 5 MG ground storage tank, re-chlorination system, and 5 mgd high service pump station.

Hamley Pacheco, EI
% of Time Contribution for this project: 100 %

Mr. Pacheco will provide Construction Inspection Services for this contract. Mr. Pacheco is a **NAASCO Certified Inspector**. He served as a project engineer and field inspector for King's recently completed Miami Springs SSES project for Miami-Dade Water and Sewer Department. The sanitary sewer collection system consists of approximately 46 miles of gravity pipes, 912 manholes, and 17 separate wastewater collection basins. Mr. Pacheco performed daily field inspections during the cleaning, video and visual inspections, and smoke testing. These included:

- Verifying that CCTV inspections of the sewer system were collected thoroughly and consistently as per specifications.
- Identifying structural deficiencies and construction features in pipes, manholes, and lift stations requiring repair, rehabilitation or replacement.
- Assigning repair recommendations to defects following MDWASD standard protocols.
- Preparing invoicing summary, project monthly status and final reports including results of field investigations, records and related information with repair recommendations and cost estimate.
- Coordinating daily with Contractor, the owner, and the utility.

Team Member Similar Project Experience

Name Project Role	Review Inspection and provide Recommendations	Field Investigation Review	WW Flow Meter Evaluation	Lift Station Inspections	I/I Estimation	Identify Required Repairs	Hydraulic Modeling	Grant Funding Assistance	Preliminary Feasibility Design Report	Project Phasing	Preparation of Bidding/ Construction Documents	Bidding Assistance	CM/Adm/Inspection	Closeout Services	Public Meetings
Franklin Torrealba, PE Project Manager	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Agustin Maristany, PE Principal-In-Charge	X	X		X		X	X	X	X	X	X	X	X	X	X
Christopher Kuzler, PE QA/QC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
William Moriarty, PE Alternative Funding	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lara Bartholomew, PE SSES Lead	X	X		X	X	X	X		X	X	X	X	X	X	X
Thomas Traina, PE Design Lead	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hamley Pacheco, EI Construction Lead	X	X		X	X	X			X	X	X	X	X	X	
Alberto Pisani, EI SSES Engineer	X	X		X	X	X	X		X	X	X	X	X	X	
Mark Gladbach Sr. Designer, CAD		X		X					X	X	X				
John Xie, PE Sewer Modeling	X	X		X			X		X	X	X	X	X	X	
Hector Gomez Field Inspector	X	X		X	X	X			X		X	X	X		

Resumes of these Key Staff Members follow this page.

EDUCATION

MBA, Loyola University, New Orleans, 1991

BS Civil Engineering, University of New Orleans, 1986

PROFESSIONAL LICENSES

Professional Engineer Florida No. 56385

HIGHLIGHTS

Recently completed the SSES for the City of Miami Springs, Florida (January 2011)

Experience with Inflow/Infiltration Projects/Programs

Experience with water/wastewater hydraulic modeling and analysis

Has designed and analyzed multiple types of pump stations

Trenchless Technologies

Over 14 years of project management and design experience in South Florida

Completed more than 500 PS/FM/GS MDWASD projects from start to finish

Knowledgeable of local requirements

SUMMARY OF EXPERIENCE

Mr. Torrealba has 24 years of experience in the fields of program management, project management, design, construction management, procurement, and administration, including sanitary sewer evaluation survey (SSES), water/wastewater facilities and gravity sewer system projects, water/sewer modeling and design, pump station evaluations, preliminary/feasibility design reports, permitting, trenchless technologies, and cost estimating. He has spearheaded the design of 185 miles of pipeline ranging from 8- to 144-inch in diameter, and the construction of 45 miles of pipelines ranging 8- to 36-inch in diameter. Mr. Torrealba has functioned in the capacity of Contract Manager, Deputy Program Manager/CM, Deputy Program Manager/Engineering Manager, Program Manager/CM and Project Manager for five of the largest MDWASD renewal, replacement and rehabilitation programs including the SDWWTP HLD, CLIP, PMT/PSIP, NAP, and the Government Cut D/B Criteria package. Under these programs, he cumulatively managed the design and construction of over 150,000 lf of water and sewer mains, 500 pump stations, managed 1700 deliverables, and satisfied all EPA consent decree settlement agreements and deadlines. In the process, he has assisted MDWASD in avoiding millions of dollars in potential penalties.

Mr. Torrealba has managed multiple projects which are critical and require special handling of stakeholders, public relations, multiple governmental entities, and environmental permitting combined with specialized technical requirements. He has earned the reputation as a leader having continually delivered projects on schedule and within budget at no sacrifice to quality and responsiveness.

Mr. Torrealba's construction management experience includes in-field project coordination, supervising inspectors' activities, pre-construction conferences, regular site visits, shop drawing review, design modifications, testing and certification of materials, payment requests, contract administration, and acting as a liaison between the owner, contractor, and the engineer.

NOTEWORTHY PROJECTS

- **Miami-Dade Water and Sewer Department, Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer system within the City of Miami Springs, Florida** – Project manager for the sanitary sewer evaluation survey (SSES) which included construction management, field inspection, evaluation and recommendations for the "Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer system within the City of Miami Springs, Florida" Project. The sanitary sewer collection system consists of approximately 46 miles of gravity pipes, 925 manholes, and 17 separate wastewater collection basins. The Project Management/Administration services included monthly status reports to MDWASD throughout the project in order to monitor progress versus the project schedule. Inspection services included:
  - Monitored and documented the pipe cleaning and closed circuit TV (CCTV) inspection of the MDWASD sewer collection system by the Contractor for compliance with the project specifications.
  - Monitored and documented the inspection of the manholes and lift stations contained within the MDWASD sewer collection system by the Contractor for compliance with the project specifications.
  - Monitored and documented the smoke testing of the MDWASD sewer collection system by the Contractor for compliance with the contract specifications.
  - Documented and reported any discrepancies found on the MDWASD provided Sewer Atlas Maps on the Department's Atlas Correction Forms.

  Construction Management/Office Support Services included evaluation and reviewing the video inspection recordings and providing repair recommendations according to MDWASD's Repair Criteria and Technology Guidelines (Protocol). Provided contract management to perform planning, engineering, cost estimating, inspections, coordination with construction Managers, administrative, contractor invoicing, work issuances, document control, scheduling, public outreach, permitting, and construction activities.

- **Miami-Dade Water and Sewer Department, $17M Comprehensive Lateral Investigation Program (CLIP), Miami, Florida** - Deputy Program Manager for this two-year, $17 million pilot program, which evaluated the effectiveness and costs of repairing public and private sewer laterals to reduce wastewater peak flows during rain events. Provided contract management to perform planning, engineering, cost estimating, inspections, coordination with construction Managers, administrative, contractor invoicing, work issuances, document control,

staffing resources, scheduling, public outreach, permitting, and construction activities. From the 52 basins selected, a total of 6,972 work orders were issued with 6,312 laterals inspected and tested, and 1,222 laterals repaired. In addition, the SCADA system was utilized to estimate the pre-mainline repair, pre-CLIP and post-CLIP flows and determine the effectiveness of testing and replacing sewer laterals. Groundwater levels were also used to determine its effect on I/I.

- **Miami-Dade Water and Sewer Department, Wastewater Improvement Program, Miami, Florida** - Deputy Program Manager and assistant chief engineer of the program management team that managed a $1.0 billion wastewater system improvement program, with detailed management responsibility for the $240 million pump station improvement program. The program was created to achieve regulatory compliance by correcting a series of wastewater overflows to surface water. Provided program monitoring and reporting on a regular basis on the progress of more than 1,700 separate deliverables. The program included the upgrade of its pump stations and force mains, a reduction of the infiltration, exfiltration, and inflow in the collection system and an increase in the capacity of its wastewater treatment plants to minimize the occurrence of sanitary sewer overflows. As Assistant Chief Engineer, reviewed and prepared capacities evaluations, construction drawings, engineering reports, data collection, SCADA information, as-built information, and necessary field information. Coordinated with I/E/I consultant and MDWASD to obtain night flow information. He was part of MDWASD's SAC and TAC teams assisting MDWASD in bringing over 500 pump stations into compliance with 10 hour per day NAPOT criteria and addressing peak flow issues, respectively.

- **Miami-Dade Water and Sewer Department, Hydraulics Computer Modeling, Miami, Florida** - Project Manager for the development and calibration of steady-state and dynamic wastewater system and dynamic water system hydraulic computer models to assist in meeting the growing needs of 2 million county residents, assist in meeting compliance requirements (EPA/FDEP), and evaluate capacity for new developments to be connected to the existing system. Managing evaluation of MDWASD's modeling needs for both the water and wastewater systems and providing recommendations on the most appropriate modeling software, developing and calibrating an all-pipe Extended Period Simulation (EPS) model of the water distribution system, developing and calibrating a model of the wastewater collection system for a mixed gravity – pressurized pipe scenario incorporating more than 1,000 pump stations, large gravity interceptors, and a rainfall-derived infiltration and inflow (RDII) component, using the model to perform selected analysis of the water and wastewater systems. The calibrated models will be used as tools in the development of the county's water and wastewater master plans, to evaluate high development areas for site specific permitting requirements, and to verify compliance with current environmental regulations related to wastewater peak flow management.

- **Miami-Dade Water and Sewer Department, $60M Needs Assessment Program/General Obligation Bond Program, Miami, Florida** - Provided program management services for $60M water and sewer infrastructure improvement program to identify, plan, design, and construct water and sewer utilities within areas of special needs with the goal of stimulating the economy. Met with stakeholders, cities representatives including County Commissioners and their aids, to identify areas in need; provided resource and contract management services to accomplish the planning, scheduling, preliminary design, design, permitting, bidding, procurement, construction, administration, easement acquisition, road reconstruction, and public outreach activities. Responsible for all facets of the program including budget, scheduling and staffing, and management of six design consultants. Prepared and negotiated RFP for design consultants; reviewed and approved designs and invoices. Coordinated and administered construction contracts of water and sewer utilities with pipe size up to 16-inch-diameter for a total of 28 miles of pipeline and several submersible sewer pump stations.

- **Miami-Dade Water and Sewer Department, Basis of Design Report (BODR) Assistance Pump Station Engineering Reports (six) and Pump Station 717 Sewer Force Main System Evaluation, Miami, Florida** – Project Manager for the BODR Assistance for six pump station engineering reports and the associated force main system that included field inspections, pump station evaluation, hydraulic analysis, cost analysis, alternatives analysis, and pump upgrade recommendations. The project involved the analysis of several alternatives in order to best serve the sewer system during 2030 projected flows and pressures. Pump stations were inspected for wet well condition, dry pit condition, pump sizing, mechanical and electrical requirements, and overall siting. Detailed sketches of existing conditions and proposed pump station alignment were prepared to support the recommended solution.

- **Regional Sewer District, $340M Force Main and Gravity Sewer and Pump Station Design Packages, Jefferson Parish, Louisiana** - Project Manager and Engineer for a $340M Program Consisting of 17 Force Main and Gravity Sewer Design Packages and 20 Pump Station Design Packages for a Regional Sewer District in Jefferson Parish. Construction Manager in charge of the preparation of construction drawings, detailed specifications, contract documents, and record drawings, including new sewers and collection system rehabilitation. Ductile iron, concrete and PVC pipes ranged from 8-inch to 36-inch in diameter, and totaled over 100 miles. Used open cut, trenchless technology, and jack-and-bore construction methodology. Project included several canal and roadway crossings.

- **Aguas Argentinas Privatization Program, Pump Station, Buenos Aires, Argentina** – Pump Station Engineering Design Manager which included water and wastewater pump station design of up to 120-mgd water pump station. The project included design of interconnections with proposed 12-foot-diameter water pipes. The concrete pipes were constructed with micro tunneling machines down to 107 feet deep. Prepared preliminary studies, conceptual designs, detail cost estimates, detail designs, and construction bidding documents, including plans and specifications.

Agustin Maristany, PE
Principal-In-Charge
King Engineering Associates, Inc.

EDUCATION

Master of Science, Civil Engineering, 1979
University of Texas, Austin
Bachelor of Science, Civil Engineering, 1978
University of Puerto Rico

PROFESSIONAL LICENSES

Professional Engineer Florida No. 33351

HIGHLIGHTS

33 Years Experience in Florida
Project Management
Contract Documents
Construction Management
Grant funding
Water Resources
Roadway and Drainage
Water & Sewer
Plan Review
Land Use/Zoning
Civil Site Planning

SUMMARY OF EXPERIENCE

Mr. Maristany's 33 years of experience includes principal-in-charge responsibility over a wide range of multi-disciplinary public works projects involving planning, modeling, design, permitting, construction management and inspections, program management, construction management-at-risk, plan review, development of design standards, civil site planning, and land use projects in the fields of water resources, drainage, water/wastewater, environmental, transportation, and architecture. His technical expertise is in water resources and includes watershed and stormwater master planning; hydrologic, hydraulic, and water quality modeling; flood damage assessments; nonpoint source impact analysis and best management practices; design of canals, reservoirs, lakes, pump stations, pipelines, and control structures; seepage management and control; aquifer recharge and stormwater reuse; stormwater regulatory criteria, design manuals, and permitting; and funding and financing. His water supply experience includes master planning, groundwater modeling, water distribution modeling, alternative water supply sources, permitting, and infrastructure design.

NOTEWORTHY PROJECTS

- **City of Doral J.C. Bermudez Park Recycled Stormwater Irrigation Project.** Project manager for the modeling, design, permitting (ERP and CUP), and construction support services for a stormwater irrigation system for the 80-acre park. Major components included emergency lake intake structure, 2 MG above ground storage tank, 3,000 gpm stormwater pump station, 130 micron disk filters with automatic backwash, bleach disinfection system, 1,400 gpm irrigation pumps, 7,000 feet of 12-inch diameter looped main, irrigation system, automated controls, and cost estimates. Developed 20-year water balance model to calculate crop ET, rainfall-runoff, irrigation demand, and stormwater irrigation to determine optimal size of pump station and storage tank. The project was partially funded by a $1M AWS grant from the SFWMD.

- **Central Broward Water Control District, District Engineer, Broward County, Florida.** District engineer from 1995 through 2007 for a 43.5-square-mile area that includes unincorporated Broward County, Cooper City, the Seminole Indian Reservation, and the communities of Davie, Hollywood, Sunrise, Pembroke Pines, and Southwest Ranches. Provided services related to regulation, permitting, infrastructure improvements, and the operation and maintenance. Reviewed plats, paving and drainage plans, and as-built drawings for all development and redevelopment for conformance with design standards, processing an average of 70 plans annually. Revised the design criteria manual and conducted site inspections. Attended Board and committee meetings. Managed special projects including flood assessments, stormwater modeling, implementation of best management practices to improve water quality and erosion control, and the design of infrastructure improvements.

- **Miami-Dade Water and Sewer Department, Needs Assessment Program, Miami, Florida.** Principal-in-charge for program management services for 40 water and sewer infrastructure projects totaling $60 million in constructed value and involving the design and construction of 17,815 feet of pressurized sewer force main ranging from 4-inch to 12-inch diameter; 91,451 feet of 8-inch to 16-inch pressurized water main; 39,000 feet of 8-inch to 12-inch gravity sewer; and 6 pump stations. Services included master planning, modeling, preliminary design, design standard development, design management, utility conflict coordination, permitting assistance, cost estimating, scheduling, public information, bid packaging, and construction management. Target areas included Brownfields Program, Federal Designated Empowerment Zones, Infill Housing Initiatives, Office of Community and Economic Development Program as well as undersized water mains, low-pressure areas, and inadequate fire protection. Projects were identified and developed in close coordination with stakeholders and County Commissioners. (2002 – 2007).

- **Northwest Florida Water Management District, Coastal Water Systems Interconnect Project, Northwest Florida.** Project manager for the Basis of Design Report for the implementation of regional interconnects to increase water supply reliability in

18 coastal utilities along 5 counties in the Florida panhandle. Work included analysis of current and future demands, raw water sources, population growth, and permitted capacities; establishment of utility emergency production capacities and minimum interconnect flow reliability targets; development of hydraulic model (H2ONET) to evaluate and size interconnect infrastructure for various failure scenarios; finished water quality sampling, desktop blending analysis, and residence time evaluation; route analysis based on ROW/easement requirements, utility conflicts, and cost estimates; preliminary design; operations manual; and final report.

- **Miami-Dade County DERM, C-6 Stormwater Master Plan, Miami, Florida.** Project manager for the development of a stormwater master plan for the C-6 Basin (Miami River). The study area, located in northeastern Miami-Dade County, has an area of 69 square miles and contains approximately 175 sub-basins **including the City of Doral**. Major tasks included data review and statistical analysis of rainfall and flow records, compilation of drainage data from the cities, development of a digital terrain model for the basin area, delineation of sub-basins; building and calibration of a hydrologic/hydraulic and water quality XP-SWMM model for the basin; evaluation and ranking of flooding and water quality problem areas; identification and evaluation of flood and water quality control measures using XP-SWMM; cost estimates and recommendation of control measures.

- **City of Pinellas Park, SR 694 Improvements, Pinellas Park, Florida.** Project manager for the design of drainage and road improvements to alleviate severe flooding and congestion along a 0.75-mile stretch of SR 694, a high-traffic hurricane evacuation route. Project deliverables included a basis of design report, modeling, construction drawings, technical specifications, cost estimate, maintenance of traffic plan, pavement restoration, and permits with SWFWMD, FDOT, and the County. Jointly funded by Pinellas Park, Pinellas County, and FDOT, the $4.3 million project involved the design of over 10,000 feet of reinforced concrete pipe ranging from 24 inches in diameter to a 12' x 8' box culvert.

- **South Florida Water Management District, C-9 Canal Impoundment Design, Broward County, Florida.** Principal-in-charge for the completion of the Basis of Design Report (BODR) and 30% Design for a 1,650-acre above ground impoundment with a construction value of $134 million. The impoundment is an element of the Broward County Water Preserve Area. Key components of the impoundment include 6.5 miles of 15.5-foot levees, levee windbreaks, 295-acre mitigation wetland, 700 cfs inflow pump station, 500 cfs gated outlet structure, 500 cfs gated culvert on the C-9 canal, emergency overflow spillway, seepage control canals, and a 150 cfs seepage pump station. Services included topographical site baseline surveys and GIS database development, geotechnical and hydrogeological field investigations, dam break analysis, SPF routing, wind setup, wave run-up, erosion control, SEEP2D and MODFLOW seepage modeling, civil, structural, mechanical, electrical & instrumentation, and preparation of detailed cost estimates for the recommended configuration.

- **South Florida Water Management District S-124 Control Structure Design, Broward County, Florida.** Task manager for the hydraulic and civil design for the replacement of the S-124 Control Structure on the L-35A Canal for the South Florida Water Management District (SFWMD) with an estimated construction cost of $3.9M. The replacement structure consisted of a triple 8' x 6' concrete box culvert with remotely operated slide gates, a design capacity of 550 cfs, hardened control room, and back-up power supply. Civil design plans and specifications included site plan, grading, drainage, levee access ramp, construction sequencing plan, vehicle barrier gate, floating trash barrier, security fence, warning signs, demolition and erosion/scour control plan, and canal stabilization treatments.

- **Lee County Construction Management at Risk of Water Treatment Plant Expansion, Lee County, Florida.** Principal-in-charge for an $18.5 million construction management at risk contract for the 5 mgd expansion of the Corkscrew Water Treatment Plant and construction of a new storage and pump station facility consisting of two 5-million gallon above ground storage tanks, pump stations, and an interconnect with the Green Meadows Water Treatment Plant. Contract includes construction of a new 55 foot diameter lime softening contact tank, lime storage silo and lime feeder/slaker, aeration basin, re-carbonation basin, carbon dioxide tank and pressurized solution feed system, four filter basins, new hypochlorite feed pumps, high volume air blowers and piping, electrical control panels, standby generator switchgear, instrumentation and control systems, minor interior remodeling and associated yard piping and appurtenances. The four new filter basins will use the positive displacement filter backwash, a new process for this plant that will require the construction of a blower building to house the positive displacement blowers and accessories.

EDUCATION

Bachelor of Science, Civil Engineering
Marquette University, 1974
Master of Business Administration
University of Houston, 1985

PROFESSIONAL LICENSES

Professional Engineer Florida No. 64528

HIGHLIGHTS

Over 34 years of engineering experience

Assisted Clients in obtaining millions of dollars in grant funding

Program Management including the City of Austin Clean Water Program

Extensive SouthFlorida experience

SUMMARY OF EXPERIENCE

Mr. Moriarty has worked in the field of environmental and civil engineering since 1974. He has lead several regional drainage studies. He has extensive expertise in the design of utility pipelines, particularly in the congested, urban environment. He is very experienced in using specialized techniques for charting existing utilities, including Subsurface Utility Engineering (SUE) and ground penetrating radar. He has designed gravity sewers as large as 84-inches in diameter. He has also designed water transmission mains as large as 60- inches in diameter. For the most part, these facilities have been located in existing roadway and transmission corridors, where coordination with other existing underground utilities has been critical. Further, he has designed numerous pumping facilities for both water and wastewater, and has designed small plant improvement projects for wastewater and water treatment facilities. He has extensive experience in hydraulic modeling of closed conduit systems. He is listed in "Who's Who in Environmental Engineering".

NOTEWORTHY PROJECTS

- **Miami-Dade Water and Sewer Department-Pump Station Improvement Program (PSIP)** – Project Principal for this nearly $500 Million program to improve hundreds of wastewater pumping stations in response to Consent Decree/Settlement Agreement with EPA.

- **Camp Branch Creek Hydrologic Restoration, Putnam County, FL** – Principal-In-Charge for a 0.9 mile creek restoration project for the Florida Fish and Wildlife Commission. The purpose of this project was to fill a rim ditch running parallel to the historic Camp Branch Creek. Prepared hydraulic modeling, prepared Technical Design Memorandum to evaluate alternatives, and prepared final construction plans and specifications for the selected alternative design.

- **Hamilton Jersey Drainage Improvements, Jacksonville, FL** – Principal-In-Charge for a 170 acre drainage project to relieve flooding within an existing subdivision. Prepared an Engineering Report to evaluate design alternatives. Recommended alternative included a large diameter gravity bypass main, local neighborhood improvements, and water quality improvements. Prepared cost estimates and recommended sequence of construction to address funding limitations.

- **Baker County, Florida - Stormwater Master Plan** – In an effort to protect water quality in the St. Mary's River as well as to eliminate local flooding, Baker County engaged the services of King Engineering to undertake a Storm Water Master Plan for virtually the entire county. Baker County has drawn the interest of several large scale developers, including several DRI's. The first two phases of the Storm Water Master Plan are complete. The first involved a comprehensive review of flooding problems in the county. The second involved the development of HED-RAS hydraulic models for the major tributaries to the St. Mary's River, including:
    - Middle Prong St. Mary's Basin
    - Cedar Creek Basin
    - South Prong St. Mary's River

- **City of Macclenny, Florida – Storm Water Master Plan** – The City of Macclenny engaged King Engineering to perform a city wide Storm Water Master Plan. This work required working closely with the St. Johns River Water Management District. The work was done on a fast track basis to gain important reimbursement funding for the City. The work included an assessment of local flooding locations and the development of infrastructure mapping. Subsequent phases of the work are ongoing.

- **Irrigation of JEA Water Reclamation Facilities, Jacksonville, FL** – In an effort to conserve precious groundwater and provide a means for wastewater effluent disposal, JEA commissioned King to design state of the art irrigation systems utilizing reclaimed water at eight of their Water Reclamation Facilities including Buckman WRF and the District II WRF. In some cases the systems were designed with special disc filters because of effluent quality. Advanced smart irrigation controllers were utilized with

moisture sensor interrupt capability. Evaluated the potential irrigation of the St. Johns River Power Park (SJRPP) with reclaimed water from JEA's District II WRF. The SJRPP is a power generation facility jointly owned by JEA and Florida Power and Light.

- **JEA Atlantic Boulevard 36-inch Water Transmission Main, Jacksonville, FL** – This project consisted of preliminary engineering and route study for JEA. JEA is continuing to expand its water transmission system by planning a 36-inch pipeline from the Hendricks Water Treatment Plant to the Long Grove Water Treatment Plant, primarily along Atlantic Boulevard, a distance of approximately four miles. The intent of the project was to deliver up to 12 MGD to the Long Grove WTP for further re-pumping and distribution. The project is estimated at $16 Million.

- **JEA Royal Lakes Wastewater Treatment Plant Decommissioning, Jacksonville, FL** -Working in concert with JEA's Planning Department, King developed a preliminary design for a proposed pump station and force main project to allow the Royal Lakes Wastewater Treatment Facility to be taken out of service. The proposed design included over 17,000 LF of 24-inch force main through existing streets and transmission corridor as well as a 5 MGD Master Triplex Lift Station. King is responsible for the design of the force main along Southside Boulevard, an FDOT maintained road. The design includes elements of jack and bore as well as specialized drilling. SUE was utilized to establish the locations of existing utilities.

- **Baker County, Florida - Water, Wastewater and Reclaimed Water Master Plan** – Project Manager for the Baker County Water, Wastewater and Reclaimed Water Master Plan. Baker County is entering a period of potential growth and County officials decided to have this Master Plan prepared. The County is considering forming a regional utility, and is using the Master Plan to organize utility elements and secure quality facilities in the event of the County taking over the regional system. The Master Plan identified a new MBR wastewater treatment facility and new regional well field as significant elements of the system. This study set the ground work for Baker County to become a regional utility and provider of these services. This document established design criteria for regional water, wastewater and reclaimed water facilities.

- **Austin Clean Water Program** – Program Manager for this $250 Million wastewater collection system rehabilitation program performed under an Administrative Order from USEPA. This highly successful effort was labeled a model program by EPA and resulted in a drastic reduction in wastewater overflows in the City of Austin, Texas.

- **JEA System Pump Stations, Jacksonville, FL** – Project Manger for over 12 lift stations within the JEA system for private interests.

- **Fast Track Major Wastewater Transmission Facilities for the Hammond Sanitary District in Hammond, IN.** The project consisted of seven miles of 36-inch force main and 54-inch gravity sanitary sewer from the Robertsdale pumping station on Lake Michigan to the main wastewater treatment plant on the Grand Calumet River. The project went through existing streets and the Standard Oil Refinery which had numerous conflicting utilities. ***This high profile project was performed under court order from the United States Supreme Court and was completed on time and under budget.***

Christopher Kuzler, PE

Quality Assurance / Quality Control

King Engineering Associates, Inc.

EDUCATION

Bachelor of Science, Mechanical Engineering, Polytechnic Institute of New York, 1985

Masters of Science, Business Administration, Adelphi University, 1989

PROFESSIONAL LICENSES

Professional Engineer Florida No. 45532

HIGHLIGHTS

Over 22 years of project management experience in the State of Florida

Graduate studies in geohydrology, open channel hydraulics, and water treatment plant design

SUMMARY OF EXPERIENCE

Mr. Kuzler brings over 25 years of engineering experience in the State of Florida. Mr. Kuzler's project experience includes water and wastewater systems hydraulic modeling and master planning including multi-county regional water supply systems in Florida. He has been the Project Manager and Engineer-of-Record on a number of water interconnect projects, raw water supply projects, water treatment plant projects, water chemical adjustment projects, water storage and pumping projects and over 100 miles of water pipeline projects up to 36 inches in size. His experience also includes wastewater collection, pumping, conveyance, treatment and disposal projects, reclaimed water storage, pumping and pipeline projects, solid waste facility projects and stormwater pump station design. Mr. Kuzler also maintains an active role in his field as a member of the American Society of Mechanical Engineers and the Florida Engineering Society and currently serves on the Board of Directors of the Southeast Desalting Association, an association dedicated to the training of membrane plant operators.

Published papers include *Problems with Stabilizing Permeate from the Tampa Bay Desalination Plant,* co-authored with Dr. Robert Carnahan, which discussed issues associated with stabilizing reverse osmosis permeate prior to conveying it off-site to be blended with water from other ground and surface sources.

NOTEWORTHY PROJECTS

- **Lake Avenue Pump Station Force Main, Largo, FL** - Project Manager responsible for accommodating changes in wastewater flows and system pressures in a portion of the City of Largo collection system. King Engineering was selected to provide survey, design, bidding, and construction management services for the installation of approximately 9,200 lf of 10-inch and 24-inch force main through commercial and residential areas. During the design, King modeled the existing collection system and several alternative approaches using H2Onet software to determine the optimum scope and hydraulic conditions.

- **CR 70 and Weathersfield Potable Water Storage and Booster Pump Station Upgrades, Dunedin, FL** - Project Manager for the design of the pumping system upgrades at two existing facilities. The upgrades were required to increase service pressures and flow capabilities on the east side of the City and eliminate the need to activate an interconnect with the County water system that typically caused water quality blending problems in the City's distribution system. The project included a hydraulic analysis of a portion of the City's water system, design of two 5.0 MGD pump stations, variable frequency drives, two instrumentation controls, telemetry, and a standby diesel generator.

- **Little Road Water Treatment Plant Pumping System and Upgrade. Pasco County, FL –** Senior Project Engineer for a study to provide design and construction services for the upgrade of a 22 MGD water treatment plant's pumping system. The project included the evaluation and upgrade of the facility's electrical and control systems, a new electrical/control room with new variable frequency drives for six pumps ranging from 150 to 300 HP, reprogramming of an existing pump controller, generator and power source testing, new bypass piping and control valves, and a new lightning and surge protection system. The project was completed with no complications while keeping the facility on-line.

- **Reverse Osmosis Water Treatment Plant Transfer Pump Evaluation and Replacement, Dunedin, FL** - Project Manager responsible for providing hydraulic analyses and evaluations of performance for the existing transfer pump station, followed by design, permitting and construction management services for replacement of the pump system, installation of VFDs, at a reverse osmosis water treatment plant, piping modifications and modifications to the standpipe system internal to the plant's two ground storage tanks.

- **Curlew Road Elevated Tank Refurbishment and Booster Pump Station, Dunedin, FL** - Project Manager for the refurbishment of an existing 1.0 MG elevated storage tank and the design and construction of a new 6 MG booster pump station, consisting of a building, high service pumps, telemetry, and controls. Services also included a full tank evaluation and development of

drawings and specifications for the refurbishment of the existing San Christopher 0.5 MG elevated storage tank. This project was partially funded by a cooperative grant from the SWFWMD.

- **Belcher Road Booster Pump Station, Dunedin, FL –** Project Manager for hydraulic modeling, design and construction management services for a reclaimed water storage tank and high service booster pump station partially funded by the Southwest Florida Water Management District. The project required an updated analysis of the City's reclaimed water transmission system and included a 2 MG ground storage tank, a 10 MGD booster pump station, a pump building, electrical, instrumentation, telemetry yard piping, and other site improvements.

- **Master Pump Station B and SB Refurbishments, Temple Terrace, FL** - Project Manager for design, permitting and construction services for the refurbishment and upgrade of two wet pit dry pit master sanitary sewer pump stations. Project included 16-inch subaqueous drill under the Hillsborough River and a hydraulic analysis at the City's North force main system.

- **Wastewater Pump Station Drawdown Testing and Evaluation, Largo, FL** - Project Manager responsible for performing drawdown testing on six existing wastewater pump stations. The physical and mechanical condition of each station was evaluated and the pumping capacity of each station was determined. Results were summarized in an abbreviated report.

- **Dunedin WWTP Reuse Pump Addition, Dunedin, FL** - Project Manager for design and construction services for the installation of a new 125 HP vertical turbine pump, variable frequency drive and instrumentation modifications in the City wastewater treatment plant's reuse pump facility. Project also included permitting and assisting with bid procedures for the City of Dunedin.

- **Dunedin Weathersfield Booster Pump Station Reclaimed Water Pump Replacement, Dunedin, FL** - Project Manager to design upgrades for the existing reclaimed water booster pump station, including replacing an existing 40 HP vertical split case centrifugal pumps driven by variable frequency drives (VFDs) with a 125 HP pump, and modifications to the existing suction and discharge headers. Responsibilities also included installation of new suction and discharge piping to the new pump, which required new check valves, butterfly valves and removal of an existing 40 HP VFD and replacement with a new 125 HP VFD.

- **Solid Waste Pump Station, Pinellas County, FL** - Project Manager for the design, permitting and construction of two wastewater and cooling tower blowdown pump stations at Pinellas County's Waste-to-Energy facility and landfill. The project involved abandonment of existing pump stations, construction of gravity sewer lines and force mains, and construction of two below-ground wet wells and valve vaults on a closed landfill.

- **H. Lee Moffitt Cancer Center, Tampa, FL –** Engineer-of-Record for three stormwater pump stations. The pump stations were designed to receive flows from low lying basins and convey the water to the upper reaches of the site stormwater system.

- **Jasmine Heights Stormwater Pump Station and Force Main, New Port Richey, FL** - Assisted with the design and construction management for the improvements to the Jasmine Heights Pump Station and force main project. The project design included a large stormwater pump station in a retention pond that was necessary to alleviate flooding in a low lying residential neighborhood. The project also included ±3,000 LF of 24-inch force main and an outfall structure into the Gulf of Mexico.

Thomas Traina, PE
Design / Bidding Lead Engineer
King Engineering Associates, Inc.

EDUCATION
Bachelor of Science, Civil Engineering, 1978
University of Notre Dame

PROFESSIONAL LICENSES
Professional Engineer Florida No. 42871

HIGHLIGHTS
Specialized skills in open channel hydraulic design, pumping systems and project management

Surge Analysis

Potable Water System Design

Hydraulic modeling of water distribution and transmission systems

Hydraulic modeling of wastewater collection and pumping systems

Pipe Materials Selection

Trenchless Installation Techniques

Pumping station analysis and design

SCADA

Cathodic Protection

SUMMARY OF EXPERIENCE
Mr. Traina has thirty years of engineering experience and is an expert in the design of large diameter piping systems for potable water, wastewater and reclaimed water. As a former Engineering Manager for the West Coast Regional Waster Supply Authority, Mr. Traina supervised staff and managed consultant contracts for the design of numerous capital replacement and improvement projects, many of these major pipeline projects. Mr. Traina's experience includes the design of water transmission mains, reclaimed water storage facilities and wastewater treatment systems ranging in size and complexity. Mr. Traina is a member of Water Environment Federation.

NOTEWORTHY PROJECTS

- **City of Doral J.C. Bermudez Park Recycled Stormwater Irrigation Project.** Project manager for the modeling, design, permitting (ERP and CUP), and construction support services for a stormwater irrigation system for the 80-acre park. Major components included emergency lake intake structure, 2 MG above ground storage tank, 3,000 gpm stormwater pump station, 130 micron disk filters with automatic backwash, bleach disinfection system, 1,400 gpm irrigation pumps, 7,000 feet of 12-inch diameter looped main, irrigation system, automated controls, and cost estimates. Developed 20-year water balance model to calculate crop ET, rainfall-runoff, irrigation demand, and stormwater irrigation to determine optimal size of pump station and storage tank. The project was partially funded by a $1M AWS grant from the SFWMD.

- **West Central Reuse Interconnect, Pasco County, FL –** Project Manager and Engineer of Record for the design, permitting and construction of two 5 MGD, 125 psi reclaimed water pumping stations and an interconnecting 12 mile transmission main for the Pasco County Utilities Department. Pump stations included vertical turbine pumps, 5 and 2.3 MG ground storage tanks, hydropneumatic systems, electrical buildings, and sitework at the Odessa and Land O'Lakes Wastewater Treatment Plants. In addition to 63,800 LF of 24-inch reclaimed water main interconnecting the two pump stations, the project included 44,000 LF of 24-inch potable water main, and 4,400 LF of 12-inch, 20,000 LF of 16-inch, and 9,000 LF of 20-inch sanitary force main.

- **Peace River Regional Integrated Loop System, Phase 2, DeSoto, Sarasota, Charlotte and Manatee County, FL -** Preliminary Engineering and Design services for Phase 2 of the Regional Loop Integrated Loop System which includes 7 miles of 42-inch potable water transmission main interconnecting the Peace River Water Treatment Facility with the City of North Port. Prepared the Basis of Design Report (BODR), which documented pipeline sizing, points of connection, demand and design flows and interconnections with existing transmission mains. BODR also addressed the horizontal and vertical alignment of the pipeline, including geotechnical considerations, construction adjacent to an existing transmission main, environmental considerations, typical trench cross sections, property acquisition requirements, and pipeline appurtenances such as line valves, air valves, blow-offs and access manholes. The BODR further documented pipeline design standards and criteria for pressure and thickness, alternative materials of construction, corrosion control, and metering stations. Finally, the BODR addressed permitting requirements, bidding and contract considerations, and implementation schedule and an opinion of probable construction cost.

- **Pasco County Wet Weather Assessment and Reclaimed Master Plan Update Wet Weather Assessment, Pasco County, FL –** Engineer of Record for this Pasco County Utilities project, which involved evaluating the capacity of the existing Master Reclaimed System to determine its ability to dispose of wastewater effluent during wet weather conditions. The project entailed an evaluation of reclaimed water flows, updating storage capacities as well as the disposal capacity of existing slow rate (irrigation) and rapid rate (perc ponds) facilities. Prepared wet weather assessment report that recommended adding 800 MG of seasonal storage capacity.

- **Tampa Bay Desalination Facility and Transmission Main, Tampa, Florida** - Project Engineer for the design of over 15 miles of 42-inch finished water transmission pipeline. Pipeline included numerous crossing made by bore and jack, as well as a river crossing constructed by directional drilling. Coordinated geotechnical, wetland delineations, surveying, permitting and design services for the transmission main including connection to facilities at the surface water treat plant at its northern terminus. Designed 42-inch transmission main including 36-inch subaqueous directional drill crossings of Bullfrog Creek and the Alafia River, three CSX Railroad crossings by jack & bore, seventeen Hillsborough County right-of-way crossings, and three Florida Department of Transportation crossings by jack & bore, including one under the Leroy Selmon Expressway. Responsible for pipeline appurtenances, including line valves, air release valves, and blow-offs. Designed provisions for corrosion control and mitigation of induced currents from overhead high voltage power lines.

- **Central Pasco Water and Wastewater System Improvements, Pasco County, FL** – Engineer of Record for the design, permitting, and construction management of water and wastewater transmission and distribution mains in central Pasco County. Project included 135,000 LF of 16-, 24- and 36-inch potable water mains and force mains, and a potable water booster pump station. The booster station included a 5 MG ground storage tank, re-chlorination system, and 5 MGD high service pump station. As part of this project planning an interim model of the water system was developed in order to size a temporary booster pump station required to maintain system pressures in the northern part of the project service area.

- **Cypress Bridge Wellfield, West Coast Regional Water Supply Authority, Hillsborough/Pasco Counties, FL** - Project Manager responsible for the design and permitting of this wellfield, which entailed 10 production wells rated at 4 MGD each with well houses, telemetry system, and 12 miles of raw water piping ranging from 16 inches through 36 inches in diameter. This project also included a 66-inch diameter finished water transmission main interconnecting two pumping stations located more than 12 miles apart. Other responsibilities included property acquisition assistance, permitting, hydraulics, interim production facilities, and wetland mitigation assistance.

- **Northeast Brandon Raw Water Wellfield, West Coast Regional Water Supply Authority, Hillsborough County, FL** - Project Manager for the design of this water supply project that included nine 2 MGD deep wells and 8 miles of 12- through 36-inch piping. This effort included the preparation of a basis of design report addressing pipeline routing, property acquisition, permitting requirements, and hydraulic analyses. Also included were pipeline materials of construction and appurtenances; well head equipment including the pumps, piping, valves, electrical and instrumentation systems; and architectural and site work issues. This project was not constructed.

- **40 MGD Raw Water Wellfield for (South Central Hillsborough Regional Wellfield) West Coast Regional Water Supply Authority, Hillsborough County, FL** – Managed the design of this project that included ten production wells rated at 4 MGD each with well houses, telemetry system, surge control, and 12 miles of raw water piping ranging from 16 inches through 36 inches in diameter. This project also included a 66-inch diameter finished water transmission main interconnecting two pumping stations located more than 12 miles apart. Other responsibilities included property acquisition assistance, permitting, hydraulics, interim production facilities, and wetland mitigation assistance.

- **Southwest Water Treatment Plant, Pasco County, FL** – Engineer of Record and Project Manager for the design, permitting and construction management of Pasco County's Southwest WTP. In the process of converting from free chlorine disinfection to chloramines, and in lieu of providing treatment at each of seven existing smaller well water treatment systems, the County decided to collect the raw water and provide treatment at a single new facility, the Southwest WTP. This project included over 7,000 LF of raw water collector mains all installed by directional drilling, a 2.0 MGD chloramines disinfection treatment facility, a 4.0 MG finished water storage tank, and a 3.75 MGD high service pumping station. The tank was constructed mostly below ground in order to appease concerns in the mostly residential neighborhood. The project included sitework, yard piping, closed circuit security systems, and a 2,700 SF building housing the pumping station, chemical storage and feed systems, standby power generator, and electrical and I&C systems. A computerized maintenance management system was provided for the water treatment plant. The water plant was placed in service in 2005. King provided full construction management and observation services, which included extensive coordination with local residents.

Lara Bartholomew, PE

SSES/Evaluation/Repair Recommendation Lead Engineer

King Engineering Associates, Inc.

EDUCATION

B.S., Civil Engineering, 1995
Purdue University

PROFESSIONAL LICENSES

Florida Professional Engineer 61035

HIGHLIGHTS

Experience with I/I inspection procedures and practice.

Experience in construction engineering inspections and administration.

Experience with local utilities and permit agencies.

Trenchless Technology

SUMMARY OF EXPERIENCE

Ms. Bartholomew has fifteen years of experience as a civil engineer. Her experience includes sanitary sewer rehabilitation and extension projects, potable water, reclaimed water and sanitary master plan development, pipeline, lift station, well and septic projects, flood routing calculations and modeling, TMDL development, residential and commercial site design, design of large-scale mixed use developments and associated infrastructure, and presentation of public information to governing authorities as well as to the general public.

Ms. Bartholomew has used numerous software programs to assist with design and presentation of project information, including MicroStation, AutoCAD, ArcView, HEC-RAS, TR-20, TR-55, Ad.I.C.P.R., StormCAD, Hydraflow, CulvertMaster, FlowMaster, H_2ONet, H_2OMap, and Microsoft Office.

- **MDWASD Sanitary Sewer System Preliminary Evaluation, City of Miami Springs, Miami, Florida** – Senior Project Engineer responsible for QC of the final evaluation report prepared in conjunction with the construction management and inspection of a portion of the Miami-Dade Water and Sewer Department's (MDWASD) wastewater collection system within the City of Miami Springs, Florida". The sanitary sewer collection system consists of approximately 46 miles of gravity pipes, 912 manholes, and 17 separate wastewater collection basins. The project included daily field inspections during the cleaning, video and visual inspections, and smoke testing. From these inspections, structural deficiencies and construction features were identified, repair recommendations were assigned to defects following MDWASD standard protocols, and a cost estimate of recommended repairs was prepared. Construction management included preparing invoicing summary and project monthly status reports as well as coordinating daily with the Contractor, owner, and utility. The final reports included results of field investigations, records and related information with repair recommendations, and a cost estimate.

- **Sanitary Sewer Rehabilitation Program (48-inch through 156-inch diameter), Indianapolis, IN** - Project Manager responsible for overseeing plans, specifications and bid document development for large diameter sanitary sewer rehabilitation projects, ensuring projects are designed to bid on time, under budget, and meet the project objective. Reviewed condition assessment reports in order to identify project priority for CIP development and funding. Also reviewed consultant qualifications and assisted in selection process. Negotiated professional service contracts with various engineering firms. Presented contracts to Board of Public Works, reviewed planning and design level engineering solutions for projects, and presented project goals, designs and plans to affected property owners in multiple public hearings.

- **Miami-Dade Water and Sewer Department, 48-inch Water Main Interconnect in the Central East Area Preliminary Alternative Water Main Route Analysis, Miami, Florida** - Senior Project Engineer responsible for QC of the final evaluation report prepared for the analysis of a 48-inch water main required to interconnect the Hialeah/Preston service area in the north with the Alexander Orr service area in the south with a 48-inch water transmission main. The project spanned 1.5 miles along the selected route in roads with heavy traffic and congested utilities. Ms. Bartholomew was involved in utility coordination and preparation of cost estimate.

- **Glenwood Estates Sewer Evaluation, City of Clearwater, FL** – Senior Project Engineer responsible for evaluation of the existing gravity system to determine sanitary sewer flows and resultant hydraulic grade lines within the Edgewood Avenue sewer during average and peak day conditions. Review of the existing video inspections of the sewer was also performed. Additionally, responsible to develop three solutions to improve performance and reduce maintenance costs within these sewers. The evaluation will include preliminary layout of a new 10" and 12" gravity sewer system and two pump station/force main preliminary design options in addition to a life cycle cost analysis for each alternative.

- **Large Diameter Cleaning Program, Indianapolis, IN** – Project Manager responsible for overseeing plans, specifications and bid document development for large diameter sanitary sewer cleaning projects in order to identify future rehabilitation project priority for CIP development and funding. Also reviewed consultant qualifications and assisted in selection process. Negotiated professional service contracts with various engineering firms. Presented contracts to Board of Public Works, reviewed planning

and design level engineering solutions for projects, and presented project goals and plans to affected property owners in multiple public hearings.

- **Wiregrass Potable, Reclaimed, and Wastewater Master Plans, Pasco County, FL** – Sr. Project Engineer responsible for the development of master plans of utility infrastructure throughout a planned 5,100-acre community district in Pasco County. The proposed infrastructure ties into the County's existing systems, which have all been recently upgraded in previous years to accommodate the additional flows associated with the planned development – with peak flows up to 9.6 MGD wastewater, 10.2 MGD potable water, and 8.1 MGD reclaimed/irrigation flows. Responsibilities included conceptual design and master planning, development and review of the hydraulic models, and quality control and review of results and master plan reports.

- **Northwest Florida Water Management District Interconnect –** Sr. Project Engineer responsible for developing the hydraulic model to evaluate interconnection of 18 water systems in five counties: Santa Rosa, Okaloosa, Bay, Walton, and Gulf counties. She was also responsible for evaluating pipeline route alternatives for interconnections identified during modeling efforts.

- **Hydraulic Modeling -** Modeling was done using H_2ONet to evaluate both AADD and Max Day flows for existing conditions, proposed conditions in 2030, and four county interconnections. Additionally, was responsible for the technical memorandum presenting the model development and findings and coordination of data collection efforts from 18 water utilities, FDEP, and NWFWMD.

- **Alignment Alternatives Analysis -** Sr. Project Engineer responsible for the collection of existing utility data for the evaluation of alternative pipeline interconnection routes through four counties - Santa Rosa, Okaloosa, Bay and Walton Counties. She was also responsible for preparation of the technical memorandum outlining the analysis and recommended alternative, as well as developing a project cost estimate for each recommended alternative.

- **Sanitary Sewer Extension projects, Indianapolis, IN -** Project Manager responsible for overseeing plans, specifications and bid document development for sanitary sewer extension projects in order to ensure projects were designed to bid on time, under budget, and to meet the project objective. Oversaw development of Needs Statement during planning phase of the projects. Also reviewed consultant qualifications and assisted in selection process. Negotiated professional service contracts with various engineering firms. Presented contracts to Board of Public Works, reviewed planning and design level engineering solutions for projects, and presented project goals, designs and plans to affected property owners in multiple public hearings.

- **Wiregrass Ranch Blvd (fka Porter Blvd), Pasco County, FL** – Senior Project Engineer responsible for the design of stormwater and utility infrastructure associated with this proposed County roadway (approximately 1.8 miles) and the associated FDOT intersection improvements. The design included a triplex master pump station with a maximum capacity of 5850 GPM, 30" gravity sewer, 16" potable and reclaimed water mains, and a 20 inch wastewater force main. The drainage design consisted of 6 stormwater ponds and storm sewers ranging from 18 inch to 48 inch in size. Assisted with all infrastructure permit applications and provided project coordination with appropriate governmental agencies.

Alberto Pisani, EI

SSES/Evaluation/Repair Recommendations Engineer

King Engineering Associates, Inc.

EDUCATION

B.S., Civil Engineering-2007
Florida International University
M.S., Environmental Engineering-ongoing
Florida International University

PROFESSIONAL LICENSES

Florida Engineer Intern No. 1100012190

HIGHLIGHTS

Recently completed the SSES for the City of Miami Springs, Florida (January 2011)

Experience with I/I inspection, evaluation procedures and practice.

Experience in sanitary sewer and water main design, and submittal of plans for review to City and County regulating agencies.

Experience in construction inspection services, including shop drawing review and field inspections.

Experience in hydraulic modeling and pump station evaluation and design.

SUMMARY OF EXPERIENCE

Mr. Pisani has experience in Sanitary Sewer Evaluation Survey, inspection, construction management, design, water and sewer main projects; utility coordination; exfiltration trench design; SFWMD water use permitting; and environmental permitting for rock quarries in South Florida. Mr. Pisani is proficient in AutoCAD/Autodesk, ArcGIS, Hydraulic modeling, ICPR, SWMM, Microsoft Office, and Access database.

Mr. Pisani also maintains an active role in his field as a member of the American Society of Civil Engineers, American Water Works Association, American Academy of Environmental Engineers, and Engineers Without Borders. He has received honorary membership in Chi Epsilon, the Civil Engineering honor society, and Tau Chi Alpha, the National Environmental Engineering Honorary.

NOTEWORTHY PROJECTS

- **Miami-Dade Water and Sewer Department, Construction Management and Inspection Services for the "Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer System within the City of Miami Springs, Florida** – The project involved the inspection of approximately 46 miles of gravity mains, 17 pump stations, and 925 manholes. Specifically, inspection services included monitoring and documenting the pipe cleaning and closed circuit TV (CCTV) inspection of the MDWASD sewer collection system, monitoring and documenting the inspection of the manholes and lift stations contained within the MDWASD sewer collection system, and monitoring and documenting the smoke testing of the MDWASD sewer collection system for compliance with the project specifications. Throughout the work, Mr. Pisani documented and reported any discrepancies found on the MDWASD provided Sewer Atlas Maps on the Department's Atlas Correction Forms. Mr. Pisani performed video review and evaluated the sewer system. Resident concerns were promptly handled by Mr. Pisani in a professional manner as the program progressed. Mr. Pisani was involved in the final QA/QC process for the technical memorandum presented upon the projects completion.

- **Miami-Dade Water and Sewer Department, Pump Station Engineering Reports (six) and Pump Station 717 Sewer Force Main System Evaluation, Miami, Florida -** The project involved the analysis of six pump stations requiring upgrades in conjunction with a sewer force main system evaluation to handle 2030 projected flows and pressures. Mr. Pisani was involved in utility coordination including obtaining as-builts required for the analysis and field inspection and evaluation of the six pump stations. Pump stations were inspected for wet well condition, dry pit condition, pump sizing, mechanical and electrical requirements, and overall siting. Mr. Pisani was also involved in the pump station and force main system evaluation, hydraulic modeling, and preliminary design.

- **City of Doral J.C. Bermudez Park Recycled Stormwater Irrigation Project, Doral, Florida** – Performed field inspections during the construction stage. Major project components included emergency lake intake structure, (2) 12-inch propeller meters with Flow Indicator Transmitter (FIT), 2 MG above ground storage tank, 3,000 gpm stormwater pump station, 130 micron disk filters with automatic backwash, bleach disinfection system, 1,400 gpm irrigation pumps, 7,000 feet of 12-inch diameter looped main, irrigation system, automated controls, and cost estimates. Developed 20-year water balance model to calculate crop ET, rainfall-runoff, irrigation demand, and stormwater irrigation to determine optimal size of pump station and storage tank. The project was partially funded by a $1M AWS grant from the SFWMD.

- **Miami-Dade Water and Sewer Department, CL-1 Pump Station 1 to C-2 60-Inch Force Main Connection: Preliminary Alternative Force Main Route Analysis, Miami, Florida -** The project involved a force main route analysis required to re-route existing sewage flows away from Pump Station 1 and its eventual ocean outfall towards a planned Wastewater Treatment Plant in West Miami-Dade in order to comply with EPA legislation banning ocean outfalls. The planned force main is 60-inch in diameter and spans a length of 1.1 miles along the selected route. The project area had many utility conflicts. Mr. Pisani was

involved in utility coordination including requesting a design ticket through Sunshine State One Call of Florida, obtaining utility as-builts for the project area, field reconnaissance, cost estimating, scheduling, and report writing. Mr. Pisani prepared preliminary conceptual drawings showing all the utilities information and the proposed route on an aerial photograph.

- **Miami-Dade Water and Sewer Department, 48-inch Water Main Interconnect in the Central East Area Preliminary Alternative Water Main Route Analysis, Miami, Florida** - The project involved a 48-inch water main route analysis required to interconnect the Hialeah/Preston service area in the north with the Alexander Orr service area in the south with a 48-inch water transmission main. The project spanned 1.5 miles along the selected route in roads with heavy traffic and congested utilities. Mr. Pisani was involved in utility coordination including requesting a design ticket through Sunshine State One Call of Florida, obtaining utility as-builts for the project area, field reconnaissance, cost estimating, scheduling, and report writing. Mr. Pisani prepared preliminary conceptual drawings showing all the utilities information and the proposed route on an aerial photograph.

- **Miami-Dade Water and Sewer Department, Pump Station 49 Siting Evaluation, Miami, Florida** - The project involved a siting analysis for the relocation of pump station 49, which presently has maintenance issues due to the depth of the wet well. Mr. Pisani was involved in utility coordination including the collection of all pertinent data and in the preparation of alternatives maps in GIS.

- **Northwest Florida Water Management District, Coastal Systems Interconnect Phase I, Florida –** The project involved a study of regional interconnects to increase water supply reliability in 18 coastal utilities along 5 counties in the Florida panhandle. The project included analysis of current and future demands, raw water sources, population growth, and permitted capacities; establishment of utility emergency production capacities and minimum interconnect flow reliability targets; hydraulic modeling (H2ONET) to evaluate and size interconnect infrastructure for various failure scenarios; finished water quality sampling, desktop blending analysis, and residence time evaluation; route analysis based on ROW/easement requirements, utility conflicts, and cost estimates; preliminary design; operations manual; and final report. Mr. Pisani was involved in the preparation of preliminary design drawings, review of the water modeling and water quality studies, permitting requirements, preparation of a detailed quantity take off and cost estimate, and final report.

- **Kompare Insurance Sewer Lateral Connection and Parking Lot Design, West Miami, Florida –** The project involved the replacement of a septic tank system with a lateral connection to an existing adjacent gravity sewer and the design and permitting for a new parking lot behind the existing building. Mr. Pisani was involved in obtaining a sewer allocation letter from Miami-Dade Department of Environmental Resources Management; designed sewer lateral and paving, grading, and drainage and prepared all construction documents for submittal to Miami-Dade Water and Sewer Department and Miami-Dade Public Works Department for permitting.

- **CEMEX, Miami-Dade, Florida –** Submitted annual lake excavation permit reports including lake plan and cross sections showing excavation progress to Miami-Dade Department of Environmental Resources Management for Cutler and Card Sound Road quarries. Prepared engineering plans to obtain class IV wetlands restoration permits for Florida City Quarry and Card Sound Road Lake D.

- **Balans Biscayne 500 LF Water Main Extension, Bayshore, Florida –** Prepared construction documents for permitting with Miami-Dade Water and Sewer Department for the construction of a new 12-inch water main to replace an existing 6-inch Water main adjacent to the Balans Biscayne property along Biscayne Blvd in order to meet fire flow pressure requirements. Work required tight coordination with FDOT in order for the water main to be constructed prior to the construction of the FDOT paving and drainage project on the same stretch of Biscayne Blvd.

Hamley Pacheco, EI
Construction Engineering Inspection
King Engineering Associates, Inc.

EDUCATION
B.S., Civil Engineering-2009
Florida International University

PROFESSIONAL LICENSES
Florida Engineer Intern No. 1100013845

CERTIFICATIONS
NAASCO
PACP/LACP & MACP
Certification No. U-1110-11603

HIGHLIGHTS
Recently completed the SSES for the City of Miami Springs, Florida (January 2011)

Experience with I/I inspection procedures and practice.

Experience in construction engineering inspections and administration.

Experience with local utilities and permit

SUMMARY OF EXPERIENCE
Mr. Pacheco has experience in Sanitary Sewer Evaluation Survey, inspection, construction management, design, water and sewer main projects; utility coordination; exfiltration trench design; SFWMD water use permitting; and environmental permitting for rock quarries in South Florida. Mr. Pisani is proficient in AutoCAD/Autodesk, ArcGIS, Hydraulic modeling, ICPR, SWMM, Microsoft Office, and Access database.

NOTEWORTHY PROJECTS

- **Preliminary Evaluation prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer System within the City of Miami Springs, Miami, Florida -** Construction management and inspection of a Sanitary Sewer Evaluation Survey (SSES) for a portion of the Miami-Dade Water and Sewer Department's (MDWASD) wastewater collection system within the City of Miami Springs, Florida". The sanitary sewer collection system consists of approximately 46 miles of gravity pipes, 912 manholes, and 17 separate wastewater collection basins. Mr. Pacheco performed daily field inspections during the cleaning, video and visual inspections, and smoke testing. These included:
    - Verifying that CCTV inspections of the sewer system were collected thoroughly and consistently as per specifications.
    - Identifying structural deficiencies and construction features in pipes, manholes, and lift stations requiring repair, rehabilitation or replacement.
    - Assigning repair recommendations to defects following MDWASD standard protocols.
    - Preparing invoicing summary, project monthly status and final reports including results of field investigations, records and related information with repair recommendations and cost estimate.
    - Coordinating daily with Contractor, the owner, and the utility.

- **City of Doral J.C. Bermudez Park Recycled Stormwater Irrigation Project, Doral, Florida –** Performed field inspections during the construction stage. Major project components included emergency lake intake structure, (2) 12-inch propeller meters with Flow Indicator Transmitter (FIT), 2 MG above ground storage tank, 3,000 gpm stormwater pump station, 130 micron disk filters with automatic backwash, bleach disinfection system, 1,400 gpm irrigation pumps, 7,000 feet of 12-inch diameter looped main, irrigation system, automated controls, and cost estimates. Developed 20-year water balance model to calculate crop ET, rainfall-runoff, irrigation demand, and stormwater irrigation to determine optimal size of pump station and storage tank. The project was partially funded by a $1M AWS grant from the SFWMD. Mr. Pacheco performs daily field inspections. These include:
    - Ensuring materials used and their installation were in accordance with specifications and approved shop drawings.
    - Reviewing payments application.

- **Miami-Dade Water and Sewer Department, 48-inch Water Main Interconnect in the Central East Area Preliminary Alternative Water Main Route Analysis, Miami, Florida -** The project involved a 48-inch water main route analysis required to interconnect the Hialeah/Preston service area in the north with the Alexander Orr service area in the south with a 48-inch water transmission main. The project spanned 1.5 miles along the selected route in roads with heavy traffic and congested utilities. Mr. Pacheco was involved in utility coordination and preparation of cost estimate.

- **Miami-Dade Water and Sewer Department, Pump Station 49 Siting Evaluation, Miami, Florida -** The project involved a siting analysis for the relocation of pump station 49, which presently has maintenance issues due to the depth of the wet well. Mr. Pacheco was involved in utility coordination and preparation of cost estimate.

- **Citrus Canker Eradication Program -** Florida Department of Agriculture adopted a policy of removing all infected trees and all citrus trees within a 1900 ft radius of an infected tree in both residential areas and commercial groves. Mr. Pacheco performed daily field inspections during the removal activities.

X. John Xie, PE
Sewer Modeling
King Engineering Associates, Inc.

EDUCATION

Bachelor of Science in Applied (Environmental) Chemistry, 1994
South China University of Technology, Guangzhou, China
Masters of Science, Environmental Engineering, 2002
University of South Florida

PROFESSIONAL LICENSES

Professional Engineer Florida No. 65817

HIGHLIGHTS

Hydrological/hydraulic modeling

Horizontal Directional Drilling

Water, wastewater and reclaimed water experience

SUMMARY OF EXPERIENCE

Mr. Xie has more than seven years experience in environmental engineering. His vast array of project experience includes utilities and utility relocation, hydrological / hydraulic modeling, calculation, WWTP process study, providing utility design, preparation of specifications for projects as well as preparation of permit applications.

NOTEWORTHY PROJECTS

- **Northwest Florida Water Management District Interconnect Study** - Constructed hydraulic model of the major components of the interconnected systems of 18 utilities in Florida panhandle from Santa Rosa to Gulf Counties including transmission main, large distribution lines, pump station, and storage devices. Also provided calibration of the constructed model using the existing water model, available flow and pressure data achieved from the client; developed a variety of scenarios including projections of 2030 demands to test various failure scenarios, evaluated system pressure, tested and sized interconnect alternatives, sized booster pump station, evaluated storage requirements, and identified major utility improvements that may be required for the proposed interconnects to function properly.
- **Peace River Regional Integrated Loop System, Phase 2, Peace River Manasota Regional Water Supply Authority** – Provided hydraulic and hammer analysis of the 42-inch transmission main, evaluated the system pressure at a variety of pump failure events, costs estimates, specifications, FDEP and FDOT permits.
- **Lindrick Pump Station Preliminary Engineering, Florida Governmental Utility Authorization (FGUA)** – Provided hydraulic modeling to evaluate the performance for existing pump stations. Responsibilities also include preparation of related cost estimates.
- **University of South Florida (USF) Master Irrigation Evaluation, Tampa, FL** – Provided hydraulic modeling to evaluate the irrigation demand, irrigation system, pump system, cost estimate.
- **North-Central Reclaimed Main, Pasco County, FL** – Project Engineer, was responsible for perfoming hammer analysis of the approx. 36,000 LF of 36-inch reclaimed water main, evaluated the system pressure at a variety of pump failure events.
- **Northwest Solid Waste Transfer Station Expansion, Hillsborough County** - Performed economic feasibility analysis for the expansion of a solid waste transfer station on a closed landfill. The project included evaluation of current tonnages and projections of future tonnages through the year 2025, preliminary engineering and planning, alternative site plan analyses, design, permitting, and construction of a new 2,500 ton per day facility using top load technology, and design of wastewater pump station.
- **Wiregrass, Pasco County, FL** – Served as Project Engineer to design fire line, water line, and wastewater pump station for this 5,000-acre project site. Responsibilities included updating water, wastewater, and reclaimed water master plan.
- **South Cross Bayou Water Reclamation, Pinellas County, FL** – Engineer responsible for review of sludge digester methane data, calculated methane generation rate (Visual Basic), provided hydraulic modeling of sludge pumping for the rotary drum thickener and sludge heater exchanger design.
- **Causeway Utilities, Phase I, II, III Pipeline Replacement, Dunedin, FL** – As Engineer on this project, provided horizontal directional drill design for 5,100 of 20-inch WM, 3,600 LF of 14-inch FM, 3,600 LF of 12-inch WM, 13,000 LF of 8-inch FM, cost estimating, and FDEP and FDOT permits.
- **Lehigh Acres Master Lift Station Rehabilitation, Fort Myers, FL** – Engineer responsible for providing hydraulic modeling to evaluate the performance of existing pump station, inflow and infiltration analysis, cost estimate, and design of a new 2 MGD pump station.

- **Water Treatment Plant Filter Performance Evaluation, Clearwater, FL** – Engineer responsible for setting up arsenic mass balance calculations for the 3.6 MGD filtration and reverse osmosis process, and calculating coagulation dose for arsenic removal.
- **Water Distribution Model, Pinellas County, FL** – Engineer responsible for reviewing and updating ±2,000 miles of Pinellas County's existing distribution network model through GIS and as-built drawings. The model was run and analyses were conducted to evaluate future water system improvements required to be included in the County CIP.
- **Boyette Road Reservoir, Pasco County, FL** – Professional services included ERP and building permit submittal, cost estimating and construction quantity take off.
- **Water Master Plan, Pasco County, FL** – Engineer performed Pasco County 15 year CIP plan upgrade and cost estimating.
- **Jet Fuel Line, Tampa, FL,** - Engineer provided directional drill design of 150 LF of 6-inch high-pressure steel jet fuel line design, right-of-way permitting, and specifications review.
- **McKinley Drive Student Housing, Tampa, FL** – Engineer performed hydraulic calculations on water booster pump station, fire line sizing and water booster pump station design.
- **Glenn Creek Water and Reclaimed Water Utility, Bradenton, FL** – Engineer performed hydraulic modeling and pipe sizing of water and reclaimed water systems, design of reclaimed water systems, including directional drill design of 2,000 LF of 8-inch water and reclaimed water mains.
- **Master Pump Station B Force Main Design, Temple Terrace, FL** – Engineer for directional drill design of 1,600 LF 16-inch HDPE FM underneath the Hillsborough River. Also performed Tampa Port Authority permitting and specifications review.
- **Land O'Lakes Force Main Capacity Analysis, Pasco County, FL** – As Project Engineer provided professional services that entail wastewater projections for the next 20 years, evaluating the future expansion of force main system and hydraulic modeling on the force main and 7.0 MGD master pump station.
- **Central Pasco Wastewater and Reuse Improvements, Pasco County, FL** - Engineer provided professional services that entailed shop drawing review and cost estimating, hydraulic modeling for improvements to force mains and reclaimed water mains on Parkway Boulevard and Collier Parkway, and directional drill design 1,000 LF of 16-inch HDPE FM.
- **Central Pasco Potable Water Transmission Main, Pasco County, FL** - Responsibilities as Engineer on this project included directional drill design of pipeline, shop drawing review, hydraulic modeling and design of a booster pump station. Project consisted of 750 LF 36-inch potable water transmission main, 750 LF 24-inch force mains, 12 MGD pump station, and a sanitary pump station in Central Pasco County.
- **Design of Stormwater System, Tampa, FL** - Professional services included design of swale, dry and wet retention ponds, preparation of ERP permit application, preparation of cost estimate, bid form, and technical specifications, as well as field inspection of stormwater ponds for this project for TECO, Zephyr Eggs, City of Largo, Pinellas County School Board, and private developers.
- **Stormwater Retention Pond Inspections, Tampa, FL** - Performed multiple stormwater retention ponds inspections for various clients.
- **Kissimmee River Restoration, South Florida Water Management District, FL** - Performed hydraulic calculations using HEC-HMS and HEC-RAS, designed 40 cfs pump station, prepared specifications, and cost estimate.

Hector Gomez
Evaluation/Inspector
King Engineering Associates, Inc.

EDUCATION

B.S., Construction Management-Ongoing
Florida International University

HIGHLIGHTS

Occupational Safety and Health Administration 30 Hours Safety certification

Experience in construction inspection services, including shop drawing review and field inspections.

Knowledgeable with creating effective quantity take-offs and estimates for bids.

SUMMARY OF EXPERIENCE

Mr. Gomez's experience includes sanitary sewer evaluation survey (SSES), inspection, and quantity take offs. Mr. Gomez is proficient in Microsoft Office, AutoCAD and Access database.

He has gained knowledge in his coursework on how to interpret and understand various working drawings such as Electrical, Architectural, Structural, HVAC and mechanical plans. Mr. Gomez is knowlegable with creating effective quantity take-offs and estimates for bids and comparisons.

While attending Florida International University, Hector Gomez served as Chapter president for the American Society of Civil Engineers, Florida International University student chapter during the 2009-2010 term. He has from then on become a past president and advises the chapter with its future running. Mr. Gomez is also a member of Engineers without Borders.

NOTEWORTHY PROJECT

- **Miami-Dade Water and Sewer Department, Construction Management and Inspection Services for the "Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer System within the City of Miami Springs, Florida –** The project involved the inspection of approximately 46 miles of gravity mains, 17 pump stations, and 925 manholes. Specifically, inspection services included monitoring and documenting the pipe cleaning and closed circuit TV (CCTV) inspection of the MDWASD sewer collection system, monitoring and documenting the inspection of the manholes and lift stations contained within the MDWASD sewer collection system, and monitoring and documenting the smoke testing of the MDWASD sewer collection system for compliance with the project specifications. Throughout the work, Mr. Gomez documented and reported any discrepancies found on the MDWASD provided Sewer Atlas Maps on the Department's Atlas Correction Forms. Mr. Gomez performed video review and evaluated the sewer system. Resident concerns were promptly handled by Mr. Gomez in a professional manner as the program progressed. Mr. Gomez was involved in the gravity main, pump station, and manhole database QA/QC process.

- **Florida International University Environmental Health & Safety, Fire Equipment Inspection, Miami, Florida –** The project involved the inspection of fire extinguishers throughout Florida International University and record fire extinguisher logistics. Mr. Gomez was involved in filing and reviewing incident reports, maintaining inventory, and assessing possible fire code violations in a preventive manner.

NOTEWORTHY ACHEIVEMENTS

- **2010 Florida International University Steel Bridge team qualifications for 2010 AISC National Steel Bridge Competition** – As president of the American Society of Civil Engineers, Mr. Gomez was able to lead the FIU Steel bridge team to win 3rd place in the regional competition. This effort was rewarded with an invitation to the national competition in where FIU was able to demonstrate its talent on a national level. Mr. Gomez and his executive board were able to raise over 20,000 USD in efforts to create, supply and transport with lodging the FIU Steel bridge team in 2010.

HIGHLIGHTS

Comprehensive water/wastewater experience in Florida

Preparation of construction contract drawings and specifications

Estimated quantities and cost
Respond to RFIs

SUMMARY OF EXPERIENCE

Mr. Gladbach has nineteen years of experience in the design of wastewater, water and reclaimed water projects. Project experience includes design for wastewater treatment plants, pipelines, gravity sewer, pump stations, utility relocations associated with road projects, water treatment facilities, sludge pelletizer facilities, solid waste facilities, cemeteries, and parks improvements.

NOTEWORTHY PROJECTS

- **JC Bermudez Park Recycled Storm Water Irrigation Project, City of Doral, FL –** Assistant Project Manger responsible for the planning and design of an irrigation system that will be connected to the Park's freshwater lake and future storm water system. The design included a 2 MG storage tank, a 3,000 GPM storm water pump station, 130 micron filter to filter the storm water before entering the tank, and a 1,400 GPM irrigation pump station. The lake water and the future storm water will be utilized to irrigate the entire park, including 4 baseball fields, 2 soccer fields, 1 football field, a community center and other miscellaneous landscaped areas.

- **Peace River Regional Integrated Loop System, Phase 2, North Port, FL –** Assistant Project Manager for the planning, conceptual design, detailed design, utility coordination, and permitting of approximately 38,000 LF of 42-inch water transmission main. Included with the project was the design and planning of an additional meter station to the City of North Port. The project involved new interconnects with the existing 36-inch PCCP transmission main to improved service between the Peace River/Manasota Regional Water Supply Authority, the City of North Port, Desoto County and Charlotte County water systems.

- **Regional Water Interconnect Project – NWFWMD, Pensacola, FL** - Assistant Project Manager responsible for the conceptual design and collection of the coastal water systems from Gulf Breeze, FL southeasterly along the Florida coast to the City of Port St. Joe, FL. The project involved the collection of all water system mapping and modeling from the various water systems and coordinating interconnect locations. This was necessary to identify areas where the existing systems need improved interconnects, so that to provide a reliable looped system in the event of a natural disaster.

- **US-301 Force Main, (Valencia Lakes to SR-674) Project, Hillsborough County, FL –** Assistant Project Manger responsible for the design, permitting and providing a summary of quantities of approximately 8,000 LF of 30-inch sanitary sewer force main. Provided design, permitting and coordination with the Florida Department of Transportation. The proposed alignment involved a 110 LF of jack and bore across US-301 and the open cutting 7,900 LF of road shoulder. The project required the coordination and conversion from Microstation files to AutoCAD files, between the proposed designed road widening improvements and the new 30-inch force main.

- **Class A Facilities, Philadelphia Renewable Bio-Fuels, LLC, Philadelphia, PA –** Assistant Project Manager responsible for the design and coordination between multiple sub consultants for the addition of a residuals pelletizer at the Philadelphia Bio-Solids Recycling Facility. This project involved the use of digester gas as a fuel supplement to natural gas and fuel oil to power the dual process trains. Coordinated between five design consultants for the engineering of a 250 dry ton per day bio-solids pelletizer, dual process trains and new bio-solids receiving facility.

- **South Cross Bayou WRF – Rotary Drum Thickener Project, Pinellas County, FL –** Assistant Project Manager and Designer for the decommissioning of the existing centrifuge thickeners and the installation of new rotary drum thickeners. Responsibilities included design, maintaining drawing continuity and quality control as well as coordinating with the structural, electrical and equipment vendors. Services included the installation of two cake receiving wetbins, a pugmill to mix various types of sludge material and a pumping system to convey the mixed material to the next phase of the treatment process.

- **Parkway Shops – Skymarks Drive Force Main Project, Jacksonville, FL –** Assistant Project Manager and Sr. Designer for the planning, the design and permitting of approximately 2,100 LF 12-inch sanitary force main within the curb lines of Skymarks Drive and Lunar Drive. The project consisted of 2,000 LF of open-cut pavement and a 100 LF jack and bore beneath Airport Center Drive.

- **Royal Lakes Force Main Phase 1, Jacksonville, FL** – Assistant Project Manager responsible for the planning, design and permitting of approximately 7,700 LF of 24-inch and 3,300 LF of 30-inch sanitary sewer force main. The project involved project and pre-application meetings with the Florida Department of Transportation and the Jacksonville Electric Authority (JEA). The design included 342 LF of 42-inch jack and bore, 7,315 LF of open-cut construction and 3,313 LF of 30-inch HDPE directional drill construction.

- **North-Central Pasco Reclaimed Main & Force Main, Pasco County, FL –** Assistant Project Manager for the planning and design of approximately 9 miles each of 36-inch reclaimed water main, and 16-inch force main and serving the North-Central area of Pasco County, including the planned Talavera community and surrounding developments. The installation includes directional drills under the Suncoast Parkway and wetlands, jack and bores under a railway easement, and installation of re-pump and booster pump stations. Additional coordination between various property owners to acquire easements for the pipeline route was required. Assistance with the acquisition of permits from the Florida Department of Transportation, Pasco County Roadway Division and other permitting agencies is currently under review.

- **Irrigation of JEA Water Reclamation Facilities, Jacksonville, FL –** Assistant Project Manager to provide design / build services to the Jacksonville Electric Authority (JEA) for the design and reconstruction of the reclaimed water irrigation systems at six (6) of their Wastewater Reclamation Facilities. Work included the re-routing of piping from the plant to the new irrigation system. Pipe sizes ranging from 1-inch to 10-inch. Providing metering and controls in addition to filtration, to the system in order to show discharge flows for the Treatment Plant's daily use and a way to log flows for permitting. At the District II WRF facility a portion of the irrigation system included the design and installation of water canons to an adjacent facility hayfield for the commercial harvest of bahia grass hay to recuperate cost.

- **Central Pasco Water System Improvements – WTM County Line Road to Curley Road, Pasco County, FL** – Assistant Project Manger involved in the route assessment, easement acquisition, design and permitting of 37,300 LF, 36-inch water transmission main, 30,400 LF 24-inch water transmission main, 7,500 LF water distribution main, 26,500 LF 16-inch sanitary force main, and 28,100 LF 24-inch sanitary force main routed through congested right-of-ways and easements across eastern Pasco County. The project required numerous right-of-way and environmental permits, coordinating between various roadway and civil engineering groups conducting road widening and site development work throughout the length of the project.

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-the-Sea RFP No. 11-04-02

RFP FORMS

RFP FORM A

Proposer: King Engineering Associates, Inc.

QUALIFICATIONS STATEMENT

THIS FORM MUST BE SIGNED AND SUBMITTED WITH PROPOSAL TO BE DEEMED RESONSIVE. The undersigned guarantees the truth and accuracy of all statements and the answers contained herein.

1. State the full and correct name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name.)

1.1 The correct and full legal name of the Proposer is: **King Engineering Associates, Inc.**

1.2. The business is a **State of Florida Corporation**

State of Florida

Department of State

I certify from the records of this office that KING ENGINEERING ASSOCIATES, INC. is a corporation organized under the laws of the State of Florida, filed on December 19, 1977.

The document number of this corporation is 555540.

I further certify that said corporation has paid all fees due this office through December 31, 2011, that its most recent annual report was filed on January 7, 2011, and its status is active.

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

Given under my hand and the Great Seal of Florida, at Tallahassee, the Capital, this the Eighth day of January, 2011

Jennifer Kennedy

Secretary of State

Authentication ID 300190363643-010811-555540

To authenticate this certificate, visit the following site, enter this ID, and then follow the instructions displayed.
https://efile.sunbiz.org/certauthver.html

1.3 The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows:

Team History and Background

King, established in 1977, is a Florida-based corporation licensed to provide multi-discipline professional engineering services per State of Florida certification number #2610. King is also licensed by the State of Florida to provide surveying and landscape architecture services under license numbers LB2610 and LC26000183, respectively. Over the last 33 years, King has applied its talents and resources to the implementation of innovative engineering projects. What began as a small engineering firm has grown into a **full-service, employee-owned firm** with expertise in engineering, planning, ecological services, surveying, and construction management. With four offices in Florida and two in Texas, King's success is reflected in our work and our client's loyalty. King is able to provide you with a cohesive multi-disciplinary team that understands every aspect of your project, and is committed to delivering to your satisfaction. **King provides engineering, planning, ecological and surveying services for civil, transportation, water resources, and water/wastewater/reclaimed water related projects, including SSES work.**

Tax Status: FL Corp. 59-1782900

Years in Business: 33 Years

Owners:

Keith Appenzeller, PE
Thomas O'Connor, PE
Christopher Kuzler, PE
Michael Ross, PE
Scott Sheridan, RLA
Agustin Maristany, PE
Denise Greer, PE
William Moriarty, PE
Aaron Googins, PE
James Orchard, CPA
Lara Bartholomew, PE
Sandra Gorman, PE
William Holloway, PE
Larry Kistler
Kevin LeBlanc
John Seals, PE
Loc Truong, PE
Brian Skidmore
Franklin Torrealba, PE
Thomas Traina, PE
Tuyen Tran, PE
Peter Zent

Principals / Officers / Board of Directors:

CEO/Chairman: Keith Appenzeller, PE
President: Thomas O'Connor, PE
Sr. Vice President: Christopher Kuzler, PE
Sr. Vice President: Michael Ross, PE
Sr. Vice President: Scott Sheridan, RLA
Vice President: Agustin Maristany, PE
Vice President: Denise Greer, PE
Vice President: William Moriarty, PE
Vice President: Aaron Googins, PE
Chief Financial Officer: James Orchard, CPA

Primary Markets Served:
Local Municipal Governments
Water Management Districts
State Agencies
Private Developers

Professional Employees by Classification:
Engineers: 43
Planners: 10
Landscape Architects: 1
Scientists: 4
Surveyors: 8

Total Number of Employees: 86

2. Please describe your company in detail.

King, established in 1977, is a Florida-based corporation licensed to provide multi-discipline professional engineering services per State of Florida certification number #2610. King is also licensed by the State of Florida to provide surveying and landscape architecture services under license numbers LB2610 and LC26000183, respectively. Over the last 33 years, King has applied its talents and resources to the implementation of innovative engineering projects. What began as a small engineering firm has grown into a full-service, employee-owned firm with expertise in engineering, planning, ecological services, surveying, and construction management. With four offices in Florida and two offices in Texas, King's success is reflected in our work and our client's loyalty. King is able to provide you with a cohesive multi-disciplinary team that understands every aspect of your project, and is committed to delivering to your satisfaction. King provides engineering, planning, ecological and surveying services for civil, transportation, water resources, and water/wastewater/reclaimed water related projects, **including SSES work.**

3. The address of the principal place of business is:

Local Project Office:
8390 NW 53rd Street, Suite 200, Doral, Florida 33166

Corporate Headquarters:
4921 Memorial Highway, Suite 300, Tampa, Florida 33634

4. Company telephone number, fax number and email addresses:

Phone: 305-392-9979
Fax: 305-392-9912
amaristany@kingengineering.com

5. Number of employees: **86**

6. Name of employees to be assigned to this project: **2 or more depending on the client's schedule, deadlines, and project requirements.**

7. Company identification numbers for the Internal Revenue Service: **59-1782900**

8. Provide Broward County occupational license number, if applicable, and expiration date: **N/A**

9. How many years has your organization been in business? **33 Years**

Does your organization have a specialty?

Yes, King Engineering specializes in the following services:

- **Sanitary Sewer Evaluation Survey (SSES)**
- **Pump Station Analysis, Design and Construction**
- **Inflow/Infiltration (I/I) Studies**
- **Sewer Modeling (SewerCAD, Etc.)**
- **Preparation of Preliminary/Feasibility Design Reports**
- **Grants, Alternative Funding Sources**
- **Bidding Assistance**
- **Public Relations/Presentations**
- **Bidding and Construction Documents**
- **Construction Management**
- **Sewer System Inspections (Pump Stations/Sewer Lines and Laterals)**
- **Cost Estimating**
- **Scheduling**

10. List the last three projects of this nature that the firm has completed?

1. Construction Management and Inspection Services for the "Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer System within the City of Miami Springs, Florida"

The City of Miami Springs' water and sewer system was recently acquired by MDWASD. The City's sewer collection system was mostly installed in the early 1970's and currently contributes Inflow/Infiltration (I/I) to MDWASD's collection system. King was retained in support of the **City's SSES program to perform construction management, inspection services, evaluation, cost estimating and provide repair recommendations for all identified defects.**

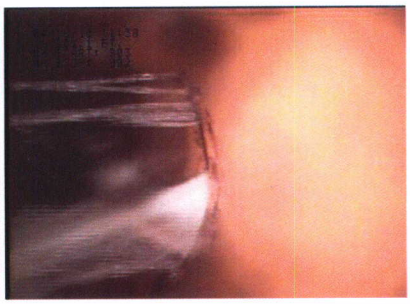
The City's' sewer collection system is comprised of approximately 46 miles of gravity mains, 17 pump stations, and 925 manholes. Originally, basins 1233, 1235, 1240, 1242, 1245, 1246, 1247, and 1249 did not comply with the Miami-Dade County Code Section 24-42.2(1) (d) maximum I/I requirement of 5,000 GPD/dia-inch/mile. These basins were prioritized under the Volume Sewer Customer Ordinance (VSCO). In addition, the City's sewer collection system lies within the limits of the Wellfield Protection area (Cone of Influence), so special attention must be paid to reducing or eliminating leakage from the sewer system. This project served the dual purpose of cleaning the entire system and identifying the sources of I/I as well as eliminating potential sources of contamination to the drinking water wells in the vicinity.

The project included manhole cleaning and inspection; pump station wet well cleaning and inspection, sewer gravity main cleaning and CCTV inspection, and smoke testing. This project was the first of a two step process to reduce I/I. In accordance with MDWASD's guidelines, the project helped identify specific repairs through the manhole, pump station, and CCTV inspections. The smoke testing identified potential sources of I/I that need further investigation to determine exactly which repairs may be needed. In addition, the smoke testing helped identify potential sources of I/I located outside of the publicly owned facilities. The second portion of the project includes the repair of the identified defects.

The SSES found the following defects within the sewer collection system:

- **145 defects during manhole inspections.**
- **13,106 defects during CCTV inspections.**
- **482 defects during smoke testing.**
- **No visible defect during pump station inspections.**

Below are some photos of defects identified during the course of the project. In order: a missing clean out cap, a leaking joint, and roots between a manhole frame and chimney.



Cleaning, inspection, and smoke testing procedures were conducted in accordance with the contract specifications while minimizing inconvenience to residents. All defects identified were logged into a database provided by MDWASD and repair recommendations were determined using MDWASD's Repair Criteria and Technology Guidelines. **A total of 3,038 repair recommendations were identified after the evaluation process.**

2. MDWASD Basis of Design Reports (BODR) – Pump Station Engineering Reports (six) and Pump Station 717 Sewer Force Main System Evaluation, and Others

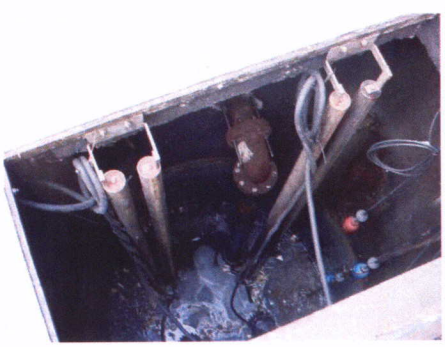
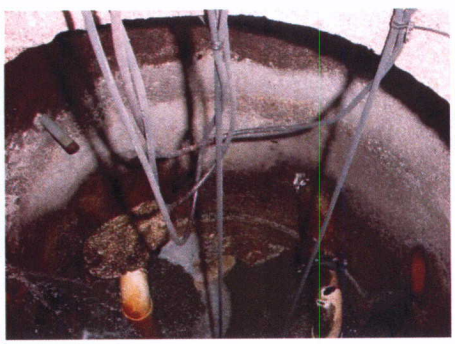
King was hired by Miami-Dade Water and Sewer Department (MDWASD) to provide engineering services in the preparation of Basis of Design Reports. This work assignment involved analyzing and preparing pump station engineering reports for six pump station upgrades, analyzing the proposed Pump Station (PS) 717 sewer force main system and providing alternative force main recommendations.

The project involved project management and progress meetings/reports including coordination with MDWASD Maintenance Division, Planning, as well as Electrical and Mechanical Sections. A site visit to each pump station (six) to record existing conditions in order to determine if the existing pump stations can be upgraded or a new pump station and/or a new site might be required was performed.

Existing pumps and piping system were recorded and access and spacing regarding proposed pump, piping system, new valve box, control panel, SCADA, switch gears, and wet well requirements were evaluated.

In conjunction with the field reconnaissance, the hydraulic analysis provided by MDWASD was reviewed, modified and implemented. The information gathered was used to evaluate the force main system proposed by MDWASD and to outline three alternatives that would require less pump station upgrades. An alternative analysis was performed in order to select the most viable option, including a planning level opinion of probable cost for each. Once an acceptable alternative was selected, three pump stations were identified as needing upgrades: PS 717, PS 738, and PS 739. For each of these stations, discharge points and proposed structures were identified, mechanical upgrades and pump selections were analyzed, any required site modifications to accommodate the new structures were outlined, and electrical requirements were identified and recommended.

Below are photos of PS 717, PS 738, and PS 739, respectively.

Other projects to date included: 48-inch Water main Interconnect in the Central East Area (Downtown Miami) Preliminary Alternative Water Main Route Analysis (1.54 miles); 60-inch forcemain CL-1 Pump Station 1 to C-2 Forcemain Connection Preliminary Alternative Pipe Route Analysis (1.12 miles); and the Pump Station 49 Siting Evaluation.

3. Kenneth City Sanitary Sewer System Rehabilitation and Pump Station Replacement, Pinellas County, FL

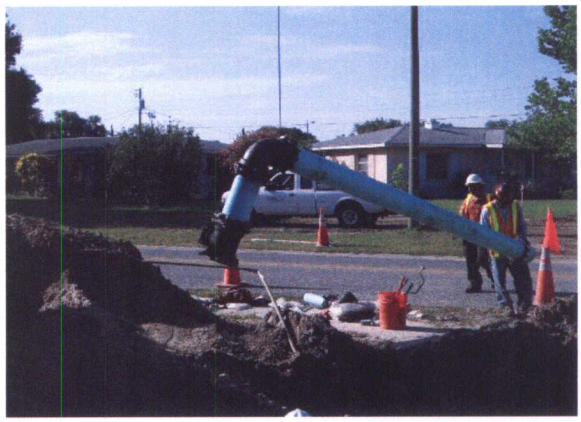
King provided design, permitting, bidding, and construction management services for the **rehabilitation of approximately 25,000 linear feet of residential sanitary sewer pipe** in existing residential neighborhoods in Kenneth City area of Pinellas County. Rehabilitation was accomplished by the cured-in-place-pipe (Insituform) method. The project involved gaining access to the sewer system through existing manholes, many of which were located **within roadway pavement, requiring strict MOT practices,** and others that were located in backyards requiring coordination with homeowners.

Upon completion of the sewer system rehabilitation phase in 2005, King conducted an infiltration and inflow study in order to measure the effectiveness of the rehabilitation project on the system's pump station. This data was then used to design a new pump station and force main serving this portion of the Kenneth City sewer system. King then completed the design, permitting, bidding and construction services for a new replacement pump station.

Efforts included reviewing existing I/I data, **viewing video tape inspections of the sewer system**, developing bid documents and providing construction management and observation services for lining the gravity system by the cured-in-place (Insituform) pipe method, **estimating the flow reduction** and reduced pump station capacity resulting from the rehabilitation and design, permitting, bidding, and construction services related to the pump station replacement and force main. Construction of the pump station and force main was delayed due to the County's desire to merge the work with a roadway construction project.

The original pump station was of the dry well/wet well arrangement using 240 volt pumps. The new design provided for the removal of the existing station requiring that temporary bypass pumping be provided for the duration of construction. The design of the new pump station incorporated a single wet well equipped with three submersible pumps rated for operation on 480 volt power.

The project also included the replacement of the pump station's existing force main. Approximately 3,500-feet of new 10-inch PVC force main was designed to serve the new pump station. The force main was routed through residential streets and was constructed as part of a joint project agreement with the County Roads Department who were installing new storm sewers along portions of the force main route.



11. Have you ever failed to complete any work awarded to you? **No** If so, where and why?

12. Provide the following information concerning all contracts in progress as of the date of submission of this Proposal for your company, division or unit as appropriate.

Name of Project	Contract with:	Contract Amount	Estimated completion Date	% of Completion to Date
JC Bermudez Park Recycled Stormwater Irrigation	City of Doral	368,338	5/30/2011	95%
Coastal Water Systems Interconnect Project, Phase I	Northwest Florida Water Management District	$990,000	9/30/2011	85%
South Lake Pump Station Design (30,000 gpm)	City of Hollywood	$187,000	10/30/2011	22%

13. Provide the following information for any subconsultants you will engage if awarded the contract.

Subcontractor Name	Address	Work to be Performed
N/A		

The foregoing list of subconsultants may not be amended after award of the contract without the prior written approval of the Town Manager, whose approval shall not be unreasonably withheld.

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP Form B

Proposer: King Engineering Associates, Inc.

REFERENCE FORM

Forms A, B & C are available in WORD format from the Town Clerk upon request.

THIS FORM MUST BE SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The Proposer guarantees the truth and accuracy of all statements and the answers contained herein.

Give names, addresses and telephone numbers of four individuals, corporations, agencies, or institutions for which you have performed work similar to what is proposed in this RFP:

1. Name of Contact Mr. Rod Lovett / Miami-Dade Water Sewer Department

   Title of Contact Chief, Wastewater Collection and Transmission Line Division

   Telephone Number: 305-607-1446 Fax Number 786-268-5030

2. Name of Contact Mr. Jim Saren / Miami-Dade Water & Sewer Department

   Title of Contact Assistant Superintendent Maintenance & Repair Section

   Telephone Number: 786-268-5030 Fax Number 305-254-5876

3. Name of Contact Mr. Dan J. Edwards, PE / Miami-Dade Water Sewer Department

   Title of Contact Chief, Master Planning Section

   Telephone Number: 786-232-5257 Fax Number 786-669-8638

4. Name of Contact Mr. James Hall, PE / Pinellas County, FL

   Title of Contact Director of Engineering and Environmental Services

   Telephone Number: 727-464-3883 Fax Number 727-464-3595

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP Form C

Proposer: King Engineering Associates, Inc.

PROPOSER'S CERTIFICATION

THIS FORM MUST BE SIGNED AND SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The undersigned guarantees the truth and accuracy of all statements and the answers contained herein.

I have carefully examined the Request for Proposal referenced above ("RFP") and any other documents accompanying or made a part of this RFP.

I hereby propose to furnish the goods or services specified in the RFP. I agree that my proposal will remain firm for a period of 120 days in order to allow the Town adequate time to evaluate the proposals.

I certify that all information contained in this proposal is truthful to the best of my knowledge and belief. I further certify that I am duly authorized to submit this proposal on behalf of the firm as its act and deed and that the firm is ready, willing and able to perform if awarded the contract.

The firm and/or Proposer hereby authorizes the Town of Lauderdale-by-the-Sea, its staff or consultants, to contact any of the references provided in the proposal and specifically authorizes such references to release, either orally or in writing, any appropriate data with respect to the firm offering this proposal.

I further certify, under oath, that this proposal is made without prior understanding, agreement, connection, discussion, or collusion with any other person, firm or corporation submitting a proposal for the same product or service; no officer, employee or agent of the Town or any other proposer is interested in said proposal; and that the undersigned executed this Proposer's Certification with full knowledge and understanding of the matters therein contained and was duly authorized to do so.

If this proposal is selected, I understand that I will be expected to execute the Town's standard professional services contract, in the form approved by the Town Attorney.

A person or affiliate who has been placed on the convicted vendor list following a conviction for public entity crimes may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public

entity, may not be awarded or perform work as a contractor, supplier, sub-contractor, or consultant under a contract with a public entity, and may not transact business with any public entity in excess of the threshold amount provided in Sec. 287.017 Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list. I further certify, under oath, that neither the entity submitting this sworn statement, not to my knowledge, any of its officers, directors, executives, partners, shareholder, employees, members or agents active in the management of the entity has been convicted of a public entity crime subsequent to July 1, 1989.

King Engineering Associates, Inc.
Name of Business

By: _____
Signature

Agustin E. Maristany, P.E., Vice President
Print Name and Title

8390 NW 53rd Street, Suite 200

Doral, Florida 33166
Mailing Address

State of Florida
County of Duval

Sworn to and subscribed before me this 19 day of May, 2011.

Notary Public
Kristine M. Lindgren
My Commission Expires:

KRISTINE M. LINDGREN
MY COMMISSION # DD 794786
EXPIRES: October 4, 2012
Bonded Thru Notary Public Underwriters

King's expertise in and experience with providing services similar to those required by the RFP.

1. Construction Management and Inspection Services for the "Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer System within the City of Miami Springs, Florida					
Client: **Miami-Dade Water and Sewer Department**	Contract Value: $189,408.00	Duration: 10 months	Client: **Rod Lovett** **Chief, Wastewater Collection and Transmission Line Division**	Phone # **305-607-1446**	Prime or Sub **Prime**

The City of Miami Springs' water and sewer system was recently acquired by MDWASD. The City's sewer collection system was mostly installed in the early 1970's and currently contributes Inflow/Infiltration (I/I) to MDWASD's collection system. King was retained in support of the City's SSES program to perform construction management, inspection services, evaluation and provide repair recommendations for all identified defects.

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The project included manhole cleaning and inspection, pump station wet well cleaning and inspection, sewer gravity main cleaning and CCTV inspection, and smoke testing. This project was the first of a two step process to reduce I/I. In accordance with MDWASD's guidelines, the project helped identify specific repairs through the manhole, pump station, and CCTV inspections. The smoke testing identified potential sources of I/I that need further investigation to determine exactly which repairs may be needed. In addition, the smoke testing helped identify potential sources of I/I located outside of the publicly owned facilities. The second portion of the project includes the repair of the identified defects.

The SSES found the following defects within the sewer collection system:

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- 482 defects during smoke testing.
- No visible defect during pump station inspections.

Cleaning, inspection, and smoke testing procedures were conducted in accordance with the contract specifications while minimizing inconvenience to residents. All defects identified were logged into a database provided by MDWASD and repair recommendations were determined using MDWASD's Repair Criteria and Technology Guidelines. A total of 3,038 repair recommendations were identified after the evaluation process.

2. MDWASD Basis of Design Reports					
Client **Miami-Dade County MDWASD**	Contract Value: **$200,000**	Duration: **3 Months**	Client: **Dan Edwards, P.E.** **Chief – Planning Section**	Phone: **786-232-5257**	Prime or Sub: **Prime**

Results of Project: Projects completed on budget and on a fast-track schedule. All reports completed within 1 month from notice to proceed.

Project Description: Description: The purpose of these projects were to identify Municipal jurisdictions**, identify existing or required Right-of-Way, identify the points of connection of the proposed force mains, pump stations preliminary engineering, determine its sizes and determine the best route for the proposed force mains in terms of constructability, to prepare an opinion of probable cost of the selected route, to determine a list of required permits, and to prepare a preliminary project schedule**. These projects to date included: Pump Station Engineering Reports (six) and Pump Station 717 Sewer Forcemain System Evaluation; 48-inch Water main Interconnect in the Central East Area (Downtown Miami) Preliminary Alternative Water Main Route Analysis; CL-1 Pump Station 1 to C-2 Forcemain Connection Preliminary Alternative Pipe Route Analysis; and the Pump Station 49 Siting Evaluation. King Engineering Associates, Inc. (King) was by Miami-Dade Water and Sewer Department (MDWASD) to provide engineering services in the preparation of Basis of Design Reports. This work assignment involved preparing pump station engineering reports for six pump station upgrades, analyzing the proposed Pump Station (PS) 717 sewer force main system and providing alternative force main recommendations.

The project involved project management and progress meetings/reports including coordination with MDWASD Maintenance Division, Planning, as well as Electrical and Mechanical. A site visit to each pump station (six) to record existing conditions in order to determine if the existing pump stations can be upgraded or a new pump station and/or site might be required was performed.

Existing pumps and piping system were recorded and access and spacing regarding proposed pump, piping system, new valve box, and wet well requirements were evaluated.

In conjunction with the field reconnaissance, the hydraulic analysis provided by MDWASD was reviewed. The information gathered was used to evaluate the force main system proposed by MDWASD and to outline three alternatives that would require less pump station upgrades. An alternative analysis was performed in order to select the most viable option, including a planning level opinion of probable cost for each. Once an acceptable alternative was selected, three pump stations were identified as needing upgrades: PS 717, PS 738, and PS 739. For each of these stations, discharge points and proposed structures were identified, mechanical upgrades and pump selections were analyzed, any required site modifications to accommodate the new structures were outlined, and electrical requirements were coordinated with an electrical engineer.

3. JC Bermudez Park Recycled Storm Water Irrigation Project					
Client: **Doral, FL**	Contract Value: **$348,000**	Duration: **14 Months**	Reference: **John Rebar, Parks & Recreation Director**	Phone: **305-593-6600**	Prime or Sub: **Prime**

Results of the Project: Contract documents completed within budget within 4 months; SFWMD conceptual ERP permit approved within 5 weeks.

Description: The City of Doral retained King Engineering to provide modeling, design, permitting (ERP and CUP), and construction support services for the fast-track implementation of a $2.9M recycled storm water irrigation system for the 80-acre park. Major project components included **emergency lake intake structure, 2 (12-inch) impeller meters with Flow Indicator Transmitter (FIT), 2 MG above ground concrete storage tank, 3,000 gpm stormwater pump station, 130 micron disk filters with**

automatic backwash, gravity sand filter for backwash water, bleach disinfection system, 1,400 gpm irrigation pumps, 7,000 feet of 12" diameter looped main, irrigation system, and automated controls. Developed 20-year water balance model to determine optimal size of pump station and storage tank.

4. Preliminary Basis of Design Report and Pump Station Siting Study

Client:	Contract Value:	Duration:	Reference:	Phone #	Prime or Sub
Hollywood, FL	**$ 271,000**	**Ongoing**	**Albert Perez, P.E., Utilities Director**	**954-967-4455**	**Prime**

Results of Project: Project is ongoing within budget and schedule. Innovative design provides better flood control within regulatory constraints.

Project Description: King is providing modeling, design, permitting, cost estimates, and construction support services for Phase 1 drainage improvements within the South S. Lake Drainage Basin, a low-lying coastal residential basin susceptible to flooding. Responsibilities include: modeling & sizing of improvements, a new **30,000 gpm stormwater pump station**, new large diameter outfalls into the Intracoastal Waterway, replacement of large portions of the existing undersized storm sewer system, permitting with Broward County, USACE, and FDEP, cost estimates, maintenance of traffic plans, pavement & sidewalk restoration, landscaping, extensive utility conflict resolution, electrical and controls for pump station and several slide gates. The submersible pumps eliminate noise and visual obstruction. Electrical, telemetry and control panels will be camouflaged by landscaping.

5. West Sewer System Evaluation

Client:	Contract Value:	Duration:	Reference:	Phone#	Prime or Sub
Largo, FL	**$21,000**	**9/2005 to 1/2006**	**Leland Dicus, PE, City Engineer**	**727-587-6713 x 4400**	**Prime**

Results of Project: The analyses provided the City with recommended improvements and the associated construction costs to eliminate sanitary sewer overflows.

Project Description: The City's west collection system consists of over 100 miles of gravity sewers, three major lift stations and over 9 miles of 8 through 16-inch force mains. Due to the system's age and high groundwater levels, the City has experienced sanitary sewer overflows during intense rain events, resulting in a Consent Order from the Florida Department of Environmental Protection (FDEP). King was hired to review existing system monitoring data, calculate potential infiltration and inflow, determine wet weather flows into each lift station, develop an H2ONet hydraulic model of the lift station and force main system, recommend improvements to each lift station, recommend the size and route of replacement force mains and develop construction cost estimates for the improvements. The entire program was estimated to cost over $14 million.

6. Glenwood Estates Sewer Evaluation

Client:	Contract Value:	Duration:	Reference:	Phone#	Prime or Sub
Clearwater, FL	**$20,000**	**5/2010 – 4/2001**	**Janice Bennett, P.E., Assistant Director of Public Utilities**	**727-562-4960 x 7221**	**Prime**

Results of Project: The project provided the City with recommended sanitary sewer system improvements necessary to eliminate system backups into private property.

Project Description: The sanitary sewer system in Glenwood Estates conveys flows from ±408 residential lots. The system was constructed in the 1950s with substandard and, in some cases, negative slopes, resulting in increased maintenance efforts and backups into private property. King was hired to evaluate the existing gravity system and provide recommendations for system modification necessary to improve flow through the system. The effort included calculating the average and peak sanitary sewer flows, determining the hydraulic grade lines in the system, reviewing existing video inspections to find areas of concern, developing three alternative solutions and cost estimates to improve performance and reduce maintenance costs including a new 10" and 12" gravity sewer system and two pump station/force main options, calculating life cycle costs for each alternative and making final recommendations on the proposed approach.

7. Wiregrass Potable, Reclaimed, and Wastewater Master Plans, Pasco County, FL					
Client: **Locust Branch LLC**	Contract Value: **$30,000**	Duration: **07/2010 to present**	Reference: **David Evans**	Phone# **727-560-6660**	Prime or Sub **Prime**
Developed master plans for utility infrastructure throughout a planned 5,100-acre community district in Pasco County. The proposed infrastructure ties into the County's existing systems, which have all been recently upgraded in previous years to accommodate the additional flows associated with the planned development – with peak flows up to 9.6 MGD wastewater, 10.2 MGD potable water, and 8.1 MGD reclaimed/irrigation flows. Responsibilities included conceptual design and master planning, development and review of the hydraulic models, and quality control and review of results and master plan reports. Design for various aspects of the master infrastructure is ongoing under separate contract.					

8. Largo Wet Weather Force Main and Lift Station Improvements					
Client: **Largo, FL**	Contract Value: **$4.5 Million**	Duration: **On-going**	Reference: **Leland Dicus, PE** **City Engineer**	Phone# **727-587-6713 x4400**	Prime or Sub **Prime**
Results of Project: The project will result in force main and pump station improvements necessary to eliminate sanitary sewer overflows. Project Description: In response to a Consent Order from the FDEP, King was hired as part of a team to provide hydraulic modeling, preliminary and final design, permitting and construction services for lift station upgrades and new force mains that will divert wet weather flows around the existing gravity sewer system and eliminate sanitary sewer overflows by conveying the wastewater directly to the City's wastewater treatment plant. King's scope of services includes survey, ecological services, hydraulic modeling, field evaluations and testing to determine the condition of existing ±7 miles of force main ranging in size from 8 to 16 inches, preliminary engineering for five lift station upgrades and new force mains, design and permitting of lift station upgrades and new force mains and construction management services.					

9. Downtown Redevelopment Sewer Modeling					
Client: **Dunedin, FL**	Contract Value: **$30,500**	Duration: **3/2006 to 7/2006**	Reference: **Doug Hutchens, Director of Public Works & Utilities**	Phone# **727-298-3005**	Prime or Sub **Prime**
Results of Project: The project provided the City with estimates of increased wastewater flows that could be expected from new development along with recommended sanitary sewer system improvements necessary to convey the flow. Project Description: In order to plan for potential sewer system upgrades associated with proposed downtown redevelopment, the City of Dunedin hired King to perform an evaluation and recommend improvements to its existing sewer system. As part of these services, King developed a **SewerCAD hydraulic model** of the sanitary sewer system that serves the City's downtown district, estimated increased flows including infiltration and inflow; evaluated the performance of the existing system under dry season, wet season, and peak conditions; evaluated the existing system with additional flows from the proposed redevelopment and provided the City with recommendations and construction cost estimates for modifying the existing system.					

10. Sanitary Sewer System Management, Operations and Maintenance (MOM) Program Assessment, Dunedin, FL					
Client: **Dunedin, FL**	Contract Value: **$73,000**	Duration: **1/2006-7/2007**	Reference: **Doug Hutchens, Director of Public Works and Utilities**	Phone# **727-298-3005**	Prime or Sub **Prime**
Results of Project: The project obtained satisfied the requirements of a mandated EPA program and obtained approval from the EPA for the City's procedures for operating and maintaining its sanitary sewer system. Project Description: King was hired to prepare a Management, Operation and Maintenance (MOM) Program assessment of the City of Dunedin's wastewater collection and transmission system per the EPA Region 4 "Guide to Collection and Transmission System Management, Operation and Maintenance Program." Engineering services included data collection of the system's operation including records of overflows, data compilation, and development of official procedures standardizing the City's O&M methods, report preparation and submittal to the EPA. The report and the City's procedures were accepted by the EPA with no comment.					
11. Kenneth City Sanitary Sewer System Rehabilitation and Pump Station Replacement					
Client: **Pinellas County, FL**	Contract Value: **$228,000**	Duration: **7/2002 to 9/2004 (system lining); 1/2007 to 6/2010 (pump station and force main)**	Reference: **James Hall, P.E., Director of Engineering and Environmental Services**	Phone# **727-464-3883**	Prime or Sub **Prime**
Results of Project: The project resulted in reducing Inflow/Infiltration (I/I) in 25,000 LF of gravity sewer and replacement of a deteriorated pump station and force main. Project Description: King was hired to provide design, permitting and construction management services for the rehabilitation of 25,000 LF of residential sanitary sewer pipe and the replacement of an existing lift station and force main system. Efforts included reviewing existing I/I data, viewing video tape inspections of the sewer system, developing bid documents and providing construction management and observation services for lining the gravity system by the cured-in-place (Insituform) pipe method, estimating the flow reduction and reduced pump station capacity resulting from the rehabilitation and design, permitting, bidding, and construction services related to the pump station replacement and 2,000 LF of new 8-inch force main. Construction of the pump station and force main was phased due to the County's desire to merge the work with a roadway construction project.					

Approach to Providing Services

King welcomes the opportunity to work in partnership with the Town of Lauderdale-By-The-Sea (Town) to implement innovative and cost-effective solutions to address the Town's sanitary sewer system by providing evaluation, analysis, and engineering services.

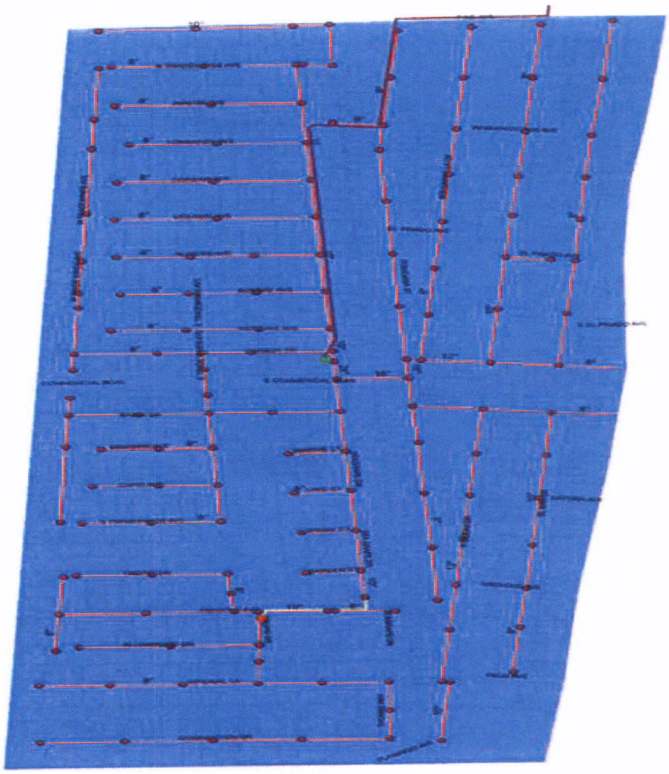
As requested, the proposed approach section is organized into the following major areas of potential work assignments:

- **Reviewing the Town's video documentation of the sewer system**
- **Reviewing Reports of Town-owned Manholes**
- **Evaluating wastewater flow meter at the Seagrape lift station**
- **Inspection of Town's two pump stations**
- **Inflow/Infiltration Determination**
- **Identifying Capital Repairs and Replacements Projects**
- **Estimating Future Flow Rates/Hydraulic Sewer Model Development**
- **Grant Assistance**
- **Preparing Preliminary / Feasibility Design Reports**
- **Project Scheduling / Phasing**
- **Preparing Bidding/Construction Documents**
- **Attending Pre-design, Design, Bidding and Award Meetings**
- **Providing Engineering, Construction Management, Administration and Inspection Services**
- **Proving Project Close-out Services**
- **Presentations**
- **Project Management**

We hope to have the opportunity to discuss these approaches in more detail at a future time.

Reviewing the Town's Video Documentation of the Sewer System

The Town has had a contract with Televac for several years for the inspection of the gravity sewer system. All the main trunk lines have been inspected by video camera in the past two years and DVDs of those inspections are available for review. The lateral lines have not been inspected and most clean outs have been covered over. As per the Town's Sewer Atlas, there are approximately over 160 line segments for which videos need to be reviewed and for which repair recommendations need to be provided. See figure below.



Lauderdale-By-The-Sea Sewer Atlas Map

King recently completed (January 2011) the SSES services for Miami-Dade County Water Sewer Department within the City of Miami Springs, Florida and has the knowledge and experienced personnel ready to start immediately on the efficient implementation of this project for the Town. KING invites you to review the Final SSES Report for the City of Miami Springs located in Section 8 - Additional Information. Based on our previous experience, KING is able to review from 10-20 line segments per day depending on the video format and the targetrepair protocol.

Before the actual evaluation can be started, there are several items that need to be coordinated with the Town. First, a clear "Repair Criteria and Technology Guidelines (Repair Protocol)" must be agreed upon. KING can use the existing Town's Repair Protocol or if required, KING can work with the Town to develop the Repair Protocol criteria which is most cost-effective. Generally, the lowest cost repair technologies which meet the required intent are implemented first. Therefore, it is critical to rely on recent bid prices of the various repair technologies, as follows:

- Line Replacement
- Sectional Liner
- Cured in Place Liner (CIP)
- Grouting
- Point Repairs
- Others as required by the Town

Following is an example of recent unit prices used in the selection of repair technologies in Miami Springs. These unit costs were developed from recent bid prices in Miami-Dade County and can serve as the basis for developing similar rates for the Town. These costs are influenced by the diameter, length, and depth of the pipe requiring rehabilitation, as well as the nature of the defects, such as cracks, roots, joint offsets, and others.

	Size (in)	$/LF 0-9 ft depth	$/LF 9-18 ft depth
Line Replacement	8	$ 34.50	$ 65.00
	10	$ 58.00	$ 84.00
	12	$ 58.00	$ 84.00
	15	$ 58.00	$ 84.00
	18	$ 58.00	$ 84.00
	24	$ 58.00	$ 84.00

	Size (in)	$/Each 8 ft Length	$/LF Additional length
Sectional Liner	8	$ 850.00	$ 1.00
	10	$ 800.00	$ 1.00
	12	$ 900.00	N/A
	15	$ 1,250.00	N/A
	18	$ 2,000.00	N/A
	24	$ 3,000.00	N/A

	Size (in)	$/LF
Cured in Place Liners (CIP	8	$ 20.00
	10	$ 23.00
	12	$ 24.00
	15	$ 30.00
	18	$ 40.00
	24	$ 60.00

	Size (in)	$/LF
Grouting	8	$ 10.00
	10	$ 10.00
	12	$ 12.20
	15	$ 12.20
	18	$ 15.30
	24	$ 15.30

	$/Each (All Sizes)
Point Repair	$ 3,000.00

Miami Springs has mostly vitrified clay pipe, similar to the Town. On the next page, please find for your review the Repair Protocol Flow Chart used in Miami Springs as a typical protocol that can be adapted for use by the Town.

Another important consideration in the evaluation of the sewer system, is to check the TV Inspection Log against the videos to identify potential discrepancies. This approach will ensure that the contractor has accurately identified and logged all the existing defects so that the proper repair protocols are applied and I&I is reduced to the maximum extent practicable, thus reducing the cost of treatment and disposal to the Town. A sample TV Inspection log is presented following the sample repair protocol.

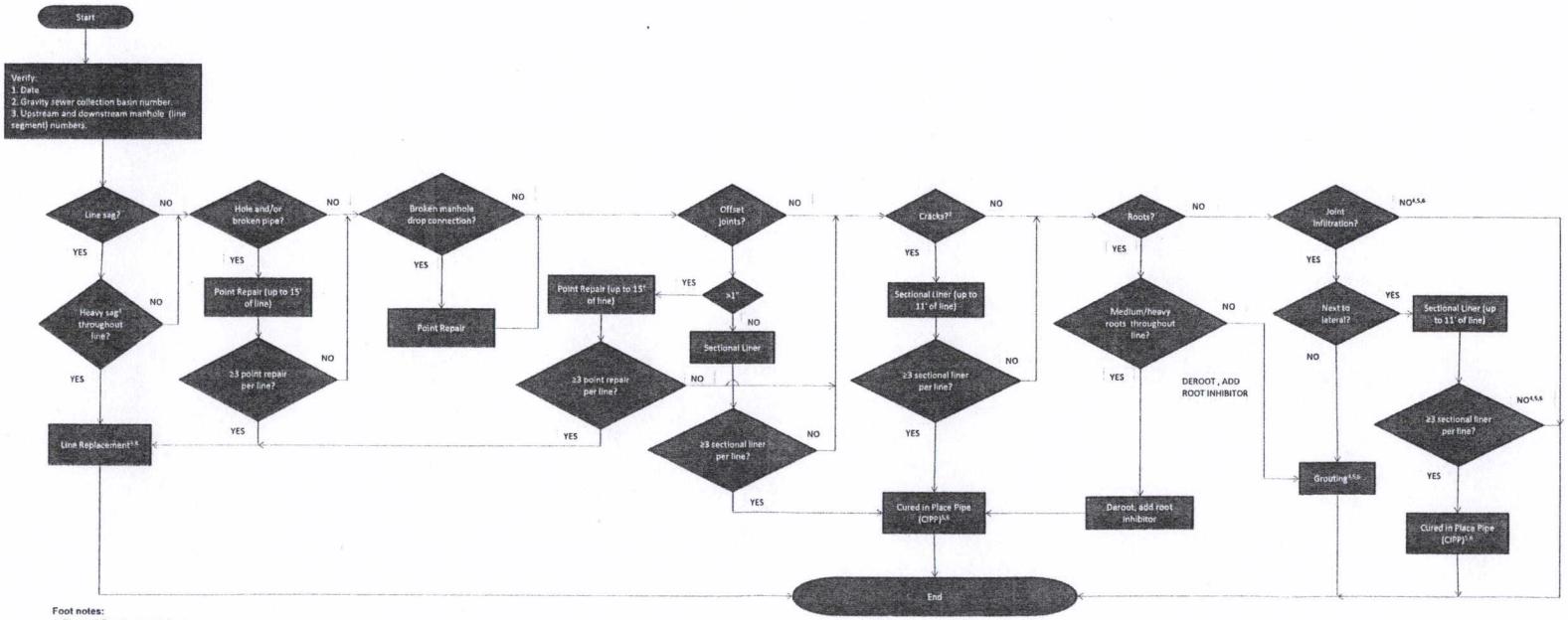
Following is a list of best practices recommended for SSES projects to achieve the greatest benefit from an SSES program:

- The location of the defect showed in the video should be equal to the location of the defect listed in the TV Inspection log database in order to have an accurate location of the defect in the TV log for future repairs.
- Verify that date, basin number, and manhole number are shown in the video recording to ensure that the line segment reviewed is the one in the video.
- Upstream and downstream manholes should be properly identified. In the event of a "reverse set up" (downstream manhole to upstream manhole), the direction of the inspection on the video and the TV database should be clearly stated so that future repairs can be properly located.
- TV inspection should be conducted in a manner that provides an unobstructed view of the entire pipe. The pipe should be free of debris and obstructions that significantly impede visibility.
- The camera should be centered in the middle of the pipe so that the view inside of the pipe does not seem distorted in order to provide the best picture for evaluation.
- The camera should be moved through the pipe at a steady speed not to exceed 30 feet per minute so that proper documentation of the sewer's condition can be recorded.
- The camera should be stopped for a minimum of 10 seconds while the operator views defects, joints, and service connections. Operator should provide a suitable perspective view of the defect and the surrounding pipe and a closer view if necessary.
- The defects should be individually identified and coded regardless of how many defects are encountered in a pipe segment.
- All service connections to mainline should be closely inspected. In the event of a lined pipe, the annular space between the pipe and the service and drop connections and the pipe and the upstream and downstream manhole walls should be panned 360° in order to record any possible infiltration.

MIAMI-DADE COUNTY
Delivering Excellence Every Day

King ENGINEERING ASSOCIATES INC.

Exhibit A
Repair Criteria and Technology Guidelines Flow Chart



Foot notes:
1. Pipe is fully submerged due to sag.
2. Circular, longitudinal, multiple with active infiltration or stains.
3. Try not to use in rear easements, if lining is possible.
4. If cost of point repairs (grouting, de-rooting, sectional liner(s), and/or point repair(s)) is 80% or more of full length repair (CIPP or line replacement), then assign full length repair.
5. Investigate lateral. If CIPP was assigned, repair damaged lateral connections prior to issuance.
   a. If lateral is leaking through annular space, then "grout lateral annular space" is assigned.
   b. If hammer taps are present, then "robotics" is assigned.
   c. If cracks and/or medium to heavy roots are present in lateral, then "point repair lateral" is assigned.
   d. If lateral is identified as "suspect lateral", then "investigate suspect lateral" is assigned.
6. Check that video footage equals TV log footage.

General notes:
1. Clean and de-grease pipe, if required.
2. Descale pipe, if required.

1601 CV

MIAMI-DADE WATER AND SEWER DEPARTMENT
TELEVISION INSPECTION LOG

Monday, June 21, 2010

Basin Number: 1236 **Line Segment** 1006 - 1005

Inspection Date: 6/16/2010
Operator ID: JC
Percipitation: None
Ground Condition: Dry
Surface Type: Non-Paved
Pipe Material: Clay
Pipe Diameter: 8
Length Between Joints: 5
Length of Pipe: 258

Depth of Pipe: 4.5
Street Name: LUDLAM DRIVE

Comments: C-8

Footage	Code	Definition:	(gpm)	Address and Clean Out Information	
0.0	01	UPSTREAM MANHOLE			☐ ☐
2.0	25	CIRCULAR CRACK 538			☐ ☐
6.0	458	SERVICE CONN. LEFT ok		5 LUDLAM DRIVE	☑ ☐
6.0	49	DOMESTIC FLOW			☐ ☐
13.6	13	LIGHT ROOTS ✓			☐ ☐
30.9	458	SERVICE CONN. LEFT ←		17 LUDLAM DRIVE	☑ ☐
55.2	457	SERVICE CONN. RIGHT ←		1231 N MELROSE DRIVE	☑ ☐
89.5	37	DEPOSITS			☐ ☐
95.8	458	SERVICE CONN. LEFT ←		25 LUDLAM DRIVE	☑ ☐
164.3	458	SERVICE CONN. LEFT ok		33 LUDLAM DRIVE	☑ ☐
164.3	49	DOMESTIC FLOW			☐ ☐
195.3	20	CRACKED JOINT 538			☐ ☐
195.3	22	MINERAL DEPOSITS			☐ ☐
218.4	458	SERVICE CONN. LEFT ←		41 LUDLAM DRIVE	☑ ☐
250.1	457	SERVICE CONN. RIGHT → 595			☐ ☐
250.1	53	CONN. INFILTRATION	0.1		☐ ☐
254.3	22	MINERAL DEPOSITS 538 (circular crack)			☐ ☐
258.0	02	DOWNSTREAM MANHOLE			☐ ☐

Total Infiltration (GPM): 0.1

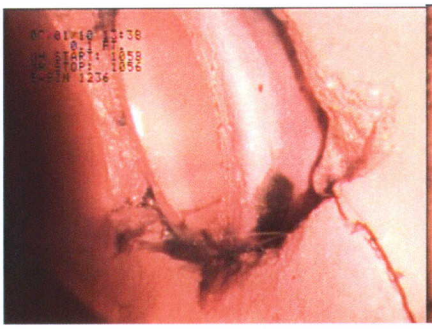
360°

~~CSR: 258(20) = 5160~~
537

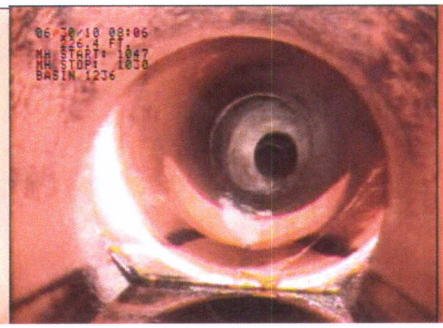
SL = 3(950) = 2850
531 ok

538 - (3)
↓
595

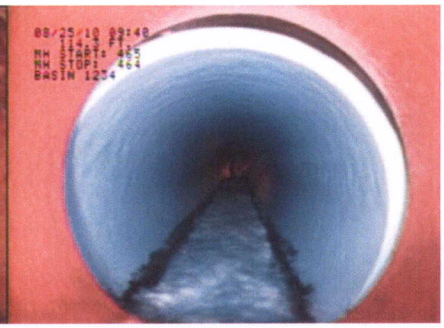
Below are some pictures of typical pipe defects in order: Hammer Tap, Heavy Fracture, and Offset Pipe.



Hammer Tap



Heavy fracture



Offset Pipe

Deliverables from this activity includes Preliminary and Final Reports with associated backup documentation detailing results of field investigations, reports, records, and related information with recommendations and cost estimates.

Reviewing Reports of Town-Owned Manholes

KING has experience reviewing multiple reports showing the existing conditions of manholes. During the Miami Springs SSES project, a total of 923 manholes were inspected and 120 required some kind of repair. KING reviewed all the field reports and pictures and based on the existing protocol recommended the most appropriate repair technology, such as seal manhole frame, plug and waterproof – coat entire manhole, coat manhole chimney, and others.

After all descriptive data is recorded and archived using the Town's standard protocol and data format, King will review it and provide follow-up recommendations using Town's Repair Criteria and Technology Guidelines and cost data. If manholes show signs of inflows from surface runoff or groundwater infiltration into the sewer, erosion, or hydrogen sulfide induced corrosion, then repairs should be recommended to make the manhole watertight and more resistant to deterioration. As discussed previously, the repair protocol should implement the most cost effective repairs first. Inspection of the manhole components is performed to assess the condition of the cover, frame, frame seal, chimney, cone, wall, bench, channel, and cover insert.

Following is a list of best practices recommended for the evaluation and review of manholes to achieve the greatest benefit from an SSES program:

- Manholes should be cleaned prior to inspection.
- Inspection of the manholes should include the inspection of each of the following typical sources of infiltration: broken / cracked frames or covers, deteriorated frame seal (considerable source of I&I), deteriorated frame adjustment, defects in the cone and walls, deteriorated pipe seal, deteriorated bench, and deteriorated channel.
- Special diligence should be used in the identification of stains that are indicative of non-active leaks.

- If the debris build-up at the bench is heavy, the manhole bench should be cleaned to provide an unobstructed view of the bench.
- Manhole pictures of good quality are critical to be able to evaluate the field conditions.

Below are some pictures of inspected manholes:

Evaluating Wastewater Flow Meter at the Seagrape Lift Station

KING has extensive experience evaluating wastewater flow meters and is sensitive to the need to have ac curate flow records to avoid overpayment for wastewater services. The typical evaluation process for flow meters may include the following activities::

- Review calibration records.
- Verify meter design ranges, flow velocities and accuracies versus actual conditions.
- The meter manufacturer should test and inspect the flow meter.
- The meter should be checked to see if it is installed correctly in accordance to the manufacturer's recommendations.
- The meter body should be pulled out to check if its interior is fouled.
- The wires to the readout/transmitter should be checked.
- The readout/transmitter should be checked and calibrated.
- With a portable strap-on Doppler (or ultrasonic), calculate a flow balance using metered flows at the plant.

Deliverables associated with this task include a summary report outlining the activities completed, the age and condition of the meter, and any recommendations for rehab or replacement.

Inspection of Town's Two Lift Stations

The two submersible lift stations owned by the Town have pressure switch operated pumps. Both lift stations were re-built within the last 7-9 years and the

pumps, piping and controls were upgraded. One of the pumps and controls were replaced again two years ago. The lift stations are equipped with telemetry for remote monitoring and are maintained and monitored by Pompano Beach.

KING has extensive experience reviewing many pump stations, including submersibles. During the Miami Springs SSES project, a total of 17 pump stations were inspected and most of them were in good working condition. However, our project manager has reviewed, analyzed, designed, and troubleshoot over 150 pump stations in Miami-Dade County alone.

Below find pictures of inspected pump stations by KING across several projects in the past year:

Our staff will make a site visit to each pump station to record existing conditions in order to determine existing conditions and if the existing pumps stations can be upgraded. During the site visit, an electrical engineer will review and provide recommendations for upgrade if needed. Switch gears, electrical panel, emergency generator, SCADA, control panels, motors, electrical service, pump motors, connection box, power meters, raceways, conductors, and ground system will be investigated.

Additionally, an engineer will record existing pumps and piping system and evaluate access and spacing regarding proposed pump, piping system, new valve box, and wet well requirements. Additionally, an engineer will inspect the wet well condition and provide recommendations if needed. Run times will be obtained and recorded and used to determine if the existing pump station is adequate for current flows. KING will develop max and min system curves vs. the selected pump. Pump Station hydraulic calculation will be performed.

KING will review each pump station, and based on the hydraulic conditions, pump station engineering reports will be prepared. The pump station engineering reports can follow the following outline:

I – Introduction
II – Project Location
III –Project Background
IV – Description of Existing Pump Station/Assessment
V – Design Criteria
- Discharge Point
- Hydraulic Analysis/Run Time Analysis
- Pump Selection

- Electrical/Mechanical/Structural/Instrumentation Upgrades
- Full Scope of Work

Exhibits

- A – Service Area
- B – Flow Schematic
- C – Part 1 – Modeling Pressures Part 2 – System and Pump Curves (Head loss Calculations) Part 3 – Wet well Calculations
- D – Pump Data
- E – Photos, As-Builts

Following is a list of best practices recommended for the evaluation and review of pump stations to achieve the greatest reduction in I&I:

- Wet wells should be cleaned prior to inspection.
- Inspection of the wet wells should include the inspection of each of the following typical sources of infiltration: broken / cracked wet well access doors or covers, deteriorated frame adjustment, defects in the cone and walls, deteriorated pipe seal, deteriorated bench, and deteriorated channel.
- Special diligence should be used in the identification of stains that are indicative of non-active leaks.
- If there is debris build-up inside the wet well, it should be cleaned to provide an unobstructed view of the bottom of the wet well.

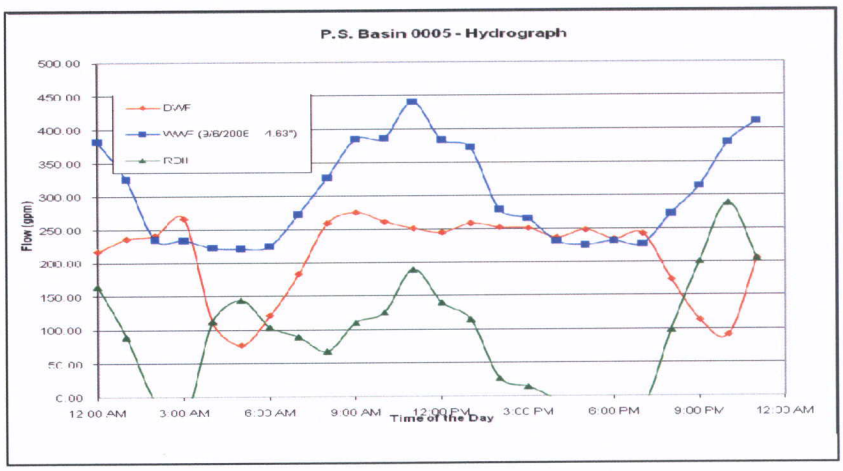
Inflow/Infiltration Determination

The Town of Lauderdale-By-The-Sea is located between major waterways. Therefore, the sewer system is affected not only by rainfall but also by tidal conditions. Our project manager has worked on several major similar projects including MDWASD's $17M Comprehensive Lateral Investigation Program (CLIP), MDWASD's $240 Million Pump Station Improvement Program, and MDWASD's $2.5 Million Wastewater Hydraulic Computer Modeling. Therefore, he is extremely familiar with all the required analysis, such as I&I determination, and Rain Dependent Inflow/Infiltration (RDII), among others.

Our approach will be to first determine flows during the dry-season (Nov-April) the dry-weather flow. This can be determined by using the existing SCADA system or if it is not reliable, a night flow measurement can be taken during the dry season around 2:00 am during a low tide situation. This will be our night flow or dry weather flow. Then, a wet weather measurement (May-Oct) will be taken during a high tide situation and a rain event. Both of these measurements need to be further discussed and coordinated with the Town. This will provide your wet weather hydrograph. Then, the extent of I&I in the sewer system can be properly estimated. Both basins must be monitored to determine if they have "Rainfall Dependent Inflow and Infiltration (RDII)". Part of this RDII may be resulting from groundwater submergence of, public and private portions of the sewer laterals where defects in the laterals provide for groundwater entry points. If such is the case, then it might be necessary to review and analyze sewer laterals in order to minimize RDII and quantify the impact of high groundwater. One major cause of RDII are broken/missing clean out caps and/or

broken risers. This will need to be reviewed carefully to ensure that any inflow is minimized to the sewer system. Replacing clean out caps is an inexpensive way to reduce your RDII issues.

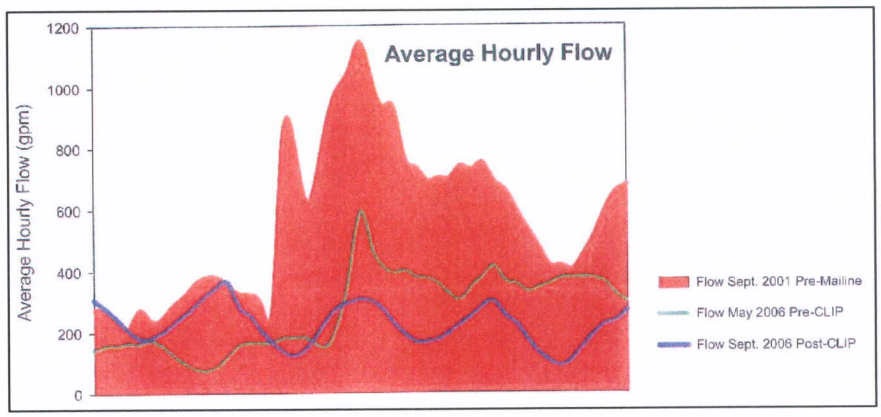
During the MDWASD's CLIP, KING personnel were able to use SCADA as a tool to quantify and determine the effectiveness of the mainline I&I program and the CLIP program. As shown on the figure, the flow pre-mainline repairs were estimated to peak at approximately 1,160 gpm. After the mainline repairs were completed, the new flow was estimated at approximately 600 gpm. I&I flow was cut almost in half by I&I repairs. Subsequently, when the sewer laterals were repaired, the new flow in the system was estimated at approximately 280 gpm. This is a perfect example that a comprehensive I&I program can substantially reduce flows. In addition, results of the CLIP program indicated that both the mainline repairs and lateral programs are cost effective when compared to the pump, transport and treat alternative. The cost of MDWASD's mainline program averaged $8.68 per foot while the lateral program cost averaged $27.70 per foot. Overall, MDWASD's I&I total program cost (mainline and laterals) averaged $1,011 per gpm removed compared to a cost of $8,645 to transport and treat the peak flows.



Identifying Capital Repairs and Replacements Projects

Once all the videos of the sewer system have been evaluated based on the Town's Repair Protocol, repairs will be grouped by type, such as:

- Robotics
- Sectional Liner
- Point Repairs
- Cured in Place Liner (CIP)
- CIP Lateral Liner
- Grout In Place
- Full Main Line Replacement
- Manhole Rehab



Based on budget constraints, schedule requirements, severeness of the repairs, and Town's requirements, KING

will prepare a prioritized master project schedule depicting the full implementation of all projects. KING will then prepare bidding/construction documents for the Town to request bids for the repair work. It may be advantageous for the Town to group bid packages by type of repair. Depending on the timing and extent of repairs required, it has been our experience that the best possible price can be achieved by bidding individual bid packages by repair technology. If there is not enough work volume to do separate packages by technology, the work can be grouped by service area based on available funding. Either way, KING is well versed to assist the Town.

Hydraulic Sewer Model Development/Estimating Future Flow Rates

Over the years, the KING team has been involved with similar projects including the development and update of hydraulic models of systems very similar to the Town's wastewater system. This experience includes a multitude of wastewater, potable water, and reclaimed water systems ranging in size from simple single pipe systems to large networked systems with multiple sources, thousands of pipes, storage facilities and varying, transient demand scenarios. These modeling efforts have involved wastewater system planning, Capital Improvement Plan development and budgeting, funding assistance, regulatory reporting, system design and operations troubleshooting.

King staff is fully versed in the use of the latest hydraulic modeling software including SewerCAD, and H_2ONet.

The King team modeling experience has involved both the updating of existing models and the development and creation of completely new models. In order to illustrate our full range of modeling knowledge, the approach presented below is based on the development of a new model, although many of the facets can also be applicable to the refinement of existing models. In short, this approach involves the following steps:

- Understanding the client's needs;
- System data collection and review;
- Schematic model development;
- Demand calculations and projections;
- Source pressure and flow capacity measurement/calculations;
- Model construction, troubleshooting, calibration and verification;
- Scenario development and analyses;
- Results review, verification and analyses;
- Development of conclusions and recommendations;
- Final reporting and presentation.

Additional detail on each of these steps is provided below.

Understanding the Client's Needs

The first step in model development is to understand the intent of the modeling effort. In many cases, the goals of the modeling effort can be accomplished using a smaller, simpler model (skeletonized model) rather than a complex model that might be difficult to manage. It is important to understand the Town's goals for

the model so that unnecessary effort and costs are not expended and the final model is easy to understand and utilize.

System Data Collection and Review

A hydraulic model is only as good as the information used to construct it. To this end, the first step in KING's approach to wastewater modeling is to collect available data on the system to be modeled. This includes, but is not limited to:

- Operating elevations
- Pump capacities
- Pipe sizes, lengths, materials of construction and age
- Fitting and valve locations
- Elevations in the collection system
- Locations of major demand centers
- Available demand data including plant flows and diurnal patterns, flows at system interconnects, population data and meter readings

Sources of data include Town atlases, record drawings, utility billing records, SCADA system data, field personnel and field verification. Discussions with system operating personnel are crucial so that the controls and typical operations are understood and can be properly simulated in the model.

Once adequate data is available, a schematic of the proposed model should be developed. In its simplest form, this schematic may take the form of a flow diagram showing sources, pumps and major pipelines and demand centers. Including control logic on the schematic also proves helpful to understanding how the system will work and what scenarios will be modeled.

Overlaying the schematic on a system drawing or atlas also helps illustrate how the model will be constructed and how system demands should be allocated to the model junctions. The following figure shows a sample model schematic used to calibrate system pressures.

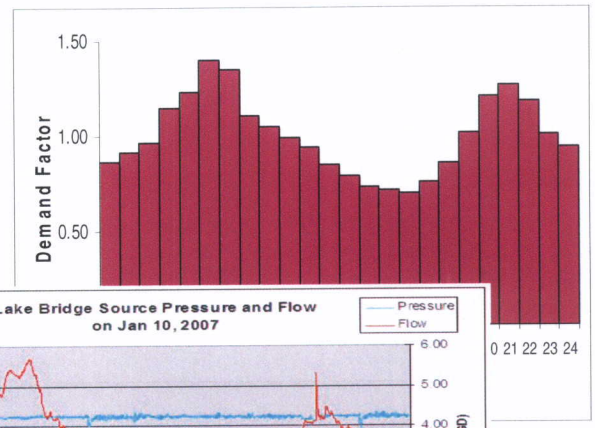
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
TAZ091146	496.21	14.00	164.69	65.29
TAZ131312	1,881.24	10.00	156.46	63.46
TAZ131309	1,101.01	8.00	156.03	64.14
J10	0.00	14.00	152.50	60.01
J11	0.00	17.00	165.45	64.32
TAZ131315	327.46	10.00	158.94	64.54
J264	0.00	9.00	163.77	67.06
J268	0.00	13.00	164.65	65.71
J270	0.00	18.00	171.16	66.36
J42	0.00	9.00	155.52	63.49
J158	0.00	5.00	158.86	66.67
J170	0.00	7.00	158.19	65.51
J172	0.00	2.00	158.00	67.60
J174	0.00	11.00	157.79	63.60
J180	0.00	2.00	157.88	67.54
J182	0.00	11.00	157.72	63.57
J184	0.00	10.00	157.65	63.98
J192	0.00	22.00	158.07	58.96
J106	0.00	9.00	155.82	63.62

Figure 8. Calibration of System Pressures

Demand Calculations and Projections

Estimating and modeling the systems demand is one of the most important aspects of hydraulic modeling and, quite often, the source of most errors. Demands can be estimated in many ways. In some cases, demands are known and can be easily quantified, such as a continuous demand by an industrial user. In most cases, demands need to be estimated. This can be done in several ways, including reviewing demand totals and trends for the past 5 years and projecting them into the future using population projections, such as those developed by the Bureau of Business Economic Research (BEBR).

Time (hr)	Demand Factor
1	0.87
2	0.92
3	0.97
4	1.15
5	1.23
6	1.40
7	1.35
8	1.11
9	1.05
10	0.99
11	0.94
12	0.85
13	0.79
14	0.73
15	0.72
16	0.70



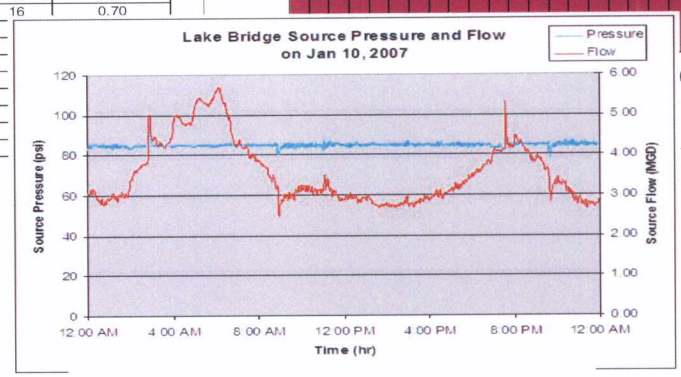


Figure 10. Source Pressure and Flow Diagram

King has compared current annual average day demands with populations provided in Traffic Analysis Zone (TAZ) maps or by the BEBR to establish a baseline demand per capita. This per capita demand is then used to project annual average day demands within each TAZ over the planning period. The bulk demand within each TAZ is then assigned to a junction representing that TAZ. In addition, Demand can also be estimated using billing records from the Town.

Source Pressure and Flow Capacity Calculations

When available source pressures and flow capacities are modeled using pump curves, in cases where the system controls vary pump speeds to maintain a constant discharge pressure, sources can be modeled at a constant pressure provided that controls are included to keep the total flow from exceeding the actual capacity of the pumping system.

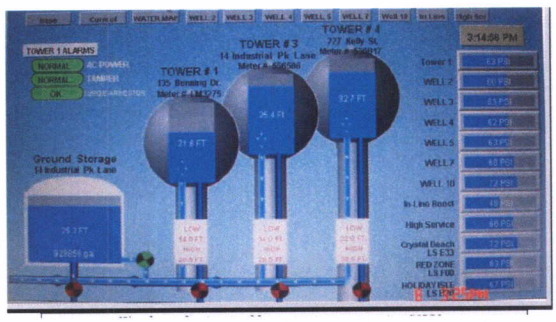


Figure 11. Wireless Laptop Allows Access to SCADA

Model Construction, Troubleshooting, Calibration and V...

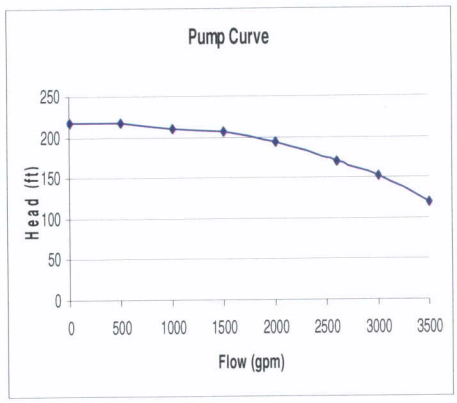
With all of the above information available, the model can be constructed and the required input data can be entered. This includes demands, diurnal flow curves, pump curves, pipe lengths, coefficients of friction and minor losses, and system controls. Sample troubleshooting cases are run to verify that the model is running correctly. In its simplest form, this involves entering a demand of 1 gpm in each node and verifying that the total flow into the system equals the total flow out of the system.

A full scale calibration effort can involve the following steps:

- A review of the system layout to determine locations for pressure testing;
- A field test program for the collection of flow and pressure measurements throughout the system to be modeled including the installation of pressure recorders to verify diurnal patterns;
- Obtaining flow and discharge pressure data from the Town for each pump and/or pumping facility over a representative 24-hour period;
- Obtaining flow and pressure data from each of the Town's interconnects with the Pompano Beach wastewater system over a representative 24-hour period;

U7060 Pump Curve

Flow (gpm)	Head (ft)
0	218
500	217
1000	211
1500	206
2000	193
2600	171
3000	152
3500	120



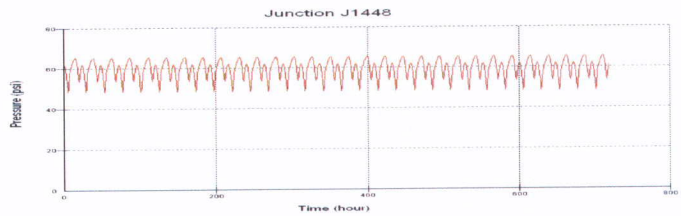
Scenario Development and Analyses

Once the model is calibrated, it is ready to be used. Depending on the goals of the modeling effort, demand scenarios are developed to simulate the conditions for which data is required. This can involve steady-state and extended period analyses for the current system and for future system expansions. Different cases are run with proposed system improvements in order to evaluate the benefits of the improvements and to refine the proposed system requirements.

Results Review and Verification

Results of the model need to be reviewed for accuracy and to confirm that they make sense. This involves:

- Verifying that the total flow into the system equals the total flow out of the system;
- Checking system pressures to verify that they are within the expected range;
- Checking system flows to verify that they are within the expected range;
- Checking system velocities to verify that they are at acceptable levels;
- Verifying that flows are in the correct direction;
- Verifying that sources and pumping systems are not supplying more flow than their actual capacity;
- Verifying that system controls are operating properly.



ID	Max.Value (psi)	Max.Time (hrs)	Min.Value (psi)	Min.Time (hrs)	Average (psi)	Difference (psi)
J1444	66.00	711:00	48.98	05:00	60.05	17.02
J1446	66.00	711:00	48.98	05:00	60.05	17.02
J1448	65.56	711:00	48.42	05:00	59.54	17.14
J1450	66.10	711:00	50.40	05:00	60.63	15.70
J1452	77.96	711:00	62.29	05:00	72.41	15.67
J1454	78.05	711:00	62.87	05:00	72.69	15.19
J1456	78.05	711:00	62.85	05:00	72.68	15.20

Figure 14. Typical Hourly Pressure Curve

Development of Conclusions and Recommendations

After the model is run and the results are verified as being realistic, conclusions can be reached regarding the proposed improvements or the system performance. In some cases, this involves the development of a matrix comparing available flows and pressures, required pipe sizes and length, required pump capacities and horsepower, and construction and O&M costs in order to rank each scenario and choose a recommended course of action. This typically also involves the owner's participation.

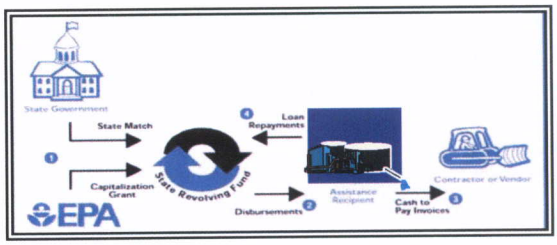
Final Reporting and Presentation

Just as important as developing and running the model is explaining the model and its results to others. To do this properly, it must be considered from the start of the modeling process. Model schematic and input data should be created in a format that can be understood by others. Results need to be presented both in tabular and graphic form. The development of colorized output schematics and drawings is most helpful toward visualizing the results. All of this information should be compiled into a final report that explains all the steps described above and the assumptions used to develop the model.

Grant Assistance

King Engineering and Associates, Inc. brings a commitment to clients to enhance value in every project that we undertake. One of the ways we do that is to attract governmental funding when available, from local, State and Federal Sources.

With the recently enacted American Reinvestment and Recovery Act (ARRA), there has never been a better time to leverage State and Federal Dollars into a public works type project. ARRA has provided billions of dollars of additional funding through the traditional funding pipelines, much of it in the form of grants. With these dollars come new procedural requirements that are essential to proper processing of the funding request.



State Revolving Fund

King Engineering has staff members and consultants who have secured millions of dollars for projects from such programs as:

- Federal Appropriations through such Programs as the State and Tribal Assistance Grant Program (STAG)
- State Revolving Fund (SRF) Loans, including "Green Project Reserve"
- Matching Grants through the Florida Water Management Districts
- Department of Energy (DOE) Matching Grants

Further King can assist with other innovative funding strategies, including:

- Impact fees or other capital contribution charges levied on new growth
- Revenue bond debt financing
- Special assessments primarily for potable or reclaimed water transmission/distribution facilities, or wastewater conveyance facilities benefitting customers in a geographically defined area
- Special assessment bonds, debt service of which is paid through receipts of special assessments

As the need arises, KING will work with a firm based in Washington DC which brings together some of the most accomplished policy experts, public opinion influencers and issue advocates.

KING has secured funding for the following projects:

Client Name	Project Name	Estimated Funds	Funding Source	Status
Pasco County, Florida	East Pasco Reuse System For Price Altman Groves	$350,000	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Timber Pines Reclaimed Water Irrigation System and Master Plan	$250,000	Southwest Florida Water Management District	✓ Approved
City of Dunedin, Florida	Curlew Road Elevated Storage Tank Refurbishment and Reclaimed Water Booster Pump Station	$400,000	Southwest Florida Water Management District	✓ Approved
Pasco County Utilities, Florida	Land O'Lakes Subregional Wastewater Treatment Plant Phase 1	$400,000	Southwest Florida Water Management District	✓ Approved
Pinellas County, Florida	Florida Utilities North County Reclaimed Water Distribution System Project Phases 3a and 3b	$2 Million	Southwest Florida Water Management District	✓ Approved
City of Largo, Florida	Florida Oakbrook Estates Reclaimed Water Distribution System	$400,000	Southwest Florida Water Management District	✓ Approved
City of Dunedin, Florida	Residential Reclaimed Water Distribution Systems	Over $1 Million	Southwest Florida Water Management District	✓ Approved
City of Dunedin, Florida	Florida Spanish Trails Sanitary Sewer and Reclaimed Water Distribution Project	$700,000	Southwest Florida Water Management District	✓ Approved
Florida Dept of Corrections - Sumter Correctional	Institution/Florida National Cemetery Reclaimed Water System	Partially Funded	Southwest Florida Water Management District	✓ Approved

Client Name	Project Name	Estimated Funds	Funding Source	Status
Pinellas County, Florida	Florida Treasure Island Reclaimed Water Distribution System	Partially Funded	Southwest Florida Water Management District	✓ Approved
City of Largo, Florida	Florida Reclaimed Water System Part X	$300,000	Southwest Florida Water Management District	✓ Approved
City of Largo, Florida	Florida Reclaimed Water System Part X Phase 2 and Part Xi	$400,000	Southwest Florida Water Management District	✓ Approved
City of Dunedin, Florida	Florida Coastal Raw and Reclaimed Water Main	$200,000	Southwest Florida Water Management District	✓ Approved
City of Dunedin, Florida	Florida Reclaimed Water South Loop Transmission Main	$500,000	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Utilities West Pasco Reuse System Northeast Segment	$200,000	Southwest Florida Water Management District	✓ Approved
Pasco County Florida Utilities	Deer Park/Embassy Hills Reclaimed Water Interconnect	$800,000	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	North-Central Pasco Reclaimed Main & Force Main	Partially Funded	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Land O'Lakes Master Reuse System Storage Reservoir Program Phase I	Partially Funded	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Master Reuse System Storage Reservoir Program Phase II, Boyette Road Reservoir	Partially Funded	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Odessa Interim Subregional WWTP Reclaimed Water Storage and High Service Pump Station	Partially Funded	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Florida West-Central Reuse Interconnect	Partially Funded	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Florida Utilities Land O'Lakes Subregional Wastewater Treatment Plant	$400,000	Southwest Florida Water Management District	✓ Approved
Pasco County, Florida	Florida Utilities Wildcat Groves Reclaimed Water Storage and	$350,000	Southwest Florida Water Management	✓ Approved

Client Name	Project Name	Estimated Funds	Funding Source	Status
	Pumping System		District	
Baker County, Florida	Florida Stormwater Master Planning	$300, 000	St. Johns River Water Management District	✓ Approved
City of Largo, Florida	Florida Stormwater Quality Retrofit	$750,000	Southwest Florida Water Management District	✓ Approved
St. Pete College Pinellas County, Florida	Wetland Enhancement and Stormwater Quality Retrofit	$372,000	Southwest Florida Water Management District	✓ Approved
Ft. Lauderdale, Florida	Florida Stormwater Reuse and Conservation	$250,000	South Florida Water Management District	✓ Approved
Central Broward Water Control District, Florida	Canal Water Quality Retrofit	Partially Funded	South Florida Water Management District	✓ Approved
City of Keller, Texas	Septic Tank Elimination Program	$10 Million	State & Tribal Assistance Grant Program (STAG)	⌛ Pending
City of Keller, Texas	Septic Tank Elimination Program	$6 Million	State Revolving Fund (SRF) -- Texas Water Development Board (TWDB)	⌛ Pending
City of Clearwater, Florida	Sanitary Sewer	$1 Million	Special Appropriations Projects (SPAP) Grant Program through EPA	⌛ Pending
Baker County, Florida	Water & Wastewater Facilities	$2 Million	State & Tribal Assistance Grant Program (STAG)	⌛ Pending
Baker County, Florida	Ten (10) Mile Roadway	$20 Million	Transportation Reauthorization Act	⌛ Pending
St. Johns County, Florida	Water Conservation Cost Share Program	$1.2 Million	St. Johns River Water Management District	⌛ Pending
Northwest Florida Water Mgmt District, Florida	Coastal Water Systems Interconnect	$60 Million	Water Resources Development Act (WRDA)	⌛ Pending
Northwest Florida Water Mgmt District, Florida	Coastal Water Systems Interconnect	$2 Million	State & Tribal Assistance Grant Program (STAG)	⌛ Pending
City of Hollywood, Florida	Water Main Replacement Program	$2 Million	State & Tribal Assistance Grant Program (STAG)	⌛ Pending

Preparing Preliminary / Feasibility Design Reports

If requested by the Town or required by a permitting agency, KING will perform preliminary engineering and/or Feasibility Design Reports covering key issues related to the proposed SSES project. Considerations taken for the different types of SSES projects would include:

- Utility modeling (gravity and FM)
- Surveying
- Field data collection
- Constructability/maintenance of traffic
- Regulatory/permitting issues
- Maintenance
- Current and future flow and demand conditions
- Pressure requirements
- Pipeline sizing and hydraulic analyses
- Proposed pumping facilities
- Required control devices, valves and other components
- Traffic requirements
- Estimate of Probable Cost and life-cycle cost
- Instrumentation and controls requirements
- Soils and geotechnical considerations
- Existing utilities
- Permitting reports/evaluations
- Construction cost
- Operation and Maintenance costs
- Project schedule
- Staging plan
- Public information meetings
- Grant applications
- Funding sources

On design projects, we will develop a number of alternatives and associated cost estimates for addressing the needs of the Town. The recommended alternative will be discussed with the Town and, based on their comments; the Preliminary / Feasibility Design Report will be finalized prior to proceeding into the design phase.

Depending on the project, public information meetings, or meetings with homeowners associations in the affected neighborhoods, can take place during this phase or during a later design phase. We can work with the Town Public Relations staff to prepare the required exhibits or handouts. We can also assist the Town and/or present the project to the Board of Town Commissioners or to grant funding agencies.

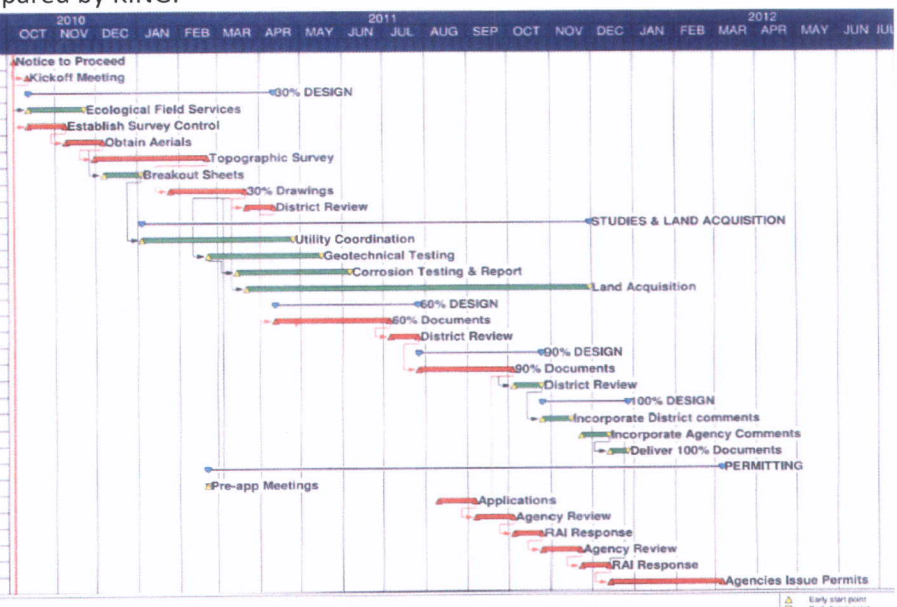
KING recently prepared a Preliminary/Feasibility Design Report for "MDWASD's Pump Station Engineering Reports preparation and Pump Station 717 Sewer Force Main System Evaluation" for six pump stations and the associated force main system that included field inspections, pump station evaluation, hydraulic analysis, cost analysis, alternatives analysis, and pump upgrade recommendations. The project involved the analysis of several alternatives in order to best serve the sewer system during 2030 projected flows and pressures. Pump stations were inspected for wet well condition, dry pit condition, pump sizing, mechanical and electrical requirements, and overall siting. Detailed sketches of existing conditions and proposed pump station alignment were prepared to support the recommended solution.

Project Scheduling / Phasing

Once all required repairs are identified and prioritized, a comprehensive project schedule will be prepared. Actual calendar dates for initiation and completion of each effort will then be established and the project schedule will be developed using the Critical Path Method (CPM) of project scheduling. Once a draft schedule is developed, we would submit it to the Town for their review and input in order to arrive at a mutually agreeable final project schedule. This schedule will then be used as a working document and maintained throughout the project to ensure that the project is completed in a timely manner.

Below is a sample schedule prepared by KING.

Description	Original Duration	Early Start	Early Finish
Notice to Proceed	1d	01OCT10	01OCT10
Kickoff Meeting	1d	11OCT10	11OCT10
30% DESIGN	130d	12OCT10	11APR11
Ecological Field Services	30d	12OCT10	22NOV10
Establish Survey Control	20d	12OCT10	08NOV10
Obtain Aerials	20d	09NOV10	06DEC10
Topographic Survey	60d	30NOV10	21FEB11
Breakout Sheets	20d	07DEC10	03JAN11
30% Drawings	40d	25JAN11	21MAR11
District Review	15d	22MAR11	11APR11
STUDIES & LAND	235d	04JAN11	29NOV11
Utility Coordination	80d	04JAN11	25APR11
Geotechnical Testing	60d	22FEB11	16MAY11
Corrosion Testing & Report	60d	15MAR11	06JUN11
Land Acquisition	180d	22MAR11	29NOV11
60% DESIGN	75d *	12APR11	26JUL11
60% Documents	60d	12APR11	05JUL11
District Review	15d	06JUL11	26JUL11
90% DESIGN	65d *	27JUL11	25OCT11
90% Documents	50d	27JUL11	04OCT11
District Review	15d	05OCT11	25OCT11
100% DESIGN	45d *	26OCT11	27DEC11
Incorporate District	15d	26OCT11	15NOV11
Incorporate Agency	15d	23NOV11	13DEC11
Deliver 100% Documents	10d	14DEC11	27DEC11
PERMITTING	271d	21FEB11	06MAR12
Pre-app Meetings	1d	21FEB11	21FEB11
Applications	20d	10AUG11	06SEP11
Agency Review	20d	07SEP11	04OCT11
RAI Response	15d	05OCT11	25OCT11
Agency Review	20d	26OCT11	22NOV11
RAI Response	15d	23NOV11	13DEC11
Agencies Issue Permits	60d	14DEC11	06MAR12

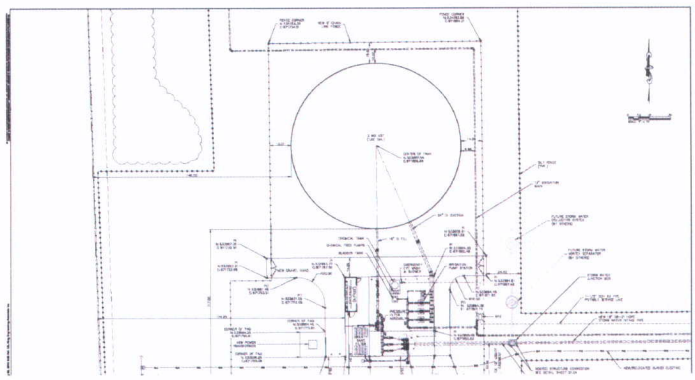


King Engineering Associates, Inc.
NWFWMD

Preparing Bidding/Construction Documents

Although the bulk of the work will involve trenchless technologies, the project may require pump station upgrades and the construction of new force main and wastewater flow meters. KING will follow standard procedures when preparing construction documents should this need arise.

Our engineers will spend the necessary time at the job site to review and obtain copies of existing drawings that relate to the proposed construction



City of Doral, JC Bermudez Park
Recycled Stormwater Irrigation Project

site. Our engineers will talk to the Town operations and maintenance personnel relative to any existing equipment and conditions, particularly underground utilities and any other hidden conditions. Our surveyors will review available topographical, boundary, and State Plane Coordinate System survey data and obtain any additional information required for the design. When required, the location of existing utilities will be confirmed using subsurface utility engineering equipment.

Following is a list of key items that may be completed during the preliminary design phase:

- Surveying
- Hydraulic analysis (if required), or review of existing analyses including proposed pipe sizes.
- Recommended Repair types
- Definition of utility corridors
- Valving and system connections
- Ground surveys, including Subsurface Utility Engineering, if necessary
- Aerial photography, if used
- Base plan sheets showing property lines, easements, proposed site plan, equipment and structure general arrangements, preliminary utility locations, proposed pipeline routes and locations of connections to existing mains as applicable
- Maintenance of Traffic requirements
- Other design drawings, including:
  - Cover sheet
  - Location plan/key map
  - General abbreviations/legend
  - Miscellaneous preliminary details
- Permitting requirements and coordination with permitting agencies (County and State)
- Easement requirements, if any
- Additional subsurface investigation reports if required
- Technical specifications
- Estimates of Probable Construction Cost and Life-cycle Cost Analysis

On utility projects, two copies of the base plans will be submitted to each of the affected utilities. These utilities will be requested to accurately depict the location of their existing facilities.

Pipeline Alignments: Pipeline drawings will be further developed to show the proposed alignments and profiles including details on special crossings, direction drills, jack & bore, conflicts with existing utilities and Maintenance of Traffic plans.

Utility Coordination: At this point in the design, information from the various utilities regarding the location of their facilities should be available and would be incorporated onto the drawings. If required, we will conduct a utility coordination meeting with these utilities to verify the location of their facilities and resolve conflicts. We will prepare relocation drawings as required for the facilities of the Town. Resolution of all known conflicts will be documented to the Town. As part of this utility coordination, we will identify electrical requirements, if any, and coordinate with the power company.

Permitting: The team will begin coordinating with the regulatory agencies, attend pre-application meetings, if necessary, and begin preparing the necessary permit applications.

Technical Specifications: Sets of technical specifications in draft form using a combination of the Town standard specifications and project specific specification will be submitted for the Town review and comment.

Preliminary Cost Estimate: The Preliminary Cost Estimates will be updated and further defined from the estimate submitted at the 40% stage.

The team will conduct an internal quality control project review prior to Town's review. Plans, specifications, geotechnical reports, design calculations and other information developed during the preliminary design phase will be submitted to the Town for review and comment. We anticipate that a meeting will be arranged after Town's review to discuss its comments and concerns. Agreed upon changes suggested by the Town will be incorporated into the final design documents.

The work tasks for the final design phase will represent a continuation of the efforts of the preliminary design phase. A marked difference in this design phase is that decisions related to design alternatives have been made and alternative designs and concepts are no longer being studied.

We will prepare drawings and specifications and deliver this design package to the Town for review as a 100% submittal. It is anticipated that the drawings and specifications will be complete at this submittal, with the exception of any final comments from the Town. It is also anticipated that the permit application packages would be submitted during this phase.

The proper planning and execution of the design project will have included regular, ongoing technical reviews and an attention to detail by experienced professionals. Therefore, the checking process at the completion of the 100% design should be minimal but will ensure that the final product is accurate, complete, and well coordinated between disciplines. This would be the final review by the quality control team. The final checking will consist of detailed check by each discipline and a coordination check of the disciplines by the Project Manager. The quality control team will also review the drawings with the specifications for consistency.

All comments from the Town, as well as internal review comments, will be addressed and incorporated into the design as required. The construction cost estimate will be finalized. We will provide responses to requests for information from permitting agencies to the Town for final action and resolution and make all required changes to the bid documents.

Upon completion of work for the 100% design phase, a submittal package will be made to the Town for final review and approval.

Bid Packages: After adequately addressing all of the 100% review comments and completing all Quality Assurance reviews, the final submittal will be made to the Town as bid packages. Design data and documents will be signed and sealed and submitted to the Town along with the following as part of the 100% Design Phase submittal:

- Signed mylar-reproducible and electronic copies of all drawings
- Paper and electronic copies of all technical specifications
- Signed and sealed copies of drawings, technical specifications and design calculations
- Final statement of opinion of probable cost in the Town's prescribed format
- Final legal descriptions and sketches of proposed temporary or permanent easements
- Tabulation of all deliverables

Deliverables:

- Interim submittals of construction drawings and technical specifications at 40%, 90% and 100% complete.

Attending Pre-design, Design, Bidding and Award Meetings

During this phase, we will attend the pre-bid meeting and respond to contractors' questions adequately and thoroughly through Addenda. It is our opinion that contractors will more accurately bid the project if they have a thorough understanding of the plans and specifications. Our previous experience with projects of similar size and nature in the area should minimize contractors' questions and provide the Town with very competitive bids.

Central Pasco Water System Improvements

Once the bids are received, we will review the bids for completeness and accuracy. At Town's request, or if the contractor is not prequalified for this type of work with the Town, we will obtain and contact references for the apparent low bidder. We will then make recommendation of award to the Town.

Deliverables:

- Meetings and presentations to Town Administration and elected officials during pre-design, design, construction and closeout phases.
- Copies of periodic status reports, final reports, design calculations, permits, field inspection reports, approved shop drawings, punch lists, maintenance manuals and as-builts.

Providing Engineering, Construction Management, Administration and Inspection Services

KING will utilize the same individuals for review of contractor submittals (shop drawings, samples, etc.) as performed the design. This maximizes compliance with the design intent and minimizes

review time. Upon award by the Town of a construction contract, we will provide construction consultation phase services.

These services will typically include the following tasks and activities:

- Attend a pre-construction conference
- Process, review and distribute shop drawings and samples
- Respond to contractor requests for information
- Interpret the contract documents
- Review and comment on the contractor's construction schedule
- Depending on the Town's requirements and the complexity of the project, provide part-time or full-time construction observation. Conduct and report on-site observations of the work in progress to determine if the work is, in general, proceeding in accordance with the Contract Documents.
- Report whenever it is believed that any work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any test or approval required, and advise the Town of work that should be corrected or rejected or should be uncovered for observation, or requires special testing, review or approval.

- Resolve differing site/field conditions
- Maintain at the office and the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, RFIs and interpretations of the Contract Documents, progress reports, and other Project related documents.
- Keep a diary or log book, recording the Contractor hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures.
- Record names, addresses and telephone numbers of all Contractors', subcontractors and major suppliers of materials and equipment.
- Conduct and administer monthly on-site progress meetings and keep and distribute minutes.
- Review contractor proposals and change order requests.
- Review and recommend disposition of contractor pay requests.
- Respond in a timely manner to all RFIs with supplemental drawings, specifications, etc.
- Assist the Town with responding to resident complaints and maintain records of such.
- Provide startup assistance.
- Evaluate testing results and make recommendations to the Town.
- Verify that test, equipment and systems startups and operating and maintenance training are conducted in the presence of the appropriate personnel and that Contractor maintains adequate records thereof; and observe record and report appropriate details relative to the test procedures and startups.

Deliverables:

- Organize and chair periodic field meetings with (future) contractor(s) and Town Representative(s).
- Copies of periodic status reports, final reports, design calculations, permits, field inspection reports, approved shop drawings, punch lists, maintenance manuals and as-builts.

Providing Project- Close out Services

KING can also provide close-out services, including:

- Assist the Town of Lauderdale-By-The-Sea as required to close out the construction contract.
- Review Operation & Maintenance (O&M) manuals. We can also provide O&M training, if required.
- Review the Contractor's As-Builts and prepare Record Drawings in conformance with the Town LIS requirements.
- Provide substantial and final completion site visits, develop punch lists and make recommendations to the Town regarding acceptance.
- Prepare and submit certifications to the permitting agencies.
- Others as required by the Town

Presentations

At the Town's request, KING will present reports and recommendations to the Town Commission, Town Administration, and other interest groups as specified by the Town. Our Project Principal and Project Manager have many years of experience presenting reports and recommendation to multiple stake holders.

Deliverables:

- Meetings with and presentations to Town Administration and elected officials of findings and recommendations.

Project Management

KING's approach to project execution is based on the philosophy that our ultimate goal is to deliver a high quality work product that exceeds Lauderdale-By-The-Sea's schedule objectives while minimizing overall cost. For every assignment, we prepare a project management plan tailored to the complexity of the work. The plan includes a detailed budget, QA/QC procedures, and a project schedule identifying tasks, milestones, and critical path activities. During project execution, we monitor progress on a weekly basis to ensure internal adherence to deadlines, budget, and QA/QC activities. Externally, we coordinate closely with the Town of Lauderdale-By-The-Sea,

permitting agencies, stakeholders, and contractors to ensure that there are no surprises and that our work products are completed satisfactorily the first time around.

A cornerstone of this "high quality/value conscious" approach is to establish and maintain effective communication not only within the project team, but also with other stakeholders that are interested in the project. To this end King typically develops a detailed communication plan that is implemented as part of the overall delivery plan and in close coordination with the Town. Timely and consistent communication will keep the project on track and allow all parties to quickly and easily deal with inevitable changes that may develop.

A draft of the project management plan is developed immediately after receipt of an approved work order and distributed to all team members, including the Town of Lauderdale-By-The-Sea, for review and comment to ensure the Town's concurrence with the plan and schedule. After the Town approves the project management plan, work will proceed in accordance with the approved plan. Any deviation from the approved schedule, assigned staff or budget would require approval by the Town.

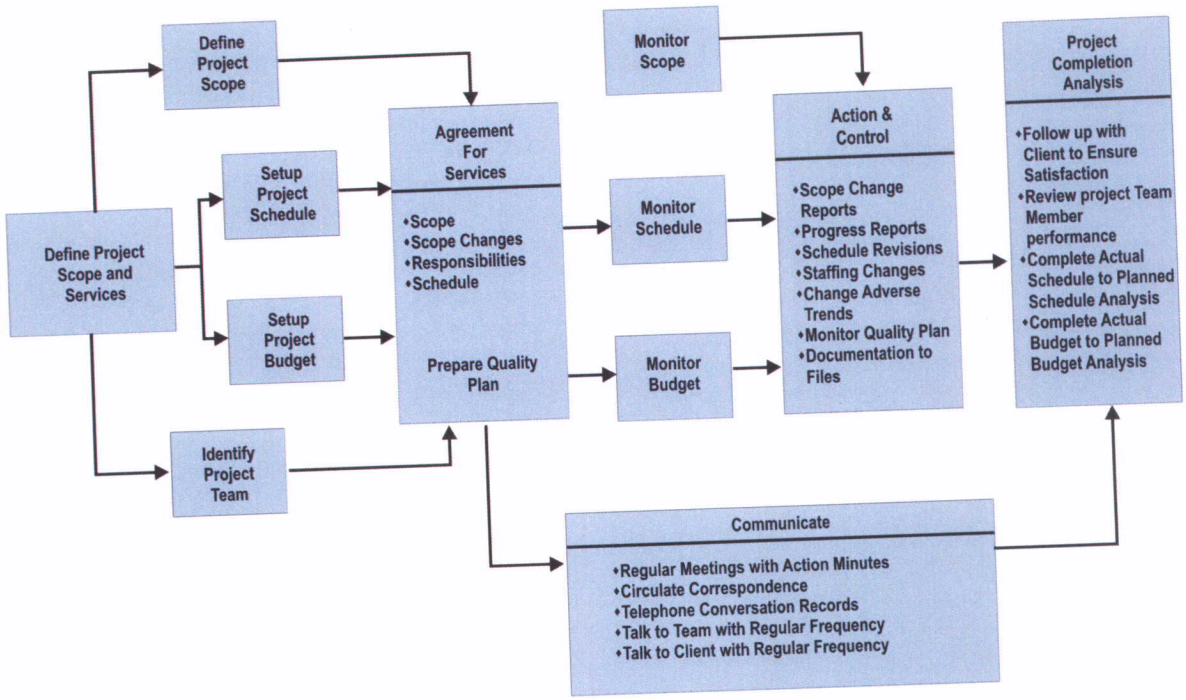


Figure 17. Project Management Plan Development

Conclusion

The foregoing approach has been developed based on the Town's Scope of Services outlined in the Request for Proposal and on our team's experience working with the Town and other municipalities on similar projects. We have been successfully using this approach over the years and look forward to continuing this success working with the Town of Lauderdale-By-The-Sea.

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP Form C

Proposer: King Engineering Associates, Inc.

PROPOSER'S CERTIFICATION

THIS FORM MUST BE SIGNED AND SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The undersigned guarantees the truth and accuracy of all statements and the answers contained herein.

I have carefully examined the Request for Proposal referenced above ("RFP") and any other documents accompanying or made a part of this RFP.

I hereby propose to furnish the goods or services specified in the RFP. I agree that my proposal will remain firm for a period of 120 days in order to allow the Town adequate time to evaluate the proposals.

I certify that all information contained in this proposal is truthful to the best of my knowledge and belief. I further certify that I am duly authorized to submit this proposal on behalf of the firm as its act and deed and that the firm is ready, willing and able to perform if awarded the contract.

The firm and/or Proposer hereby authorizes the Town of Lauderdale-by-the-Sea, its staff or consultants, to contact any of the references provided in the proposal and specifically authorizes such references to release, either orally or in writing, any appropriate data with respect to the firm offering this proposal.

I further certify, under oath, that this proposal is made without prior understanding, agreement, connection, discussion, or collusion with any other person, firm or corporation submitting a proposal for the same product or service; no officer, employee or agent of the Town or any other proposer is interested in said proposal; and that the undersigned executed this Proposer's Certification with full knowledge and understanding of the matters therein contained and was duly authorized to do so.

If this proposal is selected, I understand that I will be expected to execute the Town's standard professional services contract, in the form approved by the Town Attorney.

A person or affiliate who has been placed on the convicted vendor list following a conviction for public entity crimes may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public

entity, may not be awarded or perform work as a contractor, supplier, sub-contractor, or consultant under a contract with a public entity, and may not transact business with any public entity in excess of the threshold amount provided in Sec. 287.017 Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list. I further certify, under oath, that neither the entity submitting this sworn statement, not to my knowledge, any of its officers, directors, executives, partners, shareholder, employees, members or agents active in the management of the entity has been convicted of a public entity crime subsequent to July 1, 1989.

King Engineering Associates, Inc.
Name of Business

By: A. Maristany
Signature

Agustin E. Maristany, P.E., Vice President
Print Name and Title

8390 NW 53rd Street, Suite 200

Doral, Florida 33166
Mailing Address

State of Florida
County of Dwal

Sworn to and subscribed before me this 19 day of May, 2011.

Notary Public

Kristine M. Lindgren
My Commission Expires

KRISTINE M. LINDGREN
MY COMMISSION # DD 794786
EXPIRES: October 4, 2012
Bonded Thru Notary Public Underwriters

Additional Information

Letters of Recommendation

PEACE RIVER MANASOTA REGIONAL WATER SUPPLY AUTHORITY
Serving the Citizens of Charlotte, DeSoto, Manatee & Sarasota Counties since 1982

HON. DICK LOFTUS
CHARLOTTE COUNTY

HON. JERRY G. HILL
DESOTO COUNTY

HON. JOHN R. CHAPPIE
MANATEE COUNTY

HON. SHANNON STAUB
SARASOTA COUNTY

PATRICK J. LEHMAN, P.E., EXECUTIVE DIRECTOR

February 25, 2009

Douglas E. Barr, Executive Director
Northwest Florida Water Management District
81 Water Management Drive
Havana, Florida 32333-4712

Re: Letter of Reference
King Engineering Associates, Inc.

Dear Mr. Moore:

King Engineering Associates, Inc. (King) has been contracted by the Peace River Manasota Regional Water Supply Authority (Authority) to provide engineering services on our Regional Loop Phase 2 Interconnect Project. Under this contract, they have analyzed customer demands, performed hydraulic modeling of our regional potable water transmission system, evaluated service connections and proposed interconnects, sized proposed pipelines and potential booster pump stations and have completed a conceptual design for a proposed transmission pipeline. Future phases of their services could include design, permitting and construction services for a large diameter transmission pipeline.

We have been very pleased with King's services and have always found them to be knowledgeable, responsive and professional with all tasks requested of them.

Please feel free to contact me if you need any additional information.

Sincerely,

Patrick J. Lehman, P.E.
Executive Director

cc: King Engineering

6311 ATRIUM DRIVE ◆ SUITE 100 ◆ BRADENTON, FLORIDA 34202 ◆ TEL (941) 316-1776 ◆ FAX (941) 316-1772 ◆ WEBSITE: regionalwater.org

printed on recycled paper

CITY OF DUNEDIN
"Dedicated to Quality Service"
P.O. BOX 1348
DUNEDIN, FLORIDA 34697-1348
(727) 298-3000

To Whom It May Concern:

King Engineering Assoc., Inc. (King) is one of the City of Dunedin's shortlisted firms for Miscellaneous Engineering Services and has been providing us with professional engineering services since 1992. Over the years they have completed a number of projects involving reverse osmosis water treatment plant and advanced wastewater treatment plant upgrades, potable water well construction and miscellaneous utilities. King has consistently worked diligently to meet the City's needs and we continue to be pleased with their performance.

Sincerely,

Douglas Hutchens, Director
Public Works & Utilities

Cc: Consultant File/King

"The City of Dunedin does not discriminate on the basis of race, color, national origin, sex, religion, age, and disabled status in employment or the provision of services"

CITY of TEMPLE TERRACE

11250 NORTH 56TH STREET
P. O. BOX 16930
TEMPLE TERRACE, FLORIDA 33687
PHONE 813/989-7100
SUNCOM #967-7100
FAX #989-7185
www.templeterrace.com

To Whom It May Concern:

King Engineering Associates, Inc. (King) has been providing professional engineering services under the City of Temple Terrace's Continuing Municipal Engineering Service Contract since 1999.

During this time, King has completed numerous projects for the City involving pump station refurbishments, force mains, a water supply and storage project, stormwater retrofits and roadway reconstruction. The City of Temple Terrace is pleased with King's performance and they continue to meet the City's needs.

Very truly yours,

Joseph J. Motta, P.E.
City Engineer

JJM/sh

City of Largo, Florida
Post Office Box 296, Largo, Florida 33779-0296

Community Development Department
Carol Stricklin, AICP, Community Development Director
Leland E. Dicus, P.E., City Engineer

Community Development Administration: (727) 586-7490
Engineering Services Division: (727) 587-6713
Engineering Services FAX: (727) 586-7413

February 18, 2009

To Whom It May Concern:

King Engineering Associates, Inc. is one of the City of Largo's contracted firms for Miscellaneous Engineering Services. They have completed several projects for us involving hydraulic modeling, expansion of our reclaimed water system, force main transmission lines, pump station upgrades and the relocation of our utilities in advance of several roadway widening projects. King performed exceptionally well on these projects and completed the design within the confines of very demanding schedules driven by SWFWMD cooperative funding requirements and the Florida Department of Transportation. The City is very pleased with King's level of service.

Sincerely,

Leland Dicus, P.E.
City Engineer

BOARD OF COUNTY COMMISSIONERS
Nancy Bostock
Neil Brickfield
Calvin D. Harris
Susan Latvala
John Morroni
Karen Williams Seel
Kenneth T. Welch

Pinellas County
UTILITIES
Engineering

February 12, 2009

To Whom It May Concern:

King Engineering Associates, Inc. (King) has been providing professional engineering services to Pinellas County for projects relating to the upgrade, rehabilitation, expansion or replacement of various water, wastewater and reclaimed water facilities. Through the solicitation process under this Continuing Engineering Consultant Services contract, King was selected to provide hydraulic modeling services, water main replacements, residential reclaimed water transmission and distribution piping, several wastewater pump station upgrades and relocations and wastewater treatment plant upgrades. Pinellas County is very pleased with King's performance and continued dedication to satisfy the County's needs.

Sincerely,
PINELLAS COUNTY UTILITIES

James Hall, P.E.
Division Manager

PLEASE ADDRESS REPLY TO:
14 S. Ft. Harrison Avenue
Clearwater, Florida 33756
Phone: (727) 464-3588
FAX: (727) 464-3595
Website: www.pinellascounty.org

Additional Information

Sample SSES Report

Prepared For:

MIAMI-DADE COUNTY

Water and Sewer Department

3071 SW 38th Avenue
Miami, Florida 33133

Construction Management & Inspection Services

Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer System within the City of Miami Springs, Florida

ER No. S048414, RPQ #P0038

December 2010

Prepared by:

King Engineering Associates, Inc.
8390 NW 53rd Street
Suite 200
Doral, Florida 33166

Phone: (305) 392-9979

King ENGINEERING ASSOCIATES, INC.

WWW.KINGENGINEERING.COM

Project No. EDP-2011-D-R

Agreement No. EDP-WS-138

MIAMI-DADE WATER AND SEWER DEPARTMENT

Project No. EDP 2011-D-R

Construction Management and Inspection Services for the "Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer System within the City of Miami Springs, Florida"

EXECUTIVE SUMMARY REPORT

December 24, 2010

Miami-Dade Water and Sewer Department
3071 SW 38th Avenue
Miami, Florida 33133

MIAMI-DADE COUNTY
Delivering Excellence Every Day

Prepared By:

King
ENGINEERING ASSOCIATES, INC.

8390 NW 53RD STREET
SUITE 200
DORAL, FL 33166
Phone: (305) 392-9979

ACKNOWLEDGMENTS

The work completed as part of this project reflects the joint team effort of the Miami-Dade Water and Sewer Department (MDWASD) staff, Reynolds Inliner LLC (Reynolds), and the members of the King Engineering Associates, Inc. (King) SSES team.

The cooperation and professionalism demonstrated by MDWASD staff was key to the successful completion of this project. We gratefully acknowledge the special contributions of the following MDWASD staff:

Mr. Rod Lovett	-	Chief, Wastewater Collection & Transmission Line Division
Mr. Joe Mazzarese	-	Water Distribution Supervisor, TV & Grout South Unit (Retired)
Mr. Larry Decker	-	Assistant Superintendent, Inspection Section
Mr. Ini Roberts	-	Engineer 2, Evaluation / Review Section
Mr. James Saren	-	Assistant Superintendent, M & R Section
Mr. Juan Bedoya	-	Water Distribution Supervisor, TV & Grout North Unit
Ms. Maria Morejon	-	Administrative Secretary
Mr. Al Galambos	-	Chief, Pump Station Maintenance Division
Mr. Rey Urquiola	-	Assistant Superintendent, Pump Station Division
Mr. Charles Sutton	-	Assistant Superintendent, Pump Station Division
Mr. Jorge Montier	-	Operations and Maintenance Supervisor, Pump Station Division
Mr. Ralph Garcia	-	Plant Mechanic, Pump Station Division

Finally, the following Reynolds personnel are gratefully acknowledged for their contribution to the project. These include:

Rick Cooper, Branch Manager
William Rivera, Project Manager
Radhames Mejia, Operations Manager

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EXECUTIVE SUMMARY

As part of the ongoing infiltration and inflow (I/I) Program, MDWASD performs inspections of at least 10% of its sewer collection system each year in order to comply with Miami-Dade County Code Section 24-42.2(1)(a). MDWASD has decreased treatment plant average daily flows over the last 14 years with an effective I/I program. The City of Miami Springs' water and sewer system was recently acquired by MDWASD. The City's sewer collection system was mostly installed in the early 1970's and currently contributes I/I to MDWASD's collection system. King was retained in support of the City's SSES program to perform construction management and inspection services and provide repair recommendations for all identified defects.

The City's' sewer collection system is comprised of approximately 46 miles of gravity mains, 17 pump stations, and 925 manholes. Originally, basins 1233, 1235, 1240, 1242, 1245, 1246, 1247, and 1249 did not comply with the Miami-Dade County Code Section 24-42.2(1)(d) maximum I/I requirement of 5,000 GPD/dia-inch/mile. These basins were prioritized under the Volume Sewer Customer Ordinance (VSCO). In addition, the City's sewer collection system lies within the limits of the Wellfield Protection area (Cone of Influence), so special attention must be paid to reducing or eliminating leakage from the sewer system. This project serves the dual purpose of cleaning the entire system and identifying the sources of I/I as well as eliminating potential sources of contamination to the drinking water wells in the vicinity.

The project included manhole cleaning and inspection, pump station wet well cleaning and inspection, sewer gravity main cleaning and CCTV inspection, and smoke testing. This project is the first of a two step process to reduce I/I. In accordance with MDWASD's guidelines, the project helps to identify specific repairs through the manhole, pump station, and CCTV inspections. The smoke testing identifies potential sources of I/I that need further investigation to determine exactly which repairs may be needed. In addition, the smoke testing helps to identify potential sources of I/I located outside of the publicly owned facilities. The second portion of the project includes the repair of the identified defects.

The SSES found the following defects within the sewer collection system:

- 145 defects during manhole inspections.
- 13,106 defects during CCTV inspections.
- 482 defects during smoke testing.
- No visible defect during pump station inspections.

Cleaning, inspection, and smoke testing procedures were conducted in accordance with the contract specifications while minimizing inconvenience to residents. All defects identified were logged into a database provided by MDWASD and repair recommendations were determined using MDWASD's Repair Criteria and Technology Guidelines. Ultimately, eight priority basins were again identified under the VSCO. It was found that basins 1240 and 1242 no longer classify as VSCO. Basins 1236 and 1243, however, are now beyond the permittable threshold of I/I. As currently done, MDWASD will repair all defects identified in the sewer collection system in order to eliminate the estimated 4.28 MGPD of I/I. Table 1 below provides the estimated I/I for each basin as estimated by MDWASD based on the results of this investigation and sorted by GPD/diameter-inch/mile.

TABLE 1
TOTAL I/I PER BASIN

MDWASD Basin #	No. of Lines	Wet Net Flow 2010 (gpm)	Dry Net Flow 2010 (gpm)	Average Flow (gpm)	Length (ft)	Diameter-Inch/Mile	GPD/Diameter-Inch/Mile
1249*	5	76	7	41.5	565	1.38	43,219.53*
1246*	10	77	98	87.5	1,372	3.22	39,167.85*
1233*	131	2,378	690	1,534	35,880	97.56	22,641.12*
1247*	10	68	11	39.5	1,206	2.83	20,115.26*
1243*	20	138	9	73.5	5,715	13.40	7,898.54*
1245*	10	25	14	19.5	1,839	4.31	6,512.21*
1235*	16	52	23	37.5	3,212	8.25	6,547.02*
1236*	203	768	246	507	50,952	123.45	5,913.78*
1237	58	138	92	115	16,506	41.11	4,028.43
1242	38	83	50	66.5	11,740	29.47	3,249.14
1234	270	375	356	365.5	68,344	181.13	2,905.78
1240	43	55	31	43	11,227	26.46	2,340.51
1241	34	25	23	24	9,234	21.65	1,596.24
1244	37	20	18	19	10,482	24.58	1,113.23
1238	11	0	5	2.5	3,097	7.26	495.76
1239	25	0	0	0	6,853	16.07	0
1248	13	0	0	0	2,089	6.13	0

*Basins not meeting the 5,000 GDP/diameter-inch/mile required by Miami-Dade County Code Section 24-42.2(1)(d)

INTRODUCTION

i. Background

MDWASD acquired the City of Miami Springs water and sewer collection system in September 2008. The system is comprised of approximately:

- 46 miles of sewer gravity mains, consisting of 8-inch to 24-inch diameter vitrified clay pipe (VCP), polyvinylchloride (PVC), cast iron (CI), ductile iron (DI), polyethylene (PE), and composite (i.e. lined pipes)
- 17 pump stations
- 925 sewer manholes

A map of the City and its corresponding sewer gravity basins is shown below in Figure 1.

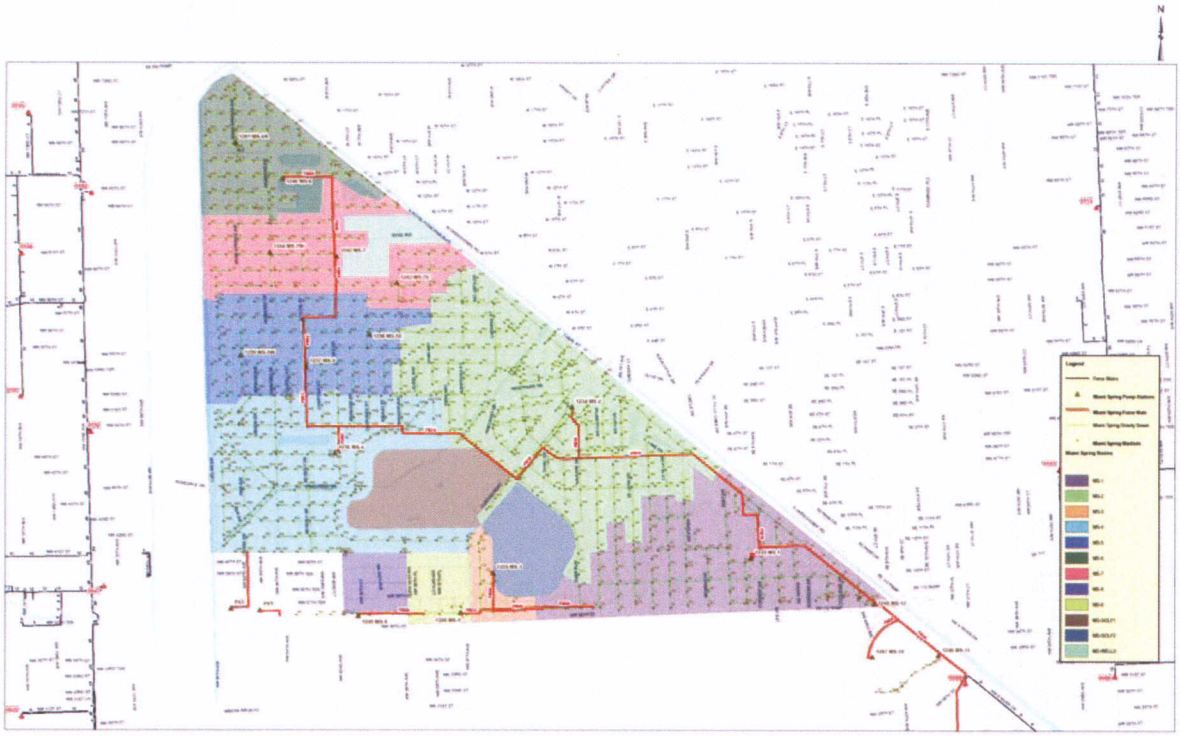


Figure 1. City of Miami Springs and Sewer Gravity Basins

A sanitary sewer evaluation survey (SSES) is typically performed on a collection system to identify the sources of infiltration and inflow and compare the cost of the repairs to the cost of treatment. Infiltration is groundwater that enters the sewer collection system through holes, breaks, joint failures, connection failures and other openings. Infiltration responds directly to groundwater levels, and is thus at its highest during the rainy season with its peak typically in October, and especially following significant rain events when the ground becomes saturated.

Inflow is direct runoff that enters the collection system through illegal or improper connections (such as roof drains and catch basins) or through faulty, poorly sealed, or missing manhole covers and/or laterals clean out caps. Inflow contributes a significant amount of pollutants, especially during rain events following dry spells. Grease, oils, pesticides, and other pollutants are flushed from the surfaces where they have been accumulating into the sewer collection system. Thus, inflow increases peak

flows to the treatment plant as well as pollutant load. Figure 2 depicts a schematic of different sources of I/I.

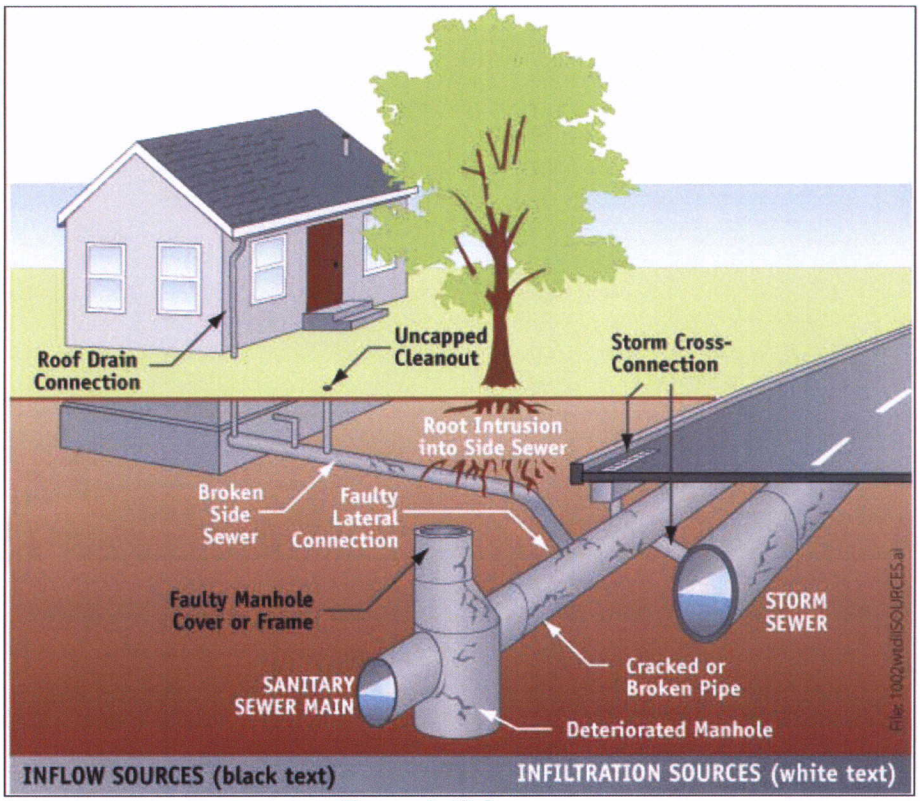


Figure 2. I/I Sources
Source: http://www.kingcounty.gov/environment/wastewater/II/What.aspx

ii. Purpose

To help meet the criteria outlined in Miami-Dade County Code Section 24.42.2, MDWASD implemented a sewer collection system I/I program for the City of Miami Springs to reduce total system flows to the treatment facilities. The I/I program included manhole cleaning and inspection, pump station cleaning and inspection, gravity main cleaning and video TV, and smoke testing to identify all defects contributing to I/I in the system and to recommend repairs for these defects. Future projects will repair the defects identified by this investigation.

A successful I/I program reduces peak flows to treatment facilities, allowing for better management of sewage flows into the system, and reducing treatment costs. It is an essential component of proper sewer management practices and ultimately reduces pollution due to treatment plant overflow in the event of large rain events that typically overload the treatment facility with I/I flows.

iii. Scope

King was retained by MDWASD to provide Construction Management and field services for the "Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD Sanitary Sewer system within the City of Miami Springs, Florida" Project. The contractor for the project was Reynolds.

The project has been divided into three (3) subtasks. Each of the subtasks details the specific Scope of Services and is broken as follows:

- **Project Management/Administration**

  Monthly status reports were provided to MDWASD throughout the project in order to monitor progress versus the project schedule.

- **Field Services**

  1. Monitored and documented the pipe cleaning and closed circuit TV (CCTV) inspection of the MDWASD sewer collection system by the Contractor for compliance with the project Specifications.
  2. Monitored and documented the inspection of the manholes contained within the MDWASD sewer collection system by the Contractor for compliance with the project Specifications.
  3. Monitored and documented the smoke testing of the MDWASD sewer collection system by the Contractor for compliance with the contract specifications.
  4. Documented and reported any discrepancies found on the MDWASD provided Sewer Atlas Maps on the Department's Atlas Correction Forms.

- **Construction Management/Office Support Services**

  King was responsible for reviewing the video inspection recordings and providing repair recommendations according to MDWASD's Repair Criteria and Technology Guidelines. Work order issuances were coordinated with the contractor.

INSPECTION METHODOLOGY AND RESULTS

MDWASD provided copies of their seven standard inspection and recommendation databases for use during the project. These are:

- TV Field and Office
- MH Field and Office
- ST Field and Office
- Repair Recommendation

Upon completion of the inspection of each pipeline segment and manhole, Reynolds entered inspection data into the appropriate database for CCTV inspections, manhole inspections, and smoke testing using their specified coding of defects included in the respective databases. Pump station inspection data was provided on the manhole inspection forms. The field data was then reviewed by King for data compilation and repair recommendation. The following sections outline the specific process followed for each type of inspection.

i. Manhole Cleaning and Inspection

Before cleaning the gravity sewer lines, manholes were pressure cleaned and inspected using MDWASD's manhole inspection form. In addition, photos were taken to document the manhole conditions. All inspections were visual from the top of the manhole without entry. A spotlight was used to assist with the inspection when needed. In addition to the 912 manholes that were originally identified to be cleaned and inspected, 11 new manholes were identified in the field, cleaned, and inspected bringing the total to 923 manholes. The location and other pertinent data for each of the 11 additional manholes were documented using the MDWASD's atlas correction form. Appendix A contains a copy of each of these forms.

Inspection of the manhole components was performed to assess the condition of the cover, frame, frame seal, chimney, cone, wall, bench, channel, and cover insert. As required by the contract specifications, Reynolds prepared written field reports that were subsequently reviewed and verified prior to entering the inspection findings into the manhole inspection database.

The results of the inspections show that 120 manholes had defects (see Appendix B). As shown in Table 2, the majority of the defects occurred in basins 1233, 1234, and 1236, and consisted primarily of frame seals and missing cover inserts.

TABLE 2
MANHOLE DEFECTS SUMMARY

Basin No.	Defective Manholes	Cover Condition	Frame Condition	Frame Seal Condition	Chimney Condition	Cone Condition	Wall Condition	Bench Condition	Channel Condition	Insert Condition
1233	31	0	3	1	4	4	7	4	1	21
1234	17	0	2	13	0	0	0	1	0	2
1235	1	0	0	0	0	0	0	0	0	1
1236	31	0	3	22	7	1	1	0	0	0
1237	4	0	3	0	0	0	0	0	0	1
1238	1	0	0	0	0	0	0	0	0	1
1240	2	0	0	1	0	0	0	0	0	1
1242	1	0	0	0	0	0	0	0	1	0
1244	1	0	0	0	0	0	0	0	0	1
1245	6	0	0	0	0	0	2	0	0	5
1246	5	0	0	0	0	1	3	0	0	3
1247	7	0	0	3	0	0	1	0	0	7
1248	10	0	0	0	0	0	0	0	0	10
1249	3	0	0	0	0	0	0	0	0	3
Subtotal	**120**	**0**	**11**	**40**	**11**	**6**	**14**	**5**	**2**	**56**
Total Defects		**145**								

ii. Pump Station Cleaning and Inspection

Pump station wet well cleaning and inspection was performed in compliance with MDWASD's contract specifications. MDWASD personnel assisted with every inspection by coordinating access to pump stations and operating the electrical panel to lower the water level for better visibility during the cleaning and inspection. In addition, Reynolds used air plugs to momentarily shut down the incoming flow, and placed a Vac-Con catch basin nozzle on the bottom of the wet well for suction purposes while pressure cleaning. The pump station wet well and each pipeline connection were visually observed with the use of a spotlight, as needed. Wet wells were observed for infiltration and general overall condition. The findings were documented on MDWASD's inspection form. A copy of each inspection form is included in Appendix C. In general, wet wells appeared to be in good condition with no visible defects.

iii. Sewer Gravity Main Cleaning and CCTV Inspection

All gravity sewer main lines were cleaned using a jet-type pressure cleaner before closed-circuit televising (CCTV). To aid in the CCTV inspection, the jet-type pressure cleaner was kept inside the pipe to remove any additional debris or obstruction and minimize standing water in order to improve the visibility of the camera. In accordance with contract specifications, all reasonable efforts were made to fully view the entire pipe segment from the upstream manhole to the downstream manhole. Occasionally, obstruction or equipment limitations required a reverse set up at the next manhole to fully view the entire pipe segment. In addition, removal of obstructions, and/or location and exposure of manholes were necessary in some cases in order to have access to the sewer system. Reynolds performed the CCTV inspection and data recording in accordance with Section 6.00 of the contract specifications. The inspections of the gravity sewer mains generated a video and a TV log per line segment. Each video was reviewed in its entirety to confirm data was collected and identified thoroughly and consistently using the MDWASD's Television Observation Codes (Appendix D). The list of defects found is summarized in Table 3 and is presented in greater detail, including a breakdown of defects by basin, in Appendix E.

TABLE 3
DEFECTS IDENTIFIED VIA CCTV

Defect Code	Definition	Count
13	Light Roots	5548
19	Joint / Infiltration	2521
53	Conn. Infiltration	1427
20	Cracked Joint	1321
37	Deposits	625
25	Circular Crack	457
33	Sag in Pipe	441
14	Medium Roots	230
15	Heavy Roots	139
22	Mineral Deposits	106
26	Longitudinal Crack	50
47	Connection w/defect	38
21	Separated Joint	30
16	Moderate Offset	28
27	Open Crack	25
30	Hole in Pipe	24
38	Grease	20
28	Broken Pipe	18
46	Break-in-Connection	18
17	Severe Offset	10
23	Gasket Exposed	10
39	Liner Defect Began Observation	7
40	Liner Defect End Observation	5
36	Corrosion	4
48	Sectional Liner w/defect	2
18	Misaligned Joint	1
60	Liner Connection Defect	1
	Total	**13,106**

Review of the CCTV inspections indicates that the majority of the visible pipeline defects include light root intrusion, joint problems with active infiltration, lateral infiltration at connection to the mainline, and cracked joints.

iv. Smoke Testing

Smoke testing was done in compliance with MDWASD's contract specifications. A HURCO SMK1811-LS smoke blower was used in conjunction with HURCO Liquid-Smoke to force smoke through the isolated segment being tested. As a result of the smoke testing, Reynolds identified potential inflow sources such as illegal storm sewer cross-connections, roof leaders, yard and area drains, abandoned building sewers, pipe structural damage, leaking joints, and faulty service connections for further investigation and/or repair.

Prior to the commencement of any smoke testing, the Contractor notified residents a minimum of 72 hours in advance with door hangers containing contact and project related information. Every effort was made to minimize inconvenience to the public, and resident concerns were addressed in a courteous, professional, and timely manner. A summary of the calls received from residents and the action taken in response is outlined in Table 4.

TABLE 4
RESIDENT CALL LOG

Date	Name	Address	Resident Concern/Action Taken
10/19/2010	Gladys Sainz	751 Falcon Avenue	Aging mother needs her there during test. Resident was notified 1 hour prior to testing, per request. (10/20/2010)
10/19/2010	Jim Saren	800 block of Falcon Avenue	His neighbor is in home hospice, he wants to be notified when his area will be tested. Resident was notified 1 hour prior to testing, per request. (10/20/2010)
10/19/2010	Raul Cuan	564 Mokena Drive	Resident had smoke in his shower and was concerned about smoke from his roof vent. He claimed that he received the door hanger 3 days after smoke test was done. Contractor confirmed that the hanger was placed 3 days before smoke test in that area.
10/20/2010	William Groves	1201 Plover Avenue	Resident saw smoke from his roof vent, wanted to know if everything was ok.
10/20/2010	Paula Camacho	1175 Meadowlark Avenue	Resident wanted to be home during smoke test to see if her plumbing had leaks. Her area was tested on 10/19; she was told that the contractor will not re-test the area.
11/17/2010	Hayde Segarra	361 Rosedale Drive	Resident has a smoke alarm in her house and wants to know when her area will be tested. She was notified on 11/18 that her area will be tested that day around 2 to 3:30 pm. 11/19/2010 - Need to confirm that there is a defect. Defect is marked on the ground but no DERM notice was left. Defect was confirmed to be public, no action needed from the resident.
11/18/2010	Barbara Batista	369 Corydon Drive	Resident had smoke coming out of her kitchen roof. She was notified that smoke from the roof is normal and that no defects were identified on her property.
11/22/2010	Antonio Martinez	130 Curtiss Parkway	Resident saw smoke coming from his backyard, wanted to know if he had to do anything. Area will be tested 11/23, will follow up to let him know if the defect is private or public. Followed up with resident on 11/24, defect was a public CO cap, no action is required from the resident.
11/24/2010	Joell McGee	500 Curtiss Parkway	Resident had smoke inside her home, was not home when the testing occurred so she could not see where it came from. Wanted testing to be repeated when she was home to identify her leak. Was notified that the purpose of the testing is to identify leaks and breaks outside the home, the area will not be re-tested.
11/29/2010	Carol Martinez	101 Navarre Drive	Resident had smoke inside her home and was concerned. No defects were found on or adjacent to her property.
11/30/2010	Carlos Perera	7401 SW 131st Avenue	Resident received a DERM notice, will replace the broken cap.
11/30/2010	Alvaro Gutierrez	830 Wren Avenue	Resident received a DERM notice for a broken riser. He will repair the defect.
12/02/2010	Pat Armstrong	6221 NW 36th Street	See Alex Szeelkan.
12/02/2010	Caridad Mora	29 Royal Ponciana	Resident is in the process of closing a claim with a public adjuster for her internal plumbing. She just had open heart surgery and needs more than 30 days to fix the defect. Also, noted that the CO that was painted was supposed to be out of service because an existing tree damaged the lateral and a new lateral connection was made.
12/02/2010	Alex Szeelkan	6221 NW 36th Street	Defects were not marked in the field. Wanted to know which CO risers they were. Defects were repaired 12/03/2010.
12/03/2010	Tomasa Del Val	1090 Quail Avenue	Resident fixed the defect the day after she received a DERM notice.
12/09/2010	Antonia Gando	517 Mokena Drive	Resident will repair private defect, wants to know when MDWASD will repair the public defect adjacent to her property.

As the smoke testing progressed, a Smoke Testing Defect Report was created following MDWASD's Standard Protocol. Defects were classified as either Public or Private Defect. Public Defects will be

repaired by MDWASD, while Private Defects are forwarded to the Miami-Dade Department of Environmental Resources Management (DERM) for enforcement of repair by property owners. Table 5 summarizes all of the defects identified through smoke testing.

TABLE 5
SMOKE TESTING DEFECT REPORT

Basin Number	Defect Code	Definition	Count
1233	4	Cleanout Cap	56
1233	5	Broken Riser	5
1233	9	Private Lateral	1
		Total	**62**
1234	1	Catch Basin	1
1234	4	Cleanout Cap	79
1234	5	Broken Riser	32
1234	10	Other*	3
		Total	**115**
1235	4	Cleanout Cap	8
		Total	**8**
1236	1	Catch Basin	2
1236	4	Cleanout Cap	63
1236	5	Broken Riser	28
1236	8	Public Lateral	1
1236	9	Private Lateral	1
		Total	**95**
1237	4	Cleanout Cap	25
1237	5	Broken Riser	11
		Total	**36**
1238	4	Cleanout Cap	7
		Total	**7**
1239	4	Cleanout Cap	8
1239	5	Broken Riser	2
		Total	**10**
1240	4	Cleanout Cap	28
1240	5	Broken Riser	2
		Total	**30**
1241	4	Cleanout Cap	11
1241	5	Broken Riser	1
		Total	**12**
1242	3	Roof Drain	1
1242	4	Cleanout Cap	31
1242	5	Broken Riser	6
		Total	**38**
1243	4	Cleanout Cap	16
		Total	**16**
1244	4	Cleanout Cap	23
1244	8	Public Lateral	1
1244	10	Other*	2
		Total	**26**
1245	5	Broken Riser	5
		Total	**5**
1246	4	Cleanout Cap	8
1246	5	Broken Riser	1
1246	7	Manhole	1
		Total	**10**
1247	4	Cleanout Cap	2
		Total	**2**

Basin Number	Defect Code	Definition	Count
1248	4	Cleanout Cap	2
1248	5	Broken Riser	3
		Total	**5**
1249	4	Cleanout Cap	5
		Total	**5**
		Grand Total	**482**

* For details see MDWASD Smoke Testing database.

In addition, property owners where private defects were identified and located were notified with a door hanger of the defect requiring repair. The private defect's location was spray painted on the ground to provide the property owner proper identification of the defect. Table 6 summarizes the DERM notices distributed during smoke testing.

TABLE 6
TOTAL DERM NOTICES

Basin Number	Defect Code	Definition	DERM Case No.
1233	5	Broken Riser	4908
			4983
			4907
			4908
1234	10	Other*	5000
	5	Broken Riser	4903
			4902
			4901
			4906
			4905
			4904
			5003
			4900
1236	1	Catch Basin	4997
	9	Private Lateral	4972
	5	Broken Riser	4985
			4992
			4973
			4988
			4989
			4975
			4974
			4987
1237	5	Broken Riser	4978
			4977
			4976
			4998
			4981
			4993
			4996
			4979
			4994
			4980
			4982
1242	5	Broken Riser	4990
	3	Roof Drain	4970
1244	10	Other*	4999
1245	5	Broken Riser	4916

Basin Number	Defect Code	Definition	DERM Case No.
			5002
			4984
			4971
1246	5	Broken Riser	5001
1248			4915
		Total	**43**

* For details see MDWASD Smoke Testing database.

A summary and breakdown of the work performed is shown in Table 7 with a detailed listing of work performed as shown in Appendix F. All data archived in the office databases, videos, photos, inspector daily reports, DERM notice forms, and additional information were compiled in an external hard drive provided to MDWASD on December 28, 2010. In addition, all office databases are included in a CD-ROM in Appendix G.

TABLE 7
SUMMARY OF WORK PERFORMED

MDWASD Basin #	Cleaning, Video & Smoke Testing						Total LF/Basin	MH Cleaning & Inspection	PS Cleaning & Inspection
	8-Inch	10-Inch	12-Inch	15-Inch	18-Inch	24-Inch			
	2.1	2.2	2.3	2.4	2.5	2.6		3.1	2.7
1233*	23,425	2,839	3,667	4,210	1,116	623	35,880	128	✓
1234	47,591	7,784	5,342	2,992	3,632	1,003	68,344	266	✓
1235*	1,472	1,730	10				3,212	16	✓
1236	43,910	4,449	1,999	594			50,952	202	✓
1237	14,691			1,815			16,506	58	✓
1238	3,097						3,097	11	✓
1239	6,853						6,853	25	✓
1240*	10,879	348					11,227	43	✓
1241	9,234						9,234	33	✓
1242*	9,450	537	1,024	729			11,740	38	✓
1243	5,715						5,715	19	✓
1244	10,482						10,482	37	✓
1245*	1,839						1,839	10	✓
1246*	1,347	25					1,372	10	✓
1247*	1,206						1,206	9	✓
1248	464		1,625				2,089	13	✓
1249*	412	153					565	5	✓
Total Completed per Item	**192,067**	**17,865**	**13,667**	**10,340**	**4,748**	**1,626**	**240,313**	**923**	**17**

* Miami Springs 2010 VSCO Basins

Since the pipe footage and number of manholes in the existing sewer gravity collection system could not be accurately estimated during the bid phase, adjustments were required to reflect a small increase in bid quantities. However, the revised total project cost stayed below the required original budget amount. Appendix H summarizes the additional quantities and amounts per bid item.

RECOMMENDATIONS

After all descriptive data was recorded and archived using MDWASD's standard protocol and data format, King reviewed it and provided follow-up recommendations using MDWASD's Repair Criteria and Technology Guidelines and cost data. Refer to Appendix I for Repair Criteria and Technology followed.

i. Manhole Repair Recommendation

If manholes showed signs of inflows from surface runoff or groundwater infiltration into the sewer, erosion, or hydrogen sulfide induced corrosion, then repairs were recommended such that the manhole would be watertight and more resistant to deterioration. Refer to Appendix J for the approximate total cost of manhole repairs.

ii. Sewer Gravity Main Repair Recommendation

All recommended repairs followed MDWASD's Repair Criteria and Technology Guidelines as outlined in the flow chart shown in Exhibit A. In cases where the MDWASD Repair Criteria and Technology Guidelines led to a recommendation for point repairs (robotic, sectional liner, grouting, and/or excavated point repair), a comparison was made between the cost of point repairs and full length repair (CIPP or line replacement). If cost of point repairs represented 80% or more of the cost of full length repair, then full length repair was recommended. Refer to Appendix K to see these cost comparisons. Repair technologies were manually noted on the TV logs and incorporated in the electronic submittal made to MDWASD on December 28, 2010.

In total, King evaluated the conditions of 923 manholes, 17 pumps stations and 934 line segments. The analysis resulted in total of 3,036 repair recommendations. No repairs were recommended for 122 line segments since no defects were identified, and two incomplete CCTV inspections were forwarded to the Department for further investigation. A portion of these two critical lines could not be inspected due to obstructions. Refer to Appendix L for details on these two line segments.

The repair recommendations for manholes, laterals and gravity sewer mains were entered into the repair database and are summarized in Table 9. Refer to Appendix M for a list of repair recommendations by basin.

TABLE 9
TOTAL REPAIR RECOMMENDATION

Repair Code	Definition	Count
595	Inv Suspect Lateral	1408
507	Point Repair Lateral (Public Property)	307
531	De-root Main Line	283
538	Sectional	228
529	Clean, Test, Seal Main Line	227
547	Cure-in-Place Liner (hold for another repair)	210
537	Cured-in-Place Liner	100
1	Insert Manhole Dish	56
12	Seal Casting to Cone	44
513	Grout Annular Space at Manhole/Pipe Connection	37
511	Grout Lateral Annular Space	31
557	Point Repair with Cured-in-Place Liner	23
541	Heavy Clean Mainline with Degreaser	15
526	Point Repair Main Line	8
26	Repair Leaks in Manhole Wall	7
534	De-scale Entire Line	7
594	Investigate Suspect Drop-Connection	7
9	Realign and Seal Manhole Frame	6
13	Plug and Waterproof Coat Manhole Chimney	6
392	Plug and Waterproof - Coat Entire Manhole	5

Repair Code	Definition	Count
24	Plug and Waterproof - Coat Manhole Walls	3
47	Repair Manhole / Pipe Connection	3
525	Replace Main Line	3
4	Replace Manhole Cover	2
18	Plug and Waterproof - Coat Manhole cone	2
584	Robotics Repair Protruding Lateral	2
17	Repair Leaks in Manhole Chimney	1
22	Repair Leaks in Manhole Cone	1
31	Repair Leaks in Manhole Bench	1
33	Repair Leaks in Manhole Channel	1
523	Plug Lateral at Point of Connection with Main Line	1
533	De-scale (Spot)	1
	Total	**3,036**

PLANNING LEVEL OPINION OF PROBABLE CONSTRUCTION COST

MDWASD's internal processes and procedures were closely followed; therefore, MDWASD's repair cost estimating guidelines were used. These were as follows:

- One included the cost of both trenchless and dig-and-replace methods from recent bids, including CIPP, sectional liners, clean, test, and seal (grouting), excavated point repair, and line replacement. These costs are influenced by the diameter of the pipe, the length of pipe requiring rehabilitation, and the nature of the defects, such as cracks, roots, joint offsets, and others. Appendix N provides a summary of these bid repairs cost.

- The other cost estimating guide came from the table "Repair Code Listing" contained in MDWASD's repair database.

The Planning Level Opinion of Probable Construction Cost was estimated as follows:

- **Gravity Sewer Mains** - The cost data from recent bids was used to estimate rehabilitation costs shown in Appendix K, including repair recommendations.

- **Sewer Laterals** - The cost of lateral repairs was estimated as the additive costs of additional investigations of suspect laterals exceeding an estimated flow of 0.4 gpm, recommended point repairs, and grout repairs as shown in Table 10 below. Cost data used was the one provided in the "Repair Code Listing" included in MDWASD's repair database.

- **Sewer Manhole**s - The cost data in the "Repair Code Listing" in MDWASD's repair database was used to estimate rehabilitation costs as shown in Appendix J.

The total estimated costs to rehabilitate the City of Miami Springs gravity sewer system are summarized in Table 10. Table 10 does not include the additional cost of repairs that may arise from the recommended pending investigations of 520 suspect laterals. Additionally, the smoke testing discovered damaged and broken components (such as CO caps and risers), and illegal connections within private property. The cost of these repairs is the responsibility of the property owners, and it is not included in the total estimated cost below.

TABLE 10
PLANNING LEVEL OPINION OF PROBABLE CONSTRUCTION COST

Rehabilitation	Cost	Justification
Gravity Sewer Main	$2,798,222.00	See Appendix K for details.
Sewer Lateral	$1,223,200.00	520 laterals ("Investigate Suspect Lateral") @ $150 each + 307 point repairs ("Point Repair Lateral") @ $3700 each + 31 grout repair ("Grout Lateral Annular Space") @ $300 each.
Sewer Manholes	$44,700.00	See Appendix J for details.
Total	**$4,066,122.00**	

Appendix "A"

Atlas Correction Forms *(One sample page included only / Total Pages 11)*

MIAMI-DADE COUNTY

Delivering Excellence Every Day

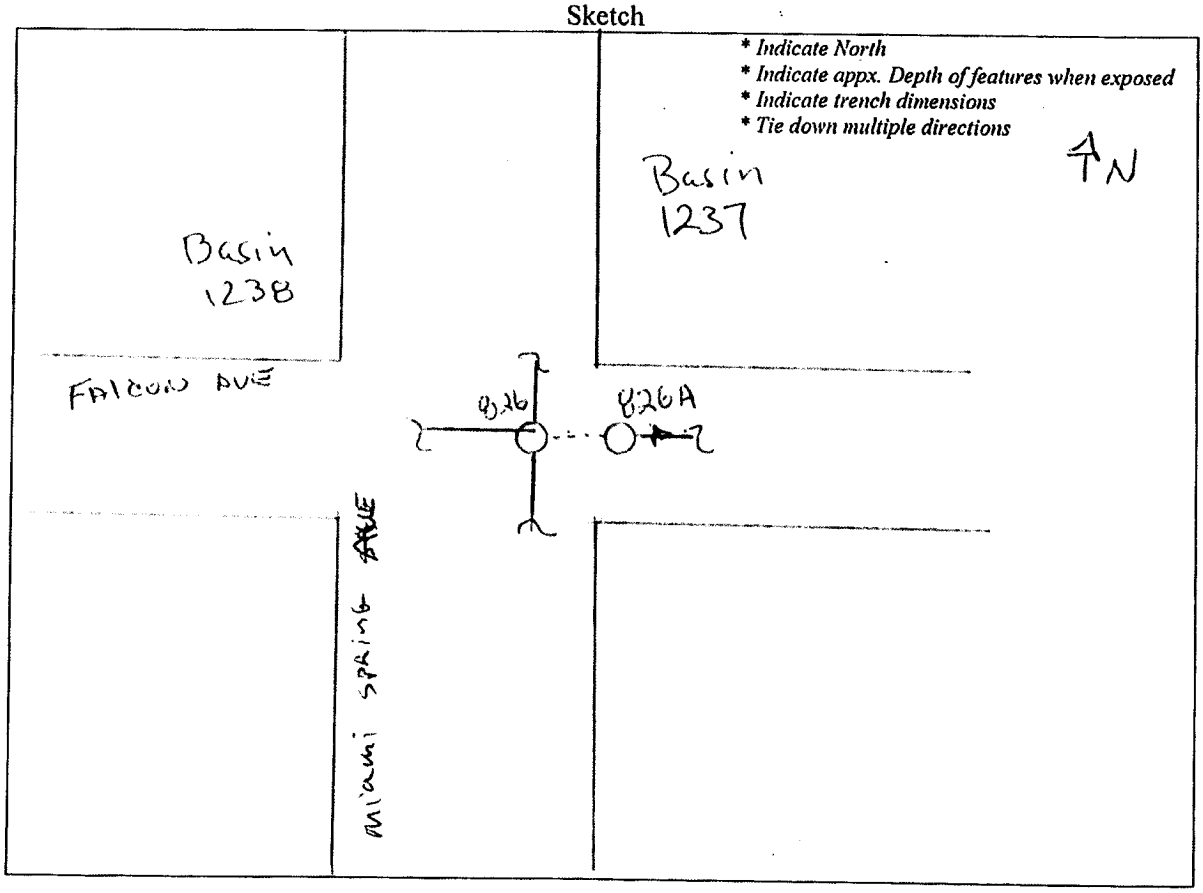
King ENGINEERING ASSOCIATES, INC.

Miami Dade Water and Sewer Department
Preliminary Evaluation Prior to Design and/or Other Upgrades to the MDWASD
Sanitary Sewer System within the City of Miami Springs, Florida
(Miami Springs SSES)
Contract No. S048414

Active As-built Supplemental Information System (AASIS) Form

Date: 6-1-10 AASIS #: _____
Reported by: Reynolds Inliner
Division: _____ Contact info phone/pager: 954-483-7783
Location/address/intersection: Falcon Ave & Miami Springs Ave
Asbuilt(s) in question: New MH Found Between BS/237 and BS/237 Atlas: C5
Main type: Gravity Sewer Main size: 8" Material: VCP
Actual location of discovered pipe as referenced to centerline, R/O/W, etc.: New MH 826A
Belongs to BS/237, BS/238 (MH826) has FM going into MH 826A
Discovered due to: Damage by excavator ☐ Repair work ☐ Exploratory dig ☐
New utility installation ☐ Construction work ☐ Other: SSES Investigation
Pipe Exposed? Y ☐ N ☑ Critical Error? Y ☐ N ☑

Sketch



Appendix "B"

Manholes with Defects *(One sample page included only / Total Pages 2)*

Basin No.	Manhole No.	Atlas Page	Cover Condition	Frame Condition	Frame Seal Condition	Chimney Condition	Cone Condition	Wall Condition	Bench Condition	Channel Condition	Insert Condition
1233	82A	F9	OK	OK	OK	Corroded	Corroded	Corroded	Corrosion	OK	OK
1233	21	G9	OK	Offset	OK	OK	OK	OK	OK	OK	OK
1233	11	G8	OK	Broken	OK	OK	OK	OK	OK	OK	OK
1233	1A	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	22	G9	OK	OK	OK	OK	OK	Leaks	OK	OK	OK
1233	23	G8	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	28	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	29	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	32	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	33A	G9	OK	OK	OK	OK	OK	OK	OK	OK	Damaged
1233	15	G7	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	400A	F8	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	88	E9	OK	OK	OK	Corroded	Corroded	Corroded	OK	OK	OK
1233	86	E9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	83	F9	OK	OK	OK	OK	Corroded	Corroded	Corrosion	Corrosion	OK
1233	80	F9	OK	OK	OK	Corroded	OK	OK	Corrosion	OK	OK
1233	400C	F8	OK	OK	Cracked	OK	OK	OK	OK	OK	Missing
1233	41	H9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	48	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	4A	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	4B	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	50	G9	OK	OK	OK	OK	Corroded	Corroded	OK	OK	OK
1233	84	E9	OK	OK	OK	Corroded	OK	Leaks	Corrosion	OK	Missing
1233	6	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	77B	F9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	400B	F8	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	61	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	61A	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1233	62C	G8	OK	Offset	OK	OK	OK	OK	OK	OK	OK
1233	66	F9	OK	OK	OK	OK	OK	Corroded	OK	OK	OK
1233	50A	G9	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1234	568	D5	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	569	D5	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	564	D5	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	516	E6	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1234	470A	E8	OK	Offset	Leaks	OK	OK	OK	OK	OK	OK
1234	567	D5	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	244	E6	OK	OK	OK	OK	OK	OK	OK	OK	Missing
1234	443	F8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	461	F8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	548A	D6	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	550	D6	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	551	D6	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	553	D6	OK	Offset	OK	OK	OK	OK	OK	OK	OK
1234	562	E5	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	304	F7	OK	OK	OK	OK	OK	OK	Leaks	OK	OK
1234	565	D5	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1234	460	F8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1235	91	E9	OK	OK	OK	OK	OK	OK	OK	OK	Damaged
1236	1077	D7	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1236	918	C8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1236	921	C8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1236	922	C8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1236	920A	C8	OK	Cracked	Leaks	Leaks	OK	OK	OK	OK	OK
1236	919	C8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1236	916	D8	OK	Offset	Leaks	OK	OK	OK	OK	OK	OK
1236	915	D8	OK	OK	OK	Cracked	OK	OK	OK	OK	OK
1236	909	C8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1236	908	C8	OK	OK	Leaks	OK	OK	OK	OK	OK	OK
1236	901	C7	OK	OK	OK	Cracked	OK	OK	OK	OK	OK
1236	1063B	C6	OK	Offset	OK	OK	OK	OK	OK	OK	OK
1236	1001	C7	OK	OK	OK	OK	OK	Cracked	OK	OK	OK

Appendix "C"

PS Inspection Forms *(One sample page included only / Total Pages 17)*

MDWASD Pump station — **Sewage Collection Division**

Manhole Inspection Form

Crew Leader: RW | Date: 10 9 6 10 | PS: 1 2 4 5 | MH:

Atlas Page: D9 | Weather: Dry / Rain | Ground Condition: Dry / Moist / Sat.

Private: | Does Not Exist: | Could Not Uncover: | Surcharged: | Subject to ponding:

Abandoned: | Stubout/Lamphole: | Could Not Access: | Storm MH: | MH has Drop Connection:

Frame Opening(in): | Depth(ft): 11 . 0 | Wall Dia.(in): | Surcharge Evident(ft):

Address: &

Loc.Remark: 6055 W 37 ST

MH Surface: Asph. / Conc. / Unpv. / Gab / Bdstk. / Drive / Pvmd / Gvmd / Byard / Field / Woods

Traffic Type: None / 1/2 Lne / 3/4Lne / Hwy / Alley / Prking / Other

Traffic Volume: None / Light / Med / Heavy

Cover Type: Solid / Vent / Pickhole / Washer

Cover Condition: OK / Loose / Cracked / No Gsk / No Bolts

Roots in Manhole: None / Light / Med / Heavy

Frame Condition: OK / Cracked / Broken / Dtlcel / Adjust

MH Insert Condition: OK / Cracked / Missing / Added One

Overall MH Cond.: Good / Fair / Poor

Frame Seal Const.: Mortar / Rubber / None / Other

Frame Seal Cond.: OK / Cracked / Leaks

Chimney Construction: Precast / Brick / Fiber / Nage / Other

Chimney Cond.: OK / Cracked / Holes / Leaks / Deteriorate

Cone Construction: Precast / Brick / Fiber / None / Other

Cone Condition: OK / Cracked / Holes / Leaks / Deteriorate

Cone Shape: Conc / Ecc / Rectang / None / Other

Wall Construction: Precast / Brick / Fiber / None / Other

Wall Condition: OK / Cracked / Holes / Leaks / Deteriorate

Step Construction: Metal / Plastic / Conc / None / Other

Step Condition: OK / Unsafe / Unknown

Bench Construction: Precast / Brick / Fiber / None / Other

Bench Condition: OK / Cracked / Holes / Leaks / Deteriorate

Channel Const: Precast / Brick / PVC / Clay / Fiber / None / Other

Channel Condition: OK / Cracked / Holes / Leaks / Deteriorate

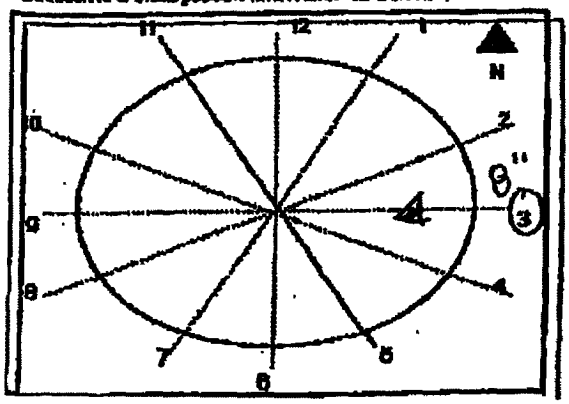
Channel Deposition: None / Sand / Rock / Sludge / Mud / Other

Channel Hydraulics: Good / Fair / Poor

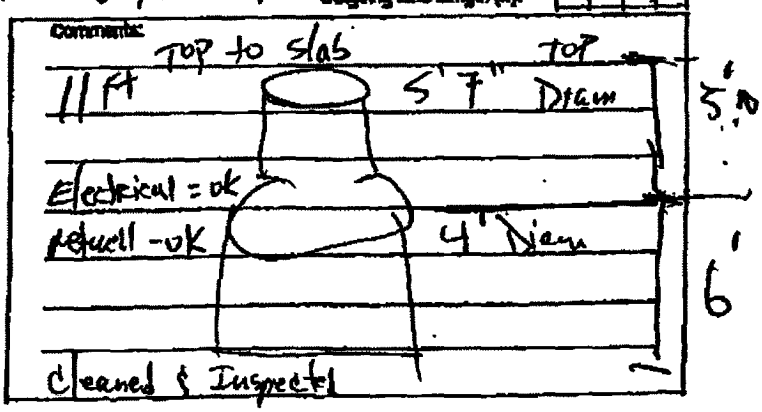
Rehabilitation:
(DRY=Dry/No Stains) — Dry / Stain / Flow
(STAIN=Dry/Stains) — Dry / Stain / Flow
(FLOW=Active I/I Flow) — Dry / Stain / Flow

Line	Line Type						Material						Dia	Depth	Dir.	Conn. MH
1	Out						Clay	PVC	CIP	Liner	Concrete	Other				
2	In	Overll.	Lateral	Fgtk.	Fld	Other	Clay	PVC	CIP	Liner	Concrete	Other				
3	In	Overll.	Lateral	Fgtk.	Fld	Other	Clay	PVC	CIP	Liner	Concrete	Other				
4	In	Overll.	Lateral	Fgtk.	Fld	Other	Clay	PVC	CIP	Liner	Concrete	Other				
5	In	Overll.	Lateral	Fgtk.	Fld	Other	Clay	PVC	CIP	Liner	Concrete	Other				
6	In	Overll.	Lateral	Fgtk.	Fld	Other	Clay	PVC	CIP	Liner	Concrete	Other				

*Direction is O'Clock position when North=12 O'clock 100-216 & 100-218 & 100-219 | Outgoing Line Length (ft):



Comments:



Appendix "D"

MDWASD Television Observation Codes
Total Pages 1

Defect Code	Definition
1	Upstream Manhole
2	Downstream Manhole
3	Reverse Set-up
5	Crown
6	Invert
7	Right
8	Left
9	Camera Submerged
10	Camera Blocked
12	Buried Manhole
13	Light Roots
14	Medium Roots
15	Heavy Roots
16	Moderate Offset
17	Severe Offset
18	Misaligned Joint
19	Joint/Infiltration
20	Cracked Joint
21	Separated Joint
22	Mineral Deposits
23	Gasket Exposed
25	Circular Crack
26	Longitudinal Crack
27	Open Crack
28	Broken Pipe
29	Collapsed Pipe
30	Hole in Pipe
31	Joint Air-Test Failed
32	Flattened Flex Pipe
33	Sag in Pipe
34	Drop Connection
35	Erosion
36	Corrosion
37	Deposits
38	Grease
39	Liner Defect Began Observation
40	Liner Defect End Observation
46	Break in Connection
47	Connection w/Defect
48	Sectional Liner w/Defect
49	Domestic Flow
50	Intruding > 1" Inch
52	Joint Close to Lateral
53	Connection w/Infiltration
59	Stub-out at MH Leaking
60	Liner Connection Defect
61	Service Connection at MH
64	Lamp Hole
65	Conduit through Sewer
455	Service Connection Crown
457	Service Connection Right
458	Service Connection Left
515	Capped Service Crown
517	Capped Service Right
518	Capped Service Left

Appendix "E"

Defects Identified Via CCTV Classified by Basin *(One sample page included only / Total Pages 4)*

Basin Number	Defect Code	Definition	Count
1233	13	Light Roots	521
	19	Joint/Infiltration	364
	53	Conn. Infiltration	248
	37	Deposits	77
	20	Cracked Joint	60
	33	Sag in Pipe	41
	14	Medium Roots	32
	15	Heavy Roots	18
	25	Circular Crack	16
	30	Hole in Pipe	14
	46	Break in Connection	4
	38	Grease	4
	27	Open Crack	2
	21	Separated Joint	2
	48	Sectional Liner w/Defect	2
	40	Liner Defect End Observation	1
	28	Broken Pipe	1
	47	Connection w/Defect	1
		Total	**1,408**
1234	13	Light Roots	1799
	19	Joint/Infiltration	1038
	53	Conn. Infiltration	397
	20	Cracked Joint	386
	37	Deposits	144
	25	Circular Crack	103
	33	Sag in Pipe	77
	14	Medium Roots	60
	15	Heavy Roots	41
	22	Mineral Deposits	9
	27	Open Crack	7
	28	Broken Pipe	7
	26	Longitudinal Crack	4
	30	Hole in Pipe	4
	17	Severe Offset	4
	46	Break in Connection	3
	16	Moderate Offset	3
	47	Connection w/Defect	2
	39	Liner Defect Began Observation	1
		Total	**4,089**
1235	20	Cracked Joint	121
	19	Joint/Infiltration	52
	13	Light Roots	16
	53	Conn. Infiltration	6
	33	Sag in Pipe	4
	37	Deposits	4
	25	Circular Crack	3
		Total	**211**
		Grand Total	**13,106**

Appendix "F"

Detailed Listing of Work Performed *(One sample page included only / Total Pages 10)*

ID		DATE	INITIALS	BASIN #	LINE SEGMENT	CLEANING & VIDEO					
						8-Inch	10-Inch	12-Inch	15-Inch	18-Inch	24-Inch
						2.1	2.2	2.3	2.4	2.5	2.6
848	CV	10.16.10	HP	1234	242-201	339					
849	CV	10.16.10	HP	1234	248-201	252					
850	CV	10.16.10	HP	1234	232-228	361					
851	CV	10.16.10	HP	1234	228-227A		176				
852	CV	10.16.10	HP	1234	227A-227		247				
853	CV	10.16.10	HP	1234	227-214A		161				
854	CV	10.16.10	HP	1234	214A-214		251				
855	CV	10.16.10	HP	1234	231-227	201					
856	CV	10.18.10	HP	1234	562-558	280					
857	CV	10.18.10	HP	1234	558-213	253					
858	CV	10.18.10	HP	1234	221A-221	57					
859	CV	10.18.10	HP	1234	221-206	395					
860	CV	10.18.10	HP	1234	273-309	291					
861	CV	10.18.10	HP	1234	309-309A	129					
862	CV	10.18.10	HP	1234	309A-208	143					
863	CV	10.18.10	HP	1234	222-208	334					
864	CV	10.18.10	HP	1234	520-519	209					
865	CV	10.18.10	HP	1234	519-518	191					
866	CV	10.18.10	HP	1234	521-518	149					
867	CV	10.18.10	HP	1234	518-517	342					
868	CV	10.18.10	HP	1234	517-517A	287					
869	CV	10.19.10	HP	1234	522-517	208					
870	CV	10.19.10	HP	1234	517A-252	23					
871	CV	10.19.10	HP	1234	516-252	195					
872	CV	10.19.10	HP	1234	252A-252	253					
873	CV	10.19.10	HP	1234	252-251		265				
874	CV	10.19.10	HP	1234	251-205		170				
875	CV	10.19.10	HP	1234	534-533	146					
876	CV	10.19.10	HP	1234	533-532	379					
877	CV	10.19.10	HP	1234	541-530	120					
878	CV	10.19.10	HP	1234	528-211	225					
879	CV	10.19.10	HP	1234	515-514	230					
880	CV	10.19.10	HP	1234	445A-445	230					
881	CV	10.19.10	HP	1234	474-451	192					
882	CV	10.19.10	HP	1234	458-454	283					
883	CV	10.19.10	HP	1247	4-4A	80					
884	CV	10.19.10	HP	1247	4A-4B	139					
885	CV	10.19.10	HP	1247	4B-3	77					
886	CV	10.19.10	HP	1247	3-2	319					
887	CV	10.19.10	HP	1247	2-1	102					
888	CV	10.19.10	HP	1247	6-5	182					
889	CV	10.19.10	HP	1247	5-1	49					
890	CV	10.19.10	HP	1247	8-7	89					
891	CV	10.19.10	HP	1247	7-5	157					
892	CV	10.19.10	HP	1247	1-1247	12					
893	CV	10.19.10	HP	1246	1C-1B	162					
894	CV	10.19.10	HP	1246	1B-1A	150					
895	CV	10.20.10	HP	1234	224-223	240					
896	CV	10.20.10	HP	1234	223-213	244					
897	CV	10.20.10	HP	1234	231A-231	65					
898	CV	10.20.10	HP	1234	226-227	161					
899	CV	10.20.10	HP	1240	600-1240		36				
900	CV	10.20.10	HP	1237	800-1237				31		
901	CV	10.20.10	HP	1235	100A-100		32				
902	CV	10.20.10	HP	1235	100-1235		25				
903	CV	10.20.10	HP	1234	253-200					147	
904	CV	10.20.10	HP	1234	200-1234					21	
905	CV	10.20.10	HP	1233	45-50						322
906	CV	10.20.10	HP	1233	50-50A						153
907	CV	10.20.10	HP	1233	50A-1						104
908	CV	10.20.10	HP	1246	5-4A	98					
909	CV	10.20.10	HP	1246	4A-4	227					
910	CV	10.20.10	HP	1246	4-3A	227					
911	CV	10.20.10	HP	1246	3A-3	242					
912	CV	10.20.10	HP	1246	3-1	198					
913	CV	10.20.10	HP	1246	2-1	15					
914	CV	10.20.10	HP	1246	1A-1	28					
915	CV	10.20.10	HP	1246	1-1246		25				
916	CV	10.20.10	HP	1245	5-4	260					
917	CV	10.20.10	HP	1245	4-3	274					
918	CV	10.20.10	HP	1245	3-2	212					
919	CV	10.20.10	HP	1245	2-1245	20					
920	CV	10.21.10	HP	1233	1-1A						29
921	CV	10.21.10	HP	1233	1A-1233						15
922	CV	10.21.10	HP	1233	41-37		257				
923	CV	10.21.10	HP	1245	1E-1D	359					
924	CV	10.21.10	HP	1245	1D-1C	300					
925	CV	10.21.10	HP	1245	1C-1B	108					
926	CV	10.21.10	HP	1245	1B-1A	23					
927	CV	10.21.10	HP	1245	1A-1	258					
928	CV	10.21.10	HP	1245	1-1245	25					
929	CV	10.22.10	HP	1249	42A-1249	160					
930	CV	10.22.10	HP	1249	44-42D	40					
931	CV	10.22.10	HP	1249	42D-42C	80					
932	CV	10.22.10	HP	1249	42C-42B	132					
933	CV	10.22.10	HP	1249	42B-1249		153				
934	CV	12.01.10	HP	1233	77B-77A	24					
						192067	17865	13667	10340	4748	1626
						Total	240313				

ID		DATE	BASIN#	MH#	CLEANING PS
					2.7
					17

ID		DATE	BASIN#	MH#	MH INSPECTION
					3.1
882	M	08.25.10	1245	1B	✓
883	M	08.25.10	1245	1A	✓
884	M	08.25.10	1245	1	✓
885	M	08.25.10	1245	2	✓
886	M	08.25.10	1245	3	✓
887	M	08.25.10	1245	4	✓
888	M	08.25.10	1245	5	✓
889	M	08.25.10	1246	5	✓
890	M	08.25.10	1246	4	✓
891	M	08.25.10	1246	3	✓
892	M	08.25.10	1246	2	✓
893	M	08.25.10	1246	1	✓
894	M	08.25.10	1246	1A	✓
895	M	08.25.10	1246	1B	✓
896	M	08.25.10	1246	1C	✓
897	M	08.25.10	1248	1	✓
898	M	08.25.10	1248	2	✓
899	M	08.25.10	1248	3	✓
900	M	08.25.10	1248	4	✓
901	M	08.25.10	1248	5	✓
902	M	08.25.10	1248	6	✓
903	M	08.25.10	1248	7	✓
904	M	08.25.10	1248	8	✓
905	M	08.25.10	1248	10	✓
906	M	08.25.10	1248	11	✓
907	M	08.25.10	1247	1	✓
908	M	08.25.10	1247	2	✓
910	M	08.25.10	1247	5	✓
911	M	08.25.10	1247	6	✓
912	M	08.25.10	1247	7	✓
913	M	08.25.10	1248	9	✓
914	M	10.05.10	1233	12	✓
915	M	10.05.10	1233	13	✓
916	M	10.05.10	1233	14	✓
917	M	10.05.10	1233	16	✓
918	M	10.05.10	1233	400B	✓
919	M	10.05.10	1233	400C	✓
920	M	10.05.10	1240	650	✓
921	M	10.05.10	1248	12	✓
922	M	10.05.10	1248	13	✓
923	M	10.05.10	1247	8	✓
924	M	10.05.10	1247	3	✓
925	M	10.05.10	1247	4	✓
926	M	10.05.10	1247	4A	✓
927	M	10.22.10	1249	44	✓
928	M	10.22.10	1249	42D	✓
929	M	10.22.10	1249	42C	✓
930	M	10.22.10	1249	42B	✓
931	M	10.22.10	1249	42A	✓
932	M	11.15.10	1245	1D	✓
933	M	11.15.10	1245	1E	✓
934	M	11.15.10	1246	3A	✓
935	M	11.15.10	1246	4A	✓
936	M	11.16.10	1235	91	✓
937	M	11.19.10	1233	15	✓
938	M	11.30.10	1234	224	✓
939	M	11.30.10	1234	231A	✓
940	M	11.30.11	1234	226	✓
941	M	11.30.12	1234	209B	✓
942	M	11.30.13	1234	209C	✓
943	M	12.01.10	1234	209	✓
944	M	12.01.10	1234	208	✓
945	M	12.01.10	1234	273	✓
946	M	12.01.10	1234	309	✓
947	M	12.01.10	1234	309A	✓
948	M	12.01.10	1241	627	✓
949	M	12.01.10	1241	622	✓
950	M	12.01.10	1234	262	✓
951	M	08.23.10	1233	11	✓
					923

ID		DATE	BASIN#	PS INSPECTION
				3.2
				17

ID		DATE	BASIN#	LINE SEGMENT	SMOKE TESTING					
					8-Inch	10-Inch	12-Inch	15-Inch	18-Inch	24-Inch
					4.1	4.2	4.3	4.4	4.5	4.6
864	ST	11.24.10	1234	453 - 452			403			
865	ST	11.24.10	1234	454 - 453		367				
866	ST	11.24.10	1234	459 - 453	351					
867	ST	11.24.10	1234	460 - 459	330					
868	ST	11.24.10	1234	461 - 460	141					
869	ST	11.24.10	1234	458 - 454	283					
870	ST	11.24.10	1234	454A - 454	283					
871	ST	11.24.10	1234	455 - 454A	279					
872	ST	11.24.10	1234	456 - 455	286					
873	ST	11.24.10	1234	457 - 456	306					
874	ST	11.24.10	1234	462 - 453	258					
875	ST	11.24.10	1234	463 - 462	256					
876	ST	11.29.10	1234	280 - 277	222					
877	ST	11.29.10	1234	277 - 276		393				
878	ST	11.29.10	1234	278 - 277	403					
879	ST	11.29.10	1234	279 - 278	352					
880	ST	11.29.10	1234	276 - 275		231				
881	ST	11.29.10	1234	275 - 274		155				
882	ST	11.29.10	1234	260 - 274	55					
883	ST	11.29.10	1234	260A - 260	92					
884	ST	11.29.10	1234	430 - 305	200					
885	ST	11.29.10	1234	274 - 259		203				
886	ST	11.29.10	1234	259 - 258		249				
887	ST	11.29.10	1234	281 - 258	254					
888	ST	11.29.10	1234	282 - 281	300					
889	ST	11.29.10	1234	283 - 282	60					
890	ST	11.29.10	1234	258 - 257		353				
891	ST	11.29.10	1234	301 - 300	207					
892	ST	11.29.10	1234	300 - 305	155					
893	ST	11.29.10	1234	299 - 300	233					
894	ST	11.29.10	1234	432 - 430	163					
895	ST	11.29.10	1234	261 - 257		285				
896	ST	11.29.10	1234	262 - 261		298				
897	ST	11.29.10	1234	263 - 262	188					
898	ST	11.29.10	1234	264 - 263	122					
899	ST	11.29.10	1234	265 - 264	79					
900	ST	11.29.10	1234	266 - 265	98					
901	ST	11.29.10	1234	431 - 430	406					
902	ST	11.29.10	1234	305 - 304	207					
903	ST	11.30.10	1234	245 - 238	371					
904	ST	11.30.10	1234	246 - 245	42					
905	ST	11.30.10	1234	238 - 237	153					
906	ST	11.30.10	1234	237 - 236	64					
907	ST	11.30.10	1234	236 - 235		162				
908	ST	11.30.10	1234	271 - 235	120					
909	ST	11.30.10	1234	272 - 271	201					
910	ST	11.30.10	1234	272A - 272	82					
911	ST	11.30.10	1234	235 - 234		144				
912	ST	11.30.10	1234	234 - 233		96				
913	ST	11.30.10	1234	308 - 307		267				
914	ST	11.30.10	1234	307 - 288		327				
915	ST	11.30.10	1234	288A - 288	59					
916	ST	11.30.10	1234	288 - 288B		43				
917	ST	11.30.10	1234	288B - 287		143				
918	ST	11.30.10	1234	441 - 441A	283					
919	ST	11.30.10	1234	442 - 441	344					
920	ST	11.30.10	1234	441A - 287	54					
921	ST	11.30.10	1234	287 - 286		363				
922	ST	11.30.10	1234	437 - 286	355					
923	ST	11.30.10	1234	438 - 437	348					
924	ST	11.30.10	1234	286 - 285		351				
925	ST	11.30.10	1234	435 - 285	238					
926	ST	11.30.10	1234	436 - 435	250					
927	ST	11.30.10	1234	285 - 284			379			
928	ST	11.30.10	1234	293 - 285	325					
929	ST	11.30.10	1234	433 - 284	233					
930	ST	11.30.10	1234	434 - 433	257					
931	ST	11.30.10	1234	284 - 306A			378			
932	ST	11.30.10	1234	306A - 306			122			
933	ST	11.30.10	1234	306 - 304			163			
934	ST	11.30.10	1234	304 - 303			276			
935	ST	11.30.10	1234	303 - 257			278			
936	ST	11.30.10	1234	257 - 256				363		
937	ST	11.30.10	1234	439 - 438	242					
938	ST	11.30.10	1234	440 - 438	233					
939	ST	11.30.10	1234	443 - 442	339					
940	ST	11.30.10	1234	246A - 246	56					
942	ST	10.16.10	1233	77B - 77A	24					
					192067	17865	13667	10340	4748	1626
					Total	240313				

Appendix "G"

CD-ROM Containing Office Databases *(Not included)*

Appendix "H"

Additional Quantities and Amount per Bid Item
Total Pages 1

	ITEM No.	DESCRIPTION	PRICE	UNIT	QUANTITY (BID)	QUANTITY (ACTUAL)	DIFFERENCE	TOTAL (BID)	TOTAL (ACTUAL)	DIFFERENCE
MOT	1.1	MAINTENANCE OF TRAFFIC (MOT)	$ 500.00	AG				$ 500.00	$ 492.54	$ 7.46
	1.2	PROVIDING OFF DUTY POLICEMEN	$ 35.00	MH				$ 700.00	$ -	$ 700.00
CLEANING & TELEVISING	2.1	CLEANING & VIDEO INSPECTION 8" DIAMETER	$ 0.75	LF	198,000	192,067	5,933	$ 148,500.00	$ 144,050.25	$ 4,449.75
	2.2	CLEANING & VIDEO INSPECTION 10" DIAMETER	$ 0.80	LF	15,900	17,865	-1,965	$ 12,720.00	$ 14,292.00	$ (1,572.00)
	2.3	CLEANING & VIDEO INSPECTION 12" DIAMETER	$ 0.80	LF	13,500	13,667	-167	$ 10,800.00	$ 10,933.60	$ (133.60)
	2.4	CLEANING & VIDEO INSPECTION 15" DIAMETER	$ 0.90	LF	10,700	10,340	360	$ 9,630.00	$ 9,306.00	$ 324.00
	2.5	CLEANING & VIDEO INSPECTION 18" DIAMETER	$ 1.25	LF	4,200	4,748	-548	$ 5,250.00	$ 5,935.00	$ (685.00)
	2.6	CLEANING & VIDEO INSPECTION 24" DIAMETER	$ 2.00	LF	1,600	1,626	-26	$ 3,200.00	$ 3,252.00	$ (52.00)
	2.7	CLEANING PUMP STATION WET WELLS	$ 450.00	EA	17	17	0	$ 7,650.00	$ 7,650.00	$ -
MH & PS	3.1	MANHOLES INSPECTION	$ 0.01	EA	912	923	-11	$ 9.12	$ 9.23	$ (0.11)
	3.2	PUMP STATION WET WELLS INSPECTION	$ 0.01	EA	17	17	0	$ 0.17	$ 0.17	$ -
SMOKE TESTING	4.1	SMOKE TESTING 8" DIAMETER	$ 0.15	LF	198,000	192,067	5,933	$ 29,700.00	$ 28,810.05	$ 889.95
	4.2	SMOKE TESTING 10" DIAMETER	$ 0.17	LF	15,900	17,865	-1,965	$ 2,703.00	$ 3,037.05	$ (334.05)
	4.3	SMOKE TESTING 12" DIAMETER	$ 0.17	LF	13,500	13,667	-167	$ 2,295.00	$ 2,323.39	$ (28.39)
	4.4	SMOKE TESTING 15" DIAMETER	$ 0.17	LF	10,700	10,340	360	$ 1,819.00	$ 1,757.80	$ 61.20
	4.5	SMOKE TESTING 18" DIAMETER	$ 0.17	LF	4,200	4,748	-548	$ 714.00	$ 807.16	$ (93.16)
	4.6	SMOKE TESTING 24" DIAMETER	$ 0.17	LF	1,600	1,626	-26	$ 272.00	$ 276.42	$ (4.42)
SUBTOTAL	5	TOTAL OF ITEMS 1 TO 4						$ 236,462.29	$ 232,932.66	$ 3,529.63
CONTINGENCY ALLOWANCE	6	UNFORESEEN CONDITIONS, MINOR CONSTRUCTION CHANGES, AND QUANTITY ADJUSTMENTS, IF ORDERED BY THE ENGINEER						$23,646.23	$ -	$ 23,646.23
DEDICATED ALLOWANCE	7	PERMITS, FEES, IMPACT OF FEES, AND INSPECTIONS, IF ORDERED BY THE ENGINEER						$7,093.87	$ -	$ 7,093.87
TOTAL BID		SUM OF ITEMS 5,6, & 7						$ 267,202.39	$ 232,932.66	$ 34,269.73

Appendix "I"

MDWASD Repair Criteria and Technology Guidelines (Not included)

Appendix "J"

Manhole Repair Planning Level Opinion of Probable Construction Cost *(One sample page included only / Total Pages 4)*

Basin No.	Manhole No.	Atlas Page	Repair Code	Definition	Average Cost
1233	1A	G9	1	Insert Manhole Dish	$200.00
	4A	G9	1		$200.00
	4B	G9	1		$200.00
	6	G9	1		$200.00
	15	G7	1		$200.00
	23	G8	1		$200.00
	28	G9	1		$200.00
	29	G9	1		$200.00
	32	G9	1		$200.00
	33A	G9	1		$200.00
	41	H9	1		$200.00
	48	G9	1		$200.00
	50A	G9	1		$200.00
	61	G9	1		$200.00
	61A	G9	1		$200.00
	77B	F9	1		$200.00
	84	E9	1		$200.00
	86	E9	1		$200.00
	400A	F8	1		$200.00
	400B	F8	1		$200.00
	400C	F8	1		$200.00
	80	F9	392	Plug and Waterproof - Coat Entire Manhole	$1,000.00
	82A	F9	392		$1,000.00
	83	F9	392		$1,000.00
	84	F9	392		$1,000.00
	88	E9	392		$1,000.00
	50	G9	18	Plug and Waterproof-Coat Manhole Cone	$300.00
	50	G9	24	Plug and Waterproof-Coat Manhole Walls	$1,000.00
	66	F9	24		$1,000.00
	21	G9	9	Realign and Seal Manhole Frame	$300.00
	62C	G8	9		$300.00
	22	G9	26	Repair Leaks in Manhole Wall	$300.00
	11	G8	12	Seal Casting to Cone	$300.00
	400C	F8	12		$300.00
				Total	**$13,000.00**
1249	42B	H9	1	Insert Manhole Dish	$200.00
	42C	H9	1		$200.00
	44	H9	1		$200.00
				Total	**$600.00**
				Grand Total	**$44,700.00**

Appendix "K"

Mainline Repair Planning Level Opinion of Probable Construction Cost *(One sample page included only / Total Pages 18)*

ID		Previous ID	TV Date	Review Date	Basin No.	Line Segment	Length	Cost of Point Repairs	CIP	Repair Call*
923	CV	N/A	10.21.10	11.19.10	1245	1E-1D	359	$300.00		$300.00
924	CV	N/A	10.21.10	11.19.10	1245	1D-1C	300	$300.00		$300.00
925	CV	N/A	10.21.10	11.19.10	1245	1C-1B	108	$300.00		$300.00
926	CV	N/A	10.21.10	11.19.10	1245	1B-1A	23			No repair
927	CV	N/A	10.21.10	11.19.10	1245	1A-1	258			No repair
928	CV	N/A	10.21.10	11.19.10	1245	1-1245	25			No repair
893	CV	N/A	10.19.10	11.18.10	1246	1C-1B	162	$850.00	$3,240.00	$850.00
894	CV	N/A	10.19.10	11.18.10	1246	1B-1A	150	$300.00		$300.00
908	CV	N/A	10.20.10	11.19.10	1246	5-4A	98			
909	CV	N/A	10.20.10	11.19.10	1246	4A-4	227			
910	CV	N/A	10.20.10	11.19.10	1246	4-3A	227			No repair
911	CV	N/A	10.20.10	11.19.10	1246	3A-3	242			No repair
912	CV	N/A	10.20.10	11.19.10	1246	3-1	198	$850.00	$3,960.00	$850.00
913	CV	N/A	10.20.10	11.19.10	1246	2-1	15			No repair
914	CV	N/A	10.20.10	11.19.10	1246	1A-1	28	$300.00		$300.00
915	CV	N/A	10.20.10	11.19.10	1246	1-1246	25	$850.00	$862.50	$862.50
883	CV	N/A	10.19.10	11.10.10	1247	4-4A	80	$1,650.00	$1,600.00	$1,600.00
884	CV	N/A	10.19.10	11.10.10	1247	4A-4B	139			No repair
885	CV	N/A	10.19.10	11.10.10	1247	4B-3	77			No repair
886	CV	N/A	10.19.10	11.11.10	1247	3-2	319			No repair
887	CV	N/A	10.19.10	11.11.10	1247	2-1	102			No repair
888	CV	N/A	10.19.10	11.11.10	1247	6-5	182		$3,640.00	$3,640.00
889	CV	N/A	10.19.10	11.11.10	1247	5-1	49			No repair
890	CV	N/A	10.19.10	11.11.10	1247	8-7	89			No repair
891	CV	N/A	10.19.10	11.11.10	1247	7-5	157			No repair
892	CV	N/A	10.19.10	11.18.10	1247	1-1247	12			No repair
803	CV	N/A	10.13.10	11.05.10	1248	11-10	100			No repair
804	CV	N/A	10.13.10	11.05.10	1248	10-9	205			No repair
805	CV	N/A	10.13.10	11.05.10	1248	9-8	95			No repair
806	CV	N/A	10.13.10	11.05.10	1248	8-7	61			No repair
807	CV	N/A	10.13.10	11.05.10	1248	7-6	131			No repair
808	CV	N/A	10.13.10	11.05.10	1248	6-5	283			No repair
809	CV	N/A	10.13.10	11.05.10	1248	5-4	309			No repair
810	CV	N/A	10.13.10	11.05.10	1248	4-3	158			No repair
811	CV	N/A	10.13.10	11.05.10	1248	3-2	138			No repair
812	CV	N/A	10.13.10	11.05.10	1248	2-1	120			No repair
813	CV	N/A	10.13.10	11.05.10	1248	13-12	367			No repair
814	CV	N/A	10.13.10	11.05.10	1248	12-1	97			No repair
815	CV	N/A	10.13.10	11.05.10	1248	1-1248	25			No repair
929	CV	N/A	10.22.10	11.19.10	1249	42A-1249	160			No repair
930	CV	N/A	10.22.10	11.19.10	1249	44-42D	40			No repair
931	CV	N/A	10.22.10	11.19.10	1249	42D-42C	80			No repair
932	CV	N/A	10.22.10	11.19.10	1249	42C-42B	132			No repair
933	CV	N/A	10.22.10	11.19.10	1249	42B-1249	153			No repair
					TOTAL	**934**	**240313**			**$2,798,222.50**

No mainline repairs required. Only laterals repairs needed.

* Cost of recommendations considers cost of "Sectional Liners" (538) and "Grouting" (529) versus "Cure in Place Liners" (537), in addition to applicable "De-root Main Line" (531), "Heavy Clean Mainline with Degreaser" (541), "Point Repair Main Line" (526), and "Grout Annular Space at Manhole/Pipe Connection" (513).

No cost for applicable lateral repairs such as "Investigate Suspect Lateral" (595), "Grout Lateral Annular Space" (511), "Point Repair Lateral" (507), etc has been included.

Appendix "L"

Special Line Segments (Not included)

Appendix "M"

Repair Recommendations for MHs, Laterals, and Mainlines classified by Basin *(One sample page included only / Total Pages 4)*

Basin No.	Repair Code	Definition	Count
1233	595	Inv Suspect Lateral	235
	507	Point Repair Lateral (Public Property)	42
	529	Clean, Test, Seal Main Line	32
	538	Sectional	29
	1	Insert Manhole Dish	23
	531	De-root Main Line	16
	513	Grout Annular Space at Manhole/Pipe Connection	15
	511	Grout Lateral Annular Space	10
	547	Cure-in-Place Liner (hold for another repair)	9
	541	Heavy Clean Mainline with Degreaser	7
	537	Cured-in-Place Liner	7
	392	Plug and Waterproof - Coat Entire Manhole	5
	594	Investigate Suspect Drop-Connection	3
	24	Plug and Waterproof-Coat Manhole Walls	2
	12	Seal Casting to Cone	2
	9	Realign and Seal Manhole Frame	2
	18	Plug and Waterproof-Coat Manhole cone	1
	557	Point Repair with Cured-in-Place Liner	1
	26	Repair leaks in manhole wall	1
		Total	**442**
1234	595	Inv Suspect Lateral	373
	529	Clean, Test, Seal Main Line	98
	531	De-root Main Line	73
	507	Point Repair Lateral (Public Property)	72
	538	Sectional	67
	547	Cure-in-Place Liner (hold for another repair)	43
	537	Cured-in-Place Liner	33
	513	Grout Annular Space at Manhole/Pipe Connection	16
	12	Seal Casting to Cone	13
	511	Grout Lateral Annular Space	11
	526	Point Repair Main Line	6
	557	Point Repair with Cured-in-Place Liner	5
	1	Insert Manhole Dish	2
	9	Realign and Seal Manhole Frame	2
	523	Plug Lateral at Point of Connection with Main Line	1
	31	Repair Leaks in Manhole Bench	1
	584	Robotics Repair Protruding Lateral	1
	594	Investigate Suspect Drop-Connection	1
		Total	**818**
		Grand Total	**3,038**

Appendix "N"

Summary of Bid Costs
Total Pages 1

	Size (in)	$/LF 0-9 ft depth	$/LF 9-18 ft depth
Line Replacement (525)	8	$ 34.50	$ 65.00
	10	$ 58.00	$ 84.00
	12	$ 58.00	$ 84.00
	15	$ 58.00	$ 84.00
	18	$ 58.00	$ 84.00
	24	$ 58.00	$ 84.00

	Size (in)	$/Each 8 ft Length	$/LF Additional length
Sectional Liner (538)	8	$ 850.00	$ 1.00
	10	$ 800.00	$ 1.00
	12	$ 900.00	N/A
	15	$ 1,250.00	N/A
	18	$ 2,000.00	N/A
	24	$ 3,000.00	N/A

	Size (in)	$/LF
Cured in Place Liners (CIP) (537)	8	$ 20.00
	10	$ 23.00
	12	$ 24.00
	15	$ 30.00
	18	$ 40.00
	24	$ 60.00

	Size (in)	$/LF
Grouting (529)	8	$ 10.00
	10	$ 10.00
	12	$ 12.20
	15	$ 12.20
	18	$ 15.30
	24	$ 15.30

	$/Each (All Sizes)
Point Repair (526) (557 CIP)	$ 3,000.00

Prepared for:
Town of Lauderdale-By-The-Sea

Prepared By:
GAI Consultants, Inc.

RFP No. 11-04-02

Sanitary Sewer System Evaluation, Analysis and Engineering Services

May 19, 2011

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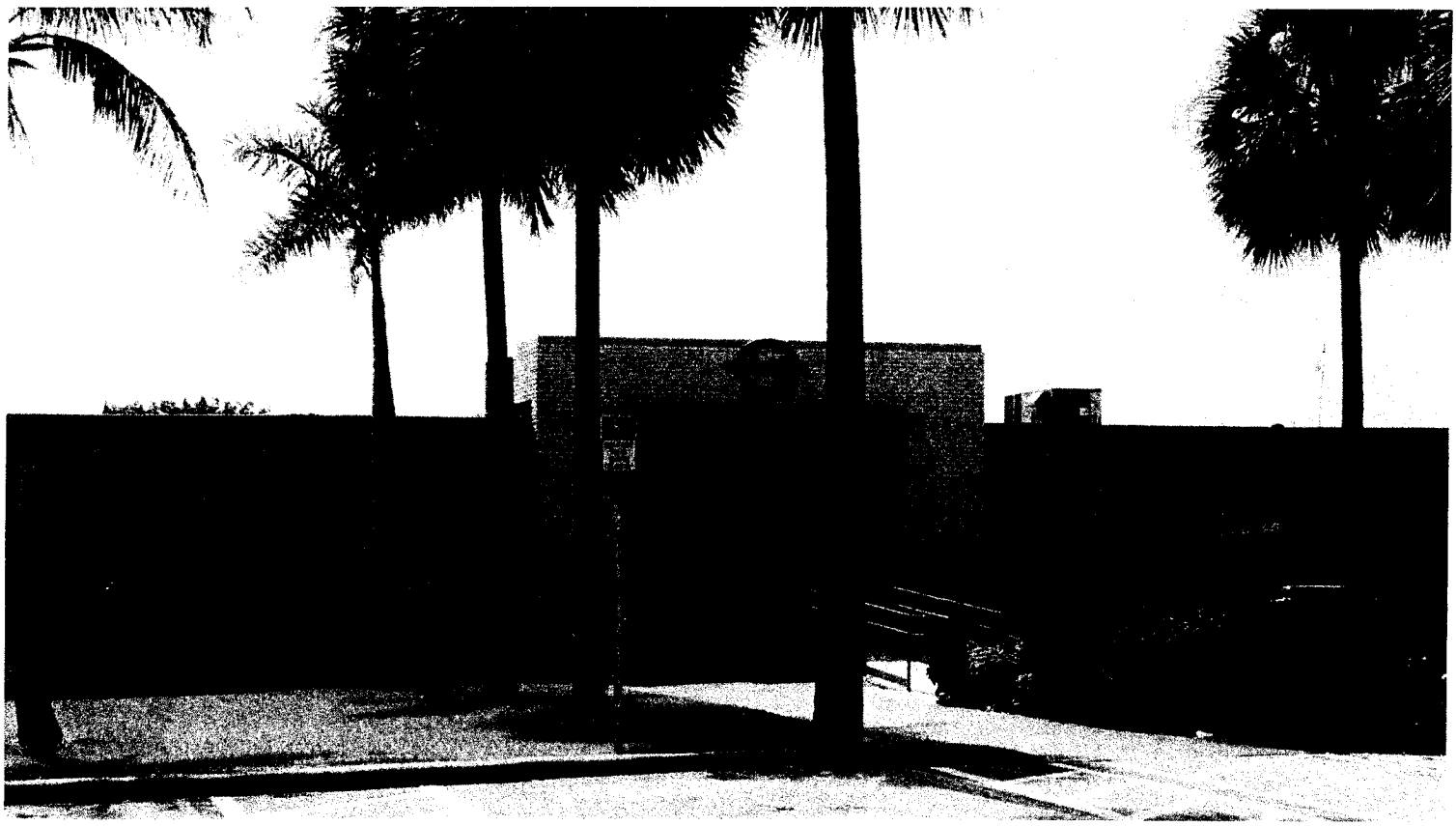

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May 19, 2011

Ms. June White, CMC
Town Clerk
Town of Lauderdale-By-The-Sea
4501 Ocean Drive
Lauderdale-By-The-Sea, Florida 33308

RE: REQUEST FOR PROPOSAL NO. 11-04-02
SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Dear Selection Committee Members:

The Town of Lauderdale-By-The-Sea is seeking assistance from Sanitary Sewer System Evaluation experts on how to proceed with managing their Wastewater Collection System Rehabilitation Program. GAI has the seasoned professionals who understand how to provide quality projects with cost-effective efficiency. GAI's engineers will take a fresh look at the project requirements and will review the Town's needs from a value engineering perspective.

One of the keys to GAI's successful approach to contracts is the designation of a Consultant's Project Manager. As shown on the enclosed organization chart, GAI proposes that **Jules J. (Jay) Ameno, PE** serve as the Town's Project Manager. Mr. Ameno will be the point of initial contact to receive tasks or direction from the Town.

GAI's project manager, **Jules J. (Jay) Ameno, PE** has performed similar projects for the Mulberry, Plantation, Oakland Park, and Miramar communities. He has 35 years of experience in the water and wastewater industry and has permitted dozens of water and wastewater facilities through the Florida Department of Environmental Protection, Local Health Departments, and Broward County Department of Natural Resources.

For this project GAI brings together a team of qualified professionals that are familiar with sanitary sewer systems and have the experience to support the Town's program. Our team is supported by the following subconsultant professionals: **Kevin Enfinger, PE** of **ADS, LLC (ADS)** for their depth of nationally-recognized experience and success in SSES programs; and **Stephen Bailey, PE** of **Bailey Engineering Consultants, Inc. (BEC)** for their experience in quality electrical designs and instrumentation.

As a long-term provider in Florida, our evidence of customer satisfaction is illustrated by several long-term continuing service contracts with the City of North Miami Beach, City of Miramar, Tindall Hammock Irrigation and Soil Conservation District, City of Mulberry, City of Daytona Beach, and Bay County. GAI has learned through working as an extension of staff for numerous municipal utility departments that communication is essential to gaining consensus and project buy-in. Gaining consensus early in the project results in cost-savings and schedule adherence.

GAI also understands that over the course of a long-term project such as this, various funding sources may become available; therefore, GAI offers the assistance of our Grant Writing and Funding staff as an additional service.

The GAI Team is ready and able to serve the Town in all aspects of this project as outlined in your RFP including:

- Review Town's video documentation and repair history.
- Review reports of Town owned manholes.
- Evaluate the wastewater flow meter at the Seagrape Lift Station, prepare report, and make recommendations.
- Inspect the two Town owned lift stations and conduct a hydraulic analysis of their current performance.
- Determine the extent of inflow/infiltration based on rainfall events and groundwater as influenced by tidal action.
- Identify capital repairs and replacements, identify their cost, and make recommendations for a repair schedule.
- Project future wastewater generation rates through 2025 and develop a model using Sewer Cad software to assess capacity of the sewer system.

Additional services may include:

- Grant funding and preparation of applications.
- Preparation of design reports, modeling, surveying, data analysis, cost estimation, and life cycle analysis.
- Phasing recommendations.
- Preparation of bid/construction documents, cost estimates, permit applications, and other required documents.
- Attend meetings as required by the Town and make recommendations for award of construction contracts.
- Provide engineering, management, and administration and inspection services for construction projects including field revisions, change orders, pay applications, and permitting certifications.
- Provide project closeout services including acceptance of project, O&M manuals, as-built documentation and final certification to the regulatory agencies.
- Present reports and recommendations to the Town Commission, Town Administration, and other interested groups as specified by the Town.

Our local and corporate contacts for this project are as follows:

Client Contact:
Jules (Jay) Ameno, Jr., PE
Senior Engineering Manager
2255 Glades Road, Suite 324A
Boca Raton, FL 33431
Office: 561-988-2611
Cell: 561-531-4115

Corporate Officer:
Gerald C. Hartman, PE, BCEE, ASA
Vice President
618 E. South Street, Suite 700
Orlando, FL 32801
Office: 407-423-8398
Cell: 407-341-0970

If you have any questions regarding the enclosed qualifications or require additional information, please do not hesitate to contact us. The GAI Team is looking forward to the opportunity to serve the Town of Lauderdale-By-The-Sea.

Sincerely,

Jules (Jay) Ameno, Jr., PE
Senior Engineering Manager

Gerald C. Hartman, PE, BCEE, ASA
Vice President

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transforming ideas into reality®

Sanitary Sewer System Evaluation, Analysis and Engineering Services

RFP No. 11-04-02

Submitting Firm:
GAI Consultants, Inc.
2255 Glades Road, Ste 324A
Boca Raton, FL 33431
T 561.988.2613

Contact:
Jules (Jay) Ameno, P.E.

May 19, 2011

gai consultants

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Tab B Experience 10

Tab C Approach to Providing Services 19

Tab D Compensation 22

Tab E Additional Information 23

gai consultants

Tab A Organization Profile and Qualifications

Firm History

GAI Consultants, Inc.: Employee-owned, multi-disciplined engineering and environmental consulting firm

Founded: 1958 in Pittsburgh, PA

Years of Service: 50+

Professional Staff: 750+

21 Office Locations: Orlando, Jacksonville & Boca Raton, FL; Pittsburgh, Philadelphia, Cranberry, Altoona, Southpointe & Murrysville, PA; Cincinnati, OH; Richmond, VA; Charleston, WV; Charlotte, NC; Erlanger, KY; Mt. Laurel, NJ; Fort Wayne, Valparaiso, Indianapolis & Scottsburg, IN; and Green Bay & Mayville, WI.

Markets: Water/Wastewater, Transportation, Land Development, Energy, and Municipal, State & Federal Government

GAI is an employee-owned, multi-discipline engineering, and environmental consulting firm that performs services in the areas of:

- Civil Engineering
- Mechanical Engineering
- Structural Engineering
- Electrical/Instrumentation Engineering
- Water/Wastewater Planning and Design
- Landscape Architecture
- Survey
- Utility Coordination
- Construction Engineering/Testing/Inspection
- Cultural Resources
- Utility Management/Financial Consulting

The majority of our volume of work is directly related to public sector including capital improvement projects, continuing services, and program management.

GAI provides a unique blend of water and wastewater engineering and consulting services to both public and private clients throughout the United States, with experience ranging from planning, design, and construction services. Our productive solutions to utilities include project procurement strategy, owner's representative services, permitting, operation optimization, pilot studies, alternative evaluation, project scheduling review, and capital project planning.

Our specialty is providing professional services as a prime consultant, drawing upon a unique blend of in-house experts and technicians, and utilizing specialty sub-consultants as necessary to meet the program's individual work assignment requirements. From feasibility studies – to concept design – to final design/permitting – and through construction implementation, GAI's ability to meet your needs is second to none in Florida.

Innovative Services

GAI provides a unique blend of water and wastewater engineering and consulting services to both public and private clients throughout the United States, with experience ranging from planning, design, project procurement, and construction services. Our productive solutions to utilities include project procurement strategy, permitting, operation optimization, pilot studies, alternative evaluation, project scheduling review, and capital project planning.

Our team of engineering and environmental professionals has years of experience in water and wastewater engineering. Our key team members are licensed Professional Engineers who provide hands-on technical skills, project coordination experience, and innovative approaches to every client's needs.

GAI is dedicated to providing the highest quality of knowledge and expertise to meet our clients' needs in water resources and supply, wastewater treatment, water, and reuse.

GAI's Services

In an effort to provide our client's with a comprehensive level of service our operations are organized into the following defined professional service disciplines:

Environmental Engineering Planning & Design: The services and project efforts range from serving as continuing consultant; performing new treatment plant or system designs; upgrading existing facilities to meet existing and future state and federal regulations; performing studies, preparing cost estimates, and developing capital improvements programs for water, wastewater and stormwater utilities; and implementation of capital improvement programs, as well as, providing construction administration and operational start-up period technical services.

Management Consulting & Financial Planning: The services and project efforts range from financial analysis including budget analyses and funding through grants and bond issuance; customer usage analyses; development of revenue requirements, and the corresponding cost of service allocations; sensitivity analyses related to the implementation of conservation efforts; the creation of utilities including stormwater. Included in these broad areas of financial analyses are detailed analyses pertaining to the sufficient recovery of revenue such as utility rates and rate design alternatives, the determination of specialized user fees and charges, service availability and impact fees, and various miscellaneous service charges.

Civil Engineering/Land Development: GAI provides a complete range of civil engineering services from planning and design, to permitting and inspection on all types of land development and utility projects. GAI has extensive experience in stormwater studies; in designs to upgrade stormwater treatment and flood control facilities in urban areas; and in streetscape projects to upgrade urban streets, intersections and utilities; in commercial and high density multi-family urban in-fill site development projects; in urban utility system re-development; in code compliance plan review on behalf of city and state governments; and in providing construction administration and preparing cost estimates.

Structural Engineering: GAI has a specialized team of structural engineers who are versed in structural analysis and design for bridges, equipment foundations, water retaining structures, free standing equipment towers, as well as building framing and roofing systems.

Construction Engineering and Inspection: GAI has an accomplished and well-qualified team to assume full management and inspection responsibilities for the construction of water and wastewater facilities; water/force mains and lift stations; highways and local roads; stormwater facilities; bridges; and site development for commercial and industrial building projects.

Surveying: GAI's Survey Department is fully equipped with state-of-the-art technology and field and office equipment. This includes the survey grade, GPS, total station electronic data gathering equipment, and submeter accurate GIS capabilities. Full service surveying can be performed for property boundary surveys, legal descriptions and plats; through design survey, construction layout, and as-built documents.

Landscape Architecture: GAI's Landscape Architecture Department services include the preparation of project design and construction documents for landscape, hardscape, irrigation and site furnishing; public involvement such as conducting public meetings for input to project development; and construction phase services such as tagging nursery material, cost estimates, installations inspection and maintenance

monitoring. GAI has extensive experience in streetscapes, public parks, highway landscaping, and residential and commercial site projects.

Utility Coordination: GAI provides comprehensive utility systems construction coordination and support services for design. The firm's professional staff is very knowledgeable in the location and identification of impacted utility systems within construction zones and maintains working relationships with all the area utility providers.

Planning: GAI offers a wide range of planning services including the acquisition of public right-of-way and easements through the eminent domain process; due diligence and site feasibility studies; site planning studies from conceptual to final development for projects ranging from commercial big box to master planning mixed use developments; comprehensive planning and EAR amendments; land development regulations; and zoning analysis.

Transportation Engineering: GAI is well versed in highway engineering, particularly in the areas of reconstruction and upgrading of existing highway facilities. GAI's Jacksonville office can perform transportation studies and planning; the design of highways and interchanges; traffic signal engineering and construction administration.

State of Florida Business Certificate

State of Florida

Department of State

I certify from the records of this office that G-A-I CONSULTANTS, INC. is a corporation organized under the laws of Pennsylvania, authorized to transact business in the State of Florida, qualified on December 11, 1974.

The document number of this corporation is 833525.

I further certify that said corporation has paid all fees due this office through December 31, 2011, that its most recent annual report was filed on January 7, 2011, and its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of Florida, at Tallahassee, the Capital, this the Eighth day of January, 2011

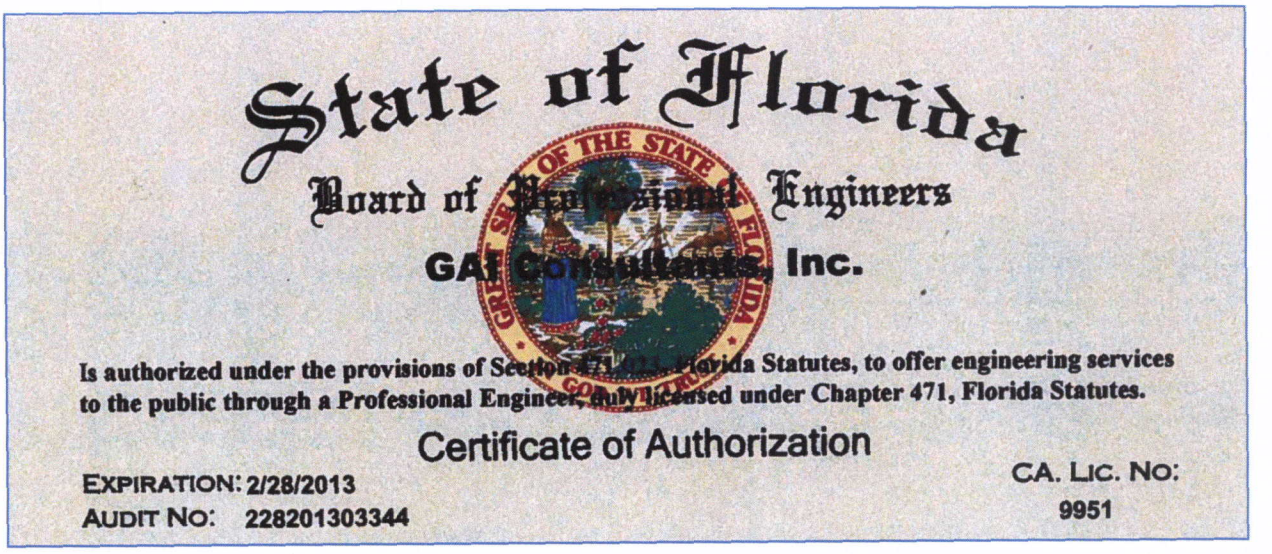
Jennifer Kennedy

Secretary of State

Authentication ID: **900190378049-010811-833525**

To authenticate this certificate, visit the following site, enter this ID, and then follow the instructions displayed.
https://efile.sunbiz.org/certauthver.html

Professional Engineering License


State of Florida
Board of Professional Engineers
GAI Consultants, Inc.
Is authorized under the provisions of Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes.
Certificate of Authorization
EXPIRATION: 2/28/2013
AUDIT NO: 228201303344
CA. LIC. NO: 9951

Project Manager Qualifications & Experience

Jules J. (Jay) Ameno, PE

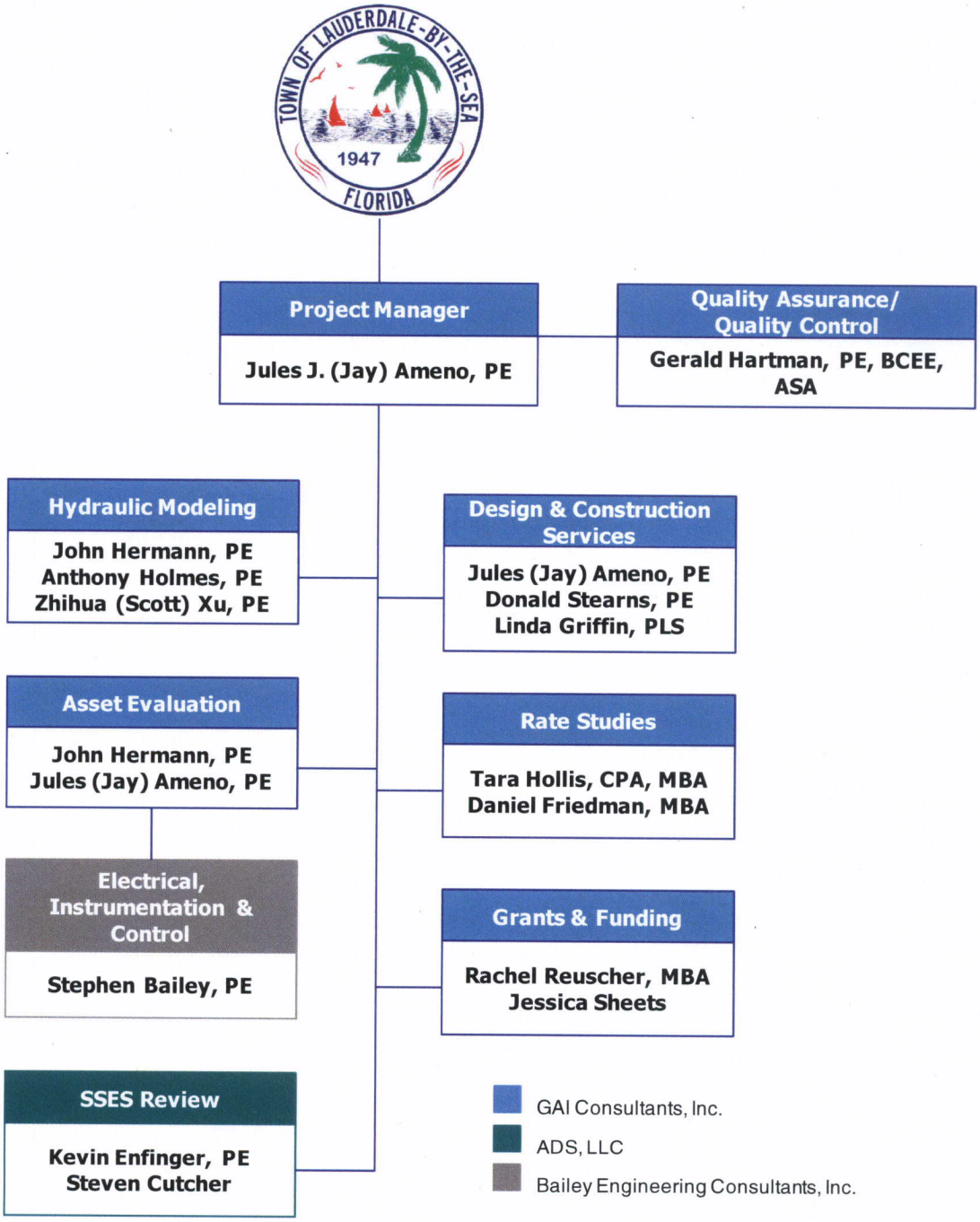
Project Role: Project Manager

Mr. Ameno will serve as the Town's primary contact for this project. His full resume can be found at the end of this section.

Mr. Ameno specializes in designing and overseeing construction of water treatment and distribution systems, water distribution analyses and system evaluations, and wastewater collection, treatment, and disposal. He has over 35 years experience in project and engineering group management. Mr. Ameno has conducted SSES services in Broward County for the Cities of Plantation and Oakland Park as well as designing, permitting and constructing sewers in Plantation, Oakland Park, Hallandale and unincorporated Broward County. He is familiar with the procedures for rehabilitation of sewers from point repair through liners and chemically impregnated fabric inserts. Mr. Ameno has specialized technical experience in membrane softening and reverse osmosis systems, trihalomethane removal and control systems for water treatment facilities, and odor-control, effluent disposal, nutrient removal plants, and re-use facilities for wastewater treatment facilities.

He also prepares grant documents, permit applications, reports, and construction contract documents. Mr. Ameno manages services for program management, OER, value engineering, plant evaluation, design, construction, and project start up.

Organizational Chart



Brief Key Staff Resumes

Full resumes for all project team members can be found at the end of this section.

Gerald Hartman, PE, BCEE, ASA – GAI Consultants, Inc.
Project Role: Quality Assurance/Quality Control

Mr. Hartman is an experienced engineer specializing in water, wastewater and stormwater utilities and systems. He is a qualified expert witness in the areas of water resources, water supply and treatment, wastewater treatment and effluent disposal, reclaimed water reuse, stormwater reuse, utility system valuation and financing, facility siting, certification/service area/franchises and formation/creation, management and acquisition projects. Mr. Hartman is a technical expert witness in the areas of water supply, facility planning, water resources, water treatment, water quality engineering, water system design and construction, and utility systems valuation.

John Hermann, PE – GAI Consultants, Inc.
Project Role: Asset Evaluation / Hydraulic Modeling

Mr. Hermann has over 25 years of experience for the planning, design, permitting and construction of water treatment and distribution systems; water distribution analyses and system evaluations; wastewater collection, treatment, and disposal; and stormwater conveyance and attenuation. Mr. Hermann also has specialized experience in alternative water supply planning. Mr. Hermann has recently performed SSES related work for the City of Mulberry, and the Poinciana and Golden Gate communities.

Stephen Bailey, PE – Bailey Engineering Consultants, Inc.
Project Role: Asset Evaluation / Design & Construction Services

Mr. Bailey is an electrical engineer experienced in designing electrical and control systems for municipal systems water and wastewater treatment facilities, biosolids energy conversion, solar power applications and medium voltage power distribution systems. His project management responsibilities encompass preliminary and final design, cost estimating, and construction/start-up services. He participates on quality assurance/quality control teams to evaluate electrical systems' technical conformance to codes and adherence to a project's overall design scheme. He interfaces with other project consultants, as well as client and vendor representatives.

Donald Stearns, PE – GAI Consultants, Inc.
Project Role: Design & Construction Services

Mr. Stearns is an experienced and versatile environmental Project Manager for water and wastewater engineering projects for municipalities and private industry. He has an excellent track record for managing difficult water utility projects with effective quality, cost, and schedule control.

Anthony Holmes, PE – GAI Consultants, Inc.
Project Role: Hydraulic Modeling

Mr. Holmes specializes in water and wastewater engineering including designing, permitting, planning, bidding services and construction services of water supply, treatment and distribution facilities, wastewater collection, I&I studies and treatment facilities, and reclaimed water distribution facilities. Mr. Holmes has prepared and implemented SSES programs in Florida.

Zhihua (Scott) Xu, PE – GAI Consultants, Inc.
Project Role: Hydraulic Modeling

Mr. Xu specializes in water and wastewater utility system inspection and valuation, preparing engineering reports in support of utility designs, permitting and certifications of utility constructions, hydraulic analyses for water/wastewater system. Additionally, Mr. Xu's experience includes using engineering software to develop designs and plans.

Kevin Enfinger, PE – ADS, LLC
Project Role: SSES Review

Mr. Enfinger is currently serving as a Senior Project Engineer in ADS's South Region. He is a registered professional engineer with over 16 years of experience in environmental engineering and consulting. At ADS he is responsible for providing technical expertise and oversight to a variety of projects including, sewer flow monitoring studies, I/I analyses, capacity analyses, and sewer system evaluation surveys (SSES). Duties include engineering analysis and report preparation.

Steven Cutcher – ADS, LLC
Project Role: SSES Review

Mr. Cutcher is a Senior Project Manager with ADS Environmental Services, responsible for all phases of several flow monitoring networks, leak detection and SSES activities in the Southeast. His responsibilities include client contact, site investigation, monitor installation, data acquisition, manhole inspection, smoke testing, CCTV review, leak detection, data analysis, data reporting, and final report writing. He has 21 years of project execution and management experience at ADS. Drawing upon his background and hands-on experience, Mr. Cutcher has become expert in the areas of sewer system hydraulics, engineering services, SSES, collection system technologies, water distribution studies, and overall project management.

Tara Hollis, CPA, MBA – GAI Consultants, Inc.
Project Role: Rate Studies

Ms. Hollis specializes in rate and cost of service studies, feasibility and financial reports, and debt structuring analysis for the issuance of utility indebtedness for major capital improvement programs. She has an extensive range of experience in financial analysis including budget analyses, customer and usage analyses, development of revenue requirements, cost of service allocations, and sensitivity analyses related to the implementation of conservation efforts. Included in these broad areas of financial analyses are detailed analyses pertaining to the sufficient recovery of revenue such as utility rates and rate design alternatives, the determination of specialized user fees and charges, service availability and impact fees, and various miscellaneous service charges.

Daniel Friedman, MBA – GAI Consultants, Inc.
Project Role: Rate Studies

Mr. Friedman specializes in business and management consulting, with particular experience including strategic business analysis, business strategy, process improvement, strategic marketing, pricing strategy, dynamic computer modeling in excel, data acquisition and management, financial analysis, feasibility studies, utility rate studies, and project management. He is a highly analytical and results-driven professional with 14+ years of experience across multiple industries and functions. His more than 10 years of business analysis and client-focused consulting experience includes a variety of operational, process improvement, strategic marketing, and financial projects for corporate entities, non-profit organizations, educational institutions, and local government utilities.

Rachel Reuscher, MBA – GAI Consultants, Inc.
Project Role: Grants & Funding

Ms. Reuscher specializes in the preparation of rate and cost of service studies, feasibility and financial reports, acquisition briefing documents, and valuation reports and models. She provides funding strategies, capital improvements research, statutes research, grant work, loan applications, and requests for inclusion. Ms. Reuscher has experience in the Management Consulting arena including budget analysis and the development of revenue requirements; customer demand and revenue analysis; revenue sufficiency and stability analysis; sensitivity analysis related to the implementation of conservation efforts;

utility valuation using the comparable sales approach, income approach and reproduction cost approach; preparation of grants and loans documentation; and comparative sales research and analysis. Ms. Reuscher has participated in the development of funding strategies for capital improvements projects over the last two (2) years and has received $8 million in grants for four (4) projects during that time. In addition to grants, Ms. Reuscher has financed over $30 million for capital improvements projects by utilizing a combination of low interest loans, and cost share agreements.

Jessica Sheets – GAI Consultants, Inc.
Project Role: Grants & Funding

Ms. Sheets specializes in project management, fundraising grant and loans, facilitating project coordination and critical path scheduling to meet deadlines on clients funding and administrative requirements. Provides research and due diligence for client's capital improvement projects to evaluate and provide creative financing solutions for clients projects to become a reality. Has the experience and track record at obtaining grants and loans for the design and construction of public and private facilities and proactively facilitates projects through design and construction stages for clients.

Linda Griffin, PLS – GAI Consultants, Inc.
Project Role: Design & Construction Services

Ms. Griffin specializes in surveying and has 39 years experience in all aspects of survey from field operations to production management, covering a wide range of survey assignments. She serves as the integral link between clients, engineers/architects, and GAI's survey staff in the successful completion of projects involving roadway topographic survey for design; ALTA and as-built surveys for commercial sites; land and water boundary surveys; road and bridge construction layout; utility identification, relocation and installation; right-of-way surveys and mapping for site planning and design.

Availability Chart

Availability Based on Current & Projected Workload													
		2011						2012					
Firm	Staff Members	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
GAI	Jules (Jay) Ameno, PE	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
GAI	Gerald Hartman, PE, BCEE, ASA	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
GAI	John Hermann, PE	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
GAI	Anthony Holmes, PE	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
GAI	Zhihua "Scott" Xu, PE	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
GAI	Donald Stearns, PE	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
GAI	Tara Hollis, CPA, MBA	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
GAI	Daniel Friedman, MBA	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
GAI	Rachel A. Reuscher, MBA	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
GAI	Jessica Sheets	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
GAI	Linda Griffin, PLS	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
BEC	Stephen Bailey, PE	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
ADS	Kevin Enfinger, PE	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
ADS	Steven Cutcher	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%

Jules J. (Jay) Ameno, P.E.

Senior Engineering Manager

Education

M.S. Civil Engineering 1977, University of New Hampshire

B.A. Environmental Engineering 1975, New England College

Registrations/Certifications

Professional Engineer, FL 2006, No. 31049

Relevant Training/Courses

Management and Leadership Skills Training, GAI Consultants, Inc., February 2010

Leaders to Watch Program, GAI Consultants, Inc., May 2009

Advanced Project Management Training, GAI Consultants, Inc., 2009

Affiliations

American Water Works Association (AWWA)

Water Environment Federation

Summary

Mr. Ameno specializes in designing water treatment and distribution systems, water distribution analyses and system evaluations, storm water utility development for public and private utilities, and wastewater collection, treatment, and disposal. As a project director, he has 35 years experience in project and engineering group management. Mr. Ameno has specialized technical experience in membrane softening and reverse osmosis systems, trihalomethane removal and control systems for water treatment facilities, and odor-control, effluent disposal and re-use facilities for wastewater treatment facilities. He prepares proposals, grant documents, permit applications, reports, and construction contract documents. Mr. Ameno manages services for value engineering, plant evaluation, design, construction, and project start up. He also provides expert testimony.

Professional Experience

Wastewater

- C-12 Canal Force Main and Re-pump Facility, City of Plantation, Florida. Managed design and construction of a 16-inch force main and modification of an abandoned treatment plant structure to a pumping facility. This project provided a needed interconnect between the City of Plantation and the Broward County system.
- Phase 8 Piggy-Back Sewers, City of Hallandale, Florida. Managed design and construction services for the Phase 8 sewer system which was unusual in that the sewers were piggy-backed, there was a shallow collector for the services adjacent to the system and a deep gravity line utilized as the trunk gravity sewer.
- Key West Airport Pump Stations and Force Main for the Florida Keys Aqueduct Authority, Key West, Florida. Managed design and construction services for three pump stations and three miles of force main to eliminate three packaged wastewater treatment plants that were overtaxed and not meeting standards. They served an airport and several hotels. The force main was routed and installed through a Historical site at the airport.
- Prospect Gardens Sewers, City of Oakland Park, Florida. Prepared and received Environmental Protection Agency (EPA) grants for the sanitary sewer system improvements. Conducted assessment hearings for the affected areas of the City. Managed design and construction of the three miles of gravity sewers and two lift stations in an older well developed portion of the City.
- Stormwater Utility, City of Oakland Park, Florida. Managed the effort to create a stormwater utility for the City. Assisted in developing impervious area criteria for residential property and in setting rates and incentive programs for commercial and high rise property.
- SSES Improvements, City of Plantation, Florida. Prepared and obtained Environmental Protection Agency grants for the rehabilitation of sanitary sewers. Managed the implementation and certification of the system.

- Water and Wastewater Master Plan, City of Plantation, Florida. Performed inventories and physical inspections of the City's facilities, and reviewed capacities of plants and ancillary equipment. Prepared population and flow projections and recommended a Capital Improvement Program and schedule.
- City of Mulberry Wastewater Treatment Facility Improvements and Collection System Infiltration/Inflow Reduction. Project Manager for the technical design including the addition of a wastewater influent equalization basin at the WWTF to attenuate flow surges to the SBR wastewater reactor basins and the addition of sludge thickening equipment and reconfiguration of flow basins for optimal treatment efficiency, and addition of instrumentation for process monitoring at the WWTF.
- Wastewater Reclamation Facility Expansion, City of Miramar, Florida. Managed QA/QC evaluation of the Design / Build bid documents, made recommendation for award of project, assisted in negotiation of construction costs and provided the "Owners' Engineer Representative" services to monitor the construction contract through completion.
- Facility Plan for Water, Wastewater, and Reuse Water Utilities, Miramar, Florida. Managed a consolidated facility plan for water, wastewater, and reuse water utilities, conducted hydraulic model analyses to evaluate the existing infrastructures, provided physical evaluations of facilities, prepared a proposed Capital Improvement Plan for a 20-year planning period.
- Stonecrest Subregional Wastewater Treatment Plant, Marion County, Florida. Managed the construction services and start-up of the 1-mgd Bardenpho nutrient removal plant. Facility includes disk filtration for reuse and RIBs for effluent disposal.
- Oak Run Subregional Wastewater Treatment Plant, Marion County, Florida. Managed the construction services and start-up of the 1.5-mgd Bardenpho nutrient removal plant. Facility includes disk filtration for reuse and RIBs for effluent disposal. The existing plant was incorporated into the new facility for flow equalization and digestion facilities.
- Integrated Water Resource Program, City of Miramar, Florida. Managed the final design, permitting, bidding and construction services for a 1-mgd "Stormwater Reuse" Pump Station. This is a Florida Department of Environmental Protection (FDEP) Grant funded demonstration project for combining stormwater with reclaim water in the re-use system.
- Glades Wastewater Treatment Facility, City of Port St. Lucie, Florida. Performed Quality Control (QC) reviews, and assisted in start-up of the 6 mgd phase. Performed QC reviews, specification of equipment and permitting of the 12 mgd phase of the project.
- Westport Wastewater Treatment Facility, City of Port St. Lucie, Florida. Managed design and permitting for the 12 mgd phase of the project, which included secondary treatment, sludge dewatering, advanced treatment for a 12 mgd reuse capacity, and deep well injection for disposal during wet weather conditions. Performed Quality Control reviews, specification of equipment, and permitting for the 6.24 mgd phase.
- Regional Wastewater Program, City of Plantation, Florida. Prepared federal and state grant documents and contract documents for five Phase I grant projects and provided program management for all five projects.
- Regional Wastewater Treatment Plant, City of Plantation, Florida. Managed the Phase I and II wastewater treatment plant design and construction program that included five submersible pump stations, three miles of 30-inch force main, a 16.4-mgd master pump station, two deep injection wells, and 15-mgd wastewater treatment plant.
- Annual Reports, City of Plantation, Florida. Performed inventories and physical inspections of the City's facilities. The technical write-ups were included in reports required by the City's Bonding Company.
- Regional Wastewater Treatment Plant Innovative Technology, City of Plantation, Florida. Managed the investigation, design, and construction of innovative technology for energy recovery from digester gas for the wastewater treatment plant. Innovative technology enabled the City to scrub the digester gas, compress it, and utilize the gas as a dual fuel system to run 14 vehicles, and enabled the City to improve their status on the grant funding list to a fundable project.
- West Wastewater Treatment Plant Odor Control, City of Margate, Florida. Managed design and construction of an odor control system with treatment capacity of 40,000 cubic feet per minute for the headworks building and covered secondary treatment process.
- West Wastewater Treatment Plant Biosolids Facility, City of Margate, Florida. Served as project manager for the planning and design of a solids dewatering facility to de-water aerobically digested sludge and load the dewatered product into trailer trucks.

- Boston Harbor Clean Up Project, Massachusetts Water Resources Authority, Boston, Massachusetts. Participating member of the value engineering team for the evaluating the Authority's Nut Island headworks facility, as part of the Boston Harbor cleanup project.
- Odor Control Facilities, South Central Regional Wastewater Treatment and Control Board, Boynton Beach and Delray Beach, Florida. Prepared the 70,000-cfm odor control design for the plant serving the cities of Boynton and Delray Beach, Florida. Task leader in the odor evaluation study leading to the design.
- Supervisory Control and Data Acquisition Master Plan, Office of Environmental Services, Broward County, Florida. Served as senior project manager of the SCADA system master plan and design.
- Glades Road Wastewater Treatment Expansion, City of Boca Raton, Florida. Prepared the 60,000 cfm odor control facilities that serviced the solids processing building and the headworks facility for plant expansion.
- North District Regional Wastewater Treatment Plant Odor Control, Broward County, Florida. Designed and provided services during construction for the headworks facility odor control system at a 66-mgd plant.
- Industrial Pretreatment Program, City of Plantation, Florida. Managed the Industrial Pretreatment Program, including site evaluations of large industrial dischargers, and preparing standard forms and a report to meet state and federal compliance requirements.
- Annual Reports, Broward County Office of Environmental Services, Broward County, Florida. Performed inventories and physical inspections of the County's water and wastewater facilities. The technical write-ups were included in the reports which were a requirement of the County's Bonding Company.
- Fern Crest Utility Acquisition, Tindall Hammock Irrigation and Soil Conservation District, Broward County, Florida. Managed the preparation of the Capital Improvement Program, utility standards, industrial pretreatment program, transfer of permits, and process evaluations.
- Water and Sewer Atlas, City of Plantation, Florida. Managed the City's water and sewer atlas. Incorporated new developments on a regular basis, made modifications based on field conditions, and reviewed developer plans to ensure that they were in keeping with the City's master plan.
- Gulfstream Utilities Acquisition, City of Plantation, Florida. Performed inventories and physical inspections of Gulfstream facilities. The technical write-ups included in the reports were critical to the cost of the acquisition.
- Emergency Flood Damage Evaluation, Federal Emergency Management Agency (FEMA), Iowa. Evaluated flood-damaged water and wastewater treatment plants.

Water

- Norwood-Offler Water Treatment Plant, VOC Improvements, City of North Miami Beach, Florida. Managed the design and construction services for the RO/NF de-gassifier systems. Activities included SRF/ARRA funding, permitting for air discharge of treatment process as well as a State of Florida Air Permit from FDEP for the five emergency generators affiliated with the water treatment facilities.
- West Water Treatment Plant RO Expansion Value Engineering and QA/QC, City of Miramar, Florida. Managed the value engineering effort for a 2.5-mgd low pressure RO expansion to the City's nanofiltration plant. Providing QA/QC services during construction to assist the City in managing the contracts.
- East Water Treatment Plant Improvements, City of Miramar, Florida. Managed the final design QC, bidding, and services during construction. Plant improvements include a new backwash recovery/sludge thickener, miscellaneous piping, SCADA and electrical improvements.
- East Water Treatment Plant Rehabilitation Evaluation, City of Boynton Beach, Florida. Managed the evaluation of a 40-year old water treatment facility and prepared the recommendations for implementing a rehabilitation program. The evaluation investigated bringing the plant back to its original 24 mgd capacity. Specific issues were the filters, disinfection process and the solids dewatering processes.
- Golden Gate Water Treatment Plant Expansion, Florida Government Utilities Authority, Naples, Florida. Responsible for technical design of the Golden Gate membrane treatment plant expansion, including implementing the recommendations of a May 2006 Blending Study. Two new raw water wells, a 0.25 mgd nanofiltration skid with pretreatment and microfiltration, and a cleaning system were designed. The high service pump system was revamped with a firm capacity of 5.6 mgd, and the reject disposal system will be changed to a deep well injection system.
- Seminole County Water Supply Planning, St. Johns River Water Management District, Florida. Performed the Quality Control (QC) review for the study and prepared the treatment cost estimates. The estimates included various new technologies for treatment of surface water.

- South County Water Treatment Plant Reverse Osmosis Expansion and Wellfield, Collier County, Florida. Managed the planning, design, construction and start-up of a reverse-osmosis treatment facility. Designed a 20-mgd reverse-osmosis addition to a 12-mgd lime-softening plant, including a new wellfield with 15 brackish water wells in the Hawthorn aquifer, three miles of raw water transmission main, blending, transfer and ground storage facilities, and two deep injection wells for the disposal of brine.
- East Water Treatment Plant and Wellfield, City of Plantation, Florida. Managed the design, construction and start-up of the membrane treatment facilities. The facilities include a 12-mgd nanofiltration membrane softening system, raw water transmission mains, standby power generation, disposal of brine by deep-well injection as well as the drilling of seven new production wells and the abandonment of an existing wellfield.
- Collier County Water Master Plan, Collier County, Florida. Prepared the technical discussions on the existing water treatment facilities and system storage capabilities.
- North County Water Treatment Plant Reverse Osmosis Expansion and Wellfield, Collier County Utilities Department, Collier County, Florida. Provided technical oversight during design and construction of an 8-mgd reverse osmosis expansion to a 12-mgd plant. Modifications included four new treatment skids, ten brackish water wells, chlorination modifications and brine control valve modifications.
- Reverse Osmosis Water Treatment Plant Technical Review, City of Cape May, New Jersey. Technical reviewer for the reverse osmosis treatment plant design.
- Cryptosporidium and Giardia Treatment Study, City of West Palm Beach, Florida. Managed the research for a treatment process to control cryptosporidium and giardia in the filter backwash water. The recommendation of the study was to implement an ozone disinfection step for the backwash recovery system.
- Carbon Dioxide Feasibility Study and Preliminary Design, Miami-Dade Water and Sewer District, Miami, Florida. Managed a feasibility study and preliminary design for a re-carbonation facility at the Hialeah/Preston 175 mgd water treatment plant. The project concept was to reclaim CO_2 off gas from the recalcine facility, pressurize it and inject into the treatment process after softening as a re-carbonation step to reduce the pH.
- Central Water Treatment Plant Wellfield, City of Plantation, Florida. Managed the planning and design of the plant's 12-mgd membrane treatment wellfield.
- Water Treatment Plant Upgrades, City of West Palm Beach, Florida. Managed design and construction of process upgrades to a 47-mgd surface water treatment facility. Improvements included re-piping and replacing the internal equipment in filters that were constructed in the 1920's, adding an ozone contact chamber and liquid oxygen ozone generation system, and incorporating a new sludge removal system.
- Central Water Treatment Plant Evaluation, City of Plantation, Florida. Managed the post-mortem evaluation of a membrane failure resulting from an accident during the start-up of the 12-mgd membrane facility.
- Town of Palm Beach Water Main Replacement Program, City of West Palm Beach, Florida. Provided technical review during the design phase and managed services during construction including certifying the city's infrastructure replacement. The project included two intracoastal crossings, re-pumping facilities, and 85,000 feet of water main.
- Water Master Plan, Palm Beach County Water Utilities Department, Palm Beach County, Florida. Managed a master plan. Performed physical inspections of the County's eight water treatment facilities and wellfields. Prepared flow projections and made recommendations on the timing of future water facility expansions.
- Solids Dewatering Facility, City of West Palm Beach, Florida. Managed design and construction of the solids dewatering facility for a 47-mgd lime softening water treatment plant. Design included three refurbished 2-meter presses and a truck loading facility.
- Glades Road Water Treatment Plant, City of Boca Raton, Florida. Engineering services for design and construction of 40-mgd plant expansion, including specifications, equipment selection, shop drawing review.
- Flamingo Park Water Mains, City of West Palm Beach, Florida. Managed design, permitting and construction services for the water main replacement program in Flamingo Park, an older community with 2-inch water mains in easements behind homes. The project replaced the mains with 8-inch pipe in the front street, reconnected each home, and added fire protection for the area.
- Water Supply for Hotel Complex, IHC, United Arab Emirates. Designed two 0.15-mgd sea water reverse osmosis water treatment plants for a private client.
- Water Master Plan and Hydraulic Model, City of West Palm Beach, Florida. Managed the effort to hydraulically model the distribution system, physically verify the results, and perform a surge analysis on the

system. The client was trained on the operation of the model to enable them to incorporate new developments into the system and also model new scenarios.

- Trihalomethanes (THM) Compliance Improvements, various clients throughout Florida. Managed the research, design and implementation of modifications for the removal of Trihalomethanes at 14 water treatment plants in Florida. The water treatment plants ranged in size from 2-mgd to 60-mgd. Treatment modifications included adding ammonia, relocating chlorine injection points, and in some cases adding ferric chloride, acid or modifying the use of polymers. Color removal was a key issue in implementing the program as most Florida water is highly colored.
- East Water Treatment Plant, City of Plantation, Florida. Managed the design and construction of a 6-MG ground storage facility. The storage facility won the Annual Greenscape Award from the City's Landscape Committee.
- District 3A Water Treatment Plant Expansion Broward County Office of Environmental Services, Broward County, Florida. Managed construction services for expansion of the 3A water treatment plant, including a 5-mgd ground storage tank, 5-mgd lime softening plant with filters, and new high service pumping facility.
- Downtown Water Main Replacement Program Phase I & II, City of Lake Wales, Florida. Managed the design and construction of the hydraulic upgrades to the downtown water mains and connection to the re-pump facility. Project includes two horizontal directional drills under the CSX railroad tracks and Florida Department of Transportation (FDOT) Scenic Hwy. 27.
- Westward Annexation Transmission Mains, City of West Palm Beach, Florida. Managed design and construction of 12 miles of 24-inch water and force mains, which cross four canals, the Florida Turnpike and provides an inter-connect with the City of Royal Palm Beach.
- West Wellfield Improvements, City of Boynton Beach, Florida. Managed the evaluation of the existing wellfield including a sand study, design and construction of well head and pumps for a new potable water well, and redevelopment of three wells that were not in service and required pumps and equipment.
- Distribution System Evaluation, City of Hollywood, Florida. Technical reviewer assisting in setting evaluation criteria for a neighborhood ranking matrix to provide the criteria for staging a 15-year pipe replacement capital improvement program. Projected where the future distribution storage should be located.
- Feasibility Study, City of North Miami, Florida. Technically managed the evaluation of the existing Winson 9-mgd Water Treatment Plant. Developed site layout for the proposed facilities and modeling required for the selection of Reverse Osmosis (RO) membranes, and selected the equipment.
- Vero Beach Highlands Water Transmission Mains, General Development Utilities, Indian River County, Florida. Managed design and construction of 4 miles of 12- to 24-inch water main. Construction included three canal crossings.

Publications

2009 Replacement of Aging Infrastructure Under Navigable Waters, APWA Florida Chapter Annual Meeting, April 2009.

1998 Process Alternatives & Feasibility for Treatment of Criptosporidium and Giardia in Recovered Filter Backwash Water, FS/AWWA Annual Conference, November 1998.

1995 Membrane Applications in Water Plants, Water Engineering & Management.

1988 South Florida THM Modifications Revisited – Five Years Later, 62 Annual Joint Technical Conference, Florida Section American Water Works Association, Florida Pollution Control Association, Florida Water and Pollution Control Operator's Association.

1987 Preventing the Formation of Trihalomethanes in Florida Groundwater, Journal AWWA.

1985 Innovative Energy Recovery of Digester Gas, American Society of Civil Engineers.

1983 THM Formation, Treatment Technologies, Case Studies, Trihalomethane Workshop, Florida Water & Pollution Control Operations Association.

Gerald C. Hartman, P.E., BCEE, ASA

Vice President

Education

B.S. Duke University, 1975

M.S. Duke University, 1976

Registrations/Certifications

Alabama	No. 19422	Louisiana	No. 30816	North Carolina	No. 15264
Arizona	No. 28939	Maine	No. 10395	Ohio	No. 70152
Colorado	No. 31200	Maryland	No. 12410	Pennsylvania	No. 38216
Florida	No. 27703	Mississippi	No. 12717	South Carolina	No. 15389
Georgia	No. 17597	Nebraska	No. E-12868	Tennessee	No. 105550
Illinois	No. 062-053100	Nevada	No. 20259	Virginia	No. 131184
Indiana	No. 10100292	New Hampshire	No. 10820	Texas	No. 106678
Kentucky	No. 22463	New Mexico	No. 15990		

NCEES National P.E. No. 20481

American Society of Appraisers Accredited Senior Appraiser No. 7542

Relevant Training/Courses

AWRA, AWWA, ASCE, WEF, ASA Seminars

Ethics ASA, NSPE, PE

USPAP 2003, 2004 2009/2010 Exams

ME 201, ME 202, ME 203, ME 204 Machinery & Technical Specialties ASA

Public Utilities Specialty Designation Exam Parts I, II, and III ASA

AAEE, ASA, NSPE, PE (multiple states) Continuing Education

Affiliations

Diplomate – American Academy of Environmental Engineers

American Concrete Institute

American Society of Appraisers

American Society of Civil Engineers

American Water Resources Association

American Water Works Association

Florida Engineering Society

Florida Water & Pollution Control Operators Association

Florida Water Works Association

National Society of Professional Engineers

Water and Environment Federation

Water Management Institute

Summary

Mr. Hartman is an experienced environmental engineer specializing in water, wastewater and stormwater utilities and systems. He is a qualified expert witness in the areas of water resources, water supply and treatment, wastewater treatment and effluent disposal, reclaimed water reuse, stormwater reuse, utility system valuation and financing, facility siting, certification/service area/franchises and formation/creation, management and acquisition projects. Mr. Hartman is accepted in various Federal Courts, Circuit Courts, Division of Administrative Hearings, Public Service Commissions, arbitration, and quasi-judicial hearings conducted by cities and counties, as a

technical expert witness in the areas of water supply, certification/service area/franchises, facility planning, water resources, water treatment, water quality engineering, water system design and construction, and utility systems valuation.

Professional Experience

Machinery and Technical Specialties, ASA
Public Utilities Appraisal Specialty Certified, ASA
Tangible Personal Property – VAB, Magistrate – Orange County, FL

Wastewater Experience

Design

Mr. Hartman has participated in the design of wastewater facilities throughout Florida totaling more than $500 million in value. He has been involved in the design of odor control systems for wastewater plants; sludge dewatering, PSRP and PFRP facilities; and numerous wastewater treatment plants varying from extended aeration through advanced biological nutrient removal pumping/lift stations for collection/transmission systems. He served as the engineer in charge of numerous wastewater reuse systems; more than 30 golf course reuse systems; numerous percolation pond system/rapid infiltration basin systems; spray irrigation systems; wetlands application systems; surface discharge systems; agricultural reuse systems; forest irrigation systems; as well as power plant reuse systems.

A few projects include:

- Marion County – Oak Run 1.6 MGD WWTP – 2006
- Marion County – Stonecrest 1.0 MGD WWTP - 2006
- Flagler County – Beverly Beach water and wastewater system including a 125,000 gpd/250,000 gpd AST/AWT Membrane Bio-reactor WWTP – 2005
- Fernandina Beach WWTP Upgrades – Filters, etc. – 2003
- AUS, Inc./Poinciana – 0.5 to 1.0 WWTP expansion WWTP #2 – 2000
- Utilities Commission, New Smyrna Beach – 6.0 MGD AWT WWTP and appurtenant consulting activities, 2000.
- Avatar/Poinciana – 0.5 MGD WWTP and spray irrigation – WWTP #2 – 1998
- City of Inverness – WWTP sludge stabilization improvements – 1997
- Flagler Beach – 1.0 MGD WWTP irrigation system upgrades and design – 1996
- Monroe County – Stock Island 0.125 MGD AST WWTP corrections – 1995
- ORCA/NKLUA Key Largo 0.5 MGD WWTP – 1995
- City of Cape Canaveral - 1.8 MGD upgrade to advanced wastewater treatment levels with effluent disposal to a manmade wetland system and subsequently to the Banana River, 1994
- Vestavia, Alabama – Old Overton 0.5 MGD AST WWTP – 1994
- Town of Lexington, S.C. – 1.5 MGD CMAS WWTP with discharge 14 mile creek – 1994
- City of Palm Bay – 0.5 MGD WWTP – CMAS AST – 1993
- City of Sanibel - 1.6 MGD advanced wastewater treatment facility with effluent disposal to two non-restricted public access sites, 1993
- Southern States Utilities Inc. - Venice Gardens Utility 2.5 MGD, Class I wastewater treatment facility with effluent disposal to non-restricted public access sites, rapid rate infiltration basins and sprayfield, 1992
- Glenmuir Subdivision, Orange County - 25,000 gpd wastewater treatment plant, 1992
- Hillsborough County - Northwest regional sludge management facility (25 dry tons per day), consisting of sludge storage, thickening, dewatering, in-vessel composting, and odor control, 1990
- Southern States Utilities Inc. - Marco Island Utility wastewater treatment plant expansion from 2.5 to 3.5 MGD, AST, 1990

He has been involved in service area delineations, major customer agreements, wholesale sewer agreements, regionalization projects and many privatization assignments.

Analyses

Mr. Hartman has participated in over 50 computer-assisted hydraulic analyses of wastewater transmission systems. He was involved in 40 wastewater treatment investigations, 12 sludge pilot testing programs, 14 effluent disposal pilot programs and investigations, several energy efficiency analyses, several odor control studies, and

other process evaluations for operations. Mr. Hartman participated in 6 value engineering investigations. Many regionalization projects and privatization procurement projects oriented toward obtaining the most cost-effective alternatives for regional and private programs. He participated in both sanitary sludge management and disposal studies and co-authored the book entitled "Sludge Management and Disposal for the Practicing Engineer." He also participated in numerous lime sludge thickening, management, and utilization/disposal investigations. He has been involved in biosolids management and effluent utilization projects. He has permitted regional sludge stabilization and land application projects. Mr. Hartman has served as an expert regarding several sludge systems including ATAD, Micronair and N-Viro as well as others.

Water Experience

Facility Planning

Mr. Hartman has been involved in over 100 water, wastewater or solid waste master plans, several interlocal negotiations and agreements, over 100 capital improvement programs, and numerous capital construction fund plans. He represented the American Society of Civil Engineers in the State Comprehensive Plan as a Policy Advisory Committee Member on the utility element, and has participated in the preparation of Comprehensive Plans, Chapter 9J5, for more than 20 communities. Mr. Hartman has been involved in over 20 water resource (needs and sources) and treatment plans in every water management district of the State of Florida and in other states.

Analyses

Mr. Hartman has participated in over 100 computer-assisted hydraulic analyses of water and wastewater transmission systems including extended period simulations as well as hydraulic transient analyses. He has been involved in numerous water treatment investigations, 2 sludge pilot testing programs, 14 pilot programs and investigations, several energy efficiency analyses, several odor control studies, and other process evaluations for operations. Mr. Hartman has participated in 6 value engineering investigations oriented toward obtaining the most cost-effective alternatives for regional and private programs. He has been involved in numerous water blending, trihalomethane, synthetic organic contaminant removal, secondary precipitation, corrosion control, and alum precipitation studies. Mr. Hartman has performed process evaluations for simple aeration facilities, surface water sedimentation facilities, water softening facilities, as well as reverse osmosis facilities. He has been involved in water conservation programs, as well as distribution system evaluation programs. He has also participated in numerous lime sludge thickening, management, and utilization/disposal investigations. Mr. Hartman has been involved in wellfield management studies, wellfield protection ordinances, wellfield siting, water resource evaluations, and water resource planning for several entities in sand aquifer, sand and gravel aquifer and limestone aquifer systems.

Wellfield Siting

Mr. Hartman has been involved in the siting of numerous regional wellfields, system wellfields, individual wells and expansions of existing systems. He has written papers on the interdisciplinary approach to regional water supply and wellfield siting criterion, and thoroughly understands the issues of raw water quality versus treatment, site location factors, CUP permitting factors, as well as source integrity aspects. Wellfields sited by Mr. Hartman include:

- Venice Gardens Wellfield, (4 MGD), Venice, Florida, 1990.
- Deseret/Cocoa Wellfield (20 MGD Expansion), Orange County, Florida, 1992.
- SBWA Bull Creek Wellfield Litigation (20 MGD), 1994.
- Palm Bay Wellfield (11.5 MGD), 1995.
- Port St. Lucie Wellfields (13 MGD), 1996.
- Naples Wellfields (35 MGD), 1997.
- Town of Palm Beach (proposed 24 MGD), 1998.
- City of North Miami Beach (proposed expansion – 17 to 45 MGD), 2000.
- DeSoto County Wellfields, 2004.
- Flagler County Wellfields, 2005.

Design

Mr. Hartman has participated in the design of water and wastewater facilities totaling more than $1 billion in value. He has been involved in the design of 3 elevated storage tanks, 18 ground storage reservoirs, 30 pumping stations, 20 major water treatment plants, numerous smaller water treatment plants, and pipeline systems varying in size from 6 to 84 inches in diameter. Some of the most notable projects include:

- City of St. Petersburg - Chemical feed and gravity lime sludge thickener for 81 MGD Cosme-Odessa water treatment plant, 1990.
- City of Dunedin - Decision documentation and project management for 10 MGD reverse osmosis/membrane softening plant, 1992.
- City of Atlanta – Hemphill 100 MGD plant – 84-, 96-, and 102-inch piping and valves and valve vaults.
- City of Edgewater - Process and technical review of 5.0 MGD softening water treatment plant, 1990.
- Southern States Utilities Inc. - Venice Gardens Utilities 3.35 MGD low-pressure reverse osmosis water treatment plant, 1990.
- Southern States Utilities Inc. - Burnt Store Utilities 0.49 MGD low-pressure reverse osmosis water treatment plant, 1991.
- City of Lakeland - Upgrades and improvements to the 51 MGD T. B. Williams water treatment plant.
- Expansion of the Cypress Creek Pumping Station to 125 MGD with 84- and 72-inch transmission improvements.
- Expansion of the Lakeland HSPS to 81 MGD and 54-inch Transmission System.
- Lake Apopka drawdown project with twin 84-inch steel pipelines and 250 MGD Pump Station.

Surface Water Experience

- City of Tampa, Florida – Hillsborough River Water Treatment Plant Energy Efficiency Study for the 100 MGD plant and pumping stations. Evaluation of energy uses throughout the entire facility and recommendations for higher efficiency concerning energy usage.
- City of Tampa, Florida – Hillsborough River Water Treatment Plant 226 MGD high-service pumping station and 125 low-lift pumping station electrification program. Conversion from steam-driven to electric-driven pumping units and clearwell modifications at the 100 MGD water treatment plant.
- City of Tampa, Florida – Hillsborough River Water Treatment Plant Process Study – Chemical Efficiency Evaluation for liquid potable process as well as sludge processes in compliance with the Safe Drinking Water Act. Process evaluations for the use of chemicals at points of application, alternative chemicals and usage/dosage rate and method of application. Modifications to operations, modifications to chemical feed system, modifications and studies relative to sludge processing, evaluation of innovative sludge techniques, and review of alum recovery techniques.
- City of Atlanta, Georgia, Hemphill 200 MGD Surface Water Treatment Plant – Expert testimony services concerning yard piping, valving, clear wells and high-service pumping suction. Design review, construction management review, construction review, evaluation of facilities and flow schemes, and development of corrective improvement program.
- City of Atlanta, Georgia, Hemphill 200 MGD Surface WTP – Corrective improvement program design consultant. Design of valve vaults and replacement activities, design of storage/clear well facility improvements, and related activities.
- City of Atlanta, Georgia, Chattahoochee 55 MGD Surface WTP – solids management/sludge and washwater recovery improvements. Performed with Western Summit as a design/build activity. Involved in facility development and review for selective alternative.
- City of Milwaukee, Wisconsin – Howard Avenue 100 MGD water treatment plant cryptosporidium expert analysis.
- Osceola County - Evaluation of treatability of water resources of Lake Washington and Bull Creek. Study included capacity, process, and cost analysis. Blending and water stability issues were addressed.
- City of North Port - Evaluation of the Peace River 12 MGD surface water treatment plant which covered process optimization and treatability. Evaluated the Peace River water quality and studied water blends between the Peace River and North Port Water Treatment Plant of 4.4 MGD capacity.
- Manatee County – Lake Manatee 54 MGD Surface Water Treatment Plant Studies of maximum insolubility of alum, lime feed system modifications and improvements, filtration turbidity, operation review and process analysis.
- Louisville Water Company water treatment plant – TTHM study review; TTHM control strategies, contact time study and cooperative research.
- ECFS/COPJCLDS – Taylor Creek Reservoir Treatability Study. This source now augments the City of Cocoa's Cloud Dyal Water Treatment Plant. Color Filtration and water quality analyses.
- Marco Island Utilities – Collier pits water quality review, color hardness, surface water/stormwater impacts. Modifications to Marco Island SWTP. Decommissioning filtration and lowering plant firm capacity from 8 MGD to 5 MGD.

- City of Melbourne, Florida – Lake Washington Surface Water Treatment Plant evaluation, process review, and water blending analysis.
- City of Melbourne, Florida – Lake Washington Surface WTP treatability and process study for 20 MGD WTP, detailed evaluation concerning the surface WTP and recommendations for capital improvement program. Treatability testing, sludge testing, process and potable water testing, raw water quality testing, and complete detailed alternative analysis at a planning level.
- City of Melbourne, Florida – Lake Washington WTP Dorr-Oliver surface water treatment unit renovations; rehabilitation and replacement for continued operation.
- City of Melbourne, Florida – Lake Washington WTP detailed filter analysis and investigations – filter media, underdrains, and filtering mechanisms review and analysis; testing of filter units, turbidity effectiveness evaluation, etc.
- Okeechobee Utility Authority – Lake Okeechobee Surface Water Treatment Plant chemical feed, sludge wasting and filtration review. Facility evaluation, valuation, CIP and financing.

Mr. Hartman has participated in the design of over 200 potable drinking water wells. These wells have been for brackish and fresh water; sand and gravel systems; sand lenses; and the Ocala, Avon Park, Hawthorne, and Lake City formations of the aquifer. He has been involved in the design of odor control systems for water plants, sludge dewatering facilities, and numerous water treatment plants.

Wellfield Design and Water Use Permitting (WUP)
A partial project listing of Mr. Hartman's wellfield design and WUP assignments include:

- City of Tampa - 104 MGD surface water CUP at Hillsborough River water treatment plant and 30 MGD average/40 MGD maximum groundwater CUP for Morris Bridge water treatment plant, 1989.
- City of Lakeland - 54 MGD northwest wellfield CUP, NW7, NWIO, NW13, and NW14 wells, 1986.
- City of Lakeland - 16 MGD northeast wellfield wells NW1, NW2, NW3, NW4, and NW5 CUP, 1989.
- City of Daytona Beach - Wellfield expansion, 1989.
- Utilities Commission, City of New Smyrna Beach - 9.3 MGD, numerous wells, and CUP.
- City of Edgewater - 5.0 MGD wellfield expansion, 11 wells and CUP, 1989.
- City of Titusville - Wellfield management program, restoration, and CUP, 1989/90.
- City of St. Petersburg - Cosme-Odessa and South Pasco regional wellfields, 1986.
- General Development Utilities Inc. - Port St. Lucie wellfield expansion to 5.0 MGD and CUP, 1987.
- North Beach Water Company - Reverse osmosis wellfield, 1985.
- Southern States Utilities Inc. - Venice Gardens reverse osmosis wellfield, 1989/90.
- City of St. Cloud - Wellfield expansion and CUP, 1988.
- Poinciana Utilities Inc. - Wellfield expansion and CUP, 1987.
- Southern States Utilities Inc. - Sugarmill Woods CUP and wellfield expansion from 6.0 to 10.0 MGD, 10 wells, 1989.
- Southern States Utilities Inc. - Sugarmill Woods CUP and 2 additional wells for 0.5 MGD, 1989.
- City of Palm Bay - Port Malabar Utilities Inc., 3 wells CUP for 1.0 MGD, 1990.

Water Transmission & Distribution
Mr. Hartman has been involved in over 500 miles of water transmission and distribution systems designs from 2" to 108" in diameter consisting of PVC, AC, DIP, Steel, RFG and IC-CPP materials. Mr. Hartman has designed in-line booster stations, repump stations, storage and pumping stations, ground storage reservoirs, standpipes, elevated storage tanks and bladder water storage facilities. The above pumping systems were from 100 gpm to 280 MGD and storage reservoirs from 30,000 gallons to 10 MG in capacity.

Water Blending
A partial project listing of Mr. Hartman's water blending experience includes:

- City of Dunedin - Blending and corrosivity of softened and membrane water in the transmission system, 1989.
- General Development Utilities Inc. - Split-treatment softening blending analyses, 1988.
- Florida Cities Water Company - Floridan aquifer softened water shallow well water quality analysis, Waterway Estates, 1989.
- Southern States Utilities Inc. - Venice Gardens low-pressure reverse osmosis and lime softened water blending program, 1989.

- Southern States Utilities Inc. - Sugarmill Woods low-pressure reverse osmosis shallow well water quality blending expansion, 1985.

Reverse Osmosis

Mr. Hartman's reverse osmosis experience includes:

- Southern States Utilities Inc. - Venice Gardens water treatment plant (3.35 MGD) reverse osmosis water treatment plant, phases 2 and 3, 1988/89.
- North Beach Water Company - Reverse osmosis water treatment plant (1.0 MGD sized for 2.5 MGD) Phases 1, 2, and 3, 1982/84/85.
- City of Dunedin - Ultra-low pressure reverse osmosis water treatment plant (10 MGD) 1989/90.
- Southern States Utilities Inc. - Burnt Store Utilities reverse osmosis water treatment plant (0.48 MGD - 0.24 MGD expansion) 1989/90.
- Florida Cities Water Company - Waterway Estates water treatment plant (2.0 MGD) with reverse osmosis (1.0 MGD) and softened (1.0 MGD) 1989/90.
- Bay Tree reverse osmosis water treatment plant (0. 123 MGD) North Vero Beach, 1986.
- City of North Miami Beach – 6 MGD RO, 8 MGD Nanofiltration Expandable by 16 MGD to equal 30 MGD, 2001-2004.
- City of Melbourne – 5 MGD RO WTP analysis, 1998.
- City of Sunrise – 9 MGD RO WTP analysis, 2001.

Safe Drinking Water Act

Mr. Hartman has participated in Safe Drinking Water Act compliance projects effecting over two million people within the State of Florida, serving the cities of Dunedin, Tampa, Lakeland, St. Petersburg, North Port, and Palm Bay; the counties of Martin and Clay; several of the Southern States Utilities Inc. systems, and many other communities.

Expert Testimony

Mr. Hartman has been accepted in various Circuit Courts, Florida Division of Administrative Hearings, Florida Public Service Commission, arbitration, and quasi-judicial hearings conducted by cities and counties, as a technical expert witness in the areas of water supply, facility planning, water resources, water treatment, water quality engineering, water system design and construction, and utility systems valuation. Recently, Mr. Hartman has been an expert witness on utility condemnation, utility arbitration, water rates and use permitting DOAH case, utility rate setting DOAH case, service area and utility service civil case, City of Atlanta Water Treatment Plant Construction, City of Milwaukee Cryptosporidium, Jupiter vs. Tequesta Water Contract Services and several others.

Financial Reports

Mr. Hartman has been involved in over 300 capital charge, impact fee and installation charge studies involving water, wastewater and fire service for various entities. He also has participated in over 150 user rate adjustment reports. Mr. Hartman assisted in the development of over 70 revenue bond issues, 20 short-term bank loan systems, 10 general obligation bonds, numerous grant/loan programs, numerous capacity sale programs, and 20 privatization programs. Mr. Hartman has been involved in over $3 billion in utility bond and commercial loan financings for water and wastewater utility, and over $4 billion in utility grants, matching funding, cost-sharing; SRF loans and Federal Loans (R.D., etc.), assessments and CIAC programs.

Facility Planning

Mr. Hartman has been involved in over 50 water, wastewater and/or solid waste master plans, and many capital improvement program, and numerous capital construction fund plans. He represented the American Society of Civil Engineers in the State Comprehensive Plan as a Policy Advisory Committee Member on the utility element, and participated in the preparation of Comprehensive Plans, Chapter 9J5, for more than 20 communities. Mr. Hartman has been involved in business planning and strategic planning for not-for-profit, governmental and investor-owned utilities.

Analyses and Design

Mr. Hartman has participated in numerous computer-assisted hydraulic analyses of water and wastewater transmission systems including extended period simulations as well as hydraulic transient analyses. He was involved in wastewater treatment investigations, sludge pilot testing programs, effluent disposal pilot programs

and investigations, several energy efficiency analyses, several odor control studies, and other process evaluations for operations. Mr. Hartman participated in value engineering investigations oriented toward obtaining the most cost-effective alternatives for regional and private programs. Mr. Hartman has been involved in the design of package WWTPs through AWT facilities and simple well and chlorination systems through reverse osmosis facilities. He has been involved in numerous water blending, trihalomethane, synthetic organic contaminant removal, secondary precipitation, corrosion control, and alum precipitation studies. Mr. Hartman has performed process evaluations for simple aeration facilities, surface water sedimentation facilities, water softening facilities, as well as reverse osmosis facilities. He was involved in water conservation program, as well as distribution system evaluation programs. He participated in both sanitary sludge management and disposal studies and co-authored the book entitled "Sludge Management and Disposal for the Practicing Engineer." He also participated in numerous lime sludge thickening, management, and utilization/disposal investigations. Mr. Hartman has been involved in wellfield management studies, wellfield protection ordinances, wellfield siting, water resource evaluations and water resource planning for several entities in sand aquifer, sand and gravel aquifer and limestone aquifer systems.

Utility Management Consulting

Mr. Hartman has been involved in utility transfers from public, not-for-profit, district, investor-owned, and other entities to cities, counties, not-for-profit corporations, districts, and private investors. He has been involved in staffing, budget preparation, asset classification, form and standards preparation, utility policies and procedures manuals/training, customer development programs, standard customer agreements, capacity sales, and other programs. Mr. Hartman has been involved in over 100 interlocal agreements with respect to service area, capacity, service, emergency interconnects, back-up or other interconnects, rates, charges, service conditions, ownership, bonding and other matters. Additionally, Mr. Hartman has assisted in the formation of newly certificated utilities, newly created utility departments for cities and counties, new regional water supply authorities, new district utilities, and other utility formations. Mr. Hartman has assisted in Chapter 180.02 F.S. utility reserve areas for the Cities of Haines City, Sanibel, Lakeland, St. Cloud, Winter Haven, Bartow, Palm Bay, Orange City, and many others. He has participated in the certification of many utilities such as ECFS, Malabar Woods, B&C Water Resources, Inc., Farmton Water Resources, Inc. and may others; and certification disputes such as Windstream, Intercoastal Dulay Utilities, FWSC/ITT, and others and served as service area certification staff of the regulatory for St. Johns County; i.e., Intercoastal, etc.; as service area transfer/certification staff of the regulatory for Flagler County; i.e., Palm Coast to FWSC. He has served as a local county regulatory staff professional in Collier, Citrus, Hernando, Flagler and St. Johns Counties as well as elsewhere. Mr. Hartman has also provided the technical assistance to many utility service area agreements such as Winter Haven/Lake Wales/Haines City, etc. and North Miami Beach – MDWASD and others. For 30 years, Mr. Hartman has been a professional assisting in the resolution of water and wastewater utility issues.

Utility Finance, Rates, Fees and Charges

Mr. Hartman has been involved in hundreds of capital charge, impact fee, and installation charge studies involving water, wastewater, stormwater and solid waste service for various Florida entities. He also has participated in hundreds of user rate adjustment reports. Since 1976, Mr. Hartman assisted in the development of over 50 revenue bond issues, 20 short-term bank loan systems, 2 general obligation bonds, 26 grant/loan programs, 10 capacity sale programs, and 20 privatization programs. He has been involved in over hundreds of utility acquisition/utility evaluations for acquisition, and is a qualified expert witness with regard to utility rates and charges, and utility negotiation, arbitration and condemnation cases.

Economic Evaluations/Credit Worthiness Analyses

- Credit Worthiness Analysis for Drinking Water State Revolving Fund (1999) – Florida Department of Environmental Regulation
- Credit Rating Reviews (1980-2000) – for numerous investor-owned utilities; many city-owned utilities (Winter Haven, Port St. Lucie, Miramar, Tamarac, Palm Bay, North Port, etc.); many county-owned utilities; several not-for-profit utilities; and utility authorities (OUA, etc.)
- Financial Feasibility and Engineer's Revenue Bond Reports (1980-2000) – for over $2 billion of water and/or wastewater bonds for some fifty (50) entities in the Southeast United States including Clay, Lee, Hernando, Martin, and other counties; Lakeland, West Palm Beach, Miramar, Tamarac, Panama City Beach, Winter Haven, Naples, North Port, Palm Bay, Port St. Lucie, New Port Richey, Clermont, Orange City, Deerfield Beach, Sanibel, City of Peachtree City, Widefield, and many other cities; Lee County Industrial Development Authority, Englewood Water District, and other utilities.

- Privatization Procurement and Analysis for many water and wastewater systems including Sanibel, Town of Palm Beach, Temple Terrace, Palm Bay, Widefield, Bullhead City and sever others.

Publications

Mr. Hartman has presented several training sessions and seminars for the American Water Works Association, the American Society of Civil Engineers, the Water Environment Federation, and the Water and Pollution Control Operators Association. He has presented and/or published numerous papers on water, wastewater and utility management topics. His two books and papers written since 1994 are shown below.

Books

Hartman, G.C., Utility Management and Finance, (presently under contractual preparation with Lewis Publishing Company/CRC Press).

Vesilind, P.A., Hartman, G.C., Skene, E.T., Sludge Management and Disposal for the Practicing Engineer; Lewis Publishers, Inc.; Chelsea, Michigan; 1986, 1988, 1991.

Papers/Presentations (Since 1994)

Hartman, G.C. and Wanielista, M. P. "Stormwater Reuse: The Utility Business Practice." 9th Biennial Conference on Stormwater Research & Watershed Management. May 2, 2007.

Hartman, G.C. and R.J. Ori, "Water and Wastewater Utility Acquisition," AWWA National Management Specialty Conference, 1994.

Hartman, G.C. and R.C. Copeland, "Utility Acquisitions – Practices, Pitfalls and Management," AWWA Annual Conference, 1995.

Hartman, G.C., "Safe Drinking Water Act," and "Stormwater Utilities," FLC Annual Meeting, 1995.

Hartman, G.C., M.A. Rynning, and R.A. Terrero, "5-Year Reserve Capacity – Can Customers Afford the Cost?" FSASCE Annual Meeting, 1996.

Hartman, G.C., T.A. Cloud, and M.B. Alvarez, "Innovations in Water and Wastewater Technology," Florida Quality Cities, August 1996.

Hartman, G.C., Seth Lehman, "Financing Utility Acquisitions," AWWA/WEF Joint Management Conference, February 1997.

Hartman, G.C., B.V. Breedlove, "Water: Where It Comes From and Where It Goes," FRT & G/FDEP Conference, September 1997.

Hartman, G.C., W.D. Wagner, T.A. Cloud, and R.C. Copeland, "Outsourcing Programs in Seminole County," AWWA/WEF/FPCOA Conference, November 1997.

Hartman, G.C., M.B. Alvarez, J.R. Voorhees, and G.L. Basham, "Using Color as an Indicator to Comply with the Proposed D/DBP Rule," AWWA, Water Quality Technology Conference, November 1997.

Hartman, G.C., "In-House, Outsourcing and the Not-for-Profit Utilities Option," Florida Government Finance Officers Association (FGFOA) Conference, March 27, 1998.

Hartman, G.C. and D.P. Dufresne, "Understanding Groundwater Mounds – A Key to Successful Design, Operation and Maintenance of Rapid Infiltration Basins," April 4-7, 1998, FWWA/WET/FPCOA Joint Meeting.

Hartman, G.C. and Seth Lehman, "Financing Water Utilities – Acquisition and Privatization Projects," AWWA Annual Conference, June 24, 1998.

Hartman, G.C. contributing author, Chapter 14B, Nichols on Eminent Domain, RCNLD Valuation of Public Utilities, March 1999 Edition, Release No. 48.

Hartman, G.C., M.A. Rynning, and V. Hargray, "Assessment of Commercial Customer Water Impacts," AWWA 2000.

Hartman, G.C., M. Sloan, N.J. Gassman, and D.M. Lee, "Developing a Framework to Balance Needs for Consumptive Use and Natural Systems with Water Resources Availability," WEF Watershed 2002 Specialty Conference, February 23-27, 2002.

Hartman, G.C., "Utility Valuation," Wake Forest University Law School Seminar Series, February 7, 2003.

Hartman, G.C., H.E. Schmidt, Jr. and M.S. Davis, "Biosolids Application in Rural DeSoto County, Florida," WEF/AWWA/CWEA Joint Residuals and Biosolids Management Conference, February 19-22, 2003.

Hartman, G.C. and Dr. M. Wanielista, "Irrigation Quality Water – Examples and Design Considerations," ASCE Conference, April 4, 2003.

Hartman, G.C., M.A. Rynning and V. Hargray, "Assessing the Water Demands of Commercial Customer," WEF Volume 6, No. 4, July/August 2003 – Utility Executive.

Hartman, G.C., D. Cooper, N. Eckloff and R. Anderson, "Water," The Bond Buyer's Sixth Southeast Public Finance Conference, February 23, 2004.

Wanielista, Marty and G.C. Hartman, "Regional Stormwater Facilities", Stormwater Management for Highways Transportation Research Board TRB AFB60, July 12, 2005.

John D. Hermann, P.E.

Environmental Department Manager / Senior Engineering Manager

Education

B.S. Civil/Environmental Engineering 1985, Clarkson University

M.E. Environmental Engineering 1988, Manhattan College, Environmental Engineering

M.B.A. 1994, Pace University

Registrations/Certifications

Professional Engineer, FL, NY, AZ, OH, GA

Relevant Training/Courses

Management and Leadership Skills Training, GAI Consultants, Inc., February 2010

Leaders to Watch Program, GAI Consultants, Inc., May 2009

Advanced Project Management Training, GAI Consultants, Inc., 2009

Affiliations

American Water Works Association (AWWA), Member

National Council of Examiners for Engineering and Surveying (NCEES), Member

Water Environment Federation (WEF), Member

Summary

Mr. Hermann specializes in water resources engineering including designing, permitting, planning, procurement, and construction of water supply, treatment and distribution facilities; wastewater collection and treatment facilities; reuse water transmission and disposal; and storm water retention, treatment and conveyance.

Professional Experience

- Stormwater Improvements Design, City of Daytona Beach, Florida. Responsible for the design of stormwater improvement facilities including a 6.9 mgd pump station and pumping, a new pond and various street drainage improvements. The project also includes permitting with various agencies including the ERP permit for SJRWMD.
- Alternative Water Supply Preliminary Design Report, City of Daytona Beach, Florida. This report evaluated the use of storm water to augment both the reclaimed water system as well as the potable water. Treatment alternatives included microfiltration (MF), ultrafiltration (UF), nanofiltration (NF) and reverse osmosis (RO). The report also included recommendations concerning costs, permitting, and scheduling as well as pilot studies required for storm water supply, treatment and blending at the wastewater treatment plant.
- Halifax River Subaqueous Water Main Crossing, Daytona Beach, Florida. This project included the route selection, alignment, design and construction management services for a 2000 ft.+ horizontal directional drill to replace an existing 14-inch watermain. The subaqueous crossing is beneath the Halifax River in Daytona Beach.
- City of Mulberry Wastewater Treatment Facility Improvements and Collection System Infiltration/Inflow Reduction. Project Manager for design including the addition of a wastewater influent equalization basin at the WWTF to attenuate flow surges to the wastewater reactor basins and/or addition of equipment and reconfiguration of flow basins, reconfiguration of the WWTF existing basins for optimal treatment efficiency, and addition of instrumentation for process monitoring at the WWTF. Additionally, a collection system infiltration/inflow reduction program consisting of several repair methods including pipe lining, joint repair, manhole & lift station repair, etc. was developed.
- Wastewater Treatment Facility (WWTF) Operating Permit Renewal, Mulberry, Florida. Responsible permit renewal documents for the Mulberry, Florida WWTF permit including application forms, Updated Capacity Analysis Report, Operation and Maintenance Performance Report, and Reuse Feasibility Study Report.

- Nitrogen Reduction in Wastewater Treatment Facility Effluent, Mulberry, Florida. Reviewed the Sequencing Batch Reactor (SBR) process nitrogen removal performance, identified potential operation deficiencies, and recommended both operating and process modifications to enhance nitrogen removal.
- L-73 Canal Water Conveyance Preliminary Design Report Deseret Ranches, Florida. Responsible for preliminary design and drawings for modification to the L-73 canal for the conveyance of surface water along the 17 mile length. The preliminary design also includes the proposed impoundment of Wolf & Pennywash Creek. Other services included pre-permitting and construction cost estimating,
- Stormwater Management Preliminary Design Report to Address the May 2009 Flooding for the City of Daytona Beach, Florida. Responsible for preliminary design for storm water management for the area bordered by Orange Ave, Ridgewood Ave, Belleview and the Nova Canal. The proposed design includes a combination of ponds, pumping and transmission.
- Taylor Creek Reservoir Surface Water Treatment Plant Preliminary Design & Permitting, Deseret Ranches, Florida. Responsible for the preliminary design for a 60 million gallon per day surface water treatment plant. The project includes raw water intakes, raw water transmission, water treatment and storage and finished water conveyance. Other services included pre-permitting and construction cost estimating,
- Nitrogen / Fecal Coliform Reduction Study for Bethune Point and Westside Wastewater Treatment Facilities in Daytona Beach, Florida. Project Manager responsible for investigation of permit violations with respect to nitrogen and fecal coliform reduction. The project includes recommended modifications to the facilities including the addition of a supplemental carbon source into the four stage biological treatment units.
- Phosphorous Reduction Study / Preliminary Design Report for Bethune Point and Westside Wastewater Treatment Facilities in Daytona Beach, Florida. The design incorporates new alum feed facilities at both plants for the chemical precipitation of Phosphorous in response to a consent order.
- Downtown Orlando Wastewater Master Planning in Orlando, Florida. Project Manager responsible for a wastewater infrastructure master plan to determine the current capacity of the wastewater sewers and lift stations. The downtown corridor of the City is undergoing unprecedented growth, and the project includes the application of a hydraulic model to review the existing infrastructure and future flows. The project also involves flow monitoring to provide validation of the hydraulic model, and recommendations in the plan for new infrastructure to handle anticipated flows.
- Poinciana System 7-Mile Reuse Water Force Main for Toho Water Authority in Florida. Project Manager responsible for design plans and contract document development for a seven-mile reuse water force main to interconnect various wastewater treatment plants as part of the master reuse system for the Poinciana System.
- Evaluation of Alternative Water Supply Options for Confidential Large Central Florida Water Utility. In light of the 2013 regulations that limit new groundwater sources in central Florida, prepared analyses of various long term alternative water supply options for advisement of a major utilities executive board. Analysis included the calculation of net present value and the ranking of various projects based on screening criteria.
- Water Supply Planning for Confidential Large Central Florida Land Owner. Project Manager responsible for water supply planning for a Florida landowner including surface and groundwater, and quantification of available water supply.
- Flagler County Water Supply Plan for the St. Johns River Water Management District (SJRWMD) in Flagler County. Responsible for preparing water supply plan to identify alternative water supply sources that would meet the needs of the county for the next twenty years. The alternative water supply options being considered included surface water and ground water supply. Responsible for presenting the results at a series of six public workshops attended by representatives of all the cities within Flagler County.
- Seminole County Water Supply Plan for The Cooperators of Seminole County (Cities of Altamonte Springs, Casselberry, Oviedo, Lake Mary, Longwood, Sanford, and Winter Springs and Seminole County). Project Manager responsible for developing a water supply plan to address the future water needs of Seminole County, Florida, including a GIS data base that represents the water resources and demands in the county. Developed and evaluated alternatives for providing the needed water through 2025, and prepared a request for matching funding under SB444. The project represents a continuation of the water supply planning efforts by the St. Johns River Water Management District (SJRWMD), and was presented at the 2007 Florida AWWA conference.
- Poinciana System Water and Wastewater Master Plan for the Poinciana Utility System and the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for preparing a water and wastewater

master plan for the 30,000-person Poinciana area, including projection of wastewater flows and water demand for a 20-year period. The plan includes recommendations for capital improvements in five-year incremental planning period, and the master plan includes the development of a water and sewer models that would act as a tool in determining the most needed areas for infrastructure growth.

- Poinciana System Wastewater Plant No. 5 Expansion for the Poinciana Utility System and the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for developing contract documents and construction services for the expansion the wastewater plant to 2.5 mgd. The process selected uses SBR's in conjunction with filtration to provide effluent for reuse purposes. The facility is designed for total nitrogen reduction as well.
- Lehigh Acres Wastewater Plant Phase II Expansion for the Lehigh Acres Utility System and the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for developing contract documents for expansion of the Lehigh Acres wastewater treatment facility and an upgrade consisting of a contact stabilization process.
- Poinciana System Various Wastewater Force Main and Line Work for the Poinciana Utility System and the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for developing contract documents and construction services for various pipelines including: four miles of 16-inch PVC force main along portions of Poinciana Blvd; and a five-mile force main and booster station with interconnection to a neighboring utility. The projects included design and construction services.
- FGUA System Lift Station and Collection System Rehabilitation for the Golden Gate, Lehigh, and Poinciana Utility System and the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for developing contract documents and construction services to rehabilitate lift stations and infiltration/inflow rehabilitation work in the various FGUA systems.
- Lift Station Odor Control System for the Poinciana Utility System and the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for developing pre-design and design documents for the installation of an odor control system for several large pump stations in the Poinciana System. The project included a review of alternatives and selection of equipment to match the field conditions.
- Lehigh Acres and Golden Gate Water Treatment Capacity Analysis Reports for the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for developing capacity analysis reports for the water treatment facilities for the Lehigh Acres and Golden Gate Utility Systems. The reports analyzed current water needs versus available treatment capacity and storage capacity.
- Winter Haven Wastewater Treatment Plant 2 Expansion in the City of Winter Haven. Responsible for the preliminary design for expansion of the facility. The City is considering expanding and enhancing the quality of their effluent to AWT standards to both supply a new reuse system and provide effluent discharge capability to a National Pollutant Discharge Elimination System (NPDES) permitted outfall. The expansion also incorporates nitrogen reduction in the biological processes.
- Lake Howard Storm Water Floatables Reduction in the City of Winter Haven. Project manager responsible for a study to determine optimal technologies for reducing the amount of floatables and solids entering Lake Howard at three main storm water outfalls.
- Golden Gate Water Treatment Plant Phase III and IV Expansion for the Golden Gate Utility System and the Florida Governmental Utility Authority in Central Florida. Phase III was a design build project. Project Manager responsible for the Phase III addition of 0.375 mgd capacity through expansion of the facility's Reverse Osmosis (RO) treatment train. Prepared contract documents for the plan expansion. Responsible for design for the Phase IV RO expansion. This expansion incorporated 0.50 mgd of capacity and finished water blending facilities for combining the water with lime softened water.
- Florida Governmental Utility Authority Program Management Services for the Florida Governmental Utility Authority (FGUA) in Central Florida. Responsible for developing project schedules and identifying critical milestones for more than 80 capital projects in the four FGUA systems (Golden Gate, Poinciana, Lehigh Acres and Citrus). Responsible for preparing inter-local agreements with developers and adjacent utilities. Served as an extension of staff for a 90-day period to assist and provide leadership for the FGUA capital program.
- Water Loss Reduction Plan, St. Thomas and St. Croix, US Virgin Islands. Project Manager for development of a water loss plan for the Virgin Islands Water and Power Authority (WAPA). The plan examined the water production and distribution systems for St. Thomas, St. John and St. Croix, including recommendations for steps to reduce water losses, increase accountability of water produced and increase billing of water

produced and sold. The Plan also included anticipated costs for completing those recommendations. The Plan was submitted to the Virgin Islands Public Service Commission as support for a rate increase.

- St. Johns River Water Management District (SJRWMD) Seawater Demineralization Feasibility Study in St. Johns River Water Management District, Central Florida. As Project Manager, performed analysis for selection of five potential sites for Seawater Desalination facilities. The study was part of the District's water supply planning efforts and represented one of the alternatives for future water supply. The site review examined features for collocation opportunities, infrastructure, environmental resources and local water demands. Reviewed and documented potential regulations and permits associated with such a facility. Developed conceptual designs and costs. Presented two public information sessions.
- Desalination Permitting Planning Document for Texas Communities Texas Water Development Board, Austin, Texas. Developed a planning document which identifies and describes the major components / technologies of desalination plants for both brackish and seawater source waters. The document includes a permitting matrix for identification of permits based upon the selection of various facility components such as source water, treatment and brine disposal.
- Tampa Bay Seawater Desalination Facility Acceptance Testing & Start-up Tampa Bay Water, Apollo Beach, Florida. Witnessed and analyzed information from the facility acceptance test for a 25 mgd seawater desalination facility. Developed an Acceptance Test Review report that identified the testing criteria and the facility's success at meeting the objectives. Developed conceptual designs, a request for qualification and a proposal for a replacement contractor to remedy the deficiencies and operate the facility for the interim remedy and long term.
- Reedy Creek Development District Bond Report for Solid Waste, Water and Wastewater Infrastructure. Reedy Creek Improvement District, Orlando, Florida. Reviewed the condition of solid waste facilities, water treatment and distribution, wastewater collection and disposal and the reclaimed water system in support of existing bonds for the Reedy Creek Improvement District, an independent improvement district serving Walt Disney World.
- Leesburg District Bond Report Water and Sewer Review. Reviewed water and wastewater infrastructure, including the condition of water treatment and distribution and wastewater collection and disposal systems in support of a utility improvement bond issue (2003) for the City Water.
- Coolidge Arizona Wastewater Treatment Plant Expansion in the City of Coolidge, Arizona. Responsible for final design and construction services for a 2.2 mgd aerated lagoon facility including bid and construction phase services.
- Anthem Development Reservoir Construction Services for Del Webb in Phoenix, Arizona. Task lead for construction services for 1.25 million gallon capacity reservoir built into the side of a mountain, including day-to-day contact with client and field personnel, shop drawing review, and performing as Engineer's representative at construction progress meetings.
- Sun City Water Treatment Plant Expansion for Del Webb in Sun City, Arizona. Prepared specifications and design documents for the addition of storage, chlorination and pumping of water.
- 16-inch Water Pipeline Design in the City of Peoria, Arizona. Project Manager responsible for reporting following installation of a new 16-inch water main. The main crossed the New River and provides redundant water supply to a hospital area.
- Water and Wastewater Facility Plans for the Anthem West Development for Del Webb in Phoenix, Arizona. Developed facility plans for the development expansion. The plans considered the proposed land use in the area and considered full build out capacity.
- Water and Wastewater Facility Plans for the Lynx Creek Development for Fain Development in Prescott, Arizona. Developed facility plans for the expansion of the Lynx Creek developments. The plans considered the use of existing facilities in the area and considered full build out capacity for an active adult community.
- City of Hollywood Water Treatment Plant Continuing Services for the City of Hollywood, Florida. Responsible for multiple projects with fees over $500,000 for the 32 mgd facility including: design and construction of piping to blend finished water from the existing and new Reverse Osmosis (RO) plant, pre-design and final design for rehabilitation of steel filters, pre-design for a new finished water tank, evaluation of pinpoint leakage in stainless steel raw water piping, recommendations to eliminate overflows of process waste from the lime softening process, pre-design for emergency generators, and investigation for rehabilitation of concrete filter gallery structure and control system.

- Collier County North Water Treatment Plant Expansion in Collier County, Florida. Led a team of professionals for design of an 8 mgd expansion of the brackish water desalination water treatment plant. The expanded facility provides 20 mgd of product water. The project included a 2.5-mile raw water pipeline, 6 million gallons of storage, a new well field and reverse osmosis skids and appurtenances. Prepared pre-design and design including specifications and drawings.
- City of Plantation Waste Water Treatment Plant Re-Rate for the City of Plantation, Florida. Performed an analysis of the wastewater treatment plant to determine if the facility could be re-rated for higher permitted flows with minimal capital improvements. The analysis included a review of the design of the facilities, and the plant performance. An application with justification for an increase in permitted was prepared and submitted to the Florida Department of Environmental Protection (FDEP).
- City of Plantation East Water Treatment Plant Expansion in City of Plantation, Florida. Provided construction management services for a 6 mgd brackish desalination facility. Performed shop drawing review, oversight of field personnel, clarification preparation, attendance at progress meetings and change order negotiation.
- Jamaica Water Pollution Control Facility Upgrade (100 mgd) for the New York City Department of Environmental Protection in Queens, New York. Prepared a design report to propose equipment that would minimize the contact of operators with screenings for influent screening. Presented the design to the City of New York in a work shop format.
- Rikers Island North Pump Station (4 mgd) Construction Services for the New York City Department of Environmental Protection (NYCDEP) in Queens, New York. Responsible for construction management services to replace the Rikers Island North wastewater pumping station, including shop drawing review, attending project meetings, and negotiating change orders. The project included a 24-inch diameter, horizontally directionally drilled force main under the East River, which at that time was the longest in the world for that pipeline size.
- Greenwich Wastewater Plant (12.5 mgd) for the Town of Greenwich, Connecticut. Prepared a facility plan for sludge handling facilities, and prepared a detailed design for a sludge holding facility for dewatered cake. Prepared a detailed design for sludge dewatering and grit removal, using belt filter presses for dewatering. Prepared an Operations and Maintenance Manual for expanded wastewater plant.
- Bell Haven Pump Station and Force Main Modifications for the Town of Greenwich, Connecticut. Designed pipeline modifications to replace an existing sewage force main that was in imminent failure. The pump station was modified to incorporate provisions for surge.
- Commercial Building Wastewater Facility for Cushman & Wakefield in Greenwich, Connecticut. Responsible for pre-design to modify the existing extended aeration wastewater plant for the largest commercial office building in Fairfield County to achieve new nitrogen reduction and disinfection effluent requirements.
- Wastewater Plant Nitrogen Reduction Study (6 mgd) for the Town of Branford, Connecticut. Performed an analysis of alternatives for nitrification and de-nitrification as part of a program to reduce anoxic zones in Long Island Sound.
- New York City Transit Authority Bus Depot Pretreatment for the New York City Transit Authority (NYCTA) in Brooklyn, Queens, Staten Island and Manhattan, New York. Provided design and construction services for oil/water separator systems for 13 bus depots throughout the City of New York to achieve sewage pretreatment objectives. The project required extensive field reconnaissance and a special attention to drawings since information was not available for most sites.
- Westchester County Sludge Management Program for Westchester County in Yonkers, New York. Prepared a facility plan for biosolids disposal. Projected quantities and made recommendations for future disposal of facilities. Prepared a pre-design for the recommended option of using high solid centrifuges for dewatering. This installation represented one of the first installations of this type of dewatering in the United States. Developed a Request for Proposal for the privatized disposal of sewage sludge. Reviewed the submitted proposal, developed ranking criteria, ranked proposals, and prepared a recommendation for contract award.
- Yonkers Joint Treatment Plant (92 mgd) Dewatering Facility for Westchester County in Yonkers, New York. Lead engineer responsible for detailed design, including drawing and specification preparation, for high solids centrifuge dewatering, centrate return, auxiliary water and vehicle weigh station for the wastewater plant. Lead coordinator for shop drawing review and RFI preparation. Prepared the Operations and Maintenance Manual for the facility.

Donald F. Stearns, P.E.

Engineering Manager

Education

M.E. Engineering (Sanitary), Manhattan College

B.S. Civil Engineering, Clarkson University

Registrations/Certifications

Professional Engineer, FL No. 54275, NY, NH

Summary

Mr. Stearns is an experienced and versatile environmental Project Manager for water and wastewater engineering projects for municipalities and private industry. He has an excellent track record for managing difficult water utility projects with effective quality, cost, and schedule control.

Professional Experience

- Utilities Director/City Engineer for the City of Eustis, FL. Served as department head and member of the City's executive management team to oversee the Water, Wastewater and Engineering Departments in total comprised of approximately 40 workers. Normal duties consisted of personnel administration, departmental finance, preparation of annual budgets, interfacing with other departments, providing departmental participation in City Commission meetings and various other duties as called for by the City Manager. As City Engineer, routinely helped select, monitor and review work and payment requests from engineering consultants and contractors. Also responsible for the design, permitting and construction administration of in-house water and wastewater facility projects.
- Principal and Chief Engineer. Duties involved oversight of six person branch office for a varied work load which included water/wastewater utility projects for both private water utility owners including Aqua Utilities Florida, Inc., the Florida Governmental Utilities Authority and for Municipal owners including the Cities of Inverness and Palatka as well as Citrus County.
- Regional Engineer and Engineering Department Manager. Regional Engineer responsible for management of water and wastewater and reclaimed water utility systems for water large private utility company. Assigned as Regional Engineer for company's South Region (Charlotte, Lee and Collier Counties) and West Region (Orange, Polk, Lake, Marion, Citrus, Hernando, Pasco, and Hillsborough Counties). Most recently Principal Engineering Manager responsible for complete program management of 72 water/wastewater systems throughout Florida. Duties included preparation and management of capital budget plans, oversight of in-house and consulting engineering services for the design and construction of water and wastewater utility projects.
- Lead Utility Engineer for the design, permitting, and construction of water and wastewater facilities for commercial, industrial, and municipal owners.
- Construction Manager for lined landfill expansion in Lebanon, NH; Landfill closure and site expansion at the municipal landfill at Nashua, NH. Also oversaw closure of Wilmer Wood Products, Inc. Industrial Landfill, former USEPA Super Fund Site, in South Paris, Maine.
- Senior Resident Engineer on major wastewater treatment plant upgrades at Sewer District in Berwick, Maine, and at The Pease International Airport in Portsmouth, NH.
- Project Manager for research, development and fabrication of closed loop water treatment systems for Creative Water Technologies of Exeter, N. H.
- Office Manager responsible for personnel management, business planning, fiscal budgeting, and quality assurance for the eight person branch office staff. Also directed planning, design, and construction management of wastewater collection and treatment projects for both municipal and private clients.
- Vice President managing office operations. Also in charge of civil and sanitary facilities design work that included municipal wastewater collection and treatment (secondary and tertiary) designs, water supply

development, and combined sewer overflow separation work. Private sector work included industrial wastewater pretreatment, hazardous waste site investigations, and remediation.

- Civil and sanitary engineering design and construction administration for municipal and industrial clients. Served as design engineer and construction services manager for a variety of water, wastewater and general civil engineering projects in the northeast.

Anthony R. Holmes, P.E.

Project Engineer

Education

B.S. Civil Engineering 2004, Clarkson University

Registrations/Certifications

Professional Engineer, FL 2010, No. 70809

Relevant Training/Courses

High Performance Management Training, GAI Consultants, Inc., July 2009

ASFE Fundamentals of Professional Practice (In Progress)

Summary

Mr. Holmes specializes in water and wastewater engineering including designing, permitting, planning, bidding services and construction management of water supply, treatment and distribution facilities, wastewater collection and treatment facilities, and reclaimed water distribution facilities.

Professional Experience

- City of Mulberry Wastewater Treatment Facility Improvements and Collection System Infiltration/Inflow Reduction, Florida. Engineer for preliminary design of the Infiltration/Inflow Reduction portion of the project and final design for the entire project. This design included the addition of a wastewater influent equalization basin at the WWTF to attenuate flow surges to the wastewater reactor basins and/or addition of equipment and reconfiguration of flow basins, reconfiguration of the WWTF existing basins for optimal treatment efficiency, and addition of instrumentation for process monitoring at the WWTF.
- Poinciana Wastewater and Water Master Plan in Osceola and Polk County, Florida. Engineer assisting with the master plan report write-ups, hydraulic modeling, and improvement recommendations. System hydraulic improvement recommendations along with associated preliminary opinion of costs were generated through the hydraulic modeling efforts in five-year increments to the year 2025. The wastewater collection / transmission system consists of over 100 lift stations and four Wastewater Treatment Plants. The water distribution system consists of six Water Treatment Plants (some interconnected) and an elevated storage tank.
- Golden Gate Wastewater and Water Master Plan, Collier County, Florida. Engineer assisting with the master plan report write-ups, hydraulic modeling, and improvement recommendations. System hydraulic improvement recommendations along with associated preliminary opinion of costs were generated through the hydraulic modeling efforts in one-year increments to the year 2010. The wastewater collection / transmission system consists of 28 lift stations and a Wastewater Treatment Plant. The water distribution system consists of Water Treatment Plant and a Booster Station with an above-ground storage tank.
- Poinciana and Golden Gate Hydraulic Modeling Requests in Osceola, Polk, and Collier Counties, Florida. Engineer for hydraulic modeling services provided upon Owner's request. Worked with Governmental Service Group, Toho Water Authority, and developers' engineers to provide existing system information.
- Poinciana and Golden Gate Annual Lift Station Rehabilitation and Modification in Osceola, Polk, and Collier Counties. Engineer for annual lift station rehabilitation and modification program including assessment, preliminary and final design, permitting, bidding services, and construction management for selected lift stations throughout the collection/transmission systems. Lift stations were selected considering master plan recommendations and system operator's recommendations. The projects included pump upgrades, installation of control panels with telemetry, and general improvements and rehabilitations of deficiencies or deteriorations. Initial assessment included lift station condition surveys and field measurements to generate construction drawings. Where there were pump upgrades, a hydraulic model was used to appropriately size the pump so that it would be in balance with the rest of the system.
- Poinciana Lift Station Odor Control in Osceola and Polk Counties, Florida. Engineer for assessment, preliminary and final design, bidding services, and construction management for the installation of lift station

biological-filtration-type odor control units. Site work involved field measurements to generate construction drawings. Worked with equipment vendors for lift station odor testing and sizing of the odor control units.

- Poinciana, Golden Gate, Lehigh Acres, and Citrus County Annual Lift Station Telemetry Improvements in Osceola, Polk, Lee, and Citrus Counties, Florida. Engineer for preliminary and final design, bidding services, and construction management for the installation of control panels with telemetry. Coordinated with the electrical subconsultant to implement design of these projects.
- Poinciana Wastewater Treatment Plant No. 5 Expansion in Polk County, Florida. Engineer for facility planning, preliminary design report, and permitting for the expansion of WWTP No. 5 from 1.25-mgd to 2.5-mgd. Project consisted of installation of new headworks, biological treatment using SBRs, post equalization basin, tertiary filtration using traveling bridge filters, and disinfection using liquid sodium hypochlorite.
- Poinciana Wastewater Treatment Plant No. 3 Expansion in Polk County, Florida. Engineer for facility planning, preliminary design report, and permitting for the expansion of WWTP No. 3 from 0.85-mgd to 1.2-mgd. Project consisted of modifications to the headworks, rerating of the SBRs, modifications to the traveling bridge filters and chlorine contact chamber, and installation of a sludge thickener.
- Lehigh Acres Wastewater Treatment Plant in Lee County, Florida. Engineer for design of the 3.5-mgd to 4.5-mgd WWTP expansion. Project consists of installation of a new headworks, biological treatment using contact stabilization, new sodium hypochlorite feed system, and temporary sludge dewatering.
- Reclaimed Water Pump Station in Poinciana, Florida. Engineer for the design, bidding services, and construction management of a 10-mgd pump station to convey water from a reclaimed water storage pond located within a residential community. The project consisted of six vertical turbine pumps mounted at grade above new a precast wet well. System includes VFDs, a control panel building, and a control valve to keep system pressure within design operating range.
- Turnpike Wastewater Reclamation Facility Improvements in Leesburg, Florida. Engineer for preliminary (including a preliminary design report) and final design of facility improvements. The project consisted of a headworks lift station with four submersible pumps on VFDs and automatic bypass valves, chlorine contact mixing chamber, chlorine contact chamber walkway, digester walkway, and conversion of a sprayfield irrigation pump station and storage ponds to a reclaimed water system pump station. The reclaimed water system pump station portion of this project included creation and analysis of a proposed reclaimed water transmission system using the existing irrigation mains in conjunction with proposed reclaimed water mains, the addition of VFDs to three existing vertical turbine pumps, the installation of inline pressure filters with a backwash pump station and transmission main, installation of a chlorinator with a chlorine vacuum gas pipeline and a remote injector cabinet to inject chlorine solution, and a reject pond pump station and transmission main.
- Water and Wastewater Master Plan Update in Lake Wales, Florida. Engineer for report write-up of a water and wastewater master plan update of existing master plans previously completed for the City of Lake Wales.
- East Water Treatment Plant Improvements in Miramar, Florida (In Progress). Engineer for construction management of facility improvements, including: the installation of a sludge thickener with a stilling well, sludge rake, and floating decanter; onsite pump station; modifications to the existing thickener to included a stilling well, sludge rake, and floating decanter; underground and above ground piping.
- Stormwater Reuse Pump Station in Miramar, Florida. Engineer for construction management of an underground reuse pump station including vertical turbine pumps and jockey pumps with VFDs, inline pressure filtration, and chlorination from a stormwater storage pond. The pump station provides augmentation to the existing reuses system by using stormwater.
- Stormwater Remediation and Flood Protection in Daytona Beach, Florida. Engineer for preliminary design (including a preliminary design report write-up). The project consisted of preliminary design of a four phase program for flood water management and mitigation of a study area subject to frequent flooding. The improvements included installation of storage ponds, large pump stations, transmission lines, and collection system upgrades.
- City of Daytona Beach Alternative Water Supply in Daytona Beach, Florida (In Progress). Engineering for preliminary design (including a preliminary design report write-up). The project consisted of performing a study for use of stormwater for an alternative water supply source to supplement the existing reuse and/or potable water system. This included preliminary design for the installation of pump stations preliminary treatment for reuse and potable water, and a Reverse Osmosis Water Treatment Plant.

Zhihua (Scott) Xu, P.E.

Senior Engineer

Education

M.S. Civil Engineering (Environmental Engineering emphasis) Oregon State University, Oregon, 2006

M.S. Environmental Engineering, Nankai University, China, 2003

B.S. Environmental Science, Nankai University, China, 2000

Registrations/Certifications

Engineer-in-Training Registered in Texas Board

Professional Engineer Registered in Florida Board (17090016), 2007

Summary

Mr. Xu specializes in water and wastewater utility system inspection and valuation, preparing engineering reports in support of utility designs, permitting and certifications of utility constructions, hydraulic analyses for water/wastewater system. Additionally, Mr. Xu's experience includes utilizing engineering software to develop designs and plans.

Professional Experience

Wastewater Engineering

- Hydraulic analyses for Keystone treated blow-down flow transmission system project. Responsible for performing hydraulic calculation for the 15 miles pipeline project, pump facility selection, system model of transient events for surge protection, prepare hydraulic notebook and transient analyses report.
- Oak Run WWTP and Stonecrest WWTP expansion projects. Assisted engineering calculation, hydraulic profile, designs, construction drawing review, O&M performance report, project cost estimation, project specifications.
- SR 200 W/WW master plan. Responsible for hydraulic analyses of the existing wastewater collection, transportation, and treatment system, improvement recommendation and the development of future wastewater facilities.
- Youming Food-Oil WWTP project. Responsible for the engineering calculation, project design, facilities selection, project management: communication with vendor and client, construction and installation management.
- Membrane Bio-Reactor application in dyeing wastewater treatment. Responsible for managing the pilot membrane bio-reaction operation and maintenance. Compare the MBR and conventional process in the treatment of dyeing wastewater.

Water Engineering

- Taylor Creek Reservoir water supply project. Responsible for hydraulic analyses of the water distribution pipe system, assisted engineering calculation and pump selection as well as GIS mapping application in the project.
- Lake Wales Downtown water main extension phase I. Responsible for the drinking water facilities permitting application, GIS mapping application, and project specifications.
- SR 200 W/WW master plan. Responsible for hydraulic analyses of the existing water treatment, storage and distribution system, improvement recommendation and the development of future water facilities.
- Marion County water facilities evaluation. Evaluated various existing water facilities in Marion County and provided the suggestion for improvements.
- I-20 regional W/WW facilities evaluation. Evaluated the existing CWS's (Carolina Water Services, Inc.) water/wastewater facilities in I-20 region.

- Ultrafiltration Membrane application in drinking water. Responsible for designing the UF membrane system for drinking water purification, and construction and installation management.

Reclaimed Water

- Oak Run WWTP effluent reclamation plan. Hydraulic analyses for the secondary effluent reclamation system and pump system.

Tara L. Hollis, CPA, MBA

Environmental Group Manager

Education

M.B.A., University of Central Florida 1998

B.S. Business Administration, University of Central Florida 1996

Registrations/Certifications

C.P.A. Florida, No. AC-0031100

Relevant Training/Courses

Management and Leadership Skills Training, GAI Consultants, Inc., February 2010

American Recovery and Reinvestment Act Requirement Training, Office of the Inspector General and the Environmental Protection Agency, October 2009

Harvard Leadership Development Training, GAI Consultants, Inc., June 2009

Advanced Project Management Training, GAI Consultants, Inc., 2008

Leaders to Watch Program, GAI Consultants, Inc., October 2007

Utility Rate School, National Association of Regulatory Utility Commissioners, October 2003

Certified Public Accountant Continuing Education

Affiliations

American Institute of Certified Public Accountants, Member

Florida Institute of Certified Public Accountants, Member

Florida Government Finance Officers Association, Member

Summary

Ms. Hollis specializes in rate and cost of service studies, feasibility and financial reports, and debt structuring analysis for the issuance of utility indebtedness for major capital improvement programs. She has an extensive range of experience in financial analysis including budget analyses, customer and usage analyses, development of revenue requirements, cost of service allocations, and sensitivity analyses related to the implementation of conservation efforts. Included in these broad areas of financial analyses are detailed analyses pertaining to the sufficient recovery of revenue such as utility rates and rate design alternatives, the determination of specialized user fees and charges, service availability and impact fees, and various miscellaneous service charges.

Ms. Hollis has been a principal investigator in electric system comparable sales. She was the CPA analyst serving the bondholders on the $0.5 billion Okeelanta L.P. and Osceola L.P. damages case. Ms. Hollis has extensive experience related to reviewing and analyzing compliance with bond covenant requirements and contractual obligations. She has assisted in the development of numerous bond documents including engineering reports and official statements for the issuance of municipal debt instruments. Ms. Hollis creates computerized dynamic spreadsheet models for use in valuing and analyzing future sales, profitability, and financial performance ratios of utility systems and to determine fund needs for capital expansion programs.

Professional Experience

- Development of extensive and dynamic computer models for water, wastewater and reclaimed water rate studies, feasibility studies, forecasts, and valuations including the City of Sanibel, the City of Clermont, the City of Palm Bay, the City of Apopka, the City of Orlando, the City of Port St. Lucie, the Village of Bald Head Island, and Bay Laurel Center Community Development District.
- Development of retail and bulk rates; impact fees; capital funding plans; and user rates and charges including the preparation of water, wastewater, reclaimed water, and stormwater user rate studies for public utilities. Recent clients include the City of Lauderhill, the City of Orange City, the City of Sanibel, the City of Apopka, the City of Fort Walton Beach, the City of North Lauderdale, the City of Port St. Lucie, the City of Orlando, the

City of Palm Bay, the City of Naples, the City of Miami Springs, the City of Port Richey, the City of Mulberry, the City of DeLand, the City of Lake Wales, Marion County, St. Johns County, Tindall Hammock Irrigation and Soil Conservation District, and Bay Laurel Center Community Development District.

- Development and analysis of the adequacy of wholesale rates and rate components for revenue and litigation purposes. Recent clients include Bay County, Bucks County Water and Sewer Authority and the City of Port St. Lucie.
- Water conservation rate analysis, structuring, and enactment. Clients have included the City of Lauderhill, the City of Apopka, the City of Orange City, the City of Fort Walton Beach, the City of Fellsmere, the City of North Bay Village, City of Lake Wales, the City of DeLand, Marion County, St. Johns County, and Bay Laurel Center Community Development District.
- Development of drought surcharge policy for the City of North Miami Beach.
- Miscellaneous service charges for a variety of customer request services including customer deposits, water meter installation charges, water and wastewater taps, turn-on charges, and the initiation of service charges. Clients have included the City of Lauderhill, the City of Orange City, the City of North Bay Village, the City of Fort Walton Beach, Bay Laurel Center Community Development District, and Tindall Hammock Irrigation ad Soil Conservation District.
- Development of presentation workshops and accompanying briefing documents for utility rate study and cost of service clients to foster client and audience understanding of the analysis conducted. Recent clients include the Cities of DeLand, Orange City, Sanibel, and Marion County.
- Assistance and documentation for revenue and other special forms of tax-exempt bond financing including detailed projections and reports to support the issuance of long-term indebtedness. Clients include the City of Clermont ($17,935,000), the City of Palm Bay ($39,796,958), the City of Port St. Lucie ($367,890,913), the City of Apopka ($25,415,000), the City of North Miami Beach ($66,385,000), the City of Fernandina Beach ($32,985,000), St. Johns County ($27,601,380), Bay Laurel Center Community Development District ($34,000,000) and Marion County ($40,195,000).
- Preparation of Bond Resolutions, Official Statement, Certificates of Compliance, Additional Bonds Test certificates, and other related documents in support of long-term indebtedness. Recent clients include the City of Palm Bay, the City of Port St. Lucie, the City of Apopka, and Bay Laurel Center Community Development District.
- Assistance with litigation, negotiations, and expert witness services including Kings Point Utilities, Okeelanta LP, Osceola LP, Bucks County Water and Sewer Authority, Coweta County Water and Sewerage Authority, Walton County Water and Sewer Authority, and the Cities of Casselberry, Port St. Lucie, Tega Cay, Apopka and Winter Park.
- Preparation of damages reports relating to contract breaches. Development of anticipated operating revenues, expenses, and output related to two cogeneration facilities in South Florida.
- Preparation of damages report related to product failures. The report included the development of prior leaks (patching), historic repairs/replacements, and future repairs/replacements. Included analysis and projections of contractor costs, direct and indirect labor, materials, equipment costs, roadway patching, excess water loss, etc. Final report included both historic and future damages calculations.
- Conducting valuation studies using various techniques including the income approach and comparable sales approach for water, wastewater, and electric utility systems, and developing detailed financial forecasts and cash flow models to be used in damages calculations. Recent Clients include the City of Casselberry, the City of Winter Park, the City of Sunrise, the City of Fruitland Park, the City of Cocoa Beach, the City of Vero Beach, the Town of Indian River Shores, the Village of Royal Palm Beach, Flagler County, Burkim Enterprises, Inc., Town & Country Utilities Company, Lake Wales Utility Company, Bay Laurel Center Community Development District, Tindall Hammock Irrigation and Soil Conservation District, Coweta County Water and Sewerage Authority, Heritage Hills Development Corp., Liberty Water, Rolling Oaks, Beverly Hills Waste Management Co., Walnut Island Sanitary District, and Water Management Services, Inc.
- Preparation of Utility Annual Reports and review of compliance issues as required by the Bonds Resolutions. Clients include the City of Cape Coral, the City of Tamarac, and Clay County Utility Authority.
- Preparation of Request for Inclusion (RFI), State Revolving Fund Loan documents, federal and state grant applications, and Rural Development documents for various utility projects in Bay County, Marion County, Flagler County, City of North Miami Beach, City of Mulberry, City of Eustis, and City of Lake Wales.

- Preparation of initial operating budgets, rates and service area certification including testimony before the Florida Public Service Commission for investor-owned utilities including B & C Water Resources, LLC; D & E Water Resources, LLC; Farmton Water Resources LLC; St. Johns Service Company; Orangetree Utilities, Inc.; Heron's Glen Utilities; Grove Land Utilities LLC; Skyland Utilities LLC; Bluefield Utilities LLC; and North Beach Utilities, Inc.
- Preparation of financial statement analysis and development of appropriate rate base for an investor-owned utility in Louisiana in preparation for the sale of utility assets to one of the nation's largest private water/wastewater companies. Provided subject matter expertise to mid-west investment banking firm brokering the acquisition.
- Presentations relating to outside city limit surcharges including legal justification, rate making authority, impacts of repealing and action items necessary for cities to prevent legislative changes that would reduce or eliminate the level of surcharge statutorily approved.
- Water and Sewer Utility Rate Escrow reconciliation for investor owned utilities including Ocean City Utilities.
- Preparation of detailed reports explaining water, wastewater, and reclaimed water systems and related terms and rates and charges, for clients including the City of North Miami Beach.
- Special assessment programs for water and wastewater improvement projects including the City of Palm Bay.
- Assistance in the preparation of governmental operating budgets.
- Audits and reviews of not-for-profit organizations and their compliance with federal and state funding requirements.
- Performance of detailed reviews of applications submitted to the State of Florida for reimbursement under the Petroleum Cleanup Program.
- Performance of tax planning and projections for various estates, trusts, and corporations.

Daniel J. Friedman

Assistant Project Manager

Education

B.S. Computer Engineering 1996, Clarkson University

M.B.A. Concentration in Operations and Management 2004, Crummer Graduate School of Business, Rollins College

Registrations/Certifications

Certified Six Sigma Greenbelt (Performance & Process Improvement)

Relevant Training/Courses

American Recovery and Reinvestment Act Workshop for Davis Bacon Wage Provisions and Buy American Provisions held by the Office of the Inspector General and the Environmental Protection Agency, February 2010

Previous Employment

Brown & Caldwell, 2007-2010

Channel Intelligence, 2007

Ashton Woods Homes, 2005-2006

Pulte Homes, 2004-2005

Independent Consultant, 2002-2005

Cross-Lites, non-profit, 2002-2004

Prolifics, 1999-2002

I-Math Associates, 1998-1999

Lockheed Martin, 1996-1998

Summary

Mr. Friedman specializes in business and management consulting, with particular experience including strategic business analysis, business strategy, process improvement, strategic marketing, pricing strategy, dynamic computer modeling in excel, data acquisition and management, financial analysis, feasibility studies, utility rate studies, and project management. He is a highly analytical and results-driven professional with 14+ years of experience across multiple industries and functions. His more than 10 years of business analysis and client-focused consulting experience includes a variety of operational, process improvement, strategic marketing, and financial projects for corporate entities, non-profit organizations, educational institutions, and local government utilities. As a consultant, customer satisfaction and goal-exceeding have been the primary drivers in gauging success.

Mr. Friedman's software experience includes MS Office, MS Project, Visio, StatPlus, Excel OM, PolyAnalyst, MiniTab, MS Access, DB, ORACLE, SQL, MapPoint, MapInfo, UNIX, HTML, JavaScript, FrontPage, Photoshop, and SalesForce CRM.

Professional Experience

Assistant Project Manager/Business Analyst

- Performed comprehensive rate studies, feasibility studies, revenue sufficiency analyses, impact fee studies, assessment programs, and miscellaneous charge studies for water, wastewater, reclaimed water, and solid waste systems.
- Designed rate structures and user rates by analyzing, formulating, and projecting revenues, operating expenses, capital structures, debt service, and user demand.
- Created numerous dynamic models in Excel addressing operating needs, customers, rates, revenues, funding scenarios, and financial results.

Project Experience

- Town of Indian River Shores, FL. Created two separate asset purchase and franchise agreements for the town to receive water, wastewater, and reclaimed water services, ensuring that all aspects of the discussed terms and issues were addressed. Also worked with engineering and other staff to value the town's facilities for consideration and inclusion in the agreements.
- Bucks County, GA. Supported the county in challenging a proposed rate increase by the City of Philadelphia. Analyzed rate case testimony and rate models, helping to extract relevant information in support of lowering the rate increase.
- City of Tega Cay, FL. Prepared financial statements and rate base analysis for a rate case challenging the validity of rate increases and revenue requirement calculations. Scrutinized testimonies, re-developed schedules, and prepared direct and surrebuttal testimony for expert witness use.
- Walton County, GA. Analyzed water system and developed methodologies for isolating primary indicators of applicable damages, in support of litigation against Shell Oil Company. Aided in developing a financial damages report, resulting in an estimate of over $8,800,000.
- Bay Laurel Center Community Development District, Ocala, FL. Performed a water, wastewater, and reclaimed water rate study, a capital line charge study, and a miscellaneous charge study. Prepared study reports, schedules, and other necessary documentation and presented results to client. Updated cost approach and income approach in valuation documents related to potential acquisition of utility assets according to study results.
- Cassatt Water Company, Cassatt, SC. Executed a comprehensive water rate study for client lacking experience in rate setting. Consulted regarding methods of reducing costs, spreading out capital projects, and funding future plans while meeting bond coverage and fund balance requirements. Also completed financial feasibility report for bond agency use.
- Florida Governmental Utility Authority (FGUA) and Government Services Group, Inc., Tallahassee, FL. Helped prepare three separate financial feasibility reports analyzing and assessing the financial viability of FGUA's purchase of various independent private utility systems in Pasco County, FL. Provided historical performance indicators, current analysis of customers, financials, and operational conditions, and future results and coverage projections.
- City of Fort Walton Beach, FL. Completed a detailed water and wastewater multi-year rate study, covering revenue sufficiency needs while incorporating CIP funding. Involved detailed analysis of operational cost changes in light of the downgrading/decommissioning of a wastewater treatment plant. Analysis included consideration of several alternative approaches over a multi-year period.
- City of Hollywood, FL. Aided in preparation of a water and wastewater reserve capacity charge study. Involved careful analysis of asset base in order to properly categorize and account for recoverable costs. Also reviewed both a water and wastewater rate study, and a financial feasibility study, ensuring accuracy, proper presentation and flow, and ease of understanding for the city commissioners.
- City of Palm Bay, FL. Worked on two separate utility assessment studies, helping analyze property data, customer characteristics, and utility system capabilities in order to design just and equitable assessment charges. Provided support at public hearings, answering questions from concerned citizens and demonstrating modeled financial results.
- City of Port St. Lucie, FL. Performed a water and wastewater capital cost recovery charge study. Worked closely with utility staff and city officials in analyzing asset list data and properly determining applicable and non-applicable costs for recovery. Also aided in preparation of a bond document for the refunding of existing debt and funding of new debt to help cover future CIP costs.
- City of Portsmouth, NH. Provided detailed analysis of local business trends, commerce patterns, population growth, employment projections, and community comparisons in an effort to help determine how a proposed sewer rate increase on commercial customers could impact city plans for business expansion.
- Spartanburg County, SC. Prepared a dynamic model demonstrating financial and operational performance and projections for the county's landfill operations, in light of one major landfill approaching capacity. Helped develop several alternative approaches for solid waste recovery and disposal, costing each according to similar situations with other counties.
- St. Johns County, FL. Completed a reclaimed water rate study and unit connection fee study for an anticipated reclaimed water system. Project involved working closely with client to project both costs and

absorption rates once the system was brought online. Helped develop equivalent irrigation connection standards specific to customer characteristics and flow projections considering rainfall and seasonal variations.

- City of Tavares, FL. Performed a water, wastewater, and reclaimed water rate study, as well as a capital charge study. Prepared reports, schedules, and presentations, and presented to clients. Provided support at city council meetings as well.
- Tohopekaliga Water Authority, Kissimmee, FL. Updated rates and system development charges for three separate districts within the Authority's purview. Provided dynamic models for client's future use in maintaining revenue sufficiency.
- City of Winter Haven, FL. Completed a water, wastewater, and reclaimed water rate study for the city, designing new rates according to updated customer characteristics and changing operational and capital water, wastewater, and reclaimed water rate study

Operations Manager

- Decreased implementations timeline from average of 11 days to 6 days by retooling processes, instituting metrics, interfacing with stakeholders, reworking Salesforce CRM reports, and standardizing communication.

Strategic Market Analyst

- Consulted for Division Presidents and Vice Presidents of Land Acquisition and Sales and Marketing for 2 home-building divisions, assisting in strategic business decisions related to opportunities, feasibilities, acquisition, pricing, marketing, product design, and promoting high levels of customer satisfaction.
- Saved $250M by proving 75 land acquisition opportunities unworthy, and helped purchase 10 deals, worth $35M.

Assistant Customer Relations Manager

- Co-managed customer relations/service and satisfaction efforts for community of 240 residents, achieving over a 96% satisfaction rating.

Director of Business Strategy

- Improved awareness by 25% and diversity by 15% over 1-year period for the organization by developing and implementing long-term business and marketing strategies, and hiring and training several new employees.

Consultant

- Managed 7 extensive MIS consulting projects concurrently, valued at over $12M, completing all seven on time and under budget.

Independent Consultant

- Specialized in strategic analysis, operational process improvement, and business strategy.
- Projects involved acquisition, management, and analysis of data; identification of current and future issues and needs; analysis, formulation, and recommendation of strategic approaches to desired results; projection of project and operating expenses; development of implementation timelines and measurable milestones; and presentation to executives.
- Several projects also included targeted market and competitive analyses, analysis of product and market sustainability, due diligence, development of financial proforma, forecasting, and/or computer modeling.
- American Automobile Association, Career Planning and Employee Development Consultant. Helped develop and deliver a customized employee development program, based on best practices and AAA's internal culture, designed to increase productivity and drive success over an 18-month period through meeting milestone goals.
- Connextions, Inc., Project Manager / Consultant - Quality Management. Led a team of 7 consultants in creating a formal quality receiving system, allowing for more efficient processes, procedures, and workflow.
- Connextions, Inc., Process and Profit Improvement Consultant. Spearheaded profit improvement from loss of $0.28 to earnings of $4.77 per Ozone order over a 3-month period. Enlarged overall realized profits from loss of $0.61 to gain of $0.50 per order over a 5-month period in this fulfillment and logistics company by scrutinizing the customer order entry process and adjusting costing strategies.

- Crummer Center for Leadership Development, Leadership Development Consultant. Co-designed the Leadership Development Program and Leadership Recognition Program to reward Leaders of Merit at Crummer Graduate School. Also designed three experiential leadership events for students, conducted during the 2003-2004 school year.
- Fairwinds Credit Union, Process Improvement Consultant - Real Estate Department. Saved an average of 5 to 6 man-hours per day by analyzing and streamlining operations for the mortgage application process.
- Gaylord Palms Resort, Operations Analysis and Process Improvement Consultant. Improved procedural efficiency by 71% in housekeeping at the resort and convention center by analyzing business processes and systems and delivering change recommendations to upper-level management.
- Marriot Vacation Club International, Project Manager / Consultant - Pricing Strategy. Increased forecasted profits by 22% through analysis and correction of pricing multipliers and strategies for 6 different locations / markets.

Rachel A. Reuscher

Senior Utility Rate & Funding Specialist

Education

M.B.A. Crummer Graduate School of Business, Rollins College (In Progress)

B.S. Human Resources Management and Technology, Carlow University

B.S. Business Management, Carlow University

Registrations/Certifications

10 Hour OSHA Training and Certification

Awards

Sister Jane Scully Award for Academic Excellence and Service, Carlow University

Dr. Emerson Neil Milligram Exemplary Leadership Award in Recognition of Excellent Leadership Skills, Carlow University

Relevant Training/Courses

American Recovery and Reinvestment Act Training for Davis Bacon Wage Provisions and Buy American Provisions held by the Office of the Inspector General and the Environmental Protection Agency

Community Development Block Grant Training, held by the Department of Community Affairs

High Performance Management Training, GAI Consultants, Inc., October 2008

Dale Carnegie Training

Florida Department of Environmental Protection State Revolving Fund Conference

Affiliations

Florida Government Finance Officers Association, Member

Net Impact, Rollins Chapter, Vice President of Membership

Summary

Ms. Reuscher specializes in the preparation of rate and cost of service studies, feasibility and financial reports, acquisition briefing documents, and valuation reports and models. She provides funding strategies, capital improvements research, statutes research, grant work, loan applications, and requests for inclusion. Ms. Reuscher has experience in the Management Consulting arena including budget analysis and the development of revenue requirements; customer demand and revenue analysis; revenue sufficiency and stability analysis; sensitivity analysis related to the implementation of conservation efforts; utility valuation using the comparable sales approach, income approach and reproduction cost approach; preparation of grants and loans documentation; and comparative sales research and analysis. Ms. Reuscher has participated in the development of funding strategies for capital improvements projects over the last two (2) years and has received $8 million in grants for four (4) projects during that time. In addition to grants, Ms. Reuscher has financed over $30 million for capital improvements projects by utilizing a combination of low interest loans, and cost share agreements.

Professional Experience

- City of North Miami Beach, Florida. Prepared over 12 requests for inclusions (RFI) through the State Revolving Fund (SRF) for various system improvements, facility improvements/enhancements, infiltration/inflow, rehabilitation projects, acquisitions, etc.
    - **Received grants for major projects.**
        - **VOC Facilities - $4.5 million (ARRA Funds, and SRF)**
    - Successful completion of project audits.
        - Office of the Inspector General (VOC Facilities Project)
        - FDEP on-site review (Highland Village, VOC Facilities Projects)

- Completion of Planning Documentation, Environmental Review, and acceptance documents for FDEP construction fund process.
  - VOC Facilities – Vol. I, Vol. II, and Addendum (Phase I, Phase IIA, Phase IIB)
  - Infiltration/Inflow Project
  - Major Sewer Rehabilitation (Financial Section, Public Participation Section – only)
  - Automated Meter Reading Project
- Prepared loan applications for major projects.
  - Highland Village Sewer Project - $2.2 million (ARRA Funds)
  - Major Sewer Rehabilitation Project - $0.5 million pre-construction monies (SRF)
  - VOC Facilities - $4.5 million (ARRA Funds, SRF)
  - **Automated Meter Reading Facilities**- $2.6 million (SRF) first AMR project to be funded through SRF in state of FL
  - Infiltration/Inflow Project - $5 million (SRF)
- Administer post funding services: Davis Bacon Wage Act review, Bridge Financing assistance, Buy American Compliance, FDEP Job Monthly Job Report, and Compilation of post-bidding required FDEP documentation package, review of Pay Applications, and acts as FDEP liaison.
  - Highland Village Sewer Project
  - VOC Facilities Project
  - Infiltration/Inflow Project
  - Major Sewer Rehabilitation Project

Regularly analyze financial statements and Comprehensive Annual Financial Reports (CAFRS. Researched Florida statutes and viable project funding sources. Draft resolutions and legal opinions for City Requests for Inclusions for eight projects for stimulus funding and regular State Revolving Fund (SRF) funding. Oversees ARRA and FDEP documentation requirements during construction for both projects.

- City of Mulberry, Florida. Implement funding strategies and bridge financing alternatives for Wastewater Improvements Program. Act as FDEP liaison; work with City on multiple comparisons and utility rate financial explorations. Assist in rate adjustments.
  - **Received $2.6 million (66% of total construction costs) Grants for Major Projects.**
    - Wastewater Facilities Improvements (SRF)
    - Infiltration Inflow (SRF)
  - Complete Planning Documentation, Environmental Review, and permitting process for major projects.
    - Wastewater Facilities Improvements
    - Infiltration/Inflow Process
  - Complete SRF Loan Documentation for Major Projects.
    - Pre-construction loan $0.33 million
    - Wastewater Facilities Improvements/Infiltration and Inflow $1.5 million
  - Assist in Completion of Rate Sufficiency Analysis, and impact of capital improvements to rate payers.
- City of Eustis, Florida. General grant research for multiple capital improvements projects funding opportunities. Downtown Master Plan for the City of Eustis, Florida. Prepared grant applications for 319 grants, TMDL grants, cost share negotiations and agreements, loan agreements, and interim project financing. Prepared a funding strategy for the Downtown Stormwater Master Plan.
  - **Received TMDL Grant totaling $1 million for $7 million Stormwater facility.**
- Expert Witness Services for Coweta County, Georgia v Shell Oil for Frost Brown Todd LLC. Expert Report on Damages Re: Polybutylene Pipe Breaks. Assisted with the preparation of the damages report, specifically deriving future damage projections.
- Bay Laurel Center Community Development District Valuation & Feasibility Analysis Services for Governmental Management Services-Central Florida. Water and wastewater utility due diligence, valuation

and feasibility analysis services. Assisted with the preparation of the utility system appraisal through working with Net Income Approach. Developed Section 190.125 briefing document. Assisted with the Bond Feasibility Study.

- Bay Laurel Center Community Development District Rate Study for Governmental Management Services-Central Florida. Assisted with the completion of the Miscellaneous Charge Study.
- Bucks County Expert Witness Testimony regarding Wholesale Charge Agreement with City of Philadelphia. Completed legal research and wrote sections of the report pertaining to background, rate making characteristics, and relevant legal precedents related to rate making litigation within the utility industry.
- Bay County Utilities, Florida. Assisted in the preparation of USDA RUS Preliminary Engineering and Funding Bulletin for the acquisition of Gulf Coast Electrical Cooperative Water and Wastewater systems in the Bay County Area.
- Waste-to-Energy System Commercial Development in Floyd County, Kentucky for Recycling Solutions Technology LLC. Marketing assistance phase for waste-to-energy system commercial development. Revisions to ARPA-E Grant Proposal to the Department of Energy.
- Services Contracts for the City of Sanibel in Lee County, Florida. Annual update to the Sewer Expansion Feasibility Study. SRF eligibility research.
- City of Miramar, Florida. Documented history of utilities since 1997 in the form of a paper analysis including discussions regarding capacity, financial feasibility, bond issuances, capital improvements projects, and growth accommodation mechanisms.
- DeKalb County, Georgia. Participant in 2009 Organizational Study. Assisted in a high level organizational study including establishing benchmarking measurements and ratios, establishing a peer group to advise the client on organizational performance when compared against the peer group, data analysis and development of data tables for the project. Assisted with Bill Frequency Analysis.
- Burkim Enterprises, Gold Coast Utility. Conduct Preliminary Service Area Expansion and Utility Improvements Program Survey. Develop funding strategies for Utility Improvements Projects.
- Provides assistance with document preparation for expert witness testimony in the areas of utility system valuation and financing, facility siting, certification/service area/franchises and formation/creation, management and acquisition projects.
- Development of user rates and charges that promote conservation and provide revenue sufficiency including the preparation of water, wastewater, and reclaimed water user rate studies for public utilities and investor owned utilities.
- Research of water and wastewater user rates and miscellaneous charges associated with water and wastewater services.
- Research of impact fees associated with utility development throughout the State of Florida.
- Analysis of financial statements and loan/grant eligibility documents.
- Utility valuation analyses utilizing various techniques including Income Approach, Reproduction Cost New Less Depreciation (RCNLD) and Comparable Sales Approach.
- Development and maintenance of internal performance management system.
- Research of market compensation and implementation of internal grading/wage structure.
- Development and maintenance of multiple internal databases and systems planning.
- Development and implementation of internal affirmative action planning and reporting.

Jessica H. Sheets

Project Manager

Education

B.A. Business Administration, Minor in Marketing 1986, Catawba College

Awards

2009 Governor's Award for Local Government Excellence

Relevant Training/Courses

Advanced Project Management Training, GAI Consultants, Inc., 2011

Affiliations

Blair County Chamber of Commerce, Member of Legislative Action Committee

Clinton County Economic Partnership, Member

Huntingdon County Business & Industry, Present Board Member of Business Development Committee

Governor's DEP Wetlands and Economic Development Statewide 2005 Task Force Team

American Society of Highway Engineers (ASHE), Past Board Member and Director

Summary

Ms. Sheets specializes in project management, fundraising grant and loans, facilitating project coordination and critical path scheduling to meet deadlines on clients funding and administrative requirements. Provides research and due diligence for client's capital improvement projects to evaluate and provide creative financing solutions for clients projects to become a reality. Has the experience and track record at obtaining grants and loans for the design and construction of public and private facilities and proactively facilitates projects through design and construction stages for clients. Initiates business development and performs marketing research on key aspects of the engineering and construction industry.

Professional Experience

- Facilitating Grant Administration, Project Oversight and Financial Management in 2011

  Clinton County Commissioners/Planning Department for Mill Hall Borough Pool project including Borough Council, Friends of the Mill Hall Pool Committee, Pool Engineering Consultant, Borough Engineer, and PADCNR. The project funding includes: Federal Land & Water Conservation Grant for $300,000, CDBG grant for $150,000 and $150,000 in local share. Providing Project Management and Facilitating oversight of the project through planning approvals, facilitating meetings on critical path schedule while providing resolution between the parties. Ms. Sheets is proactively coordinating this project with all parties on agency paperwork, local codes, funding requirements and by facilitating through the approval process to bidding of project timely due to delays over 4 years by all parties involved and on the verge of losing federal funding. Ms. Sheets was contracted by the Clinton County Commissioners to facilitate and in 2 months has expedited the project, approvals, and coordination between the parties and necessary paperwork. The project oversight and administration has accelerated this project to the bidding phase.

  Clinton County Commissioners/Planning Department for Erie Avenue Streetscape project in Renovo Borough. The project funding was funded through Housing & Redevelopment Assistance expended on two (2) phases of a Streetscape project. Reviewing all documents from design to construction and organizing all accounting procedures for compliance with the State grant requirements to verify that processes and documentation conforms to all of the Government Auditing Standard requirements.

- Facilitating Grant fundraising and Administration and Financial Management during 2010-2011

  Coalport Streetscape Committee has a vision and through a proactive approach, knowledge and experience with the funding agencies a strategy and due diligence was accomplished for this project to become a reality. Through five (5) sources and one year later along with 1.2 million in funds was obtained for this project to become a reality. A five block area on both sides of SR 53 will be part of the

Streetscape project. The project includes: new sidewalks, lighting, trees, curbs, stamped brick along curb area. The project is presently under design and all grant administration is being processed and coordinated with Coalport Borough Council who is the agency to which funding is being channeled.

- Facilitating Grant Administration and Financial Management during 2010-2011

  Woodward Township Sewer Authority for H2OPA grant funds of $1.2 million for sewer rehabilitation projects to meet the Consent Order Agreement from PA DEP

  Woodward Township Sewer Authority – Financial Management and Administration of the U.S.EPA federal grant for $477,000 and leveraging funds for the Authority to correct and meet their Consent Order Agreement with PADEP.

FUNDING Experience

- Ms. Sheets assists clients in obtaining grants and loans for the design and construction of public and private facilities. She is responsible for financial reviews and debt analysis on municipal authorities and communities that own and operate their own water/sewer systems. Ms. Sheets administers grants and loans from Pennworks, CDBG, HOME and other programs for clients that don't have capabilities in-house.

  Ms. Sheets has experience in many State and Federal grant programs, including the preparation of grant applications and administration, financial analysis, preparation of environmental review records, income surveys and technical assistance.

  Since 2006, she has worked diligently and very aggressively on numerous initiatives for funding for the Clinton County Commissioners priority projects. These sewer projects have allowed the County and their communities to benefit from approximately $16M in sewer line upgrades consisting of 40% from grants and 60% from loans for 6,885 residential users and 1,000 commercial/industrial users on the systems.

  Ms. Sheets assists municipalities in complying with government funding requirements. She assumes responsibility for the tremendous amount of paperwork that precedes most funding approvals to help broaden in-house capabilities for fundraising, grant and loan assistance and administration for various counties, cities, townships, boroughs, economic development and industrial development agencies, school districts, non-profits, and municipal authorities. Her proactive approach is used to identify suitable funding sources, which has helped clients achieve great success with their projects while minimizing debt service. The project types range from water, sewer, storm sewer, bridges, housing rehabilitation, community parks, boat launches, fire stations, public libraries, streetscape improvements and ADA upgrades.

  Ms. Sheets compiled and submitted a grant application under the theme of Intergovernmental Cooperation for the Clinton County Sewer Authority and Clinton County Commissioners. The Acting Secretary for the Commonwealth of Pennsylvania, DCED said, "The Governor's Center Review Committee conferred and recognizes this application as meeting all criteria under the submitted category as well as surpassing all other applications."

- **Grant Success Summary**

PA Department of Community & Economic Development (DCED)		
Community Development Block Grant - Entitlement from County	7/7	100%
Community Development Block Grant - Competitive Grants	6/6	100%
Land Use Planning and Technical Assistance Program	3/3	100%
State Planning Assistance Grant	4/4	100%
HOME Investment Partnerships	4/4	100%
Community Revitalization Program	13/13	100%
Community of Opportunities Program	1/1	100%
State Community Planning Assistance Program	19/20	95%
Shared Municipal Services	3/3	100%
Commonwealth Finance Authority (CFA) - Pennworks	2/2	100%
CFA - Business In Our Sites	1/1	100%
CFA - H20PA	2/2	100%
Commonwealth - Office of the Budget (Redevelopment Assistance Capital Program)	3/3	100%

PA Department of Environmental Protection - Growing Greener II	9/9	100%
Federal Congressional Appropriation Programs - Environmental Protection Agency	3/3	100%
Federal Congressional Appropriation Programs - Housing and Urban Development	1/1	100%
Federal Congressional Appropriation Programs - State Tribal and Assistance	1/1	100%
Federal Congressional Appropriation Programs - U.S. Army Corp. of Engineers	2/2	100%
Federal Emergency Management Agency	1/1	100%
USDA - United States Department of Agriculture (Community Facilities)	2/2	100%
PA Fish & Boat Commission	2/2	100%
PA DCNR - Keystone Parks	10/10	100%
PHMC - PA Historical & Museum Commission	1/1	100%
PEDA - Pennsylvania Energy Development Authority (missed funding by ½ point)	0/2	0%
PENNDOT - Pennsylvania Infrastructure Bank and Transportation Enhancement	8/8	100%
PENNVEST	10/10	100%
Federal Congressional Appropriation Programs - Federal Highway Administration	1/1	100%

- Facilitating Financial & Grant Management Administration for Counties & Cities
  - Commonwealth of PA - Help America Vote Act
  - Commonwealth of PA - Office of the Budget (Redevelopment Assistance Capital Program)

CDBG/HUD Experience

- **Coalport Borough Council** – Obtained a $150,000 Direct Entitlement grant for a 5 block Streetscape improvement project in addition to 4 other sources of funding to allow this project to be completely designed and constructed with grant funds totaling $1.2 million. The Environmental Review is being undertaken currently and all other additional administration of the funding will be completed as well as coordinating reimbursements for the construction project.
- **Clinton County Commissioners on behalf of Mill Hall Borough** – Conducted an Income Survey to qualify the project area for a sewer line replacement project in order to meet CDBG funding requirements. Conducted the public hearings and grant application submission for $500,000 in funds. Obtained funds through another grant program before CDBG funding from the State was decided.
- **Clinton County on behalf of Flemington Borough** – Conducted an Income Survey to qualify the project area for a sewer line replacement project in order to meet CDBG funding requirements. Conducted the public hearings and grant application submission for $500,000 in funds. The Borough decided to borrow the funds rather than wait for the grant funds.
- **Croyle Township Board of Supervisors** – A water improvement project and completed an Income Survey for the project area to qualify it for funding.
- **Logan Township Board of Supervisors** - Grant Administrator for the CDBG entitlement grant allocation for the Township during a 3 year contract, public hearing, and projects consisted of community parks, sewer, water and storm sewer, paving, ADA improvements, fire company capital improvements, sidewalks to housing rehabilitation. Provided all administrative tasks for the Township undertaking income surveys, applications, labor law compliance, wage rate verifications, contractor interviews, environmental review records consisting of Categorical Excluded to an 8 step environmental clearance. Prepared revisions and modifications on reallocating funds from different activities to new or existing projects. Completed payment requisitions for CDBG funds from State Agency and oversight of all Annual audits for grant compliance and project close out as well as file review with State Project Manager as part of monitoring the file system for each project.
- **Snyder Township Board of Supervisors** – Grant Administrator for the Township and secure various grants funding for this Township's projects. As part of the CDBG project funding, 5 separate projects obtained $500,000 in entitlement funds from the State for new sewer collection system projects in addition to other funding if needed for construction projects. Performed the income survey, application, public hearings, compliance with Engineer of Record for compliance of CDBG documents with Specifications, Environmental Review Record, labor law compliance, contractor interviews, request for payment, and project close out requirements. All of the projects were undertaken and closed out with no findings on State review. These projects consisted of:
  Project 2011 – The area is located in Thomastown area of the Township. An income survey is completed and obtained $185,000 in County CDBG funding for the project. An Act 537 Amendment is being completed

to adopt another alternative for this sewer extension construction project. The grant application will be underway for competitive funds of $500,000 for this project and final determination will be made later this year on funding from the State.

Project 2009 – The area was located in Gurekovich Hollow of the Township. The ROW was negotiated with a homeowner who did not want the sewerline project to go directly through their property in order to move the project forward. Coordinated additional funding and Some homes included grinder pumps and therefore I obtained additional County CDBG to help offset the homeowner's expense as part of the project.

Project 2004 – The area was located in Tyone Forge, Ironville and Cooks Hollow which are scattered areas in the Township. The Environmental Review process including an 8-step wetland and floodplain project clearance was obtained to achieve the Release of Funds. Some homes included grinder pumps and therefore I obtained additional County CDBG to help offset the homeowner's expense as part of the project.

Project 2002 – This CDBG project was located in California Hollow area of the Township and the environmental included the 8-step wetland; floodplain project clearance for funds. There were left over funds and by renegotiating these from the Bald Eagle project in addition to obtaining additional funds through CDBG a new sewer service into this area of the Township was achieved.

Project 1997 - 2000 – This CDBG project included new sewer service to 250 households along a major State roadway. Determined the service based on the sewer project and completed the income survey for the project. Facilitated, coordinated and managed the administrative tasks for all of the grants that were obtained to construct this project consisting of $750,000 in U.S. Army Corp. of Engineers, 1.25 million in US EPA, $500,000 in non-entitlement CDBG funds, County CDBG and local funds. The remaining CDBG funds were creatively utilized in an extension of this project that was not included in this original project. Completed all of the necessary paperwork involved with federal and state agencies as part of the administration of the CDBG funds.

Paint Township Board of Supervisors - This project located in Clarion County consisted of a sewer replacement project in need of funding for design and construction. This project received $500,000 in funding and CDBG administrative service was turned over to the County to administer all the paperwork for the CDBG funding.

- **Irvona Borough Council & Beccaria Township Board of Supervisors** - The project was located in Clearfield County and consisted of a water improvement project that impacted 250 customers in 2002. Coordinated and completed an income survey to qualify the project for CDBG funds. Due to conflicts between the Township and Borough the application was completed however the Township did not endorse the mandatory tap ordinance and therefore the local Authority borrowed the funding versus obtaining grants for the project.
- **Girard Township Board of Supervisors** - The project was located in Clearfield County and consisted of a new sewer collection system and Sewage Treatment plant to serve 135 customers. The project was to correct on-lot sewage and cesspools that existed within the Township. Competitive Application and Grant Administration for a new sewer project in 2000. Completed all aspects of the CDBG paperwork as well as the Environmental Review Record including an 8-step wetland; floodplain project clearance. Performed the income survey, application, public hearings, compliance with Engineer of Record for compliance of CDBG documents with Specifications, Environmental Review Record, labor law compliance, contractor interviews, request for payment, and project close out requirements.

Community Parks Experience

Chapman Township, Clinton County – Obtained federal and state grant funding for a new Boat launch and kayak area to be designed and constructed and will be perform the administration of funds and this project will be completed by the end of 2011.

Woodward Township, Clinton County – Obtained federal and state grant funding for extending the Lockport Boat launch on the West branch of the Susquehanna River and performed administration of funds. The project was completed in 2009.

Fort Roberdeau Historic Site, Blair County – Assisted the Blair County Commissioners and Executive Director with obtaining funding to enhance their existing historic park to construct a Rail to Trails walking path, log cabin home and new signage for entranceway into the historic site and underway in 2011.

Curwensville Borough, Clearfield County – Obtained funding and performed administration for constructing additional pavilions and removal of obsolete park equipment and adding new park playground apparatus.

Laceyville Borough, Wyoming County – Obtained funding for Community park project.

Hyndman Borough, Bedford County – Obtained funding for Community park project.
Addison Tollhouse Park Project, Somerset County – Obtained federal and state grant funding and performed the administration of fund and performed all funding requirements pertaining to the paperwork.
Centerville Borough, Fayette County - Obtained funding for Community park project.

FUNDING EXPERIENCE

Ms. Sheets assists clients in obtaining grants and loans for the design and construction of public and private facilities. She is responsible for financial reviews and debt analysis on municipal authorities and communities that own and operate their own water/sewer systems. Ms. Sheets administers grants and loans from Pennworks, CDBG, HOME and other programs for clients that don't have capabilities in-house.

Ms. Sheets has experience in many State and Federal grant programs, including the preparation of grant applications and administration, financial analysis, preparation of environmental review records, income surveys and technical assistance.

Over the past four (4) years, she has worked diligently and very aggressively on numerous initiatives for funding for the Clinton County Commissioners priority projects. These sewer projects have allowed the County and their communities to benefit from approximately $16M in sewer line upgrades consisting of 40% from grants and 60% from loans for 6,885 residential users and 1,000 commercial/industrial users on the systems.

Ms. Sheets assists municipalities in complying with government funding requirements. She assumes responsibility for the tremendous amount of paperwork that precedes most funding approvals to help broaden in-house capabilities for fundraising, grant and loan assistance and administration for various counties, cities, townships, boroughs, economic development and industrial development agencies, school districts, non-profits, and municipal authorities. Her proactive approach is used to identify suitable funding sources, which has helped clients achieve great success with their projects while minimizing debt service. The project types range from water, sewer, storm sewer, bridges, housing rehabilitation, community parks, boat launches, fire stations, public libraries, streetscape improvements and ADA upgrades.

Ms. Sheets compiled and submitted a grant application under the theme of Intergovernmental Cooperation for the Clinton County Sewer Authority and Clinton County Commissioners. The Acting Secretary for the Commonwealth of Pennsylvania, DCED said, "The Governor's Center Review Committee conferred and recognizes this application as meeting all criteria under the submitted category as well as surpassing all other applications."

Linda J. Griffin, PLS

Assistant Vice President / Survey Department Manager

Education

Associate of Civil Engineering Technology, Bristol Community College
Civil Engineering Major, Southeastern Massachusetts University
Computer Science, Manchester Community College

Registrations/Certifications

Registered Professional Land Surveyor FL, 1988 (No. 4543)
Registered Professional Land Surveyor WV, 1996 (No. 1936)

Relevant Training/Courses

Harvard Leadership Development Training, GAI Consultants, Inc., June 2009
Advanced Project Management Training, GAI Consultants, Inc., 2009
Dale Carnegie Graduate and Graduate Assistant
Continuing Education Units, 350+ hours

Affiliations

Florida Society of Surveyors & Mappers (FSMS), Member
Florida Society of Surveyors & Mappers, Central Florida Chapter, Past President, Secretary, Director
Space Coast Builders Association, Past Secretary
Past Crisis Line Volunteer of the Year (431 Hours)
Toastmasters International, Past Area 29 Governor, Past President

Summary

Ms. Griffin specializes in surveying and has 39 years experience in all aspects of survey from field operations to production management, covering a wide range of survey assignments. She serves as the integral link between clients, engineers/architects, and GAI's survey staff in the successful completion of projects involving roadway topographic survey for design; ALTA and as-built surveys for commercial sites; land and water boundary surveys; road and bridge construction layout; utility identification, relocation and installation; right-of-way surveys and mapping for site planning and design. Ms. Griffin provides a project management approach that brings sound professional judgment and focus to address the details of each specific project assignment for valued clients.

Professional Experience

- Boundary & topographic survey and platting for City Commons, Dynetech, Crowntree, Capital Plaza, Camden Orange Court, Orange County History Center and OUC Administration.
- Construction layout & as-builts at Darden Headquarters, Valencia Community College, Lake Non High School, Oviedo High School, Northland Church, University of Central Florida, The Plaza, and the Sand Lake Hospital expansion.
- Construction layout and as-builts at Mercy Drive, Vineland Road, Kennedy Boulevard, pedestrian crossovers in Seminole and Orange County, SR 408 toll booths, Orlando Events Center, Lynx Intermodal Bus Facility, Tavares, Clermont, Plant Street, Park Ave, and Haines City Streetscape projects.
- Design surveys for Eustis Downtown Streetscape, Hanson Piping 90-acre project, multiple OUC Chiller routes in Downtown Orlando, Crescent City 35-acre residential development, Marriott Residence Inn in Lake Mary, Bonnet Creek 29-acre hotel projects, Lake Nona OCPS Bus Facility, Cranes Roost Boulevard & development.
- ALTA surveys at Lincoln Plaza, City Commons, Residence Inn, Highwoods Preserve, Tampa, and Capital Plaza.
- Indian River Lagoon, survey for trail design in New Smyrna Beach.

- CNL Headquarters, design surveys, boundary topo and replat.
- International Drive, CR 419 & 427, SR 434, Bumby, manage construction layout.
- New Smyrna Beach, several roadway design surveys.
- Crowntree Lakes, 49-acre commercial and residential boundary, topo and platting.
- Handex Environmental, several topographic surveys for Department of Environmental Protection assessments, statewide.
- As-built surveys for OUC Chiller Line Installation, Orlando & Orange County areas.
- Design surveys & as-builts, CNL Tower II, Embassy Suites & Lincoln Tower, Orlando.
- Haileys Walk, boundary and topo of proposed 16-acre 234-apartment complex in Gainesville.
- Design surveys (Seven Bridges) Polk County, Highlands County, Sarasota County and Charlotte County, Florida, and Florida Department of Transportation-District 1.
- Hampden Dubose Academy 175-acre Zellwood design topographic survey.
- Managed GPS data collection procedures for County and Department of Transportation inventories.
- Orange County Historical Museum, utility survey & platting, Orlando, Florida.
- Lorna Doone road abandonment & re-plat of Conrad-Lorna.
- 26 roadway surveys in Debary for drainage redesign in previously flooded areas.
- Tumacuan Office Park, Lake Mary, Florida, design survey.
- City of Apopka design surveys at US 441, Harmon Rd., Park Avenue, Central Boulevard, CR 435, and others.
- Camden Orange Court, 4.5-acre boundary topo and replat for a multi-family residential development.
- Orange County Public Works, various topographic surveys for drainage re-design.
- Design surveys, UCF Center of Public Safety, Orlando and Lake Sumter Community College, and Valencia Community College expansion.
- Coordination of construction layout at Charles Street, Daytona for Carolina Conduit (FPL).
- Legacy Place - Lake Underhill Road.
- I-Drive widening at the Bee Line.
- Winter Garden Cemetery topo for recreation facility design.
- Design topo and construction layout, Cranes Roost, Altamonte Springs.
- Turnbull Park survey for Orange County Parks and Recreation Department.
- Streetscape at Park Avenue, Winter Park & Central Boulevard, Orlando.
- Ryan's Steakhouse, St. Cloud.
- Highwoods Properties re-plat, Downtown Orlando.
- Eminent Domain surveys for cure design 49 parcels, Forsyth Road, Orlando, Florida.
- Ponkan Road, Apopka, Florida, two miles of roadway topography and cross sections for utility design.
- SR 436, Apopka, Florida, coordinate construction layout of multi duct Sprint manholes.
- Acquisition mapping for the Department of Environmental Protection for establishing a State Park at Sebastian Inlet, Brevard & Indian River Counties, Florida.
- Cotuit Bay Shores, 300-lot residential subdivision.
- As-built surveys for Auto Zone, Taco Bell, Burger King, Wendy's and Circle K locations throughout Florida.
- ROW (Eminent Domain) Surveys for Dairy Road, Melbourne, Florida.
- Mean high water survey, Halifax River, Daytona Beach, Florida.
- Open end survey services, Port of Canaveral, Florida.
- Engineering surveys for Orlando City Centre, CNL Headquarters and Bohemian Hotel, Orlando, Florida.
- Appraisal mapping for SAVE OUR RIVERS, SAVE OUR SHORES program (endangered lands in Brevard County), Florida Department of Environmental Protection.
- Construction layout and as-built surveys, Caribbean Isles 500-unit apartment complex, Melbourne, Florida.

KEVIN L. ENFINGER, PE
Senior Project Engineer

EDUCATION

Bachelor of Science
Chemical Engineering, 1994
University of Florida

CERTIFICATIONS

Professional Engineer
Alabama
Kentucky
North Carolina
South Carolina
Tennessee
Texas

NASSCO
PACP Trainer

ASSOCIATIONS

Member, ASCE
Water Environment Federation

PROFESSIONAL BACKGROUND

Mr. Enfinger is currently serving as a Senior Project Engineer in ADS's South Region. He is a registered professional engineer with over 16 years of experience in environmental engineering and consulting. At ADS he is responsible for providing technical expertise and oversight to a variety of projects including, sewer flow monitoring studies, I/I analyses, capacity analyses, and sewer system evaluation surveys (SSES). Duties include engineering analysis and report preparation.

PROFESSIONAL EXPERIENCE

Prior to serving as a Senior Project Engineer, Mr. Enfinger held the position of Project Engineer, including full responsibility for the engineering content of all reports and data produced in ADS's Murfreesboro, TN office.

Before joining ADS Environmental Services, Mr. Enfinger worked for Marshall & Associates as a Project Manager. While at Marshall & Associates, his areas of responsibilities included managing numerous projects on behalf of the City of Clarksville, TN including sewer system evaluation surveys, environmental permitting, and both Phase I and II environmental site assessments.

Mr. Enfinger is the author of a variety of technical papers related to sewer performance and condition assessment, including educational posters entitled Scattergraph Principles and Practice and Sewer Sociology.

KEVIN L. ENFINGER, PE
Senior Project Engineer

RELEVANT PROJECT EXPERIENCE

Client	Project	Description	Role	Completion Date	Reference Contact
City of Huntsville, AL	Sewer System Evaluation Survey	10,000 manhole inspections, 2 million + feet smoke testing	Project Engineer	Complete	Mark Huber (256) 883-3778
City of Huntsville, AL	Asset Management	Management of condition assessment data using MWH Soft InfoNet software	Project Engineer	Ongoing	Mark Huber (256) 883-3778
City of Huntsville, AL	I/I Study Big Cove Basin	Temporary flow monitoring with 24 meters and three rain gauges	Project Engineer	September 2007	Mark Huber (256) 883-3778
City of Tallahassee, FL	Temporary Flow Monitoring	Temporary flow monitoring study with 43 flow meters and 5 rain gauges	Project Engineer	May 2006	Tom Printy (850) 891-6164
Hartsfield-Jackson International Airport	Sewer System Evaluation Survey	580+ manhole inspections and 105,000+ CCTV inspection	Project Engineer	September 2005	Jimmy Kelly (404) 530-5896
City of Jacksonville, NC	I/I Study	Temporary flow monitoring study with 12 flow meters and two rain gauges	Project Engineer	April 2004	Ray Holder (910) 938-5272
City of Port Neches, TX	I/I Study	Temporary flow monitoring study with 16 flow meters and five rain gauges	Project Engineer	February 2003	Steve Jordan (409) 866-0341
City of Jacksonville, NC	I/I Study	Temporary flow monitoring study with 8 flow meters and two rain gauges	Project Engineer	December 2002	Ray Holder (910) 938-5272

Professional Record

Mr. Bailey is an electrical engineer experienced in designing electrical and control systems for municipal systems water and wastewater treatment facilities, biosolids energy conversion, solar power applications and medium voltage power distribution systems. His project management responsibilities encompass preliminary and final design, cost estimating, and construction/start-up services. He participates on quality assurance/quality control teams to evaluate electrical systems' technical conformance to codes and adherence to a project's overall design scheme. He interfaces with other project consultants, as well as client and vendor representatives.

Mr. Bailey has specific experience relative to large reverse osmosis and membrane wastewater treatment designs including design up to and including 13kV. He has practiced applied electrical engineering on a variety of environmental projects having been involved from concept to preliminary and final design through construction start-up. His experience involves electrical engineering for membrane facilities, biosolids facilities, treatment and disposal facilities, and solar power designs.

Mr. Bailey was the project manager, in responsible charge, for all electrical design concerns for the following projects

- Sanford Maxwest Biosolids
  Sanford, Florida
- North Miami Beach Water Treatment Expansion
  City of North Miami Beach, Florida
- Tavares WWTP Phase 2
  City of Tavares, Florida
- Palm Coast WTP No. 3
  Palm Coast, Florida
- Pembroke Pines WTP
  Pembroke Pines, Florida
- Triangle WWTP – Phase 1 and 2
  Durham County, North Carolina
- Palm Coast WWTP NO. 1, Solids Handling
  Palm Coast, Florida

Stephen E. Bailey, P.E., President

BAILEY ENGINEERING CONSULTANTS, INC.

Academic Credentials:

Bachelors of Electrical Engineering
Georgia Institute of Technology, 1983
Power and Control Theory

Professional Engineer - Florida, Virginia, Georgia, North Carolina

Employment Record:

1992-Present-Bailey Engineering Consultants
1986-1992 - C.E. Bailey & Associates, Inc.
1984-1986 - Advanced Micro Devices
1983-1984 - Hewlett-Packard

Principal Areas of Expertise:

Electrical and Control Design of Water and Wastewater Treatment Facilities, Pump Stations, Industrial, Environmental, Municipal and Commercial Projects

Electrical Studies, Value Engineering, and Analysis.

Professional Activities:

National Society of Professional Engineers (NSPE)
Institute of Electrical and Electronic Engineers (IEEE)
Florida Engineering Society (FES)
Florida Institute of Consulting Engineers (FICE)
National Fire Protection Association (NFPA)
Instrument Society of America (ISA)

Professional References:

City of North Miami Beach, Karl Thompson, PE
Phone: 305.336.7229
City of Palm Coast, Pat Henderson
Phone: 386.931.8020
City of Pembroke Pines, Dan Pringle
Phone: 954.612.6424

STEVEN B. CUTCHER
Senior Project Manager

EDUCATION

Bachelor of Science
Mathematics, 1989
University of Alabama at Huntsville

ASSOCIATIONS

Georgia Association of Water Professionals

PROFESSIONAL BACKGROUND

Mr. Cutcher is a Senior Project Manager with ADS Environmental Services, responsible for all phases of several flow monitoring networks, leak detection and SSES activities in the Southeast. His responsibilities include client contact, site investigation, monitor installation, data acquisition, manhole inspection, smoke testing, CCTV review, leak detection, data analysis, data reporting, and final report writing. He currently manages 235 flow monitoring and 30 rain gauge locations. Mr. Cutcher manages SSES activities in Huntsville, AL and a system-wide water leak detection survey for the Knoxville Utilities Board. He has 21 years of project execution and management experience at ADS. Mr. Cutcher has served as Data Analyst, Project Manager, Business Development Manager, and currently as a Senior Project Manager. He spent 15 years managing consent decree projects in Jefferson County, AL and Atlanta, GA. His primary duties include contract negotiations, scheduling, revenue and cost projection, progress reporting, data analysis, report writing, and personnel development. Drawing upon his background and hands-on experience, Mr. Cutcher has become expert in the areas of sewer system hydraulics, engineering services, SSES, collection system technologies, water distribution studies, and overall project management.

PROFESSIONAL EXPERIENCE

Prior to serving as a Senior Project Manager with ADS, Mr. Cutcher held the position of Business Development Manager. He was responsible for the development of new client and project oversight for Alabama and Mississippi.

Mr. Cutcher has served as Project Manager responsible for the analysis of flow monitoring data for over 60 projects that included I/I analyses and preparation of preliminary and final reports. Mr. Cutcher was the Project Manager for the installation and maintenance of the Jefferson County, Alabama long-term flow-monitoring network that included 140 flow monitoring locations and 40 rain gauge locations, as well as an SSES of their entire collection system..

RELEVANT PROJECT EXPERIENCE

Client	Project	Description	Role	Completion Date	Reference Contact
City of East Point, GA	Annual Flow Monitoring	Permanent Flow and Rainfall monitoring network 21 meters and 10 rain gauges	Project Manager	Ongoing	Richard Randolph (404) 720-1395
City of Chattanooga, TN	Annual Flow Monitoring	Permanent Flow and Rainfall monitoring network 60 meters and 12 rain gauges	Project Manager	Ongoing	Ed Wellmann (423) 757-5026
City of Chattanooga, TN	I/I Study	Temporary Flow and Rainfall monitoring for 100 meters and 10 rain gauges	Project Manager	February 2010	Ed Wellmann (423) 757-5026
City of Huntsville, AL	SSES	1.063 Manhole Inspections and 138,100 ft of smoke testing	Project Manager	Ongoing	Mark Huber (256) 883-3778
City of Raleigh, NC	Annual Flow Monitoring	Permanent Flow Monitoring Network of 18 meters	Project Manager	Ongoing	Dennis Lassiter (919) 857-4540
Knoxville Utilities Board, TN	Water Leak Detection Survey	Leak Detection Survey of 1,450 miles of water distribution lines	Project Manager	Ongoing	Jason Crouch (865) 558-2593
Camp Dresser McKee	Knoxville Utilities Board, TN	Permanent Flow Monitoring Network of 35 meters	Project Manager	Ongoing	Shannon Campbell (502) 339-0988
City of Durham, NC	Annual Contract Flow Monitoring	Permanent Flow Monitoring Network of 41meters and 7 rain gauges	Project Manager	Ongoing	Bryant Green (919) 560-4381
Greenville Utilities Commission, NC	Annual Contract Flow Monitoring	Permanent Flow Monitoring Network of 6 monitors	Project Manager	Ongoing	Steve Porter (252) 551-1494
City of Atlanta, GA Department of Watershed Management	Annual Contract Flow Monitoring	Permanent Flow Monitoring Network of 135 flow monitors, 32 rain gauges and 500 temporary monitors	Project Manager	Complete February 2010	Alberto Bechara (404) 979-6999
Jefferson County, Alabama	Annual Contract Flow Monitoring	Permanent Flow Monitoring Network of 140 flow monitors and 40 rain gauges	Project Manager	Complete January 2000	Robert Henderson (205) 325-5979
Jefferson County, Alabama	Annual Contract SSES	50,000 manhole inspections and 12,000,000 ft of smoke testing	Project Manager	Complete January 2000	Robert Henderson (205) 325-5979

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP FORM A

Proposer: GAI Consultants, Inc.

QUALIFICATIONS STATEMENT

Note: Forms A, B & C are available in WORD format from the Town Clerk upon request.

THIS FORM MUST BE SIGNED AND SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The undersigned guarantees the truth and accuracy of all statements and the answers contained herein.

1. State the full and correct name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name.)

   1.1. The correct and full legal name of the Proposer is:

   GAI Consultants, Inc.

   1.2. The business is a (Sole Proprietorship) (Partnership) (Corporation).

   Corporation

   1.3. The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows:

   Gary DeJidas – President & CEO

   Diane Landers, PhD, RPA – Secretary

2. Please describe your company in detail.

   GAI Consultants, Inc. began providing personalized consulting services in soil mechanics and foundation engineering in 1958 in Pennsylvania. By steadily broadening of our range of services and expanding our office locations throughout the eastern U.S., GAI has evolved into a premier engineering and environmental consulting firm that embraces challenges.

   We are proud of our rich history as we continue to grow to support the needs of a loyal client base, provide a thriving work environment for our employees, and remain an integral part of the communities we live and work in.

   Today, through growth, acquisition, and much success, GAI has approximately 750 employees in offices throughout the Eastern, Midwestern, and Southern United States. We continue to cultivate outstanding talent to lead us in growth and achieving world-class status.

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

3. The address of the principal place of business is:

   2255 Glades Road, Suite 324A
   Boca Raton, FL 33431

4. Company telephone number, fax number and e-mail addresses:

   T 561.988.2613
   F 561.997.9392
   j.ameno@gaiconsultants.com

5. Number of employees:

   750+ companywide

6. Name of employees to be assigned to this Project:

   Jules (Jay) Ameno, PE; John Hermann, PE; Gerald Hartman, PE, BCEE, ASA; Anthony Holmes, PE; Zhihua (Scott) Xu, PE; Tara Hollis, CPA, MBA; Rachel Reuscher, MBA; Daniel Friedman; Jessica Sheets; Linda Griffin, PLS.

7. Company identification numbers for the Internal Revenue Service: 25-1260999

8. Provide Broward County occupational license number, if applicable, and expiration date:

   N/A

9. How many years has your organization been in business? Does your organization have a specialty?

   GAI has been in business for 53 years. GAI is a multidiscipline engineering and environmental consulting firm.

10. List the last three project of this nature that the firm has completed? Please provide project description, reference and cost of work completed.

    1) Wastewater Treatment Plant Improvements and Infiltration/Inflow Removal *Mulberry, FL*

    GAI has recently performed funding assistance, planning, pre-design and design services for the City for various improvements to the City's wastewater system.

    The City of Mulberry (City) provides wastewater collection, conveyance and treatment for over 3,000 customers within the City. The City's wastewater treatment facility (WWTF) discharges treated wastewater effluent to the Alafia River. The Alafia River subsequently discharges to Tampa Bay.

    Recently, the City's wastewater treatment facility has been cited for violations with respect to lack of achievement of reduction of nitrogen in the effluent. Various reasons have been identified for the violation inclusive of flow spikes that upset the wastewater treatment process, lack of instrumentation/control of processes and laboratory accuracy.

The planning report reviewed three strategies to (1) help the City comply with the FDEP permit; (2) reduce treated wastewater discharge into the Alafia River and (3) provide the City with alternatives to meet nitrogen reduction conditions as identified in the FDEP consent order.

GAI also believes that improvements to the WWTF will also help the City reduce their wastewater treatment operations costs through energy and sludge hauling savings.

Client: City of Mulberry, 104 S. Church Avenue, Mulberry, FL 33860
Contact: Dr. Frank Satchel, Jr., City Manager, Phone: 863.425.1125
Project Completion: 2012
Project Fees: $600,000
Construction Cost: $3.5 million

2) Grants & Funding for SSES Project *North Miami Beach, Florida*

For over a decade, GAI project team members have been providing financial and engineering services to the City of North Miami Beach Water and Wastewater Utilities. These services have included water treatment plant design; grant, loan, and bond funding assistance; rate and charge assistance; and expert witness and dispute resolution services. Currently, GAI serves as the Water and Wastewater Utilities General Consulting Engineer for the City.

Project team members have recently worked with the City to conduct and review a water and wastewater rate study. The purpose of the study was to evaluate the adequacy of revenues from water and wastewater retail rates for paying operating expenses, meeting debt service requirements, meeting reserve account payments, and meeting capital requirements.

Working in collaboration with client staff and management, the financial team developed two scenarios for consideration by the Public Utilities Committee and the City Council. At the PUC meeting, the option for a series of 5 consecutive 10% rate increases was adopted unanimously. The rate ordinance was approved in its final reading before the City Council.

GAI also worked with the City to develop drought rate surcharges in response to the South Florida Water Management District's phased drought plan. Other current activities with the City include the preparation of SRF Loan packages and grant applications for both water and wastewater projects; assistance in preparing and negotiating interlocal agreements; guidance relative to outside city surcharge matters as delineated in Section 180.191, Florida Statutes and reserve area matters as delineated in Section 180.02, Florida Statutes, to name a few.

GAI has worked with the FDEP to administer and secure funds for the following City of North Miami Beach projects:

- Volatile Organic Compound Facility **($4,600,000 in grants)**
- Highland Village Septic Tank Abandonment Project
- Automated Meter Reading Program **(first FDEP funded program in State of Florida)**
- Infiltration and Inflow Project
- Major Sewer Rehabilitation Project

Client: City of North Miami Beach, 17050 N.E. 19th Avenue, North Miami Beach, FL 33162
Contact: Karl Thompson, P.E., Assistant Director of Public Services, Phone: 305.948.2967
Project Completion: Team members have been serving the City for more than a decade. The most recent active general services contract was executed in September 2006.
Project Fees: $630,000 approx.

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

3) Fulton County *Fulton County, GA* **(Performed by ADS, LLC.)**

The Fulton county sanitary sewer system contains over 43,000 manholes and 2,000 miles of pipe in a highly developed urban area with multi-jurisdictional boundaries. During wet weather, this system experiences overloading and bypassing due to rainwater and groundwater entering through cracks, broken pipe, and other defects. Initially Fulton County selected ADS to undertake a comprehensive infrastructure evaluation program which has included tasks such as flow monitoring, physical inspection, smoke testing, CCTV/cleaning, and record keeping/data management. This evaluation was part of the effort to reduce infiltration and inflow (I/I) and alleviate the county's extraneous flow problem.

Over the last five years, ADS has managed a network of 220 ADS permanent flow monitors that help direct targeted temporary flow monitoring studies. After the completion of the temporary monitoring, ADS and/or its subconsultants complete, manhole inspection, smoke testing, flow isolations and CCTV inspection for sourc identification of I/I and make recommendations for rehabilitation efforts. ADS also has installed and maintains ADS FlowAlert depth measurement devices for real-time notiifcation of abnormal flow depth that may indicate sewer system blockages that could result in sanitary sewer overflows (SSO).

Client: Fulton County Dept. of Public Works, 141 Pryor St. SW, Suite 6001, Atlanta, GA 30303
Contact: Anthony Kelly, Water Operations Compliance Supervisor, Phone: 404.612.5512
Project Duration: 1993-2009

11. Have you ever failed to complete any work awarded to you? If so, where and why?

Based on information and belief, within the past five years GAI has not been declared in default or been removed or terminated for material cause of beach under a contract for its services.

12. Provide the following information concerning all contracts **in progress** as of the date of submission of this Proposal for your company, division or unit as appropriate.

Name of Project	Contract with:	Contract Amount	Estimated Completion Date	% of Completion to Date
General Water & Wastewater	North Miami Beach	$229,600.00	N/A	N/A
Norwood-Oeffler Water Treatment Plant	North Miami Beach	$46,925.00	10/10	100%
QA & QC Wastewater Treatment Plant	City of Miramar	$195,000.00	2/11	100%
Facility Plan for Water, Wastewater	City of Miramar	$302,856.42	6/11	95%
Stormwater Reuse Lift Station Monitoring	City of Miramar	$46,310.00	9/11	75%
Fern Crest P&S Transaction/Transition	Tindall Hammock Irrigation and Soil Conservation Improvement District	$100,000.00	12/11	80%
Oak Run WWTP	WPC Industrial Contractors	$14,180.00	12/10	100%

(Continue list as necessary)

13. Provide the following information for any subconsultants you will engage if awarded the contract.

Subcontractor Name	Address	Work to be Performed
ADS, LLC	2270 Northwest Parkway Suite 160 Marietta, GA 30067	SSES
Bailey Engineering Consultants, Inc.	5300 W. Atlantic Ave. Suite 408 Delray Beach, FL 33484	Electrical, Instrumentation & Control

The foregoing list of subconsultants may not be amended after award of the contract without the prior written approval of the Town Manager, whose approval shall not be unreasonably withheld.

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP Form B

Proposer: GAI Consultants, Inc.

REFERENCE FORM

Forms A, B & C are available in WORD format from the Town Clerk upon request.

THIS FORM MUST BE SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The Proposer guarantees the truth and accuracy of all statements and the answers contained herein.

Give names, addresses and telephone numbers of four individuals, corporations, agencies, or institutions for which you have performed work similar to what is proposed in this RFP:

1. Name of Contact Mitt Tidwell (City of Daytona Beach)

   Title of Contact Utilities Director

   Telephone Number: 386-671-8801 Fax Number

2. Name of Contact Dr. Frank Satchel, Jr. (City of Mulberry)

   Title of Contact City Manager

   Telephone Number: 863-425-1125 Fax Number

3. Name of Contact Vernon Hargray (City of Miramar)

   Title of Contact Asst. City Manager

   Telephone Number: 948-602-3119 Fax Number 954-602-3552

4. Name of Contact Shari Kamali (City of N. Miami Beach)

   Title of Contact Director of Public Services

   Telephone Number: 305-948-2967 Fax Number

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP Form C

Proposer: GAI Consultants, Inc.

PROPOSER'S CERTIFICATION

THIS FORM MUST BE SIGNED AND SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The undersigned guarantees the truth and accuracy of all statements and the answers contained herein.

I have carefully examined the Request for Proposal referenced above ("RFP") and any other documents accompanying or made a part of this RFP.

I hereby propose to furnish the goods or services specified in the RFP. I agree that my proposal will remain firm for a period of 120 days in order to allow the Town adequate time to evaluate the proposals.

I certify that all information contained in this proposal is truthful to the best of my knowledge and belief. I further certify that I am duly authorized to submit this proposal on behalf of the firm as its act and deed and that the firm is ready, willing and able to perform if awarded the contract.

The firm and/or Proposer hereby authorizes the Town of Lauderdale-by-the-Sea, its staff or consultants, to contact any of the references provided in the proposal and specifically authorizes such references to release, either orally or in writing, any appropriate data with respect to the firm offering this proposal.

I further certify, under oath, that this proposal is made without prior understanding, agreement, connection, discussion, or collusion with any other person, firm or corporation submitting a proposal for the same product or service; no officer, employee or agent of the Town or any other proposer is interested in said proposal; and that the undersigned executed this Proposer's Certification with full knowledge and understanding of the matters therein contained and was duly authorized to do so.

If this proposal is selected, I understand that I will be expected to execute the Town's standard professional services contract, in the form approved by the Town Attorney.

A person or affiliate who has been placed on the convicted vendor list following a conviction for public entity crimes may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public

entity, may not be awarded or perform work as a contractor, supplier, sub-contractor, or consultant under a contract with a public entity, and may not transact business with any public entity in excess of the threshold amount provided in Sec. 287.017 Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list. I further certify, under oath, that neither the entity submitting this sworn statement, not to my knowledge, any of its officers, directors, executives, partners, shareholder, employees, members or agents active in the management of the entity has been convicted of a public entity crime subsequent to July 1, 1989.

GAI Consultants, Inc.
Name of Business

By: _____
Signature

Gerald Hartman, PE, BCEE, ASA Vice President
Print Name and Title

2255 Glades Road, Suite 324A
Boca Raton, FL 33431
Mailing Address

State of Florida
County of Orange

Sworn to and subscribed before me this 18th day of May, 2011.

Notary Public
_____

_____
My Commission Expires:

NOTARY PUBLIC STATE OF FLORIDA

DARLENE GROETZNER
MY COMMISSION # DD 806301
EXPIRES: July 15, 2012
Bonded Thru Budget Notary Services

Tab B Experience

Wastewater Treatment Plant Improvements and Infiltration/Inflow Removal

Mulberry, Florida

Summary of Services:

- Program Management/Strategy
- Wastewater Treatment Plant Permitting
- **Funding Assistance**
- Preliminary Design
- Detailed Design & Construction Bid Document Preparation
- Construction Cost Estimation
- Bid Phase Services
- Construction Phase Services including Onsite Inspection

GAI Consultants, Inc. (GAI) has recently performed funding assistance, planning, pre-design, and design services for the City for various improvements to the City's wastewater system.

The City of Mulberry (City) provides wastewater collection, conveyance, and treatment for over 3,000 customers within the City. The City's wastewater treatment facility (WWTF) discharges treated wastewater effluent to the Alafia River. The Alafia River subsequently discharges to Tampa Bay.

Recently, the City's wastewater treatment facility has been cited for violations with respect to lack of achievement of reduction of nitrogen in the effluent. Various reasons have been identified for the violation inclusive of flow spikes that upset the wastewater treatment process, lack of instrumentation/control of processes and laboratory accuracy.

The planning report reviewed three strategies to (1) help the City comply with the FDEP permit; (2) reduce treated wastewater discharge into the Alafia River and (3) provide the City with alternatives to meet nitrogen reduction conditions as identified in the FDEP consent order.

Based on the results of the planning document, GAI performed design services for improvements to the wastewater treatment plant and infiltration/inflow removal including:

- Collection system infiltration/inflow reduction consisting of multiple repair methods including pipe lining, joint repair, manhole & lift station repair, manhole inserts, etc. The City has a considerable amount of inflow due to rainfall and rising water tables during rain events as the plant flow more than doubles.
- Addition of a wastewater influent equalization basin at the WWTF to attenuate flow surges to the wastewater reactor basins and/or addition of equipment and reconfiguration of flow basins. This item will help stabilize the wastewater treatment process and enhance the treatment capability of the facility.
- Reconfiguration of the WWTF existing basins for optimal treatment efficiency.
- Addition of instrumentation for process monitoring at the WWTF. The existing biological treatment could be enhanced through the monitoring of dissolved oxygen and/ or SBR cycle times.

- Addition of solids modifications at the WWTF by conversion of the existing chlorine tank to a solids-holding tank and the design of a rotary drum thickener with the appropriate instrumentation.
- Electrical system modifications for the new improvements.

GAI has worked with the FDEP to administer and secure funds for the following City of Mulberry projects:

- Infiltration and Inflow Program **(66% grants)**
- Wastewater Treatment Improvements Program **(66% grants)**

GAI also believes that improvements to the WWTF will also help the City reduce their wastewater treatment operations costs through energy and sludge hauling savings.

Client: City of Mulberry, 104 S. Church Avenue, Mulberry, FL 33860
Contact: Dr. Frank Satchel, Jr., City Manager, Phone: 863.425.1125
Project Completion: 2012

City of Huntsville SSES – ADS Project

Huntsville, Alabama

The City of Huntsville sanitary sewer system is comprised of approximately 27,000 manholes and 6,000,000 LF of sewer conveying flows to five wastewater treatment plants. During recent years, infiltration and inflow became an increasing concern within the Big Cove, Aldridge Creek, and Spring Branch basins. Based on existing flow monitoring data and related information, the City of Huntsville developed a multi-year plan of action to investigate the worst performing areas of these basins to pinpoint sources of infiltration and inflow. ADS Environmental Services was selected by the City to conduct a variety of sewer system evaluation survey (SSES) activities, including manhole inspections, smoke testing, dye testing, flow isolations, and wet weather inspections. CCTV inspection activities were performed in-house by City personnel. ADS coordinated closely with the City to recommend areas in need of CCTV inspection and to review the results. All SSES results were integrated into the City's InfoNet Asset Management software application.

Client: City of Huntsville, 1800 Vermont RD, Huntsville, AL 35802
Contact: Mark Huber, Collection System Manager, Phone: 256.883.3767
Project Duration: 2006 – Present

Financial and Engineering Services Related to Water and Wastewater Utilities

North Miami Beach, FL

Summary of Services:

- Facility Planning
- Rates and Charges
- Conditional Assessment
- Construction Cost Estimation
- Capital Plan Development
- **Funding Assistance**

For over a decade, GAI project team members have been providing financial and engineering services to the City of North Miami Beach Water and Wastewater Utilities. These services have included water treatment plant design; grant, loan, and bond funding assistance; rate and charge assistance; and expert witness and dispute resolution services. Currently, GAI serves as the Water and Wastewater Utilities General Consulting Engineer for the City.

Project team members have recently worked with the City to conduct and review a water and wastewater rate study. The purpose of the study was to evaluate the adequacy of revenues from water and wastewater retail rates for paying operating expenses, meeting debt service requirements, meeting reserve account payments, and meeting capital requirements.

Working in collaboration with client staff and management, the financial team developed two scenarios for consideration by the Public Utilities Committee and the City Council. At the PUC meeting, the option for a series of 5 consecutive 10% rate increases was adopted unanimously. The rate ordinance was approved in its final reading before the City Council.

GAI also worked with the City to develop drought rate surcharges in response to the South Florida Water Management District's phased drought plan. Other current activities with the City include the preparation of **SRF Loan packages** and **grant applications** for both water and wastewater projects; assistance in preparing and negotiating interlocal agreements; guidance relative to outside city surcharge matters as delineated in Section 180.191, Florida Statutes and reserve area matters as delineated in Section 180.02, Florida Statutes, to name a few.
GAI has worked with the FDEP to administer and secure funds for the following City of North Miami Beach projects:

- Volatile Organic Compound Facility **($4,600,000 in grants)**
- Highland Village Septic Tank Abandonment Project
- Automated Meter Reading Program **(first FDEP funded program in State of Florida)**
- Infiltration and Inflow Project
- Major Sewer Rehabilitation Project

Client: City of North Miami Beach, 17050 N.E. 19th Avenue, North Miami Beach, FL 33162
Contact: Karl Thompson, P.E., Assistant Director of Public Services, Phone: 305.948.2967
Project Completion: Team members have been serving the City for more than a decade. The most recent active general services contract was executed in September 2006.

Fulton County Infiltration/Inflow Reduction – ADS Project

Fulton County, GA

The Fulton county sanitary sewer system contains over 43,000 manholes and 2,000 miles of pipe in a highly developed urban area with multi-jurisdictional boundaries. During wet weather, this system experiences overloading and bypassing due to rainwater and groundwater entering through cracks, broken pipe, and other defects. Initially Fulton County selected ADS to undertake a comprehensive infrastructure evaluation program which has included tasks such as flow monitoring, physical inspection, smoke testing, CCTV/cleaning, and record keeping/data management. This evaluation was part of the effort to reduce infiltration and inflow (I/I) and alleviate the county's extraneous flow problem.

Over the last five years, ADS has managed a network of 220 ADS permanent flow monitors that help direct targeted temporary flow monitoring studies. After the completion of the temporary monitoring, ADS and/or its subconsultants complete, manhole inspection, smoke testing, flow isolations and CCTV inspection for sourc identification of I/I and make recommendations for rehabilitation efforts. ADS also has installed and maintains ADS FlowAlert depth measurement devices for real-time notiifcation of abnormal flow depth that may indicate sewer system blockages that could result in sanitary sewer overflows (SSO).

Client: Fulton County Dept. of Public Works, 141 Pryor St. SW, Suite 6001, Atlanta, GA 30303
Contact: Anthony Kelly, Water Operations Compliance Supervisor, Phone: 404.612.5512
Project Duration: 1993-2009

Facilities Plan for Water, Wastewater and Reuse Utilities

Miramar, Florida

Summary of Services:

- Facility Planning
- Conditional Assessment
- Hydraulic Modeling
- Construction Cost Estimation
- Capital Plan Development

GAI is preparing a Facilities Plan for the Water, Wastewater and Reuse systems. The City of Miramar operates water, wastewater and reuse water utilities within the City.

The water system is comprised of two (2) water treatment plants including the East Water Treatment Plant and the West Water Treatment Plant and water distribution and storage.

The East Water Treatment Plant is a 6.0 MGD lime softening treatment plant and the West Water Treatment Plant is a 7.5 MGD membrane treatment facility.

The wastewater system is comprised of wastewater collection (250 mile gravity sewers) and conveyance through a series of 125 pump stations and 80 miles of force main; and a Wastewater Reclamation Facility. Wastewater is treated at the plant and is disposed of by reuse of the effluent for irrigation or deep well injection.

As part of the Facilities Plan, the City also desires to expand the reuse system. Reuse water is a valued water resource and can be used in place of potable water for irrigation thus simultaneously reducing the City's potable water needs and providing a means for wastewater effluent disposal.

The Facilities Plan addresses the existing water, wastewater & reuse systems, 20 year flow projections, regulations & rules, system hydraulics including modeling using WaterCAD, capacity review, proposed Reuse Water System Improvements/Expansions. Physical inspection and assessment of the facilities were performed. The plan also includes a Capital Improvement Plan in five year increments for a 20-year period.

Client: City of Miramar, 13900 Pembroke Road, Miramar, FL 33027
Contact: Vernon Hargray, Assistant City Manager, Phone: 954.602.3119
Project Completion: 2011

City of Virginia Beach SSES Plan– ADS Project

Virginia Beach, Virginia

The City of Virginia Beach sanitary sewer system services to over 425,000 citizens and is comprised of over 404 sewer pumping/lift stations, more than 1,780 miles of gravity sewer lines (including publicly maintained laterals), and more than 190 miles of sewer force mains. The City has embarked on a comprehensive SSES Plan to meet the requirements established by the VA DEQ in their 2007 Special Order by Consent. ADS Environmental Services was selected by the City to conduct a variety of sewer system evaluation survey (SSES) activities, including flow monitoring, manhole inspections, smoke testing, dye testing, flow isolations, and CCTV inspection of mainlines and laterals. ADS coordinates closely with the City to recommend areas in need of further evaluation and to review the inspection results. All SSES results are integrated into the City's Asset Management system and used as a basis for sewer rehabilitation recommendations.

Client: City of Virginia Beach Public Utilities, 2405 Courthouse Dr., Bldg. 2, Virginia Beach, VA 23456
Contact: Stephen T. Motley, P.E., SSO Reduction Bureau Manager, Phone: 757.385.1996
Project Duration: 2009 – Present

Owners Engineering Representative (OER) for Design/Build Program at the Wastewater Reclamation Facility

Miramar, Florida

Summary of Services:

- Program Management/Owner's Engineering Representative (OER)
- Value Engineering
- Bid Phase Assistance/Select Design/Build Team

GAI is performing owner's agent services for the expansion of the wastewater reclamation facility to 10.5 MGD. The expansion includes a new treatment train, secondary clarifier, modifications to RAS/WAS pump systems, new blowers and a conversion to a nutrient removal process. The implementation of this project is a design/build with a construction cost of $13 million.

GAI is monitoring the work being performed by the design/build team. GAI prepares the agenda, conducts monthly progress meetings and records the minutes to the meetings. Other duties include reviewing pay requests and evaluating and making recommendations on change orders proposed by the contractor or requested by the owner. Weekly site visits are conducted to monitor progress and quality of work, to identify and resolve issues. Assistance during final punchlisting, startup of the facilities and final closeout of the project.

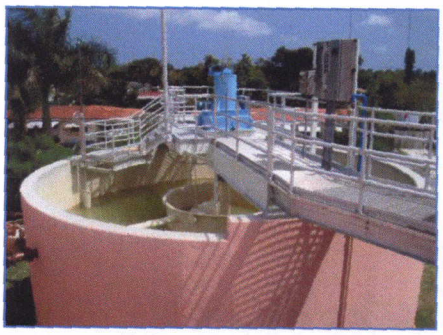
Client: City of Miramar, 13900 Pembroke Road, Miramar, FL 33027
Contact: Vernon Hargray, Phone: 954.602.3119
Project Completion: March 2011

East Water Treatment Plant: Lime Sludge Thickening Improvements

Miramar, Florida

Summary of Services:

- Design
- Permitting
- Bid Phase Services
- Construction Phase Services



GAI was tasked to perform the refitting of the dual purpose existing sludge thickener tank with a more powerful rake assembly, construct another sludge thickener tank and rake assembly to provide backup for maintenance of the main tank. The sludge tanks receive flow from the sludge blowdown of the precipitators, backwash water from the filters and filtrate from the vacuum filters. It was a successful challenge to improve the operation of a combined use tank and to have both functions operate properly. The reason for a combined use was the

plant was site limited. GAI completed improvements to the decant system by provision of floating decanters, telescoping valves, and providing interconnecting piping for the new tank and electrical circuits for the new equipments. GAI also provided a lift station for the solids treatment area of the water treatment plant.

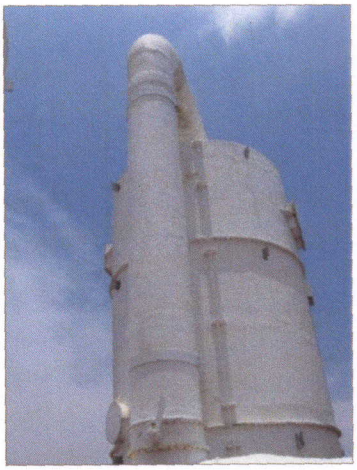
Client: City of Miramar, Public Works Dept., 13900 Pembroke Road, Miramar, FL 33027
Contact: Vernon Hargray, Assistant City Manager, Phone: 954.602.3119
Project Completion: 2010

Norwood-Oeffler WTP VOC Removal Project

North Miami Beach, Florida

Summary of Services:

- Water Treatment Plant Permitting
- Funding Assistance
- Preliminary Design
- Detailed Design & Construction Bid Document Preparation
- Construction Cost Estimation
- Bid Phase Services
- Construction Phase Services including Onsite Inspection



The City of North Miami Beach Norwood-Oeffler WTP includes a series of improvements to the WTP including: installation of yard piping and transfer pump cans, installation of a new tray aerator and transfer pump, relocation of existing tray aerator skids, modifications to hydrotreater numbers two and three, replacement of the lime feed system at the East Lime Silo, and installation of degasifiers and appurtenances for the nanofiltration system.

GAI coordinated with another consultant on this project and was in charge of the design and permitting of the degasifier systems and appurtenances for the reverse osmosis and nanofiltration system. GAI also generated a Water Facilities Plan including design drawings and a project manual to receive funding. Receiving this funding required stringent deadlines for this project. Because of the time constraints, GAI teamed with another consultant to complete this project for bid in thirty (30) days.

Client: City of North Miami Beach, 17050 N.E. 19th Avenue, North Miami Beach, FL 33162
Contact: Jeff An, PhD, PE, Asst. Director of Public Services, 305.770.5127
Project Completion: 2010

Nitrogen & Fecal Coliform Removal for the Bethune Point & Westside Wastewater Treatment Facility

Daytona Beach, Florida

Summary of Services:

- Wastewater Treatment Plant Permitting
- Pilot Testing
- Process Evaluation

GAI is performing services to assist the City of Daytona Beach to achieve compliance with total nitrogen and fecal coliform in their wastewater treatment plants. The City owns and operates two wastewater treatment facilities, the Bethune Point Facility and Westside Facility. The wastewater treatment facilities treat effluent for use as reuse and discharges to the Halifax River through a combined outfall.

The City is required by permit to treat to reuse standards and to reduce Total Nitrogen and Phosphorous. Since the City discontinued the addition of methanol, as supplemental carbon source, at their two Bardenpho Treatment Facilities, they have experienced occasional excursions with respect to their Total Nitrogen in the effluent.

GAI is performing a review of the facilities and making recommendations for modifications to plant operations. Since the facilities will soon be under interim limits, GAI has recommended the addition of carbon source to facilitate the nitrogen removal process to prevent violation of those limits. The City is now adding "Micro C" as a supplemental carbon source to help reduce total nitrogen in the effluent. GAI assisted the City in finding the optimal injection point and will be monitoring the results.

GAI is also investigating fecal coliform violations at the facilities.

GAI recommended that the City change out their UV bulbs on a more frequent basis to assure that disinfection of the wastewater effluent is achieved.

Client: City of Daytona Beach, 301 S. Ridgewood Avenue, Daytona Beach, FL 32114
Contact: Mitt Tidwell, Utilities Director, Phone: 386.671.8010
Project Completion: 2010

Phosphorous Removal for the Bethune Point & Westside Wastewater Treatment Plants

Daytona Beach, Florida

Summary of Services:

- Wastewater Treatment Plant Permitting
- Preliminary Design
- Construction Cost Estimation
- Construction Phase Services

GAI performed services to assist the City of Daytona Beach achieve compliance with total phosphorous in their wastewater treatment plants. The existing biological process occasionally does not remove TP in the effluent below the permitted limit (1 mg/L). In response to resolve this issue, GAI has recommended chemical addition (aluminum sulfate) as a means to reduce the phosphorous in the effluent. GAI conducted pilot studies at both wastewater plants to determine the optimum dosage and injection location for alum. In compliance with the consent order, GAI prepared a basis of design and preliminary design report for the addition of alum feed systems at both wastewater treatment plants. The basis of design consists of storage tanks pumping and piping for alum injection into multiple locations. The estimated construction cost is $160,710 for alternative 1 (existing storage tanks) and $206,650 for alternative 2 (new storage tanks). This PDR and a permit modification application were submitted to the FDEP in compliance with the consent order.

Client: City of Daytona Beach, 301 S. Ridgewood Avenue, Daytona Beach, FL 32114
Contact: Mitt Tidwell, Utilities Director, Phone: 386.671.8010
Project Duration: 2008 – 2009

Stormwater Reuse Pump Station

Miramar, Florida

Summary of Services:

- **Funding Assistance**
- Preliminary Design
- Detailed Design & Construction Bid Document Preparation
- Construction Cost Estimation
- Bid Phase Services
- Construction Phase Services including Onsite Inspection

In the western portion of the City of Miramar there has been significant stormwater inundation due to recent rainfall events. In the central part of the City there exists a deficiency in reuse water capacity and availability during certain times. The Integrated Water Resource Program implements Best Management Practices in the City of Miramar by providing stormwater treatment and reuse with minimal discharge reducing the nonpoint source pollutant load to the Everglades. The integration program is to provide one and in the future possibly additional stormwater reuse and filtration systems in the lake systems in the western portion of the City of Miramar removing some of the stormwater from this area and reusing it further to the north and east via the reclaimed water transmission/distribution system. In this fashion, optimization of the stormwater system will be accomplished and stormwater discharges to the canal system adjacent to the Everglades will be minimized. GAI Consultants has been retained to design and implement Phase 1 of the stormwater reuse program.

This project received grant funding from FDEP, SFWMD AWS SB 444, and the SFWMD Basin Board demonstration funding. The cost of the 1.0 MGD stormwater reuse project is 67% grant funded and 33% Stormwater Utility funded. The flow from the facilities will augment the reclaimed water reuse system and derive revenues at some 35 cents per thousand gallons. The project is funded, planned, PDR complete, permitted, designed, and is ready for bidding at this time.

GAI is designing the first stormwater pump station and connection to the reuse system in the City of Miramar. This project includes: one MGD capacity, 40% substitution for potable water, pressure sensor on at 35 psi/off at 75 psi. GAI responsibilities have included: Obtaining government funding for a majority of the project, coordinating site acquisition and surveying for the pump station, securing permits for the project and providing bid documents and drawings to the City.

Client: City of Miramar, Utilities Dept., 13900 Pembroke Road, Miramar, FL 33027
Contact: Vernon Hargray, Assistant City Manager, Phone: 954.602.3119
Project Completion: 2010

Halifax River Subaqueous Water Main Crossing

Daytona Beach, Florida

Summary of Services:

- Preliminary Design
- Detailed Design & Construction Bid Document Preparation
- Land Survey
- Bid Phase Services
- Construction Phase Services

GAI provided professional engineering services to design, permit and prepare the construction documents for the Halifax River subaqueous water main crossing. Among the services GAI provided was the selection of line replacement techniques, including the consideration of horizontal drilling, line sizing for future development needs and fire flows, material selection to guarantee long-term use of the line, site and routing selection to minimize the impact on existing utilities, community impact considerations, permitting services and water-based land survey services. The replacement of the main allows for the supply of potable water to reach the beach side of Daytona Beach and provides future capacity for build-out and fire flows.

Client: City of Daytona Beach, 301 S. Ridgewood Avenue, Daytona Beach, FL 32114
Contact: Mitt Tidwell, Utilities Director, Phone: 386.671.8010
Project Completion: 2009

Tab C Approach to Providing Services

One of the keys to our **successful approach** to **continuing services** contracts is the designation of a Consultant's Project Manager. As shown on the enclosed organization chart, GAI proposes that **Jules J. (Jay) Ameno, PE** serve as the **Town's Project Manager**. Mr. Ameno will be the point of initial contact to receive tasks or direction from the Town. Mr. Ameno will be responsible for understanding the **scope of services** and **schedule** for the Town's task request(s), and if required, will develop the written scope of services, define milestones/deliverables, and schedule based on the Town's verbal direction.

GAI understands that the Town desires an **overview** of work previously performed with **recommendations** on how to best, and most **cost effectively** proceed with a collection system rehabilitation program.

GAI has brought together an **experienced team** of qualified professionals that are familiar with sanitary sewer systems and can bring a **fresh approach** to support the Town's program in a **cost conscious** manner. GAI has selected two subconsultants as team members based on their **knowledge** and **past performance; ADS** for their depth of experience and success in SSES programs, and **BEC** for their experience in quality electrical designs and instrumentation. The project manager will maintain direct communication with the subconsultants as part of the project team. The project manager will also monitor the sub consultants' **performance**, **cost** and **project deliverables**.

GAI, in conjunction with ADS, will review the existing and available closed-circuit television (CCTV) inspection data completed within the Town, including video documentation and related defect codes. Recommendations will be based on this data review.

ADS maintains numerous individuals on staff that are **certified** in accordance with the **National Association of Sewer Service Companies** (NASSCO) Pipeline Assessment Certification Program (PACP) and Manhole Assessment Certification Program (MACP). Kevin Enfinger, P.E., a certified PACP/MACP/LACP trainer, will participate on this project. Data review will be performed by NASSCO-**certified personnel**.

GAI and ADS will also review the existing and available manhole inspection data. Recommendations will be based on a review of this data, as well as input from the Town.

GAI, in conjunction with BEC, will evaluate and make recommendations on the **condition** of the Town's flow meter, which is used by the City of Pompano Beach to bill the Town of Lauderdale-by-the-Sea. GAI will perform a **physical inspection** of the Town's two lift stations and perform a **hydraulic evaluation** of the force main/pumping system and make recommendations for **rehabilitation** or **replacement**.

GAI will evaluate the impact of inflow and infiltration based on rainfall events and groundwater due to tidal influences. GAI will develop a model based on Sewer Cad modeling software to assess the system capacity and project the future flows through the year 2025.

GAI will project the future wastewater flow assuming a 98% build-out with a three-story limit for the planning year of 2025. GAI will also review the Town's wastewater rates based on the same planning year.

Based on the findings of the above evaluations, GAI will prepare a Master Sewer Plan/Capital Improvements Plan. **Cost estimates** and **schedules** will be prepared for implementation. **Funding opportunities** will also be explored and reported in the plan.

Additional services may include **grant funding opportunities**, feasibility reports, preparation of construction documents as well as the associated construction management, inspection, permitting, certification, record drawing, O&M, and start-up services.

GAI will attend Town Commission, staff, and group meetings as designated by the Town.

Depending on the **scope of services** and **schedule**, Mr. Ameno may assign tasks to **appropriate** GAI Project Engineers.

The **GAI Project Manager**, Mr. Ameno, will develop the task budget, and submit that budget for the Town's review and approval. Upon written receipt of authorization from the Town, GAI will start the services.

GAI's project manager shall work **directly** with the Town **staff** assigned to manage the task. During the process, Mr. Ameno shall **monitor the progress** of the task(s) to maintain **quality, schedule and budget**. Mr. Ameno and the project engineer will meet with the Town's staff on an agreed interval to **review the progress** of the work and discuss any **outstanding items**.

The Town may **contact** Mr. Ameno **at any time** regarding any additional needs or concerns related to the project. Mr. Ameno will **promptly coordinate** with the Town and GAI's project manager for **quick resolution**. Mr. Ameno will also work with the Town to **assign** additional or optional **staff** to the **Town's satisfaction**.

Quality Assurance & Quality Control

GAI has developed a formal **Quality Assurance/Quality Control** (QA/QC) program as an operational tool to guide staff in achieving GAI's goals of seeking **quality** in all its activities. This operational tool is in the form of a **manual** that presents specific **practices**, **procedures** and **actions** to be taken by staff in given circumstances.

The manual provides for two levels of QA/QC. The **primary level** for the majority of GAI's professional services is managed through the normal organizational structure and uses standard QA/QC procedures. A **secondary level** has been developed for projects requiring more **expertise and experience**; complex projects that are **higher risk,** to meet the client's requirements. Under this secondary level a separate **Technical Advisor** (TA) is added to the normal organizational structure and the TA's responsibilities will determine the degree of **review** and **documentation** to be expected on that project.

The GAI QA/QC manual does not cover every project situation, but it does set a **frame work** within which the GAI staff will operate to **tailor** the QA/QC program to the project and client. In concert with the GAI QA/QC program, GAI maintains a web based library of **technical and operation manuals** and a **Project Management Manual**. GAI provides **Advanced Project Management training** to its Project and Department Managers to further refine their skills and **enhance** the **client's experience** with the GAI professionals.

GAI shall implement its QA/QC program throughout the performance of the services for the task. All Project Deliverables will be reviewed by a **senior staff** member. **Mr. Gerald Hartman, P.E.** will be responsible for managing the quality control/quality assurance program and will designate senior staff to perform this review.

GAI can tailor our management plan to meet the **desires** or **convenience** of the **Town's staff**. Communication via e-mail, phone or meetings can be accommodated to suit the project team. Our goal is to make the process **clear**, **efficient** and **enjoyable** for all involved. GAI has a **proven history** of performing such services and is prepared to provide the Town with the benefit of that **experience** and **knowledge**.

Due to our extensive experience providing **engineering** and **management consulting services** to numerous Florida municipalities, GAI is well aware of the need to **meet project schedules**. This is particularly true for public infrastructure which is constructed in order to conserve our environmental resources.

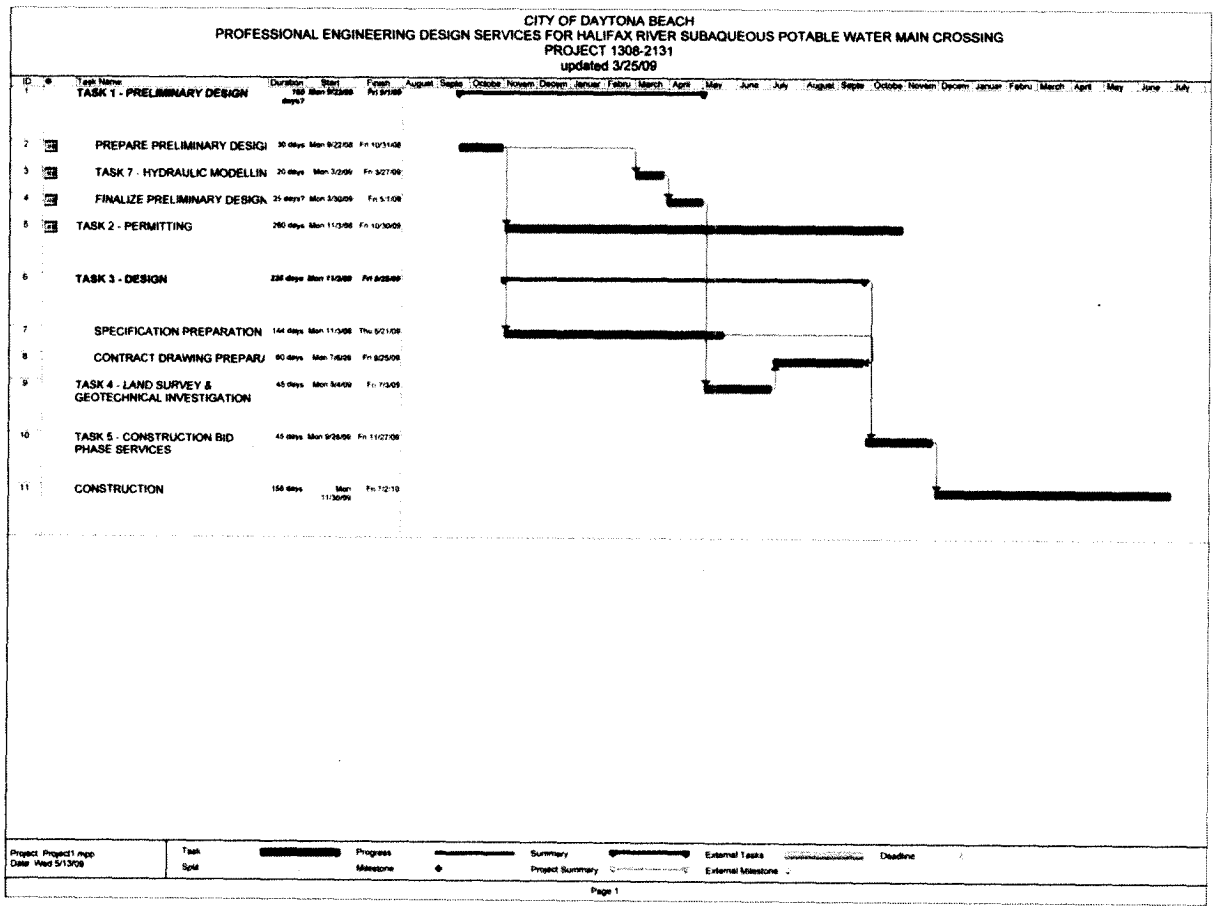
GAI commits to providing the necessary staff to meet the Town's schedule.

Additionally, should GAI be selected, we will provide a **firm budget** for the agreed upon **project deliverables** and **schedule**.

Example Project Schedule

The following is a typical bar chart of a sample project that GAI worked on. This project is for the Daytona Beach Halifax River Crossing. This schedule is for a water main replacement project requiring design, planning, permitting, easement acquisition, and implementation based on construction schedules with limited times for active construction due to location and events.

We have completed the project on schedule.



Tab D Compensation

Per instruction, no rates or fees for services have been included in this proposal document.

Tab E Additional Information

FDEP Funding Program

The FDEP has various funding programs that fulfill funding needs for utility projects throughout the State of Florida. GAI has used a combination of these FDEP programs such as: State Revolving Loan Funds (SRF), American Recovery and Reinvestment Act (ARRA), Total Maximum Daily Loadings (TMDL program), Section 319 Grants, and the Small Community Grants Program as instruments to make our client's visions realities. All FDEP grant programs are administered and scored as written in Florida Administrative Code (F.A.C.). In recent years (2005-Present), GAI has worked with the FDEP to administer and secure funds for the following projects:

- City of Miramar – Stormwater Treatment Facility **($750,000 in grants)**
- City of Winter Park – Stormwater Treatment Facility (grant not accepted, project did not move forward)
- City of North Miami Beach
  - Volatile Organic Compound Facility **($4,600,000 in grants)**
  - Highland Village Septic Tank Abandonment Project
  - Automated Meter Reading Program **(first FDEP funded program in State of Florida)**
  - Infiltration and Inflow Project
  - Major Sewer Rehabilitation Project
- City of Mulberry
  - Wastewater Treatment Improvements Program **(66% grants)**
  - Infiltration and Inflow Program **(66% grants)**
- City of Eustis – Stormwater Treatment Facility **($1,000,00 in grants)**

Since the evolution of stimulus funds in 2009, the SRF, Small Community Grants Program, and TMDL programs have undergone substantial rule changes. In addition, ARRA introduced new procedures to the FDEP programs that were not previously utilized. GAI has been a part of these changes since 2009 because GAI has directly served the **City of North Miami Beach** and the **City of Mulberry** to administer funds during construction under the new rulings.

GAI has worked directly to successfully fund and administer the following FDEP funded projects during construction:

- City of North Miami Beach – Highland Village Project
- City of North Miami Beach – Volatile Organic Chemical Facility
- City of North Miami Beach – Automated Meter Reading Program
- City of Mulberry – Infiltration and Inflow Program
- City of Mulberry – Wastewater Improvements Program
- City of North Miami Beach – Major Sewer Rehabilitation Program
- City of North Miami Beach – Infiltration and Inflow Program

All of the above have a combination of requirements for Job Reporting, Davis-Bacon Wage Act, Buy American Provisions, Certified Pay Applications, Bid Acceptance Packages, Close Out Reporting, Audits from the Inspector General's office, and additional reports as requested by the FDEP. For all of the above projects, GAI has worked directly with the FDEP project manager and served as the project liaison for the City. GAI has also worked with City staff to successfully pass two federal audits that were administered in the City of North Miami Beach on projects funded by stimulus monies.

Additionally, GAI has worked with the USDA Rural Development program to assist cities in various capacities with applications, loan administration, and loan agreement revisions.

Additional CDBG funding project experience by members of the GAI team includes:

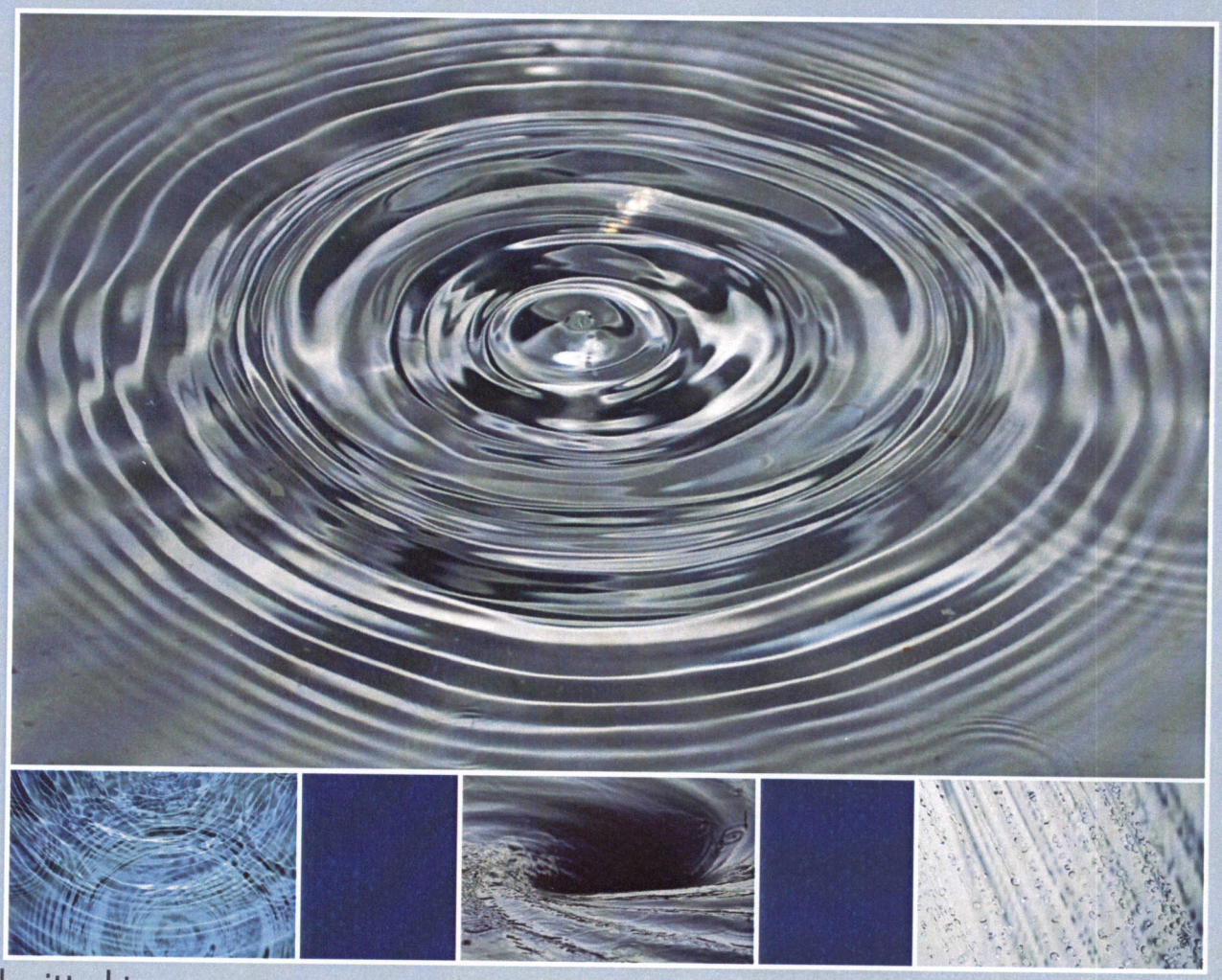
- **City of Coolidge Arizona Wastewater Plant Expansion (AZ)** – Provided construction related grant application submissions including payment and progress reports for the expansion of a 0.5 mgd wastewater plant. The expansion also included a new force main run through town.
- **Coalport Borough Council (PA)** – Obtained a $150,000 Direct Entitlement grant for a 5 block Streetscape improvement project in addition to 4 other sources of funding to allow this project to be completely designed and constructed with grant funds totaling $1.2 million. The Environmental Review is being undertaken currently and all other additional administration of the CDBG and 4 other grants are all being undertaken and completed as part of GAI's contract.
- **Clinton County Commissioners on behalf of Mill Hall Borough (PA)** – Conducted an Income Survey to qualify the project area for a sewer line replacement project in order to meet CDBG funding requirements. Conducted the public hearings and grant application submission for $500,000 in funds. Obtained funds through another grant program before CDBG funding from the State was decided.
- **Clinton County on behalf of Mill Hall Borough (PA)** – Conducted an Income Survey to qualify the project area for a sewer line replacement project in order to meet CDBG funding requirements. Conducted the public hearings and grant application submission for $500,000 in funds. The Borough decided to borrow the funds rather than wait for the grant funds.
- **Croyle Township Board of Supervisors (PA)** – A water improvement project and completed an Income Survey for the project area to qualify it for funding.
- **Logan Township Board of Supervisors (PA)** - Grant Administrator for the CDBG entitlement grant allocation for the Township during a 3 year contract, public hearing, and projects consisted of community parks, sewer, water and storm sewer, paving, ADA improvements, fire company capital improvements, sidewalks to housing rehabilitation. Provided all administrative tasks for the Township undertaking income surveys, applications, labor law compliance, wage rate verifications, contractor interviews, environmental review records consisting of Categorical Excluded to an 8 step environmental clearance. Completed payment requisitions for CDBG funds from State Agency and oversight of all Annual audits for grant compliance and project close out as well as file review with State Project Manager as part of monitoring the file system for each project.
- **Snyder Township Board of Supervisors (PA)** – Grant Administrator for the Township and secure various grants funding for this Township's projects. As part of the CDBG project funding, 5 separate projects obtained $500,000 in entitlement funds from the State for new sewer collection system projects in addition to other funding if needed for construction projects. Performed the income survey, application, public hearings, compliance with Engineer of Record for compliance of CDBG documents with Specifications, Environmental Review Record, labor law compliance, contractor interviews, request for payment, and project close out requirements. All of the projects were undertaken and closed out with no findings on State review. These projects consisted of:
    - *Project 2011* – The area is located in Thomastown area of the Township. An income survey is completed and obtained $185,000 in County CDBG funding for the project. An Act 537 Amendment is being completed to adopt another alternative for this sewer extension construction project. The grant application will be underway for competitive funds of $500,000 for this project and final determination will be made later this year on funding from the State.

- *Project 2009* – The area was located in Gurekovich Hollow of the Township. The ROW was negotiated with a homeowner who did not want the sewerline project to go directly through their property in order to move the project forward. Coordinated additional funding and Some homes included grinder pumps and therefore I obtained additional County CDBG to help offset the homeowner's expense as part of the project.
- *Project 2004* – The area was located in Tyone Forge, Ironville and Cooks Hollow which are scattered areas in the Township. The Environmental Review process including an 8-step wetland and floodplain project clearance was obtained to achieve the Release of Funds. Some homes included grinder pumps and therefore I obtained additional County CDBG to help offset the homeowner's expense as part of the project.
- *Project 2002* – This CDBG project was located in California Hollow area of the Township and the environmental included the 8-step wetland; floodplain project clearance for funds. There were left over funds and by renegotiating these from the Bald Eagle project in addition to obtaining additional funds through CDBG a new sewer service into this area of the Township was achieved.
- *Project 1997 - 2000* – This CDBG project included new sewer service to 250 households along a major State roadway. Determined the service based on the sewer project and completed the income survey for the project. Facilitated, coordinated and managed the administrative tasks for all of the grants that were obtained to construct this project consisting of $750,000 in U.S. Army Corp. of Engineers, 1.25 million in US EPA, $500,000 in non-entitlement CDBG funds, County CDBG and local funds. The remaining CDBG funds were creatively utilized in an extension of this project that was not included in this original project. Completed all of the necessary paperwork involved with federal and state agencies as part of the administration of the CDBG funds.

- **Paint Township Board of Supervisors (PA)** - This project located in Clarion County consisted of a sewer replacement project in need of funding for design and construction. This project received $500,000 in funding and CDBG administrative service was turned over to the County to administer all the paperwork for the CDBG funding.
- **Irvona Borough Council & Beccaria Township Board of Supervisor (PA)** - The project was located in Clearfield County and consisted of a water improvement project that impacted 250 customers in 2002. Coordinated and completed an income survey to qualify the project for CDBG funds. Due to conflicts between the Township and Borough the application was completed however the Township did not endorse the mandatory tap ordinance and therefore the local Authority borrowed the funding versus obtaining grants for the project.
- **Girard Township Board of Supervisors (PA)** - The project was located in Clearfield County and consisted of a new sewer collection system and Sewage Treatment plant to serve 135 customers. The project was to correct on-lot sewage and cesspools that existed within the Township. Competitive Application and Grant Administration for a new sewer project in 2000. Completed all aspects of the CDBG paperwork as well as the Environmental Review Record including an 8-step wetland; floodplain project clearance. Performed the income survey, application, public hearings, compliance with Engineer of Record for compliance of CDBG documents with Specifications, Environmental Review Record, labor law compliance, contractor interviews, request for payment, and project close out requirements.

Request for Proposal No. 11-04-02

Sanitary Sewer System Evaluation, Analysis and Engineering Services



Submitted to:

Submitted by:

CHEN·MOORE
&ASSOCIATES
Civil and Environmental Engineers

500 West Cypress Creek Road, Suite 410
Fort Lauderdale, FL 33309
Telephone: (954) 730-0707
Contact Person: Jason McClair, P.E., LEED AP

May 19, 2011

1. Letter of Transmittal

CHEN·MOORE
&ASSOCIATES

500 West Cypress Creek Road, Suite 410
Fort Lauderdale, FL 33309
Telephone: (954) 730-0707
Fax: (954) 730-2030

May 18, 2011

Town Clerk
4501 Ocean Drive
Lauderdale-by-the-Sea, Florida 33308

Subject: Request for Proposal No. 11-04-02 Sanitary Sewer System Evaluation, Analysis and Engineering Services

Dear Selection Committee:

Chen Moore and Associates Consulting Engineers, Inc. d/b/a Chen Moore and Associates (CMA) is pleased to submit our response detailing our qualifications for professional engineering services for the Town of Lauderdale-by-the-Sea. Chen Moore and Associates is a multi-discipline consulting firm that is a Florida State certified MBE firm with offices in Broward, Miami-Dade, and Palm Beach Counties. Founded in 1986, CMA has grown to a staff of 25 full-time personnel who specialize in civil and environmental engineering, landscape architecture, planning and construction management.

Understanding of the Scope of Work

Chen Moore and Associates understands the scope of work required to complete the project activities. Our understanding comes from doing similar projects in other municipalities, particularly with Pompano Beach Utilities. Our projects have included GIS mapping of all utilities, modeling force main and gravity sewer, performing inflow/infiltration (I/I) studies along with numerous water/sewer/drainage design and construction projects. Our depth of knowledge with the Town of Lauderdale-by-the-Sea will make us the most cost effective firm to perform the necessary studies because we will have no learning curve. We created the gravity sewer GIS layers; worked with Televac reviewing videos; designed and administered construction of new force main; and completed other capital projects. We have always provided the Town with high quality engineering services at the lowest possible cost. Please see Section 6, Approach to Providing Services, for our complete understanding and approach to the scope of work.

Positive Commitment

Chen Moore and Associates makes a positive commitment to provide its services on behalf of the Town.

Authorized Persons

The following is a list of persons authorized to make representations for or on behalf of Chen Moore and Associates:

Dr. Ben Chen, P.E., BCEE, Chairman, 500 West Cypress Creek Road, Suite 410, Fort Lauderdale, FL 33309, Telephone: (954) 730-0707 x102

Peter Moore, P.E., LEED AP, President, 500 West Cypress Creek Road, Suite 410, Fort Lauderdale, FL 33309, Telephone: (954) 730-0707 x104

Jason McClair, P.E., LEED AP, Senior Engineer, 500 West Cypress Creek Road, Suite 410, Fort Lauderdale, FL 33309, Telephone: (954) 730-0707 x131

All individuals on our project team are committed to providing the Town with responsive professional services under this contract. We are highly experienced and locally available with low overhead costs. We are looking forward to meeting with the Selection Committee to describe our understanding of the project and our approach to accomplish the necessary tasks.

Respectfully submitted,

Peter Moore, P.E., LEED AP

2. Title Page

Name of Proposer's agency/firm, address, telephone number, name of contact person

Chen Moore and Associates
500 West Cypress Creek Road, Suite 410
Fort Lauderdale, FL 33309
Telephone: (954) 730-0707
Contact Person: Jason McClair, P.E., LEED AP

Date

May 19, 2011

RFP No. and the Project name

Request for Proposal No. 11-04-02

Sanitary Sewer System Evaluation, Analysis and Engineering Services

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4. Organization Profile and Qualifications

Chen Moore and Associates is a multi-discipline consulting firm that is a Florida State and local certified SDBE firm located in Miami-Dade, Broward, and Palm Beach Counties. Chen Moore and Associates, founded in 1986, has grown to a staff of 25 full-time personnel. The firm has successfully completed a wide range of projects involving the planning, design and construction in a multitude of disciplines including:

- Project and Program Management
- Landscape Architecture
- Planning
- Wastewater Collection, Transmission, Treatment, Re-use and Disposal
- Pump Station Design and Rehabilitation
- Water Supply, Treatment, and Distribution
- Modeling and Permitting of Drainage, Water Distribution, and Sewer Collection
- GIS Analysis and Mapping
- Construction Administration
- Value Engineering
- Utility Rate, Infrastructure Valuation and Annexation Studies
- Grant and Loan Services
- Stormwater System Design and Master Planning
- Neighborhood Improvement Projects
- Transportation, Streetscaping and Traffic Improvements

Responsive Professional Service

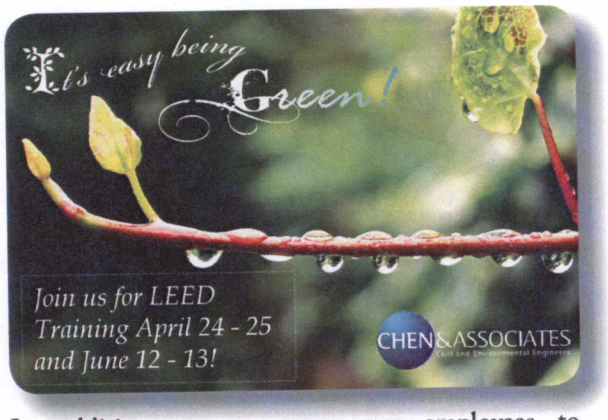
Dr. Chen founded Chen Moore and Associates with a belief that relationships are the key to the planning, design and construction of successful projects. The cornerstone of a successful relationship is open, frequent communication. As such, Chen Moore and Associates has adopted several policies that ensure our clients ability to communicate with our staff. From the first second the Town interacts with a CMA employee, they will be given a business card with both the individual's email address and the number of the company provided cellular telephone. Chen Moore and Associates provides mobile devices to all managers to ensure their ability to maintain continuous email communication with clients, if that is their preferred method. Finally, Chen Moore and Associates has been using a variety of project collaboration websites and portals since 1999, leading the industry and learning many lessons. This commitment to responsive communication puts the CMA Team in a great position to provide service to the Town.

The cornerstone of a successful relationship is open, frequent communication.

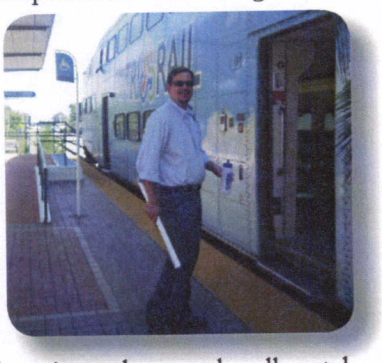
LEED Experience and Green Initiatives

Chen Moore and Associates believes in creating sustainable communities. As such, Chen Moore and Associates has been involved in over $350 million of redevelopment projects for Broward County since 1992, including BODRs, design, permitting and construction services including improvements/ rehabilitation projects and coordination with historical districts.

Chen Moore and Associates recently hosted LEED Training in our Broward office; eight of our employees participated in the training.



In addition, we encourage our employees to practice green initiatives. We are a member of the South Florida Regional Transportation Authority's Employer Discount Program and pay 100% of our employee's public transportation commuting costs.



West Palm Beach Branch Manager James Barton, P.E. boards the Tri-Rail train to commute between Chen Moore and Associates' Broward and Palm Beach offices.

Chen Moore and Associates also recycles all metal, glass, plastic and paper in our Fort Lauderdale office. We are also active with the Sustainability Committee and Green Initiative Subcommittee at the Broward League of Cities.

Documentation indicating that it is authorized to do business in the State of Florida and, if a corporation, is incorporated under the laws of one of the States of the United States.

State of Florida

Department of State

I certify from the records of this office that CHEN AND ASSOCIATES CONSULTING ENGINEERS, INC. is a corporation organized under the laws of the State of Florida, filed on November 7, 1986.

The document number of this corporation is J41454.

I further certify that said corporation has paid all fees due this office through December 31, 2011, that its most recent annual report was filed on January 14, 2011, and its status is active.

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

Given under my hand and the Great Seal of Florida, at Tallahassee, the Capital, this the Fifteenth day of January, 2011

Secretary of State

Authentication ID: **800191408568-011511-J41454**

To authenticate this certificate, visit the following site, enter this ID, and then follow the instructions displayed.
https://efile.sunbiz.org/certauthver.html

CHEN•MOORE &ASSOCIATES

State of Florida

Board of Professional Engineers

Chen And Associates Consulting Engineers, Inc.

Is authorized under the provisions of Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes.

Certificate of Authorization

EXPIRATION: **2/28/2013**

AUDIT NO: **228201301003 D**

CA. LIC. NO: **4593**

CHEN·MOORE &ASSOCIATES

A description of the primary individuals responsible for supervising the work including the percentage of time each primary individual is expected to contribute to this work.

Chen Moore and Associates has an exceptional staff with the necessary engineering skills and experience to provide engineering services for the Town. All professional engineering services required will be provided by staff members in our Fort Lauderdale office location. Please refer to the enclosed organizational chart for the management structure of the project team. The team members are listed below within a summary of their role on the project and relevant project experience completed within the past 5 years. These individuals are a pre-existing project team who work on engineering projects at Chen Moore and Associates. Resumes with detailed information on the relevant experience of each project team member are included at the end of this section.

Dr. Ben Chen, P.E., BCEE has over 35 years of professional experience in planning, design, and management in the engineering field. Dr. Chen will provide QA/QC review for this project and will be available attend any meetings and/or presentations to Town staff, stakeholder groups, advisory groups, and elected officials along with any discussions with regulatory agencies during the completion of this project. As chairman of the corporation, Dr. Chen has provided similar services on all projects completed by Chen Moore and Associates over the past five years.

Chen Moore and Associates has an exceptional staff with the necessary engineering skills and experience.

Peter Moore, P.E., LEED AP has over 12 years of responsible and diversified experience in design and construction management of sanitary sewer infrastructure projects. Mr. Moore will serve as principal-in-charge and will be available attend any meetings and/or presentation to Town staff, stakeholder groups, advisory groups, and elected officials along with any discussions with regulatory agencies during the completion of this project. As president of the corporation, Mr. Moore has provided similar services on all projects completed over the past 5 years. Mr. Moore will serve as principal-in-charge for this project.

Jason McClair, P.E., LEED AP is a senior civil engineer with experience and knowledge in various disciplines, such as sanitary sewer infrastructure design, regulatory permitting, and computer modeling for sanitary transmission systems. He is currently the project manager for the Fort Lauderdale-Hollywood International Airport Stormwater Master Plan Update and City of Hollywood Stormwater Master Plan Update. He is the client contact for the City of Pompano Beach, City of Wilton Manors, and City of Miramar on all sanitary sewer projects. He is also serving as the project manager for drainage improvements for the Town of Lauderdale-By-The Sea. ***Mr. McClair will be the Town's primary point of contact on this project and will serve as the project manager for this project.***

James Barton, P.E., LEED AP is a senior engineer with 17 years experience both internationally and domestically. He currently serves as the Town Engineer on behalf of the Town of Lauderdale-By-The Sea. The main focus of his experience includes

engineering design and project management of water and sanitary sewer projects throughout South Florida. Mr. Barton routinely integrates GIS technology with planning and engineering services. He has worked with ESRI developing software tools to assist in the flow analysis of sanitary sewer system. He is spearheading the Chen's efforts to implement GIS / GPS for construction field inspection. Mr. Barton will lead the flow analysis of the Town's sanitary sewer system using GIS tools..

Jennifer Smith, P.E. is a senior engineer with Chen Moore and Associates. Her experience in the civil engineering field includes detailed design work for Broward County on the UAZ Water and Sewer Improvement Project, for City of Dania Beach on the Stormwater Master Plan, for the City of Pompano Beach on various lift station rehabilitation projects and the GIS Utility Atlas Update. Current duties include the design and permitting of sanitary sewer and lift station along with computer modeling of sanitary sewer and stormwater infrastructure. Ms. Smith will serve as the assistant project manager on this project and will conduct all required computer modeling required under this project.

Suzanne Dombrowski, P.E., LEED AP is a senior engineer with Chen Moore and Associates. She holds a bachelor's degree in civil engineering and a master's degree in engineering with a specialization in civil engineering from the University of Florida. Ms. Dombrowski is now working on the design, permitting, and construction utility coordination projects for various municipal clients on water and sanitary sewer infrastructure project. Ms. Dombrowski will serve as a project engineer and will assist with any regulatory permitting and constructability reviews.

Paula Fonseca is a civil engineering graduate of Florida Atlantic University. She serves as an associate engineer for Chen Moore and Associates' and assists with AutoCAD and GIS design work. Ms. Fonseca will serve as a project engineer and will be responsible for the development of any GIS and CAD related documentation.

Joel Brownsey will serve as a project planner and will be responsible for developing any future population projections, which will be used to estimate any future increases in sanitary flow through the Town's system.

Percentage of Time Each Primary Individual is Expected to Contribute to This Work

Key Personnel	Future Availability %
Dr. Ben Chen, P.E., BCEE	10
Peter Moore, P.E., LEED AP	10
Jason McClair, P.E., LEED AP	50
James Barton, P.E., LEED AP	50
Jennifer Smith, P.E.	50
Suzanne Dombrowski, P.E.	20
Paula Fonseca	20
Joel Brownsey	20

QA/QC
Dr. Ben Chen, P.E., BCEE

Principal-in-Charge
Peter Moore, P.E., LEED AP

Project Manager
Jason McClair, P.E., LEED AP

Support Staff

Engineering Support
James Barton, P.E., LEED AP
Jennifer Smith, P.E.
Suzanne Dombrowski, P.E.
Paula Fonseca

Planning
Joel Brownsey

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP FORM A

Proposer: Chen Moore and Associates

QUALIFICATIONS STATEMENT

Note: Forms A, B & C are available in WORD format from the Town Clerk upon request.

THIS FORM MUST BE SIGNED AND SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The undersigned guarantees the truth and accuracy of all statements and the answers contained herein.

1. State the full and correct name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name.)

   1.1. The correct and full legal name of the Proposer is: Chen Moore and Associates Consulting Engineers, Inc.

   1.2. The business is a (Sole Proprietorship) (Partnership) (Corporation)

   1.3. The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows: Dr. Ben Chen, P.E., BCEE, Chairman; Peter Moore, P.E., LEED AP, President; Jason McClair, P.E., LEED AP, Treasurer; Oscar Bello, P.E., Secretary

2. Please describe your company in detail. Please see the following page.

3. The address of the principal place of business is: 500 West Cypress Creek Road, Suite 410 Fort Lauderdale, FL 33309

4. Company telephone number, fax number and e-mail addresses: Phone: (954) 730-0707 Fax: (954) 730-2030 Email: Pmoore@chenmoore.com

5. Number of employees: 25

6. Name of employees to be assigned to this Project: Please see the following page.

7. Company identification numbers for the Internal Revenue Service: FEIN 59-2739866

8. Provide Broward County occupational license number, if applicable, and expiration date: 315-650; September 30, 2011

9. How many years has your organization been in business? Does your organization have a specialty?

   Chen Moore and Associates has been in business for nearly 25 years. The firm specializes in civil and environmental engineering, GIS, landscape architecture, planning and construction administration.

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2010 THROUGH SEPTEMBER 30, 2011

DBA:
Business Name: CHEN & ASSOCIATES

Receipt #: 315-650
Business Type: ENGINEER (CORP OFFICE (ENGINEERS))

Owner Name: PETER MOORE
Business Location: 500 W CYPRESS CREEK RD 410
FT LAUDERDALE
Business Phone: 954-730-0707

Business Opened: 01/13/1987
State/County/Cert/Reg: 3266
Exemption Code: NONEXEMPT

Rooms	Seats	Employees	Machines	Professionals
		1		

For Vending Business Only
Number of Machines: Vending Type:

Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
30.00	0.00	0.00	0.00	0.00	0.00	30.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

PETER MOORE
500 W CYPRESS CREEK RD STE
410
FORT LAUDERDALE, FL 33309

Receipt #04B-09-00014286
Paid 08/27/2010 30.00

2010 - 2011

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2010 THROUGH SEPTEMBER 30, 2011

DBA:
Business Name: CHEN & ASSOCIATES

Receipt #: 315-650
Business Type: ENGINEER (CORP OFFICE (ENGINEERS))

Owner Name: PETER MOORE
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FT LAUDERDALE
Business Phone: 954-730-0707

Business Opened: 01/13/1987
State/County/Cert/Reg: 3266
Exemption Code: NONEXEMPT

Rooms	Seats	Employees	Machines	Professionals
		1		

Signature

For Vending Business Only
Number of Machines: Vending Type:

Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
30.00	0.00	0.00	0.00	0.00	0.00	30.00

Receipt #04B-09-00014286
Paid 08/27/2010 30.00

2. Please describe your company in detail.

Chen Moore and Associates is a multi-discipline consulting firm that is a Florida State and locally certified small business enterprise firm with offices in Palm Beach, Miami-Dade and Broward Counties. Founded in 1986, Chen Moore and Associates specializes in civil and environmental engineering; ;landscape architecture; planning; GIS analysis and mapping; transportation, streetscaping and traffic improvements; construction administration; wastewater collection, transmission, treatment, reuse and disposal; pump station design and rehabilitation; water supply, treatment, and distribution; stormwater system design and master plans; and modeling and permitting of drainage, water distribution, and sewer collection. Dr. Chen founded Chen Moore and Associates with a belief that relationships are the key to the planning, design and construction of successful projects. The firm is committed to providing responsive quality services while meeting the schedules and specific project needs of our clients.

6. Name of employees to be assigned to this Project:

Dr. Ben Chen, P.E., BCEE, QA/QC

Peter Moore, P.E., LEED AP, Principal-in-Charge

Jason McClair, P.E., LEED AP, Project Manager

James Barton, P.E., LEED AP, Engineering Support

Jennifer Smith, P.E., Engineering Support

Suzanne Dombrowski, P.E., Engineering Support

Paula Fonseca, Engineering Support

Joel Brownsey, Planning

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

10. List the last three project of this nature that the firm has completed? Please provide project description, reference and cost of work completed. Plesae see attached.

11. Have you ever failed to complete any work awarded to you? If so, where and why? N/A

12. Provide the following information concerning all contracts **in progress** as of the date of submission of this Proposal for your company, division or unit as appropriate.

Name of Project	Contract with:	Contract Amount	Estimated Completion Date	% of Completion to Date
Please see attached.				

(Continue list as necessary)

13. Provide the following information for any subconsultants you will engage if awarded the contract.

Subcontractor Name	Address	Work to be Performed
N/A - Chen Moore and		
Associates does not anticipate		
needing any subconsultants.		

The foregoing list of subconsultants may not be amended after award of the contract without the prior written approval of the Town Manager, whose approval shall not be unreasonably withheld.

Forms 2

10. List the last three project of this nature that the firm has completed? Please provide project description, reference and cost of work completed.

Broadview Park Neighborhood Improvement Project, Broward County, FL

The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected to design and administer the construction of improvements to Broadview Park. The project was separated into several bid packages for design and construction phasing.

The first Bid Package was to replace the entire existing water system as it was formerly a private utility. The project was designed and administered for approximately $1,021,000 and construction was completed on time and on budget for $11,000,000 in December 2007.

Bid Package #2 consists of 3 lift stations, thousands of linear feet of gravity sewer, force mains, drainage improvements, roadway restoration and new sidewalks, with an estimated total cost of $20 million. The gravity sewer system was designed using a GIS capacity analysis tool that calculated and summarized the flow rates for each parcel in the service area. GIS was utilized through the permitting phase to graphically show the flow for each pipe. Also, GIS was utilized during construction to track resident complaints, track the work that had been completed and estimate the Contractor's variance from the original schedule. The project was bid in October 2008 and commenced construction in February of 2009, with an anticipated project duration of 730 days.

The third Bid Package addresses sanitary sewer and drainage improvements, while enhancing the community's roadway and landscape. It is currently in the last stages of design with a proposed budget of $20 million.

The fourth Bid Package addresses sanitary sewer and drainage improvements, while enhancing the community's roadway and landscape. It is currently in the last stages of design with a proposed budget of $20 million.

Start and Completion Dates
January 2002 - December 2011

Client
Broward County
Patrick MacGregor
2555 West Copans Road
Pompano Beach, FL 33069-1233
(954) 831-0904

Cost of Work
$45 million

Master Lift Station # 11, Wilton Manors, FL

Chen Moore and Associates is responsible for the preparation of design plans and technical specifications for the proposed replacement of Lift Station 11 for the City of Wilton Manors. The project will involve the installation of new wetwell with new submersible pumps along with associated valve vault, flow meter, control panel components, and a new emergency generator. Lift Station 11 is located on the north side of NE 26th Drive between NE 14th Avenue and NE 16th Avenue at 1501 NE 26th Drive. It serves as the master pump station for the City of Wilton Manors by receiving all sanitary flow from the City limits and pumping to the force main network of the City of Fort Lauderdale for disposal and treatment. Lift Station 11 currently has 75 HP pumps in a "canned" dry pit configuration which is housed in a concrete masonry block structure. Due to the age of the facility along with the inadequate pumping capacity, the City of Wilton Manors wishes to replace Lift Station 11 to ensure adequate pumping capacity in the future.

Upon completion of the new lift station, the existing lift station facilities and structures will be demolished. The new Lift Station 11 facility will be a standard triplex submersible layout with external control panels within the City property surrounded by the existing concrete wall. The emergency generator will be housed within a weatherproof enclosure.

Start and Completion Dates
April 2011 - December 2011

Client
City of Wilton Manors
Peter Dokuchitz
524 NE 21 Court
Wilton Manors, FL 33305
(954) 390-2190

Cost of Work
$64,000 (fee)

CMOM Compliance Study, Coconut Creek, FL

Chen Moore and Associates reviewed all of the current documentation used by the City of Coconut Creek for day to day operations of its sanitary sewer system; developed an Overflow Emergency Response Plan, which provides a standardized course of action to follow in the event of a sanitary sewer overflow (SSO); developed recommendations for process improvements, which included improving program documentation, revising GIS sewer atlas, improving SSO tracking, modifying standard details and specifications, strengthening pre-treatment requirements, and providing an emergency response plan for overflow. Chen Moore and Associates also prepared the cMOM Compliance Report.

Start and Completion Dates
January 2009 - July 2009

Client
City of Coconut Creek
Michael Heimbach
4800 West Copans Road
Wilton Manors, FL 33063
(954) 956-1489

Cost of Work
$13,000 (fee)

12. Provide the following information concerning all contracts in progress as of the date of submission of this Proposal for your company, division or unit as appropriate.

Project Number	Project Name	Contract With	Contract Amount	Estimated Completion Date	% Remaining
003.017	Plantation Point Water & Sewer Imprvmts	City of Plantation	$59,880.00	June 2011	8.00%
009.017	Brwd Cty NRWWTP Atlas Prep	Hazen & Sawyer	$289,124.00	August 2011	29.00%
021.009	Broadview Park Bid Pack 2	Broward County	$2,481,174.82	May 2011	10.00%
021.010	Broadview Park BP 3	Broward County	$1,876,543.51	May 2011	8.00%
021.011	Broadview Park Bid Pack 4	Broward County	$2,037,888.04	November 2011	55.00%
021.012	BC UAZ 307/315 Utilities	Broward County	$1,807,815.00	May 2011	3.00%
021.013	BPNIP AM #3 - 20" Water Main Extension	Broward County	$652,147.00	May 2011	13.00%
021.014	BC UAZ 303, 314 & 318 Bid Pack 1	Broward County	$1,066,972.88	November 2011	25.00%
021.015	BC UAZ 316 Bid Pack 2	Broward County	$1,423,681.12	November 2011	66.00%
022.006	Water Treatment Plant Construction	City of N Lauderdale	$84,300.00	June 2011	23.00%
036.013	PMG County Maps	PMG & Assoc	$2,000.00	May 2011	11.00%
047.023	South Beach Parking Lot Wall Replacement	City of Ft Lauderdale	$236,754.75	May 2011	6.00%
047.030	SE 15th St Boat Launch & Marine Complex	City of Ft Lauderdale	$99,924.01	May 2011	8.00%
047.035	Fire Station # 35	City of Ft Lauderdale	$29,942.20	May 2011	0.00%
047.036	SR A1A Light Replacement Project	City of Ft Lauderdale	$238,754.70	August 2011	26.00%
052.003	Seminole Cir Estates Revw Hllywd Rsrvt	Seminole Tribe of Florida	$1,900.00	July 2011	21.00%
074.009	Watson Rice Hourly Rate Projects	Watson Rice	$4,795.00	December 2011	84.00%
074.010	MDX Project Audit 2010	Watson Rice	$3,295.00	December 2011	15.00%
074.011	Lake Worth Audit	Watson Rice	$4,300.00	December 2011	90.00%
089.011	Coconut Creek Parkway	City of Margate	$174,016.00	November 2011	43.00%
090.016	SW 26 Tr Area Drainage Improvements Proj	City of Dania Beach	$114,198.00	October 2011	40.00%
090.022	SE 5th Ave Alternative Traffic Calming	City of Dania Beach	$23,750.00	September 2011	37.00%
090.023	Citywide Traffic Calming, Sidewalk	City of Dania Beach	$24,580.00	December 2011	58.00%
090.024	SE 5th Ave Traffic Calming Design Projct	City of Dania Beach	$17,030.00	November 2011	53.00%
091.048	Program Managment for Fire Station 71	City of Coral Springs	$40,020.00	December 2011	98.00%
091.049	2010/2011 City Engineer	City of Coral Springs	$137,500.00	September 2011	29.00%
091.050	2010/2011 Community Development Services	City of Coral Springs	$35,000.00	September 2011	94.00%

Project Number	Project Name	Contract With	Contract Amount	Estimated Completion Date	% Remaining
091.052	2010/2011 MS 4-Municipal Separate Sewer	City of Coral Springs	$30,000.00	September 2011	90.00%
091.053	2010/2011 GIS Utilities Training	City of Coral Springs	$5,250.00	September 2011	100.00%
091.054	Sample Rd & University Dr Improvements	City of Coral Springs	$21,000.00	September 2011	100.00%
091.055	Program Mgmt for the Police Tacticl Bldg	City of Coral Springs	$5,000.00	September 2011	93.00%
092.021	Lift Station 21 Design	City of Pompano Beach	$631,735.00	September 2011	11.00%
092.025	Drainage Improvements NC 2-1	City of Pompano Beach	$183,606.00	October 2011	37.00%
092.039	Lift Station #11 Rehabilitation	City of Pompano Beach	$55,525.00	July 2011	18.00%
092.046	Lift Station 102 Improvements	City of Pompano Beach	$24,315.00	July 2011	22.00%
092.048	LS 21 Directional Drill Design	City of Pompano Beach	$1,500.00	December 2011	100.00%
095.002	Lift Station 13 Rehabilitation	City of Miramar	$29,650.00	July 2011	18.00%
099.001	City Center ROW Improvement Project	City of Miami Beach	$3,117,853.57	June 2011	14.00%
099.002	South Pointe - ROW Improvement Project	City of Miami Beach	$2,173,829.01	June 2012	18.00%
099.005	Sunset Islands 1 & 2	City of Miami Beach	$119,304.00	June 2012	16.00%
100.013	DEP Annual Report MS4 - Year 5	Seminole Tribe of Florida	$9,920.00	May 2011	3.00%
105.023	SW 60th Avenue Sidewalk-Add'l Services	Village of Pinecrest	$22,100.00	May 2011	10.00%
105.024	Suncrt Dr & Moss Ranch Rd Strmwtr Imprvm	Village of Pinecrest	$15,500.00	December 2011	100.00%
107.001	Key West - Transportation Engineering	City of Key West	$968,431.59	May 2012	48.00%
107.004	Piano Shop/City Maintenance Buidling	City of Key West	$9,625.00	September 2011	63.00%
107.006	Schooner Wharf Rebuild Eng Services	City of Key West	$58,618.00	May 2012	100.00%
107.009	Duval St Pedestrian Crosswalk Signals	City of Key West	$13,919.00	October 2011	100.00%
119.001	Expert Witness for Golden Beach	Weiss Serota Helfman Pastoriza Cole & Boniske, PA	$125,000.00	May 2011	6.00%
120.001	LBTS Town Engineer	Lauderdale-by-the-Sea	$48,000.00	Ongoing	6.00%
120.054	Flamingo Avenue Stormwater Improvements	Lauderdale-by-the-Sea	$35,758.00	June 2011	54.00%
120.055	W Tradewinds Ave Stormwater Improvements	Lauderdale-by-the-Sea	$26,082.00	April 2011	15.00%
125.006	DRC Services	City of Wilton Manors	$2,081.25	Ongoing	14.00%
125.008	Backflow Prevention Program Management	City of Wilton Manors	$10,055.00	May 2011	21.00%

Project Number	Project Name	Contract With	Contract Amount	Estimated Completion Date	% Remaining
125.009	Powerline Road Enhancements	City of Wilton Manors	$28,384.00	Ongoing	98.00%
125.011	WM Master Lift Station # 11	City of Wilton Manors	$75,840.00	December 2011	100.00%
126.002	ERCP Eng Proj Technical Review Support	Shaw Environmental	$27,720.00	February 2012	68.00%
129.002	FLL SWMP Update - Phase 2	Broward County Aviation Dept	$435,100.00	April 2012	80.00%
130.001	SOTC Lutheran Church & School Project	Shepherd of the Coast Lutheran Church	$38,194.60	July 2011	9.00%
133.002	NW 19th Ave To NW 21st Ave: from NW 191	City of Miami Gardens	$44,420.00	June 2011	2.00%
133.003	NW 38th Ave To NW 38th Pl: from NW 208	City of Miami Gardens	$18,300.00	June 2011	4.00%
133.006	NW 38th Ct Drainage Improvements	City of Miami Gardens	$16,670.00	August 2011	17.00%
133.007	NW 191st Street Drainage Improvements	City of Miami Gardens	$44,050.00	August 2011	49.00%
134.004	Hunter Manors Plat-Surveying	City of Pompano Beach CRA	$23,000.00	September 2011	53.00%
134.005	GIS Analytical Services East CRA	City of Pompano Beach CRA	$5,000.00	June 2011	17.00%
135.002	Improvements to FM Crossing Intrcstl Wtr	City of Deerfield Beach CRA	$80,834.00	December 2011	95.00%
135.003	Cove Gardens Improvements	City of Deerfield Beach CRA	$65,763.00	December 2011	97.00%
135.004	Main Beach Parking Area Improvements Pln	City of Deerfield Beach CRA	$43,980.00	December 2011	96.00%
136.001	Hollywood Stormwater Master Plan Update	City of Hollywood	$103,222.00	August 2011	12.00%
136.002	FDEP Section 319 Grant Application	City of Hollywood	$4,999.00	December 2011	100.00%
137.002	Riviera Beach Blue Heron	Riviera Beach Utility District	$57,342.00	June 2011	14.00%
137.004	Riviera Beach Dyer Rd & Haverhill Blvd	Riviera Beach Utility District	$56,350.00	September 2011	38.00%
137.005	Riviera Beach US 1 Utility Relocation	Riviera Beach Utility District	$218,354.00	January 2012	84.00%
137.006	Riviera Beach In-Line Chlorine	Riviera Beach Utility District	$13,760.00	June 2011	5.00%
137.007	Riviera Beach MLK Utility Relocation	Riviera Beach Utility District	$232,734.00	January 2012	42.00%
137.008	RBUD Blue Heron Congress	Riviera Beach Utility District	$59,179.00	August 2011	36.00%
137.009	Riviera Beach Propane Tank Relocation	Riviera Beach Utility District	$11,492.00	February 2012	62.00%
138.002	PBC WTP 8 RW Bypass	Carollo Engineers	$6,220.00	April 2012	49.00%
139.001	SWA Digital Utility Atlas	Solid Waste Authority of Palm Beach County	$94,250.00	August 2011	53.00%

Project Number	Project Name	Contract With	Contract Amount	Estimated Completion Date	% Remaining
141.001	Monterra-Planning & Engineering Services	CM Monterra Property LLC	$199,000.00	November 2011	52.00%
141.002	Monterra Blvd/Taramea Ave S & M Redesign	CM Monterra Property LLC	$9,500.00	June 2011	83.00%
141.003	2D & 2G Horizontal Control Plans	CM Monterra Property LLC	$6,500.00	June 2011	100.00%
142.001	Monterra Vista del Sol Sewer	CC Devco LLC	$7,000.00	June 2011	21.00%
143.001	Lake Patricia Rdwy & Drainage Imprvmnts	Town of Miami Lakes	$74,400.00	March 2012	98.00%
144.001	Nieto Residence-112 Paloma Dr Coral Gbls	R & O Studio LLC	$6,500.00	August 2011	64.00%
145.001	Pompano Beach Municipal Golf Course	Greg Norman Golf Course Design Company	$10,000.00	August 2011	6.00%
146.001	Palms West Hospital - 32 Bed Expansion	Gresham Smith & Partners	$19,500.00	September 2011	87.00%
147.001	Everglades on the Bay-Landscape Imprvmts	Everglades on the Bay Master Association, Inc	$5,300.00	August 2011	41.00%
148.001	Sunrise PS2 Permitting	Mock Ross & Associates Inc	$12,000.00	July 2011	100.00%
149.001	N Miami Medical Office Sewer Connection	Siegel Lipman Dunay Shepard & Misel LLC	$1,900.00	July 2011	100.00%
Totals			$22,867,701.05		

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP Form B

Proposer: Chen Moore and Associates

REFERENCE FORM

Forms A, B & C are available in WORD format from the Town Clerk upon request.

THIS FORM MUST BE SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The Proposer guarantees the truth and accuracy of all statements and the answers contained herein.

Give names, addresses and telephone numbers of four individuals, corporations, agencies, or institutions for which you have performed work similar to what is proposed in this RFP:

1. Name of Contact Patrick MacGregor, Broward County

   Title of Contact Expansion Project Administrator

   Telephone Number: (954) 831-0904 Fax Number (954) 831-0798

2. Name of Contact Alessandra Delfico, City of Pompano Beach

   Title of Contact Civil Engineer III

   Telephone Number: (954) 786-4144 Fax Number (954) 786-4028

3. Name of Contact Ron Eyma, City of Miramar

   Title of Contact Utility System Manager

   Telephone Number: (954) 538-6806 Fax Number (954) 602-4708

4. Name of Contact Peter Dokuchitz, City of Wilton Manors

   Title of Contact City Planner

   Telephone Number: (954) 390-2190 Fax Number (954) 390-2199

Forms 3

SANITARY SEWER SYSTEM EVALUATION, ANALYSIS AND ENGINEERING SERVICES

Town of Lauderdale-By-The-Sea RFP No. 11-04-02

RFP FORMS

RFP Form C

Proposer: Chen Moore and Associates

PROPOSER'S CERTIFICATION

THIS FORM MUST BE SIGNED AND SUBMITTED WITH PROPOSAL TO BE DEEMED RESPONSIVE. The undersigned guarantees the truth and accuracy of all statements and the answers contained herein.

I have carefully examined the Request for Proposal referenced above ("RFP") and any other documents accompanying or made a part of this RFP.

I hereby propose to furnish the goods or services specified in the RFP. I agree that my proposal will remain firm for a period of 120 days in order to allow the Town adequate time to evaluate the proposals.

I certify that all information contained in this proposal is truthful to the best of my knowledge and belief. I further certify that I am duly authorized to submit this proposal on behalf of the firm as its act and deed and that the firm is ready, willing and able to perform if awarded the contract.

The firm and/or Proposer hereby authorizes the Town of Lauderdale-by-the-Sea, its staff or consultants, to contact any of the references provided in the proposal and specifically authorizes such references to release, either orally or in writing, any appropriate data with respect to the firm offering this proposal.

I further certify, under oath, that this proposal is made without prior understanding, agreement, connection, discussion, or collusion with any other person, firm or corporation submitting a proposal for the same product or service; no officer, employee or agent of the Town or any other proposer is interested in said proposal; and that the undersigned executed this Proposer's Certification with full knowledge and understanding of the matters therein contained and was duly authorized to do so.

If this proposal is selected, I understand that I will be expected to execute the Town's standard professional services contract, in the form approved by the Town Attorney.

A person or affiliate who has been placed on the convicted vendor list following a conviction for public entity crimes may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public

entity, may not be awarded or perform work as a contractor, supplier, sub-contractor, or consultant under a contract with a public entity, and may not transact business with any public entity in excess of the threshold amount provided in Sec. 287.017 Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list. I further certify, under oath, that neither the entity submitting this sworn statement, not to my knowledge, any of its officers, directors, executives, partners, shareholder, employees, members or agents active in the management of the entity has been convicted of a public entity crime subsequent to July 1, 1989.

Chen Moore and Associates
Name of Business

By: _____
Signature

Peter Moore, P.E., LEED AP, President
Print Name and Title

500 West Cypress Creek Road, Suite 410

Fort Lauderdale, FL 33309
Mailing Address

State of Florida
County of Broward

Sworn to and subscribed before me this 18th day of May, 2011.

Notary Public
Leigh Barron

Leigh Barron June 6, 2011
My Commission Expires:

NOTARY PUBLIC-STATE OF FLORIDA
Leigh Barron
Commission #DD768544
Expires: JUNE 06, 2011
BONDED THRU ATLANTIC BONDING CO., INC.

Forms 5

Resumes

CHEN·MOORE
&ASSOCIATES

Ben H Chen, PhD, PE, BCEE
Chairman and Founder

Education:
Bachelor of Science, Civil Engineering, National Taiwan University, 1967
Master of Science, Sanitary Engineering, National Taiwan University, 1969
Doctor of Philosophy, Civil Engineering, Virginia Polytechnic Institute and State University, 1973

Registration:
Professional Engineer, Florida, 31849, 1982
Professional Engineer, Virginia, 008803, 1976

Summary:

Dr. Chen has over 36 years of professional experience in the civil and environmental engineering field of which over 35 years was in consulting engineering in the civil, water and wastewater areas. His experience includes urban infrastructure renewal, water and wastewater treatment facilities design and construction management, facilities planning, environmental studies, utilities master planning, rate and financial studies.

Project Experience:
Broadview Park NIP Basis of Design Report. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and subsequent bid packages. The BODR consisted of the analysis of a variety of alternatives for water and sewer service, along with conceptual drainage permitting. It was completed on time and on budget.

St. George East. The Central County Neighborhood Improvement Project (CCNIP) is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected to be the design engineer for one third of the project sites, including the Franklin Park, Washington Park, St. George West and East neighborhood areas. Chen Moore and Associates was also part of a team of engineers that completed the basis of design report (BODR), and served as the project reviewer that made recommendations resulting in substantial savings to the project's budget. The St. George East Portion of the project, which is located SE of Sunrise Boulevard and NW 31st Avenue was designed and administered for a fee of approximately $1,200,000.00. It involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features.

Lift Station #21 - BODR. Chen Moore and Associates was contracted by the City of Pompano Beach to complete a Basis of Design Report (BODR) for the Rehabilitation and/or Relocation of Master Pump Station #21. This 3,000 GPM station was located near significant civic functions, including the public beach and pier. The BODR evaluated several alternatives, with the relocation of the facility to a nearby City owner Parking Lot as the selected alternative.

Lift Station 3, 4, 11 & 12 Rehab or Replacement. Chen Moore and Associates was contracted by the City of Pompano Beach to continue with the Harbor Drive Improvement Project, which included the rehabilitation of four lift stations and the construction of new force mains which connect each lift station into the sanitary pressure network for the City of Pompano Beach. Each of these lift stations previously repumped into an adjacent manhole located within the service area of another lift

station. The outgoing force main from each of these lift stations was rerouted to connect directly to the new force main located along Harbor Drive. Chen Moore and Associates was the prime consultant responsible for the design, permitting, and construction administration for the rehabilitation of existing Lift Station 2, 3, 4, 11, and 12.

Harbor Drive FM Study. Chen Moore and Associates was responsible for the preparation of a SewerCAD computer model of the proposed force main and lift station improvements along Harbor Drive for pressure analysis. The analysis included 7 existing lift stations, which previously pumped to the City's Master Lift Station #2 for repumping into the 36-inch backbone force main. Upon completion of the proposed improvements, each of the 7 existing lift station were to connect to a new 12-inch force main along Harbor Drive, which connected directly to the 36-inch backbone force main. The purposed of the analysis was to determine the increased pressure head that would be faced at these 7 lift stations and estimate the impact on the flow conditions from each pump. As a result of this analysis, Chen Moore and Associates developed recommendations for new pumps at all 7 lift stations and for force main diameters along Harbor Drive.

CMOM Compliance Study. Chen Moore and Associates reviewed all of the current documentation used by the City of Coconut Creek for day to day operations of its sanitary sewer system; developed an Overflow Emergency Response Plan, which provides a standardized course of action to follow in the event of a sanitary sewer overflow (SSO); developed recommendations for process improvements, which included improving program documentation, revising GIS sewer atlas, improving SSO tracking, modifying standard details and specifications, strengthening pre-treatment requirements, and providing an emergency response plan for overflow. Chen Moore and Associates also prepared the cMOM Compliance Report.

CRA Infrastructure Master Plan. Chen Moore and Associates was retained by the City of North Miami Beach to prepare an infrastructure master plan to estimate the impact of future redevelopment within the CRA area on the existing sanitary sewer system, the existing water distribution system, and the existing stormwater drainage system.

CHEN·MOORE
&ASSOCIATES

Peter M Moore, PE, LEED AP
President and CEO

Education:
Bachelor of Science, Civil Engineering, University of Florida, 1997
Master of Engineering, Civil Engineering, University of Florida, 2004

Registration:
Professional Engineer, Florida, 58709, 2002

Summary:

As the President of the firm, Mr. Moore is ultimately responsible for all day to day operations of the firm. Mr. Moore works as the Client Project Manager for work in Broward County, Pompano Beach and Deerfield Beach and continues to be involved in the successful completion of projects. These projects include sanitary collection improvements, pump station rehabilitation, transportation engineering enhancements, water and reclaimed water consulting along with all other phases of civil engineering design and neighborhood improvements. Additionally, Mr. Moore serves as the Assistant City Engineer for the City of Coral Springs and is the spokesperson for the City's Engineering Division.

Project Experience:
Broadview Park NIP Basis of Design Report. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and subsequent bid packages. The BODR consisted of the analysis of a variety of alternatives for water and sewer service, along with conceptual drainage permitting. It was completed on time and on budget.

St. George East. The Central County Neighborhood Improvement Project (CCNIP) is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected to be the design engineer for one third of the project sites, including the Franklin Park, Washington Park, St. George West and East neighborhood areas. Chen Moore and Associates was also part of a team of engineers that completed the basis of design report (BODR), and served as the project reviewer that made recommendations resulting in substantial savings to the project's budget. The St. George East Portion of the project, which is located SE of Sunrise Boulevard and NW 31st Avenue was designed and administered for a fee of approximately $1,200,000.00. It involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features.

CMOM Compliance Study. Chen Moore and Associates reviewed all of the current documentation used by the City of Coconut Creek for day to day operations of its sanitary sewer system; developed an Overflow Emergency Response Plan, which provides a standardized course of action to follow in the event of a sanitary sewer overflow (SSO); developed recommendations for process improvements, which included improving program documentation, revising GIS sewer atlas, improving SSO tracking, modifying standard details and specifications, strengthening pre-treatment requirements, and providing an emergency response plan for overflow. Chen Moore and Associates also prepared the cMOM Compliance Report.

Capacity, Management, Operations and Maintenance (CMOM) Study. Chen Moore

and Associates evaluated several components of the City of Pompano Beach's wastewater collection and transmission system for compliance with proposed Capacity, Management, Operations and Maintenance (CMOM) regulations. At the conclusion of this four month study, Chen Moore and Associates prepared a plan of action and proposed budget for the City to move forward.

Pompano Lift Station 18 & 18A. Chen Moore and Associates completed an inflow infiltration study for the City of Pompano Beach. The study included viewing sewer line videos to estimate inflow, using GIS to map water consumption data by parcel in the study area and determining pump station flow rates using pump data. The implementation strategy proved effective as the sum of consumption plus estimated inflow matched the total lift station pump volumes.

LS #42 Capacity Analysis. Chen Moore and Associates was responsible for the preparation of a SewerCAD computer model of the force main network downstream of Lift Station #42 for pressure analysis purposes.

Lift Station 21 Design. Chen Moore and Associates is the prime consultant responsible for the design, permitting and construction administration for the relocation of the existing LS 21 (master pump station) serving a majority of the City's barrier island. After completing the Basis of Design Report, Chen Moore and Associates proposed a variety of options to handle the approximately 3,500 GPM existing flow and conducted follow-up odor studies for specific design purposes. The design options included in-line booster and submersible pumps with variable frequency drives and liquid and vapor phase treatments. Additional concerns include odor control, dewatering contamination and electrical supply and generation. The final design option (approved in Oct. 2007) is different from the recommended "hybrid" design in the BODR in that the design will now only involve a submersible lift station coupled with biological vapor phase odor control and strategic chemical liquid phase odor control (no in-line booster station involved). The estimated construction cost for the final, approved design option is about $3.06 million (versus $3.25M stated in the BODR for the hybrid in-line booster / submersible station, which was later increased to $4.31M for various reasons).

Miramar - Lift Station Rehab of #5, #13. This project is for the rehabilitation of two lift stations for the City of Miramar. Lift Station #5 is being cleaned and relined along with adding an additional force main. Lift Station #13 is being totally rehabilitated including a switch from suction lift to submersible pumps.

CHEN·MOORE
&ASSOCIATES

Jason J McClair, PE, LEED AP
Branch Manager and Senior Engineer

Education:
Bachelor of Science, Civil Engineering, University of Florida, 1996

Registration:
Professional Engineer, Florida, 56962, 2001

Summary:

Mr. McClair is a senior civil engineer with experience and knowledge in various disciplines, such as utility infrastructure design, regulatory permitting, geotechnical engineering, and computer aided flow modeling for stormwater collection, water distribution, and sanitary transmission systems. He is currently the project manager for the Fort Lauderdale-Hollywood International Airport Stormwater Master Plan Update. He is also the client contact for the Town of Lauderdale-by-the-Sea, City of Pompano Beach, City of Fort Lauderdale, City of Coconut Creek, and Village of Islamorada on all projects.

Project Experience:
Broadview Park NIP Basis of Design Report. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and subsequent bid packages. The BODR consisted of the analysis of a variety of alternatives for water and sewer service, along with conceptual drainage permitting. It was completed on time and on budget.

St. George East. The Central County Neighborhood Improvement Project (CCNIP) is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected to be the design engineer for one third of the project sites, including the Franklin Park, Washington Park, St. George West and East neighborhood areas. Chen Moore and Associates was also part of a team of engineers that completed the basis of design report (BODR), and served as the project reviewer that made recommendations resulting in substantial savings to the project's budget. The St. George East Portion of the project, which is located SE of Sunrise Boulevard and NW 31st Avenue was designed and administered for a fee of approximately $1,200,000.00. It involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features.

CMOM Compliance Study. Chen Moore and Associates reviewed all of the current documentation used by the City of Coconut Creek for day to day operations of its sanitary sewer system; developed an Overflow Emergency Response Plan, which provides a standardized course of action to follow in the event of a sanitary sewer overflow (SSO); developed recommendations for process improvements, which included improving program documentation, revising GIS sewer atlas, improving SSO tracking, modifying standard details and specifications, strengthening pre-treatment requirements, and providing an emergency response plan for overflow. Chen Moore and Associates also prepared the cMOM Compliance Report.

CRA Infrastructure Master Plan. Chen Moore and Associates was retained by the City of North Miami Beach to prepare an infrastructure master plan to estimate the impact of future redevelopment within the CRA area on the existing sanitary sewer system, the existing

water distribution system, and the existing stormwater drainage system.

Harbor Drive FM Study. Chen Moore and Associates was responsible for the preparation of a SewerCAD computer model of the proposed force main and lift station improvements along Harbor Drive for pressure analysis. The analysis included 7 existing lift stations, which previously pumped to the City's Master Lift Station #2 for repumping into the 36-inch backbone force main. Upon completion of the proposed improvements, each of the 7 existing lift station were to connect to a new 12-inch force main along Harbor Drive, which connected directly to the 36-inch backbone force main. The purposed of the analysis was to determine the increased pressure head that would be faced at these 7 lift stations and estimate the impact on the flow conditions from each pump. As a result of this analysis, Chen Moore and Associates developed recommendations for new pumps at all 7 lift stations and for force main diameters along Harbor Drive.

Lift Station #24. Chen Moore and Associates was contracted by the City of Pompano Beach to design the rehabilitation of Lift Station 24 serving the barrier island of the City between Intracoastal Waterway and Atlantic Ocean. The proposed improvements included the installation of new force main, the replacement of an existing water main, and the rehabilitation of an existing lift station. Lift Station 24 previously repumped into an adjacent manhole within the service area of another lift station. The outgoing force main was rerouted to connect directly to the existing 24-inch force main within the City's backbone force main network. The submersible pumps at Lift Station 24 had to be upgrade due to the higher connection pressure encountered at the backbone force main. Under this contract, Chen Moore and Associates was also responsible for developing a computer model of the City's force main network using the SewerCAD software to allow analysis of the pressures within the network.

Miramar - Lift Station Rehab of #5, #13. This project is for the rehabilitation of two lift stations for the City of Miramar. Lift Station #5 is being cleaned and relined along with adding an additional force main. Lift Station #13 is being totally rehabilitated including a switch from suction lift to submersible pumps.

Palm Club Sewer. Chen Moore and Associates used LIDAR data to get elevations for the initial layout of gravity sewer project. Although LIDAR was not adequate in areas with tree cover, it proved to be within 2 inches on the open road surface when compared to the survey. Using LIDAR took survey out of the critical design path and enabled the design to proceed to the 30% level needed for coordination, reducing overall design time.

Master Lift Station # 11. Chen Moore and Associates is responsible for the preparation of design plans and technical specifications for the proposed replacement of Lift Station 11 for the City of Wilton Manors. The project will involve the installation of new wetwell with new submersible pumps along with associated valve vault, flow meter, control panel components, and a new emergency generator. Lift Station 11 is located on the north side of NE 26th Drive between NE 14th Avenue and NE 16th Avenue at 1501 NE 26th Drive. It serves as the master pump station for the City of Wilton Manors by receiving all sanitary flow from the City limits and pumping to the force main network of the City of Fort Lauderdale for disposal and treatment. Lift Station 11 currently has 75 HP pumps in a "canned" dry pit configuration which is housed in a concrete masonry block structure. Due to the age of the facility along with the inadequate pumping capacity, the City of Wilton Manors wishes to replace Lift Station 11 to ensure adequate pumping capacity in the future.

CHEN·MOORE
&ASSOCIATES

Branch Manager and Senior Engineer

Education:
Bachelor of Science, Civil Engineering, Queens University (Canada), 1990

Registration:
Professional Engineer, Florida, 59257, 2003

Summary:

Mr. Barton is a Senior Engineer and West Palm Beach branch manager with 17 years of experience both internationally and domestically. The main focus of his international experience includes engineering design and project management of water and sanitation programs, including water resources, infrastructure rehabilitation and GIS implementation. His domestic experience includes environmental engineering, utilities and road construction. Mr. Barton routinely integrates GIS technology with engineering. He is working with ESRI developing software tools to assist in detail design and is spearheading Chen Moore and Associates' efforts to implement GIS / GPS for construction field inspection. He is currently studying towards a Certificate in Integrated Watershed Management and a Certificate in Visual Planning (GIS Technology).

Project Experience:
Broadview Park NIP Basis of Design Report. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and subsequent bid packages. The BODR consisted of the analysis of a variety of alternatives for water and sewer service, along with conceptual drainage permitting. It was completed on time and on budget.

St. George East. The Central County Neighborhood Improvement Project (CCNIP) is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected to be the design engineer for one third of the project sites, including the Franklin Park, Washington Park, St. George West and East neighborhood areas. Chen Moore and Associates was also part of a team of engineers that completed the basis of design report (BODR), and served as the project reviewer that made recommendations resulting in substantial savings to the project's budget. The St. George East Portion of the project, which is located SE of Sunrise Boulevard and NW 31st Avenue was designed and administered for a fee of approximately $1,200,000.00. It involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features.

CMOM Compliance Study. Chen Moore and Associates reviewed all of the current documentation used by the City of Coconut Creek for day to day operations of its sanitary sewer system; developed an Overflow Emergency Response Plan, which provides a standardized course of action to follow in the event of a sanitary sewer overflow (SSO); developed recommendations for process improvements, which included improving program documentation, revising GIS sewer atlas, improving SSO tracking, modifying standard details and specifications, strengthening pre-treatment requirements, and providing an emergency response plan for overflow. Chen Moore and Associates also prepared the cMOM Compliance Report.

CRA Infrastructure Master Plan. Chen Moore and Associates was retained by the City of North Miami Beach to prepare an infrastructure master plan to estimate the impact of future redevelopment within the CRA area on the

existing sanitary sewer system, the existing water distribution system, and the existing stormwater drainage system.

Lift Station #21 - BODR. Chen Moore and Associates was contracted by the City of Pompano Beach to complete a Basis of Design Report (BODR) for the Rehabilitation and/or Relocation of Master Pump Station #21. This 3,000 GPM station was located near significant civic functions, including the public beach and pier. The BODR evaluated several alternatives, with the relocation of the facility to a nearby City owner Parking Lot as the selected alternative.

Capacity, Management, Operations and Maintenance (CMOM) Study. Chen Moore and Associates evaluated several components of the City of Pompano Beach's wastewater collection and transmission system for compliance with proposed Capacity, Management, Operations and Maintenance (CMOM) regulations. At the conclusion of this four month study, Chen Moore and Associates prepared a plan of action and proposed budget for the City to move forward.

Miramar - Lift Station Rehab of #5, #13. This project is for the rehabilitation of two lift stations for the City of Miramar. Lift Station #5 is being cleaned and relined along with adding an additional force main. Lift Station #13 is being totally rehabilitated including a switch from suction lift to submersible pumps.

Lauderdale-by-the-Sea Town Engineer. Chen Moore and Associates is the Town Engineer for the Town of Lauderdale-by-the-Sea, providing technical support to all engineering related matters. One of the main priorities is reviewing and approving engineering plan submittals for site plan review and engineering permits. This requires ensuring all submittals comply with Town ordinances and all County, State and Federal regulations regarding site development.

Reviews include general site conditions, water, sewer, paving, drainage, appropriate permit calculations, NPDES permitting and compliance, traffic analysis and proper coordination with surrounding municipalities.

Several studies have been made and recommendations have been given to the town on a variety of topics including:

- Stormwater study for flooding prevention
- NPDES compliance study and report
- MS4 annual report
- Parallel, angled and valet parking specifications
- Drive-through restaurant requirements
- Structural beautification features
- Streetscape improvements for El Mar Drive
- General engineering details and specifications
- Turtle compliant street lights
- GIS map production
- Archiving digital record drawings
- Sewer design for Palm Club

Palm Club Sewer. Chen Moore and Associates used LIDAR data to get elevations for the initial layout of gravity sewer project. Although LIDAR was not adequate in areas with tree cover, it proved to be within 2 inches on the open road surface when compared to the survey. Using LIDAR took survey out of the critical design path and enabled the design to proceed to the 30% level needed for coordination, reducing overall design time.

CHEN·MOORE
&ASSOCIATES

Jennifer Lea Smith, PE
Senior Engineer

Education:
Bachelor of Science, Civil Engineering, Florida Atlantic Engineering, 2006

Registration:
Engineer In Training, Florida, 1100010887, 2006
Professional Engineer, Florida, 72232, 2011

Summary:

Ms. Smith is currently serving as a senior engineer with Chen Moore and Associates. Her three years of experience in the civil engineering field includes GIS and AutoCAD design work, detailed design work on the Broward County UAZ Water and Sewer Improvement Project, Stormwater Master Plan for the City of Dania Beach, Drainage Design for the City of Pompano Beach and the Design of GIS Utility Atlases. Current duties include water main, sanitary sewer and lift station design and permitting, drainage design and permitting as well as GIS modeling.

Project Experience:
St. George East. The Central County Neighborhood Improvement Project (CCNIP) is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected to be the design engineer for one third of the project sites, including the Franklin Park, Washington Park, St. George West and East neighborhood areas. Chen Moore and Associates was also part of a team of engineers that completed the basis of design report (BODR), and served as the project reviewer that made recommendations resulting in substantial savings to the project's budget. The St. George East Portion of the project, which is located SE of Sunrise Boulevard and NW 31st Avenue was designed and administered for a fee of approximately $1,200,000.00. It involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features.

CMOM Compliance Study. Chen Moore and Associates reviewed all of the current documentation used by the City of Coconut Creek for day to day operations of its sanitary sewer system; developed an Overflow Emergency Response Plan, which provides a standardized course of action to follow in the event of a sanitary sewer overflow (SSO); developed recommendations for process improvements, which included improving program documentation, revising GIS sewer atlas, improving SSO tracking, modifying standard details and specifications, strengthening pre-treatment requirements, and providing an emergency response plan for overflow. Chen Moore and Associates also prepared the cMOM Compliance Report.

CRA Infrastructure Master Plan. Chen Moore and Associates was retained by the City of North Miami Beach to prepare an infrastructure master plan to estimate the impact of future redevelopment within the CRA area on the existing sanitary sewer system, the existing water distribution system, and the existing stormwater drainage system.

Lift Station 3, 4, 11 & 12 Rehab or Replacement. Chen Moore and Associates was contracted by the City of Pompano Beach to continue with the Harbor Drive Improvement Project, which included the rehabilitation of four lift stations and the construction of new force mains which connect each lift station into the sanitary pressure network for the City of Pompano Beach. Each of these lift stations previously repumped into an adjacent manhole located within the service area of another lift station. The outgoing force main from each of

these lift stations was rerouted to connect directly to the new force main located along Harbor Drive. Chen Moore and Associates was the prime consultant responsible for the design, permitting, and construction administration for the rehabilitation of existing Lift Station 2, 3, 4, 11, and 12.

Lift Station #21 - BODR. Chen Moore and Associates was contracted by the City of Pompano Beach to complete a Basis of Design Report (BODR) for the Rehabilitation and/or Relocation of Master Pump Station #21. This 3,000 GPM station was located near significant civic functions, including the public beach and pier. The BODR evaluated several alternatives, with the relocation of the facility to a nearby City owner Parking Lot as the selected alternative.

Lauderdale-by-the-Sea Town Engineer. Chen Moore and Associates is the Town Engineer for the Town of Lauderdale-by-the-Sea, providing technical support to all engineering related matters. One of the main priorities is reviewing and approving engineering plan submittals for site plan review and engineering permits. This requires ensuring all submittals comply with Town ordinances and all County, State and Federal regulations regarding site development.

Reviews include general site conditions, water, sewer, paving, drainage, appropriate permit calculations, NPDES permitting and compliance, traffic analysis and proper coordination with surrounding municipalities.

Several studies have been made and recommendations have been given to the town on a variety of topics including:

- Stormwater study for flooding prevention
- NPDES compliance study and report
- MS4 annual report
- Parallel, angled and valet parking specifications
- Drive-through restaurant requirements
- Structural beautification features
- Streetscape improvements for El Mar Drive
- General engineering details and specifications
- Turtle compliant street lights
- GIS map production
- Archiving digital record drawings
- Sewer design for Palm Club

Palm Club Sewer. Chen Moore and Associates used LIDAR data to get elevations for the initial layout of gravity sewer project. Although LIDAR was not adequate in areas with tree cover, it proved to be within 2 inches on the open road surface when compared to the survey. Using LIDAR took survey out of the critical design path and enabled the design to proceed to the 30% level needed for coordination, reducing overall design time.

Master Lift Station # 11. Chen Moore and Associates is responsible for the preparation of design plans and technical specifications for the proposed replacement of Lift Station 11 for the City of Wilton Manors. The project will involve the installation of new wetwell with new submersible pumps along with associated valve vault, flow meter, control panel components, and a new emergency generator. Lift Station 11 is located on the north side of NE 26th Drive between NE 14th Avenue and NE 16th Avenue at 1501 NE 26th Drive. It serves as the master pump station for the City of Wilton Manors by receiving all sanitary flow from the City limits and pumping to the force main network of the City of Fort Lauderdale for disposal and treatment. Lift Station 11 currently has 75 HP pumps in a "canned" dry pit configuration which is housed in a concrete masonry block structure. Due to the age of the facility along with the inadequate pumping capacity, the City of Wilton Manors wishes to replace Lift Station 11 to ensure adequate pumping capacity in the future.

CHEN·MOORE
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Suzanne Marie Dombrowski, PE
Senior Engineer

Education:
Bachelor of Science, Civil Engineering, University of Florida, 2005
Master of Engineering, Civil Engineering, University of Florida, 2006

Registration:
Professional Engineer, Florida, 69918, 2009

Summary:

Ms. Dombrowski is a senior engineer with Chen Moore and Associates. She holds a bachelor's degree in civil engineering and a master's degree in engineering with a specialization in civil engineering from the University of Florida. Ms. Dombrowski is now working on the utility coordination projects for Riviera Beach Utility District, including the water and sewer designs, permitting and construction administration.

Project Experience:
St. George East. The Central County Neighborhood Improvement Project (CCNIP) is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected to be the design engineer for one third of the project sites, including the Franklin Park, Washington Park, St. George West and East neighborhood areas. Chen Moore and Associates was also part of a team of engineers that completed the basis of design report (BODR), and served as the project reviewer that made recommendations resulting in substantial savings to the project's budget. The St. George East Portion of the project, which is located SE of Sunrise Boulevard and NW 31st Avenue was designed and administered for a fee of approximately $1,200,000.00. It involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features.

Broadview Park Bid Pack 4. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and subsequent bid packages. The fourth Bid Package addresses sanitary sewer and drainage improvements, while enhancing the community's roadway and landscape. It is currently in the last stages of design with a proposed budget of $20 million.

Lift Station 21 Design. Chen Moore and Associates is the prime consultant responsible for the design, permitting and construction administration for the relocation of the existing LS 21 (master pump station) serving a majority of the City's barrier island. After completing the Basis of Design Report, Chen Moore and Associates proposed a variety of options to handle the approximately 3,500 GPM existing flow and conducted follow-up odor studies for specific design purposes. The design options included in-line booster and submersible pumps with variable frequency drives and liquid and vapor phase treatments. Additional concerns include odor control, dewatering contamination and electrical supply and generation. The final design option (approved in Oct. 2007) is different from the recommended "hybrid" design in the BODR in that the design will now only involve a submersible lift station coupled with biological vapor phase odor control and strategic chemical liquid phase odor control (no in-line booster station involved). The estimated construction cost for the final, approved design option is about $3.06 million (versus $3.25M stated in the BODR for the hybrid in-line booster / submersible station, which was later increased to $4.31M for various reasons).

Lift Station #110 Rehabilitation. Chen Moore and Associates was tasked with design and documentation services associated with the rehabilitation of the Utilities compound equipment parking lot, located south of NE 13th Street and east of the FEC railroad tracks in the City of Pompano Beach. The project area covers approximately 30,000 SF and is adjacent to an existing paved parking lot used by City employees. The lot is enclosed by a chain link fence to the north and to the west of the lot, and consists of compacted limerock and gravel with little to no landscaping. There currently is no drainage on site. The lot is used to store various utility vehicles, such as vacuum trucks, loaders and sweepers for the short-term.

Lift Station 13 Rehabilitation. Chen Moore and Associates prepared the engineering design for the rehabilitation of Pump Station #13 with associated force main installation. The purpose of Lift Station #13 Rehabilitation Project was to directly connect the lift station to the City's backbone force main system, which would eliminate the repumping of effluent through Lift Station #6. The installation of 8-inch force main west along Miramar Boulevard with an aerial aqueous crossing with University Drive canal was required to connect to existing 24-inch force main.

Lauderdale-by-the-Sea Town Engineer. Chen Moore and Associates is the Town Engineer for the Town of Lauderdale-by-the-Sea, providing technical support to all engineering related matters. One of the main priorities is reviewing and approving engineering plan submittals for site plan review and engineering permits. This requires ensuring all submittals comply with Town ordinances and all County, State and Federal regulations regarding site development.

Reviews include general site conditions, water, sewer, paving, drainage, appropriate permit calculations, NPDES permitting and compliance, traffic analysis and proper coordination with surrounding municipalities.

Several studies have been made and recommendations have been given to the town on a variety of topics including:

- Stormwater study for flooding prevention
- NPDES compliance study and report
- MS4 annual report
- Parallel, angled and valet parking specifications
- Drive-through restaurant requirements
- Structural beautification features
- Streetscape improvements for El Mar Drive
- General engineering details and specifications
- Turtle compliant street lights
- GIS map production
- Archiving digital record drawings
- Sewer design for Palm Club

Lauderdale-By-The-Sea Stormwater Master Plan. Chen Moore and Associates completed the Stormwater Master Plan for the Town of Lauderdale-by-the-Sea. This project included gathering all existing information available from previous permits, reports and studies and confirming their accuracy for use in the existing conditions model, updating the digital stormwater atlas in GIS, utilizing LIDAR data to create a surface model of the Town, collecting resident complaints and preparing the existing conditions model with Interconnected Pond Routing (ICPR) Software. After the existing conditions model was completed, Chen Moore and Associates identified areas with flooding issues and recommended stormwater improvements. A proposed conditions model was prepared with ICPR and the results was presented to the public and Town Commissioners.

CHEN·MOORE
&ASSOCIATES

Paula A Fonseca
Associate Engineer

Education:
Bachelor of Science, Civil Engineering, Florida Atlantic University, 2008

Registration:
N/A

Summary:

Ms. Fonseca is a civil engineering graduate of Florida Atlantic University. She serves as an associate engineer in Chen Moore and Associates' West Palm Beach office and assists with AutoCADD and GIS design work.

Project Experience:
Broadview Park Bid Pack 2. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected to design and administer the construction of improvements to Broadview Park. The project was separated into several bid packages for design and construction phasing. Bid Package #2 consists of 3 lift stations, thousands of linear feet of gravity sewer, force mains, drainage improvements, roadway restoration and new sidewalks, with an estimated total cost of $20 million. The gravity sewer system was designed using a GIS capacity analysis tool that calculated and summarized the flow rates for each parcel in the service area. GIS was utilized through the permitting phase to graphically show the flow for each pipe. Also, GIS was utilized during construction to track resident complaints, track the work that had been completed and estimate the Contractor's variance from the original schedule. The project was bid in October 2008 and commenced construction in February of 2009, with an anticipated project duration of 730 days.

Broadview Park BP 3. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and subsequent bid packages. The third Bid Package addressed sanitary sewer and drainage improvements, while enhancing the community's roadway and landscape.

Lift Station 21 Design. Chen Moore and Associates is the prime consultant responsible for the design, permitting and construction administration for the relocation of the existing LS 21 (master pump station) serving a majority of the City's barrier island. After completing the Basis of Design Report, Chen Moore and Associates proposed a variety of options to handle the approximately 3,500 GPM existing flow and conducted follow-up odor studies for specific design purposes. The design options included in-line booster and submersible pumps with variable frequency drives and liquid and vapor phase treatments. Additional concerns include odor control, dewatering contamination and electrical supply and generation. The final design option (approved in Oct. 2007) is different from the recommended "hybrid" design in the BODR in that the design will now only involve a submersible lift station coupled with biological vapor phase odor control and strategic chemical liquid phase odor control (no in-line booster station involved). The estimated construction cost for the final, approved design option is about $3.06 million (versus $3.25M stated in the BODR for the hybrid in-line booster / submersible station, which was later increased to $4.31M for various reasons).

Lift Station #110 Rehabilitation. Chen Moore and Associates was tasked with design and

documentation services associated with the rehabilitation of the Utilities compound equipment parking lot, located south of NE 13th Street and east of the FEC railroad tracks in the City of Pompano Beach. The project area covers approximately 30,000 SF and is adjacent to an existing paved parking lot used by City employees. The lot is enclosed by a chain link fence to the north and to the west of the lot, and consists of compacted limerock and gravel with little to no landscaping. There currently is no drainage on site. The lot is used to store various utility vehicles, such as vacuum trucks, loaders and sweepers for the short-term.

Chen Moore and Associates will not only design pavement and drainage structures for heavy loading conditions, but will also propose a new striping layout to maximize lot utilization. The property was required to be rezoned and to undergo a complete Development Review Committee (DRC) approval. Landscaping and associated irrigation, drainage and lighting upgrades were proposed to bring the lot up to Code compliance. However, due to the nature of the existing property, Chen Moore and Associates also included all required public purpose approvals as part of the DRC application.

Lift Station #11 Rehabilitation. Chen Moore and Associates was tasked with design and documentation services associated with the rehabilitation of the Utilities compound equipment parking lot, located south of NE 13th Street and east of the FEC railroad tracks in the City of Pompano Beach. The project area covers approximately 30,000 SF and is adjacent to an existing paved parking lot used by City employees. The lot is enclosed by a chain link fence to the north and to the west of the lot, and consists of compacted limerock and gravel with little to no landscaping. There currently is no drainage on site. The lot is used to store various utility vehicles, such as vacuum trucks, loaders and sweepers for the short-term.

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Lauderdale-by-the-Sea Town Engineer. Chen Moore and Associates is the Town Engineer for the Town of Lauderdale-by-the-Sea, providing technical support to all engineering related matters. One of the main priorities is reviewing and approving engineering plan submittals for site plan review and engineering permits. This requires ensuring all submittals comply with Town ordinances and all County, State and Federal regulations regarding site development.

Reviews include general site conditions, water, sewer, paving, drainage, appropriate permit calculations, NPDES permitting and compliance, traffic analysis and proper coordination with surrounding municipalities.

Several studies have been made and recommendations have been given to the town on a variety of topics including:

- Stormwater study for flooding prevention
- NPDES compliance study and report
- MS4 annual report
- Parallel, angled and valet parking specifications
- Drive-through restaurant requirements
- Structural beautification features
- Streetscape improvements for El Mar Drive
- General engineering details and specifications
- Turtle compliant street lights
- GIS map production
- Archiving digital record drawings
- Sewer design for Palm Club

CHEN·MOORE
&ASSOCIATES

Joel P Brownsey
Associate Planner

Education:
Bachelor of Arts, Urban Planning, State University of New York at Albany, 2002
Associate of Science, Surveying and Mapping, University of New Hampshire, 2000

Registration:
N/A

Summary:

Mr. Brownsey has over six years of experience in planning and civil engineering where he has worked alongside engineers in a variety of disciplines such as site design, utility infrastructure design, and surveying. His experience in south Florida to date includes detailed design work on two neighborhood right of way infrastructure improvement projects for the City of Miami Beach, and on several Engineering projects for the City of Fort Lauderdale. He also provides technical solutions for the Fort Lauderdale and Miami Beach offices.

Project Experience:
CCNIP - Franklin Park. The Central County Neighborhood Improvement Project (CCNIP) is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore and Associates was selected to be the design engineer for one third of the project sites, including the Franklin Park, Washington Park, St. George West and East neighborhood areas. Chen Moore and Associates was also part of a team of engineers that completed the basis of design report (BODR), and served as the project reviewer that made recommendations resulting in substantial savings to the project's budget. The Franklin Park Portion of the project, which is located SE of Sunrise Boulevard and NW 27th Avenue, was designed and administered for a fee of approximately $829,970.00. It involved the installation of water and sewer improvements (in conjunction with the City of Fort Lauderdale), along with paving and drainage improvements, landscaping and public art.

Broadview Park BP 3. The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected as the prime consultant for the Basis of Design Report (BODR) and subsequent bid packages. The third Bid Package addressed sanitary sewer and drainage improvements, while enhancing the community's roadway and landscape.

CRA Infrastructure Master Plan. Chen Moore and Associates was retained by the City of North Miami Beach to prepare an infrastructure master plan to estimate the impact of future redevelopment within the CRA area on the existing sanitary sewer system, the existing water distribution system, and the existing stormwater drainage system.

Lift Station 3, 4, 11 & 12 Rehab or Replacement. Chen Moore and Associates was contracted by the City of Pompano Beach to continue with the Harbor Drive Improvement Project, which included the rehabilitation of four lift stations and the construction of new force mains which connect each lift station into the sanitary pressure network for the City of Pompano Beach. Each of these lift stations previously repumped into an adjacent manhole located within the service area of another lift station. The outgoing force main from each of these lift stations was rerouted to connect directly to the new force main located along Harbor Drive. Chen Moore and Associates was the prime consultant responsible for the design,

permitting, and construction administration for the rehabilitation of existing Lift Station 2, 3, 4, 11, and 12.

Lift Station 21 Design. Chen Moore and Associates is the prime consultant responsible for the design, permitting and construction administration for the relocation of the existing LS 21 (master pump station) serving a majority of the City's barrier island. After completing the Basis of Design Report, Chen Moore and Associates proposed a variety of options to handle the approximately 3,500 GPM existing flow and conducted follow-up odor studies for specific design purposes. The design options included in-line booster and submersible pumps with variable frequency drives and liquid and vapor phase treatments. Additional concerns include odor control, dewatering contamination and electrical supply and generation. The final design option (approved in Oct. 2007) is different from the recommended "hybrid" design in the BODR in that the design will now only involve a submersible lift station coupled with biological vapor phase odor control and strategic chemical liquid phase odor control (no in-line booster station involved). The estimated construction cost for the final, approved design option is about $3.06 million (versus $3.25M stated in the BODR for the hybrid in-line booster / submersible station, which was later increased to $4.31M for various reasons).

Lift Station 13 Rehabilitation. Chen Moore and Associates prepared the engineering design for the rehabilitation of Pump Station #13 with associated force main installation. The purpose of Lift Station #13 Rehabilitation Project was to directly connect the lift station to the City's backbone force main system, which would eliminate the repumping of effluent through Lift Station #6. The installation of 8-inch force main west along Miramar Boulevard with an aerial aqueous crossing with University Drive canal was required to connect to existing 24-inch force main.

Lauderdale-by-the-Sea Town Engineer. Chen Moore and Associates is the Town Engineer for the Town of Lauderdale-by-the-Sea, providing technical support to all engineering related matters. One of the main priorities is reviewing and approving engineering plan submittals for site plan review and engineering permits. This requires ensuring all submittals comply with Town ordinances and all County, State and Federal regulations regarding site development.

Reviews include general site conditions, water, sewer, paving, drainage, appropriate permit calculations, NPDES permitting and compliance, traffic analysis and proper coordination with surrounding municipalities.

Several studies have been made and recommendations have been given to the town on a variety of topics including:

- Stormwater study for flooding prevention
- NPDES compliance study and report
- MS4 annual report
- Parallel, angled and valet parking specifications
- Drive-through restaurant requirements
- Structural beautification features
- Streetscape improvements for El Mar Drive
- General engineering details and specifications
- Turtle compliant street lights
- GIS map production
- Archiving digital record drawings
- Sewer design for Palm Club

Palm Club Sewer. Chen Moore and Associates used LIDAR data to get elevations for the initial layout of gravity sewer project. Although LIDAR was not adequate in areas with tree cover, it proved to be within 2 inches on the open road surface when compared to the survey. Using LIDAR took survey out of the critical design path and enabled the design to proceed to the 30% level needed for coordination, reducing overall design time.

5. Experience

Broadview Park Neighborhood Improvement Project, Broward County, FL

The Broadview Park Neighborhood Improvement Project (BPNIP) is the last of the Neighborhood Infrastructure Improvements projects to be carried out by Broward County in the unincorporated areas. Chen Moore and Associates was selected to design and administer the construction of improvements to Broadview Park. The project was separated into several bid packages for design and construction phasing.

The first Bid Package was to replace the entire existing water system as it was formerly a private utility. The project was designed and administered for approximately $1,021,000 and construction was completed on time and on budget for $11,000,000 in December 2007.

Bid Package #2 consists of 3 lift stations, thousands of linear feet of gravity sewer, force mains, drainage improvements, roadway restoration and new sidewalks, with an estimated total cost of $20 million. The gravity sewer system was designed using a GIS capacity analysis tool that calculated and summarized the flow rates for each parcel in the service area. GIS was utilized through the permitting phase to graphically show the flow for each pipe. Also, GIS was utilized during construction to track resident complaints, track the work that had been completed and estimate the Contractor's variance from the original schedule. The project was bid in October 2008 and commenced construction in February of 2009, with an anticipated project duration of 730 days.

The third Bid Package addresses sanitary sewer and drainage improvements, while enhancing the community's roadway and landscape. It is currently in the last stages of design with a proposed budget of $20 million.

The fourth Bid Package addresses sanitary sewer and drainage improvements, while enhancing the community's roadway and landscape. It is currently in the last stages of design with a proposed budget of $20 million.

Start and Completion Dates
January 2002 - December 2011

Client
Broward County
Patrick MacGregor
2555 West Copans Road
Pompano Beach, FL 33069-1233
(954) 831-0904

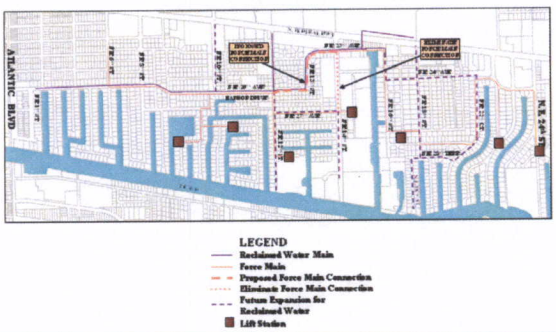
Harbor Drive FM Study, Pompano Beach, FL

Chen Moore and Associates was responsible for the preparation of a SewerCAD computer model of the proposed force main and lift station improvements along Harbor Drive for pressure analysis. The analysis included 7 existing lift stations, which previously pumped to the City's Master Lift Station #2 for repumping into the 36-inch backbone force main. Upon completion of the proposed improvements, each of the 7 existing lift station were to connect to a new 12-inch force main along Harbor Drive, which connected directly to the 36-inch backbone force main. The purposed of the analysis was to determine the increased pressure head that would be faced at these 7 lift stations and estimate the impact on the flow conditions from each pump. As a result of this analysis, Chen Moore and Associates developed recommendations for new pumps at all 7 lift stations and for force main diameters along Harbor Drive.

Start and Completion Dates
July 2003 - August 2003

Client
City of Pompano Beach
Alessandra Delfico
1201 NE 5th Ave
Pompano Beach, FL 33060
(954) 786-4144

FORCE MAIN REALIGNMENT – CONCEPT PLAN



Lift Station 13 Rehabilitation, Miramar, FL

Chen Moore and Associates prepared the engineering design for the rehabilitation of Pump Station #13 with associated force main installation. The purpose of Lift Station #13 Rehabilitation Project was to directly connect the lift station to the City's backbone force main system, which would eliminate the repumping of effluent through Lift Station #6. The installation of 8-inch force main west along Miramar Boulevard with an aerial aqueous crossing with University Drive canal was required to connect to existing 24-inch force main.

Start and Completion Dates
September 2009 - present

Client
City of Miramar
Ron Eyma
13900 Pembroke Road
Miramar, FL 33027
(954) 538-6806

Pompano Beach Lift Station Improvement Program, Pompano Beach, FL

Chen Moore and Associates is responsible for managing the planning and design of the City's Lift Station Rehabilitation Program. The previous lift station improvement projects for the City of Pompano Beach include the following:

Chen Moore and Associates is responsible for managing the planning and design of the City's Lift Station Rehabilitation Program.

LS 2, 3, 4 & 11 Rehab or Replacement - Chen Moore and Associates was contracted by the City of Pompano Beach to continue with the Harbor Drive Improvement Project, which includes the rehabilitation of seven lift stations and the construction of new force mains which will connect each lift station into the sanitary pressure network for the City of Pompano Beach. Each of these lift stations previously repumped into an adjacent manhole located within the service area of another lift station. The outgoing force main from each of these lift stations was rerouted to connect directly to the new force main located along Harbor Drive. Chen Moore and Associates is the prime consultant responsible for the design, permitting, and construction administration for the rehabilitation of existing Lift Station 2, Lift Station 3, Lift Station 4, Lift Station 11, and Lift Station 12. This project was constructed with an approximate construction cost of $1.03 million.

Lift Station 2

Lift Station 3

Lift Station #11 Rehabilitation - Chen Moore and Associates was contracted to design, permit and coordinate the rehabilitation of Lift Station 11 (new numbering) in Pompano Beach. Lift Station 11 previously acted as a master pump station and is currently operating over capacity. It has three vertical shaft pumps, housed in a concrete masonry block building. This project involves upgrading and replacing the existing pump and control panel components as necessary, as well as verifying whether the existing generator will continue to operate under the proposed pumps.

Lift Station #110 Rehabilitation - Chen Moore and Associates was contracted by the City of Pompano Beach to design the rehabilitation of lift station 110. This lift station serves an area of approximately 100 acres consisting of commercial and industrial properties. This lift station is currently a duplex lift station in which the upgrades will include replacing the existing pumps and control panel to handle increased flows. Chen Moore and Associates will be responsible for the design, permitting and construction administration.

Lift Station 11

Lift Station #24 - Chen Moore and Associates was contracted by the City of Pompano Beach to design the rehabilitation of Lift Station 24 serving the barrier island of the City between Intracoastal Waterway and Atlantic Ocean. The proposed improvements included the installation of new force main, the replacement of an existing water main, and the rehabilitation of an existing lift station. Lift Station 24 previously repumped into an adjacent manhole within the service area of another lift station. The outgoing force main was rerouted to connect directly to the existing 24-inch force main within the City's backbone force main network. The submersible pumps at Lift Station 24 had to be upgrade due to the higher connection pressure encountered at the backbone force main. Under this contract, Chen Moore and Associates was also responsible for developing a computer model of the City's force main network using the SewerCAD software to allow analysis of the pressures within the network.

Pompano Lift Station 18 & 18A - Chen Moore and Associates completed an inflow infiltration study for the City of Pompano Beach. The study included viewing sewer line videos to estimate inflow, using GIS to map water consumption data by parcel in the study area and determining pump station flow rates using pump data. The implementation strategy proved effective as the sum of consumption plus estimated inflow matched the total lift station pump volumes.

Lift Station #102 - Chen Moore and Associates provided record drawings, coordinated survey services, prepared design plans, coordinated and completed permit applications, and provided construction and inspection services for Lift Station 102.

Start and Completion Dates
January 2004 - April 2010

Client
City of Pompano Beach
Alessandra Delfico
1201 NE 5th Ave
Pompano Beach, FL 33060
(954) 786-4144

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Master Lift Station # 11, Wilton Manors, FL

Chen Moore and Associates is responsible for the preparation of design plans and technical specifications for the proposed replacement of Lift Station 11 for the City of Wilton Manors. The project will involve the installation of new wetwell with new submersible pumps along with associated valve vault, flow meter, control panel components, and a new emergency generator. Lift Station 11 is located on the north side of NE 26th Drive between NE 14th Avenue and NE 16th Avenue at 1501 NE 26th Drive. It serves as the master pump station for the City of Wilton Manors by receiving all sanitary flow from the City limits and pumping to the force main network of the City of Fort Lauderdale for disposal and treatment. Lift Station 11 currently has 75 HP pumps in a "canned" dry pit configuration which is housed in a concrete masonry block structure. Due to the age of the facility along with the inadequate pumping capacity, the City of Wilton Manors wishes to replace Lift Station 11 to ensure adequate pumping capacity in the future.

Upon completion of the new lift station, the existing lift station facilities and structures will be demolished. The new Lift Station 11 facility will be a standard triplex submersible layout with external control panels within the City property surrounded by the existing concrete wall. The emergency generator will be housed within a weatherproof enclosure.

Start and Completion Dates
April 2011 - December 2011

Client
City of Wilton Manors
Peter Dokuchitz
524 NE 21 Court
Wilton Manors, FL 33305
(954) 390-2190

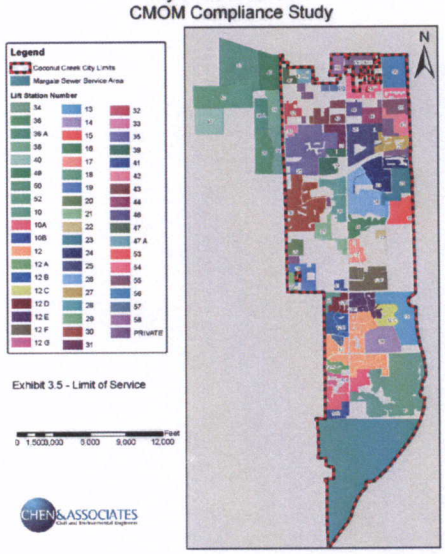
CMOM Compliance Study, Coconut Creek, FL

Chen Moore and Associates reviewed all of the current documentation used by the City of Coconut Creek for day to day operations of its sanitary sewer system; developed an Overflow Emergency Response Plan, which provides a standardized course of action to follow in the event of a sanitary sewer overflow (SSO); developed recommendations for process improvements, which included improving program documentation, revising GIS sewer atlas, improving SSO tracking, modifying standard details and specifications, strengthening pre-treatment requirements, and providing an emergency response plan for overflow. Chen Moore and Associates also prepared the cMOM Compliance Report.

Start and Completion Dates
January 2009 - July 2009

Client
City of Coconut Creek
Michael Heimbach
4800 West Copans Road
Wilton Manors, FL 33063
(954) 956-1489

City of Coconut Creek
CMOM Compliance Study



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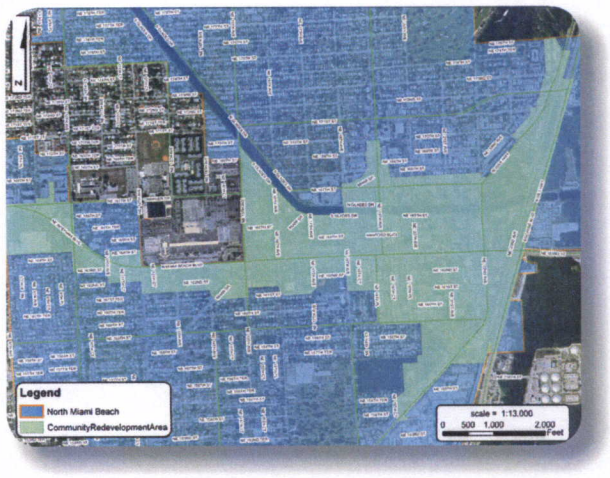
CRA Infrastructure Master Plan, North Miami Beach, FL



Chen Moore and Associates was retained by the City of North Miami Beach to prepare an infrastructure master plan to estimate the impact of future redevelopment within the CRA area on the existing sanitary sewer system, the existing water distribution system, and the existing stormwater drainage system. During the completion of this project, Chen Moore and Associates developed a computer model of the existing sanitary collection and transmission system within the CRA area to determine what system upgrades would be required as future redevelopment occurs within the service area. As recommended within the Master Plan, the future improvements to the sanitary sewer system within the CRA area would include the upsizing various gravity mains, the rehabilitation of multiple pump stations, and the replacement of various force mains.

Start and Completion Dates
April 2006 - March 2009

Client
City of North Miami Beach
Hiep Hyunh
17011 NE 19 Avenue
North Miami Beach, FL 33162-3111
(305) 336-9924

Cudjoe Regional Wastewater Collection Project, Florida Keys, FL

Chen Moore and Associates is the engineering consultant for the design and permitting of installation of a wastewater collection system within Monroe County. Recognizing that the economic health of Monroe County and its municipalities relies largely on the environmental health of a unique marine ecosystem, the County's Year 2010 Comprehensive Plan mandated that nutrient loading levels be reduced in the marine ecosystem of the Florida Keys. In June of 2000, the Sanitary Wastewater Master Plan (Master Plan) was finalized with the goal of eliminating approximately 23,000 private on-site wastewater systems by July 2010. Through interlocal agreement, Monroe County has requested that the Florida Keys Aqueduct Authority (FKAA) design, build, and operate County-owned infrastructure on behalf of the citizens in the master-plan prescribed service areas.

The service areas for the proposed wastewater collection systems under this project include Big Pine Key, Little Torch Key, Ramrod Key, Noname Key, and Lower Sugarloaf Keys. Chen Moore and Associates is responsible for the final planning, design and permitting services to cover the non-central service areas of the regional system. The final product will be a permitted conveyance system that will combine various wastewater collection system technologies in order to connect as many on-site wastewater systems as possible for the lowest overall cost. The combined strategic utilization of proper planning and technology, extending to the greatest number of connections for the best value, is an approach developed by the FKAA through its years of experience in the water and wastewater utility business and will consider conventional gravity, vacuum sewers and low pressure sewering technologies. The preliminary engineering report and conceptual design has been completed, but the project is currently on hold for funding.

Start and Completion Dates
August 2008 - March 2009

Client
Florida Keys Aqueduct Authority
Don Hubbs
1100 Kennedy Dr.
Key West, FL 33041-1239
(305) 295-2142

Central County Neighborhood Improvement Project, Broward County, FL

The CCNIP is the second of three neighborhood infrastructure improvements projects carried out by Broward County in the unincorporated areas. The project included improvements to the drainage, water, sewer, and roadway systems. Chen Moore was selected to be the design engineer for 4 bid packages under this neighborhood improvement program, including the Franklin Park, Washington Park, St. George West and St. George East neighborhood areas. Under the CCNIP project, Chen Moore and Associates was responsible for managing the design, permitting, and construction administration of these bid package. The CCNIP program was successfully constructed and completed in 2006.

The Franklin Park Portion of the project, which is located southeast of Sunrise Boulevard and NW 27th Avenue, involved the installation of water and sewer improvements (in conjunction with the City of Fort Lauderdale), along with paving and drainage improvements, landscaping and public art. The project was completed on time and on budget.

The Washington Park Portion of the project had design fees of approximately $1,250,000.000 and involved the installation of water improvements (in conjunction with the City of Fort Lauderdale), along with paving and drainage improvements, landscaping and entry features. The project was completed on time and on budget.

The St. George West Portion of the project, which is located southwest of Sunrise Boulevard and State Road 7, involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features. The project was completed on time and on budget.

The St. George East Portion of the project, which is located southeast of Sunrise Boulevard and NW 31st Avenue involved the installation of water and sewer improvements, along with paving and drainage improvements, landscaping and entry features. The project included new gravity sewer systems along with 2 new submersible lift stations and associated sanitary force mains for the St. George neighborhoods. The new 8-inch sanitary force mains were routed from the 2 new lift stations to the County's backbone force main for transmission to Master Pump Station #410 en route to the County's North Regional WWTP. Chen Moore prepared a computer model of the sanitary transmission system for the purposed of sizing the lift station pumps and force main diameters. The project was completed on time and on budget, including emergency change orders related to Hurricane Clean-Up and approximately 2 miles of 20" Water Main in FDOT ROW.

Client
Broward County
Patrick MacGregor
2555 West Copans Road
Pompano Beach, FL 33069-1233
(954) 831-0904

Start and Completion Dates
January 2002 - February 2006

6. *Approach to Providing Services*

Chen Moore and Associates has the most relevant experience and will provide the Town with the best approach to providing the necessary services. The approach will be twofold: system information review and project implementation. Chen Moore and Associates has background data and relevant experience in all aspects of system maintenance, project planning and design.

System Mapping: CMA created a GIS of the gravity collection system. This will be used to track which pipes and manholes have been inspected and maintained.

Gravity Sewer Model: CMA created a gravity sewer model of the Town system using core ESRI technology. The flow generated from each property will be evaluated, summed and stored in each respective gravity pipe. The total upstream flows will be summed for each pipe, providing total flow into each lift stations.

Review of Gravity Sewer Videos and Reports: CMA will provide locations of leaks, breaks and repairs. By measuring the visible flow into the pipes from cracks, it will be possible to determine the inflow and infiltration (I/I) of the system. Dates of videos will be compared to rainfall events. This data will be stored and included in calculations in the gravity model.

Lift Station and Force Main Analysis: Detailed analysis of the list stations and meters will be conducted. Flow rates generated by the gravity model, I/I analysis and Fort Lauderdale water meter data will be compared to the lift station pump data.

Sewer CAD Model: The Town lift station to the south is a re-pump station into a gravity manhole. The northern station pumps into a 14inch force main which connects to the southernmost Pompano force main. In both cases, modeling in sewer CAD will not be efficient. Lift station flow analysis can be done using existing pipe sizes and tie in pressures. CMA created and maintains the sewer CAD model for Pompano Beach, which can be used to determine the tie in pressure for the northern station.

Capital Project Implementation: The results of system investigation and modeling may lead to recommendation on system improvements. Since the sewers are in the roadway, any major repairs and replacements improvements should be coordinated with the Town asphalt overlay and drainage improvement projects. CMA is in the best position to recognize opportunities for joint projects due to our ongoing work with the Town.

Grants and Funding: CMA has written several grant applications for Town projects. We have experience with grants from several sources.

Project Design, Permitting and Construction Administration: CMA has implemented several engineering projects with the Town. We are familiar with the site conditions and process. All of our engineering staff have construction experience.

All projects will be approached with the same high quality and attention to detail that CMA has provided to the Town in the past. Our staff are highly qualified in design, permitting and construction administration. The foundation of company experience has been installing and replacing municipal utilities in existing neighborhoods. The secret to success in these projects is communication with the residents, who will be affected by construction. Pre-construction communication with residents is key to involving them in the process, which leads to an understanding of the mutual project goals. Our references will clearly state that Chen Moore and Associates works diligently to attend to residents concerns.

Scope of Work

The scope of services to be provided by the consultant under a contract includes, but is not limited to, the following:

1. Evaluate the overall condition of the Town's wastewater system components to include:
   A. Reviewing the Town's video documentation of the sewer system completed within the past two (2) years and reviewing repair history. Identify components requiring additional repair, rehabilitation or replacement (R&R).
   B. Reviewing reports prepared by Televac of their field investigations of Town-owned manholes.
   C. Evaluating the condition of the wastewater flow meter at the Seagrape lift station used for billing the Town, including reviewing available annual calibration records. A report on the age and condition of the meter, as well as recommended rehab or replacement (R&R) should be provided.
   D. Inspecting the two Town-owned lift stations, including a hydraulic analysis. Assess lift station condition and run times. The stations have run time meters and run time records are available. Determine if the station is properly sized for current flows. The consultant's report should state if rehabilitation or improvements of various types are required, including replacement of existing pumps, motors, electrical panels, controls and telemetry. The condition of the wet well shall also be inspected and reported, and recommendations on the rehabilitation or replacement required.
   E. Determining the extent of inflow and infiltration in the system. Study rainfall records and review lift station run times during wet weather events to determine extent of I&I related to rainfall events. Quantify impact of high groundwater due to tides on I&I. (Televac indicates I&I by sections as they video them, but the Town then makes necessary repairs so the I&I should change after those repairs.)
   F. Identifying capital repairs and replacements projects that are needed to be done along with a recommended time frame for those projects based on the projected useful life of the current infrastructure and provide a preliminary cost estimate by project.
   G. Project future wastewater generation rates thru planning year 2025 understanding the Town is approximately 98% built-out and there is a three story height limitation on development. Develop a hydraulic model using SewerCad software of the wastewater collection system to assess the system capacity.
2. Additional services if deemed warranted by Town based upon findings in Section 1 may include the following:
   A. Identify possible grant funding opportunities and writing grants or portions thereof for submittal to appropriate agencies.
   B. Prepare preliminary/feasibility design reports and/or design alternative recommendations for possible system improvements. This may include various types of utility modeling for both gravity and force main systems, surveying, field data analysis, estimates of probable construction cost and life-cycle cost analyses.
   C. Make recommendations for and of phasing system improvements.
   D. Prepare required bidding/construction documents for sanitary sewer system capital repair and replacement projects. This may include the preparation of surveys, design plans, technical specifications, cost estimates, permit applications to County and State agencies, and other contract documents.
   E. Attend pre-design, design, bidding and bid awards meetings that the Town deems attendance is required. Assist in evaluating bids and making bid award recommendations for construction contract(s).

F. Provide engineering, management, administration and inspection services for projects. Services during construction may include shop drawing/contractor submittal reviews and approvals, inspection and approval of project improvements, certification of projects of various permitting entities, possible field revisions, and review and approval of contractor pay applications. Evaluate and make recommendations on change orders.

G. Provide project close-out services. This may include preliminary and final acceptance of projects, preparation and approval of punch list items, providing as-built record drawings, operation and maintenance manuals, and project certification as required to all permitting agencies.

H. Present reports and recommendations to the Town Commission, Town Administration, and other interest groups as specified by the Town.

TOWN OF LAUDERDALE BY THE SEA
SEWER UTILITIES PLAN

7. Compensation

Per the RFP, Chen Moore and Associates' proposal does not include rates or fees for the goods and/or services on RFP Form C.

8. Additional Information

Financial Resources and Capabilities

Chen Moore and Associates' Dun & Bradstreet number is 85-945-9547. The following clients can be contacted as credit references:

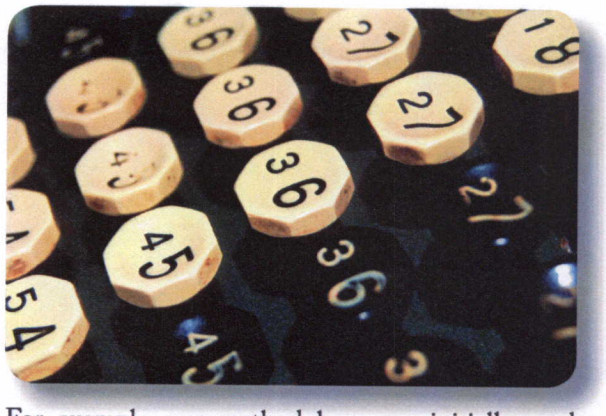
Ace Blueprint
5144 NW 12 Ave
Ft Lauderdale FL 33309
(954) 771-0104

Stoner & Associates Inc
4341 SW 62 Ave
Davie FL 33314
(954) 585-0997

C&W Engineering Inc.
2701 Vista Parkway Ste A-7
West Palm Palm Beach FL 33411
(561) 642-5333

Time Frames

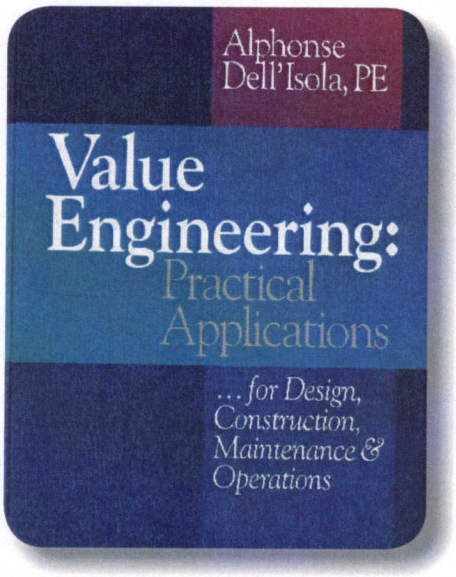
Cost estimating is often the most important checking procedure in a project since the project budget typically controls the scope of the project. Chen Moore and Associates begins our cost estimating procedures during the early planning phase to ensure the project goals can be met by the project budget. Consultants must be keen to design a project that can be constructed within budget. If the project is not designed within budget, then the project will either not be constructed or will be constructed without some of the aesthetic elements that are needed to satisfy residents. Chen Moore and Associates uses two main methods for determining accurate unit prices in order to arrive at an accurate cost estimate through the project life. The first method is to consult with our construction management staff to determine the current bidding climate. The second method is to consult with other public sources, such as Broward County's Purchasing website, to follow patterns in the bidding of other recent project.



For example, our methodology was initially used to for the Washington Park portion of the Central County Neighborhood Improvement Project. The original cost estimate from the planning documents was approximately $4.5 Million in 1996. The project began design in 1999 and was bid in October of 2000. During the design, the cross-section was changed twice, a water distribution system was added to the scope and the number of drainage outfalls was increased from 6 outfalls to 11 outfalls. In addition to these factors, the fuel prices increased over 25% during this period. Chen Moore and Associates submitted cost estimates with each progress submittal to our client, including a cost estimate of $8.06 million with the final submittal for bidding. When the project was bid, the actual low bidder won the project with a price of $8.065 million. Therefore, the constant interaction with construction staff to determine the bidding climates and current trends helped Chen Moore and Associates accurately estimate the cost of an $8 million project to within .062% of the bid price.

Cost estimating is often the most important checking procedure in a project.

Cost control is another term that often suffers from a limiting connotation. Oftentimes, cost control is only incorporated into the construction phase as a euphemism for limiting contract changes with respect to price. Chen Moore and Associates knows from experience that value engineering is perfectly applicable during the design phase as a method to minimize construction costs. Chen Moore and Associates has staff members that are certified as Federal Certified Value Specialists. For example, our value engineering staff brought this sort of analysis to the St. George West portion of the Central County Neighborhood Improvement Project to identify potential savings. During the Value Engineering (VE) Workshop held at the 60% submittal, the VE team rethought the overall scope of the sanitary collection system. The scope from the client was to replace all the existing sanitary sewers since the majority of the sewers were in the back yards and all of them are made of vitrified clay pipe. The VE team explored the technology of lining the existing sewers that were in the public right-of-way already. The design option for lining resulted in an potential overall savings of $350,000 in a $6.6 Million project, which correlates to a savings of over 10%.



Project Schedule

Successful schedule control begins in the planning and design phases of a project. By recognizing system relationships and by integrating our construction management staff into our scheduled internal reviews, Chen Moore and Associates is able to begin the construction phase of each project with an "achievable" time line. By not putting the contractor into a disadvantageous situation, all parties in the project will benefit.

Successful schedule control begins in the planning and design phases of a project.

Once Chen Moore and Associates has developed proper planning, design and bid documents with the mentality mentioned above, it is up to the construction management staff to keep the project running on schedule. There are many methods for construction schedule control, but the biggest advantage to today's construction manager is the use of automation. Automation in construction management can take many forms, but the impacts of computerized Critical Path Method (CPM) scheduling and project management via the internet cannot be overlooked.

CPM programs have become standard in the profession. With great ease, the schedules can be manipulated and transferred to all of the parties involved. Chen Moore and Associates uses two CPM programs for the bulk of their construction management needs. Primavera (P3EC) is a comprehensive scheduling program that has established itself as an industry standard. A program of this complexity is necessitated by the intrinsic number of tasks required to complete large projects. The less complex alternative for projects of a smaller nature is SureTrack or Microsoft Project. This program is perfectly acceptable for projects with a small number of sub-tasks and a small number of individual tasks impacting the Critical Path.

Quality Control

The actual quality control process is integrated into the cost and schedule control review. By completely integrating the process, not only are the plans reviewed for accuracy, but the contract documents are scrutinized, preliminary schedules are developed, cost estimates are created, conflicts are identified and solutions are developed. In addition to the reviews by Chen Moore and Associates staff and peer reviewers, Chen Moore and Associates implements software as a non-biased review.

The actual quality control process is integrated into the cost and schedule control review.

Chen Moore and Associates feels that by incorporating schedule control, cost control, cost estimating and quality control into the standard design and review process that a significant increase in performance is realized. These reviews avoid the "surprises" of unrealistic schedules, designs that aren't constructible, overextended budgets and unforeseen conflicts. By avoiding these concerns, Chen Moore and Associates is able to complete a project without having to redesign the project, in either the design or construction phases. This leads to a direct time savings for Chen Moore and Associates which leads to a direct cost savings for the client.