



# AGENDA ITEM MEMORADUM

**Municipal Services**

**Pat Himmelberger**

Department

Department Director

COMMISSION MEETING DATE (*) - 7:00 PM	Deadline to Town Clerk
<input checked="" type="checkbox"/> Aug 23, 2011	Aug 12 <sup>th</sup>
<input type="checkbox"/> Sept 12, 2011 1 <sup>st</sup> BUDGET PUBLIC HEARING	Sept 1 <sup>st</sup>
<input type="checkbox"/> Sept 13, 2011	Sept 2 <sup>nd</sup>
<input type="checkbox"/> Sept 26, 2011 2 <sup>nd</sup> BUDGET PUBLIC HEARING	Sept 15 <sup>th</sup>
<input type="checkbox"/> Sept 27, 2011	Sept 16

\*Subject to Change

- |                                       |   |                                       |  |
|---------------------------------------|---|---------------------------------------|--|
| <input type="checkbox"/> Presentation | <input type="checkbox"/> Reports        | <input type="checkbox"/> Consent      | <input type="checkbox"/> Ordinance               |
| <input type="checkbox"/> Resolution   | <input type="checkbox"/> Quasi-Judicial | <input type="checkbox"/> Old Business | <input checked="" type="checkbox"/> New Business |

**FY2011 DESIGNATED HIGH PRIORITY ITEM - PRIORITY TOPIC**

**SUBJECT TITLE: Work Authorization (WA) with King Engineering Associates, Inc. for the Evaluation and Analysis of the Town's Sanitary Sewer System and Development of a Sanitary Sewer System Capital Improvements Plan.**

**EXPLANATION:** Staff requested proposals to do our sewer system evaluation from the two firms under continuing services agreements with the Town for sanitary sewer work – King Engineering Associates, Inc. and Gai Consultants Inc.

The scope of services called for them to:

- review the Town's video documentation of the sewer system and repair history assess the condition of the system and determine needed repairs or replacements;
- inspect and evaluate the condition and available capacity of the Town's two lift stations including a hydraulic analysis;
- inspect and review data from the Town's flow meter to assure it is operating correctly;
- determine the extent of inflow and infiltration in the system;
- identify necessary capital repairs and replacement projects and develop a timeline for those repairs and projects; and
- provide cost estimates by project

King Engineering submitted the more detailed and substantive proposal and better pricing on their hourly rates for personnel involved in the project. After multiple rounds of negotiations with King, we were able to get their lump sum project price down considerably to \$54,382. We pushed them hard on pricing after consulting with utilities personnel in other cities about similar work they had recently contracted and the pricing they had achieved.

The Work Authorization we are recommending calls for King to complete their study and present it to the Commission in December. This timing will enable us to then incorporate their recommendations into the design of the various streetscape and drainage projects that will be under design where appropriate.

**RECOMMENDATION:** Staff recommends the Commission approve Work Authorization King 01 in the amount \$54,382.00 with King Engineering Associates, Inc. and authorize the Town Manager to execute the Work Authorization.

**SOURCE OF FUNDS:**

Funds for this work are budgeted in Sewer Fund Account # 103.535.000.500.315 Professional Services spread across both Fiscal Year 11 and Fiscal Year 12.



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**EXHIBIT(S):** WA with King Engineering Associates, Inc. for Sanitary Sewer System Evaluation and Analysis and Development of a Sanitary Sewer System Capital Improvement Plan.

Reviewed by Town Attorney

\* Yes     No

Town Manager Initials CJA

\*Work Authorization form approved by the Town Attorney.

**TOWN OF LAUDERDALE BY-THE-SEA  
WORK AUTHORIZATION FOR PROFESSIONAL SERVICES**

**Contractor:** King Engineering Associates, Inc.

**Address:** 8390 NW 53<sup>rd</sup> Street, Suite 200  
Doral, Florida 33166

<b>Contract No.</b> AG 2011-64 <b>Agreement Description:</b> Continuing Professional Services Contract for "Sanitary Sewer System Evaluation, Analysis, and Engineering Services"	<b>Work Authorization No.:</b> King 01 <b>Effective Date</b> _____
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<b>P.O. # For Work Authorization:</b> _____	<b>Budget</b> _____
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**Brief Task Description:** This Scope of Work is the first work authorization and is intended to conduct the necessary evaluations to quantify the needs of the sanitary sewer system, recommend improvements, prepare cost estimates, and develop a Sanitary Sewer Capital Improvements Plan (CIP).

**In accordance with the above referenced agreement, you are authorized to perform the tasks detailed in attached Exhibit A (Scope of Services). All required services will be completed on or before: See Exhibit "C"**

**The total amount or the limiting amount of the compensation will be: \$ 54,382.00 unless additional services are authorized by the Town in writing.**

**Compensation elements are as follows:**

Method of Compensation (Lump Sum, Hourly NTE)	Amount (\$)	Project Code
Video Review and R&R Identification	\$ 12,740.00	100
Flow Meter Evaluation	\$3,040.00	200
Pump Station Inspection & Evaluation	\$9,750.00	300
Infiltration and Inflow Evaluation	\$ 12,260.00	400
Sanitary Sewer Capital Improvements Plan	\$ 13,672.00	500
ODCs (Electrical Engineer/Reimbursables)	\$ 2,920.00	
<b>Total</b>	<b>\$ 54,382.00</b>	

**Other Notes:**  
**This Work Authorization is subject to the same terms and conditions of the Continuing Professional Services Contract dated August 2<sup>nd</sup>, 2011.**  
**Please acknowledge receipt of, and agreement with, this Work Authorization by signing and dating and returning three (3) original signed copies to the Town Manager. The Town will send you one fully executed copy.**

**Town of Lauderdale by-the-Sea Approval:**

Constance Hoffmann, Town Manager	_____	_____
	(Signature)	(Date)

June White, Town Clerk	_____	_____
	(Signature)	(Date)

<b>Contractor Acceptance:</b> Contractor Name: Agustin E. Maristany, P.E. Title: V.P.	_____	_____
	(Signature)	(Date)

**Exhibit A**

**Sanitary Sewer Capital Improvements Plan**

**Scope of Services**

See attached.

# Table of Contents

INTRODUCTION .....	3
DESCRIPTION OF SERVICES .....	3
100 VIDEO REVIEW AND R&R IDENTIFICATION .....	3
200 FLOW METER EVALUATION .....	5
300 PUMP STATION INSPECTION & EVALUATION .....	5
310 PUMP STATION MEETING.....	5
320 DATA COMPILATION AND REVIEW.....	6
330 CONDUCT FIELD RECONNAISSANCES/PUMP DOWN TEST.....	6
340 PUMP STATIONS REVIEW AND ANALYSIS .....	7
350 PUMP STATIONS ENGINEERING REPORTS .....	7
400 INFILTRATION AND INFLOW EVALUATION .....	8
500 SANITARY SEWER CAPITAL IMPROVEMENTS PLAN (SSCIP) .....	8
COMPENSATION.....	9
INVOICING .....	9
SCHEDULE .....	9
ASSUMPTIONS.....	9
Appendix "A" .....	10
Proposed Repair Protocol .....	10
Appendix "B" .....	11
Proposed Fee Estimate.....	11
Appendix "C" .....	12
Proposed Project Schedule.....	12

# TOWN OF LAUDERDALE-BY-THE-SEA

## SCOPE OF WORK

**Project No. 11-04-02**

**Work Order # 1**

**“Sanitary Sewer Capital Improvements Plan”**

### INTRODUCTION

King Engineering Associates, Inc. (King) has been selected by Lauderdale-By-The-Sea (LBTS) to provide sanitary sewer system evaluation, analysis and engineering services under a general services contract, Project No. 11-04-02.

### DESCRIPTION OF SERVICES

This Scope of Work is the first work authorization and is intended to conduct the necessary evaluations to quantify the needs of the sanitary sewer system, recommend improvements, prepare cost estimates, and develop a Sanitary Sewer Capital Improvements Plan (CIP). The sanitary sewer collection system consists of two separate wastewater collection basins with approximately 10.5 miles of gravity pipes, 165 manholes and two pump stations with their respective force mains.

Project No. 11-04-02: Sanitary Sewer System Evaluation, Analysis, and Engineering Services Contract – Work Order # 1 “Sanitary Sewer Capital Improvements Plan” for the LBTS, Florida has been divided into five (5) subtasks. Each of the subtasks details the specific Scope of Work and is broken as follows:

Subtask	Description
100	Video Review and R&R Identification
200	Flow Meter Evaluation
300	Pump Station Inspection & Evaluation
400	Infiltration and Inflow Evaluation
500	Sanitary Sewer Capital Improvements Plan

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).

#### 100 VIDEO REVIEW AND R&R IDENTIFICATION

TELEVAC cleans, CCTVs and grouts the Town's sewer system every year, covering about



90% of the Town per year. Laterals are not part of the existing program. There are a total of 165 line segments and 165 Manholes. King will review up to 165 closed circuit TV (CCTV) inspection recordings of the sewer lines that are cleaned and video inspected by TELEVAC within each of the Town's pump station basins (PS 24 - Seagrape and PS 25 - Hibiscus). King will make repair recommendations according to the approved "Repair Protocol" included in Appendix A. The protocols describe repair technologies that will be used to rehabilitate the defective segments identified through the cleaning and video. A list summarizing the repairs recommended will be submitted to the Town electronically as work is completed in each pump station basin.

Limited video is available regarding sewer laterals. Many of the clean outs are either non-existent, buried or cannot be found. King will review existing videos and each pump station wet weather hydrograph to provide recommendations on future lateral inspection, testing or/and repairs.

Once the videos of the sewer system have been reviewed and evaluated based on the Repair Protocol, repairs will be grouped by type, such as:

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

In addition, King will use NASSCO's PACP Condition Grading System to provide descriptions of pipe conditions and be able to prioritize required repairs. Based on NASSCO, Grades are assigned for two categories, Structural and O&M issues. Grades are as follows:

- 5 – Most significant defect grade
- 4 – Significant
- 3 – Moderate defect grade
- 2 – Minor to Moderate
- 1 – Minor defect grade

Based on this method, King will be able to provide estimates of the remaining life of the infrastructure and prioritize required repairs, including repair cost estimates.

**Deliverables:**

- Pump Station Basin Listing Repair Recommendations, Cost Estimates, and Timelines

**Required Information:**

- DVDs of sewer cleaning and inspection (165)
- TV-Log of sewer cleaning and inspection (165)

**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.**

## **200 FLOW METER EVALUATION**

The Town's master wastewater flow meter is located at PS 24 - Seagrape Ave. It is a Rosemount 8712 Remote Mount Magnetic Flow meter System which was replaced approximately three years ago. The last calibration was performed by PC Controls, Inc. on November 1, 2010. King will:

- Review the annual calibration records
- Verify meter design ranges, flow velocities and accuracies versus actual conditions
- Verify that the meter is properly installed in accordance with manufacturer's recommendations

A report summarizing all the activities completed, the age and conditions of the meter, life expectancy, cost estimates, additional testing recommendation or any recommendations for rehabilitation or replacement will be provided. This task will be based on a desk-top analysis, one field visit during pump station evaluation, and does not include testing of the meter.

### **Deliverables:**

- None under this task. See task 500.

### **Required Information:**

- Annual Calibration Records
- Copy of meter's as-built and shop drawings

**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. King'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.**

## **300 PUMP STATION INSPECTION & EVALUATION**

### **310 PUMP STATION MEETING**

King will attend one Kick-off meeting with LBTS and POMPANO to coordinate this task. A

total of one meeting has been allocated.

### **320 DATA COMPILATION AND REVIEW**

King will meet with LBTS at the kick-off meeting to discuss the goals and objectives of this task, coordinate field work, and to collect, compile and analyze existing data provided by LBTS.

The LBTS shall provide the following information for PS 24 - Seagrape and PS 25 - Hibiscus:

- Pump Stations' As-built
- Pump Stations' Shop Drawings (Pumps, Controls, SCADA, MCC, etc)
- Run time information for the last 3 years
- SCADA information for the last 3 years in Excel format (Pressures/Run times/Power/Wet well levels/Pump on-off times/flows/etc)
- Pump Stations' monthly energy consumption rate and quantity for the last three years
- LBTS' FPL Power Rate Schedules
- City of POMPANO (POMPANO) to provide 16-Inch force main pressure information (Seven days)
- Screen Shot of PS #24, 25 pumps station from Data Flow (King will use this information to let POMPANO know what other information is needed)
- LBTS flow meter calibration information for 3 years.
- Pump information of both stations. (Make, Model, Impeller size, horsepower, Voltage, Discharge size, etc)
- Pump Curves of both pump stations
- Current pump drawdown rates for both pump stations
- Generator shop drawings and maintenance information

### **330 CONDUCT FIELD RECONNAISSANCES/PUMP DOWN TEST**

King's lead engineer and electrical engineer will make one site visit to each pump station (PS 24 - Seagrape and PS 25 - Hibiscus) to record existing conditions in order to assess the existing pump stations condition. All analysis will be qualitative in nature. No intrusive or vibration testing, structural analysis or integrity testing are included as part of this contract.

During the site visit, an electrical engineer will review and provide recommendations for any required improvements. Switch gears, electrical panel, emergency generator, electrical service, pump motors, connection box, power meters, raceways, conductors, and ground system will be investigated.

The emergency generator is over twenty years old. King will review maintenance records, manufacture's recommendations, and existing shop drawings and provide recommendation for replacement if necessary.

A pump down test will be performed during the site visit which will be coordinated with LBTS and POMPANO. In addition, as discussed, POMPANO will clean the wet wells for the

inspection. Generator will also be exercised during the field inspection.

Additionally, 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. A visual inspection of the exiting wet well will be performed and findings and recommendation provided.

As required, King will use Hillers Electrical Engineering, Inc. as our electrical sub-consultant. Electrical sub-consultant fees are included in Appendix B.

### **340 PUMP STATIONS REVIEW AND ANALYSIS**

King will review each pump station (2) and, based on hydraulic conditions, engineering reports will be prepared.

The following will be reviewed:

**Hydraulic Analysis** – King will perform the hydraulic analyses and will check pump station performance for each pump station. Pump Station hydraulic calculations will be performed. King will estimate the current pump station capacity, compare with Broward County's criteria and, if needed, will provide any recommendations for improvements.

**Spacing Requirements** – King will review spacing requirements. Access to the wet well and dry-pit will also be considered. New hatches might be required and will be considered as part of the analysis.

**Electrical Requirements** – King will review existing equipment and provide recommendation for switch gears, electrical panel, emergency generator, electrical service, pump motors, connection box, power meters, raceways, conductors, and ground system.

**Structural Requirements** – Not part of the scope. Only visual inspection of the wet wells will be performed with the assistance of LBTS and POMPANO for access.

A summary of work performed and recommendation will be included in Section 500 - Sanitary Sewer Capital Improvement Plan Report.

### **350 PUMP STATIONS ENGINEERING REPORTS**

King will review each pump station and, based on the hydraulic conditions, engineering reports will be prepared. King will prepare two pump station engineering reports, one each, for PS 24 - Seagrape and PS 25 – Hibiscus. These engineering reports will be based on all previous tasks. A draft engineering report will be submitted for LBTS for review and approval under the Sanitary Sewer Capital Improvement Plan Report. LBTS comments will be incorporated into the final engineering reports.

#### **Deliverables:**

- None under this task. See task 500.

**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.)**

#### **400 INFILTRATION AND INFLOW EVALUATION**

Based on the TELEVAC reports (TV-logs), the King will estimate the Infiltration and Inflow for each basin based on GPD/diameter-inch/mile. In addition, based on available SCADA information, King will prepare hydrographs for each basin showing Wet Weather Flows (May - October) and Dry Weather Flows (November – April). Rainfall Dependent Infiltration and Inflow (RDII) will be estimated based on available information using an approximately 2- year storm event (4.5 Inch of rain in 24 hours). King will also review the effect of tides in the Pump Station operations. This tool will be able to be used to confirm the I/I reduction by completing the required repairs and monitor future pump stations.

Please note that the Town can only check/verify the success of the I/I improvements when comparing identical conditions including sewer discharge, tides, and rainfall. Therefore, it will take a few months to a year to be able to confirm the reduction in I/I.

##### **Deliverables:**

- Pump Stations' Hydrographs (Dry and Wet Weather)

##### **Required Information:**

- SCADA information for the last 3 years (Pressures/Run times/Power/Pump on-off times/hourly flows/etc)
- Rainfall Data (2- year storm event)
- Tidal Information/ National Oceanic and Atmospheric Administration (NOAA)
- Groundwater Information/South Florida Water Management District (SFWMD)

**Identifying capital repairs and replacements projects that are needed to be done along with a recommended time frame for those projects based on a qualitative estimate of projected useful life of the current infrastructure and provide a preliminary cost estimate by project.**

#### **500 SANITARY SEWER CAPITAL IMPROVEMENTS PLAN (SSCIP)**

Once projects have been identified in previous tasks and a cost estimate prepared for 1) gravity sewer system repairs, 2) gravity sewer system replacement, 3) manhole repairs/replacement, 4) wastewater meter recommendations, and 5) pump stations recommended improvements, King will prepare a prioritized master project schedule depicting the full implementation of all the projects along with its corresponding budgets. Sewer lateral projects to be implemented will be based on the limited evaluation under Task 200 and any future lateral work recommendation. In addition, the Sanitary Sewer Capital Improvements Plan will include write ups from previous

sections (100, 200, 300, and 400).

As requested, King will prepare one presentation for the Town Commission.

**Deliverables:**

- Draft Sanitary Sewer Capital Improvements Plan
- Final Sanitary Sewer Capital Improvements Plan
- PowerPoint presentation to Town Commission (1)

**COMPENSATION**

The services described herein will be performed on a lump sum fee basis as per Contract "Section 2 – Work Authorization/Scope of Work/Compensation" in the amount of \$54,382.00. ODCs for this contract include Electrical Engineer's Fees and reimbursables. A proposed schedule of fees is presented in Appendix B.

**INVOICING**

Invoicing will be as per Contract "Section 2 – Work Authorization/Scope of Work/Compensation".

**SCHEDULE**

The project schedule will be as shown in Appendix C.

**ASSUMPTIONS**

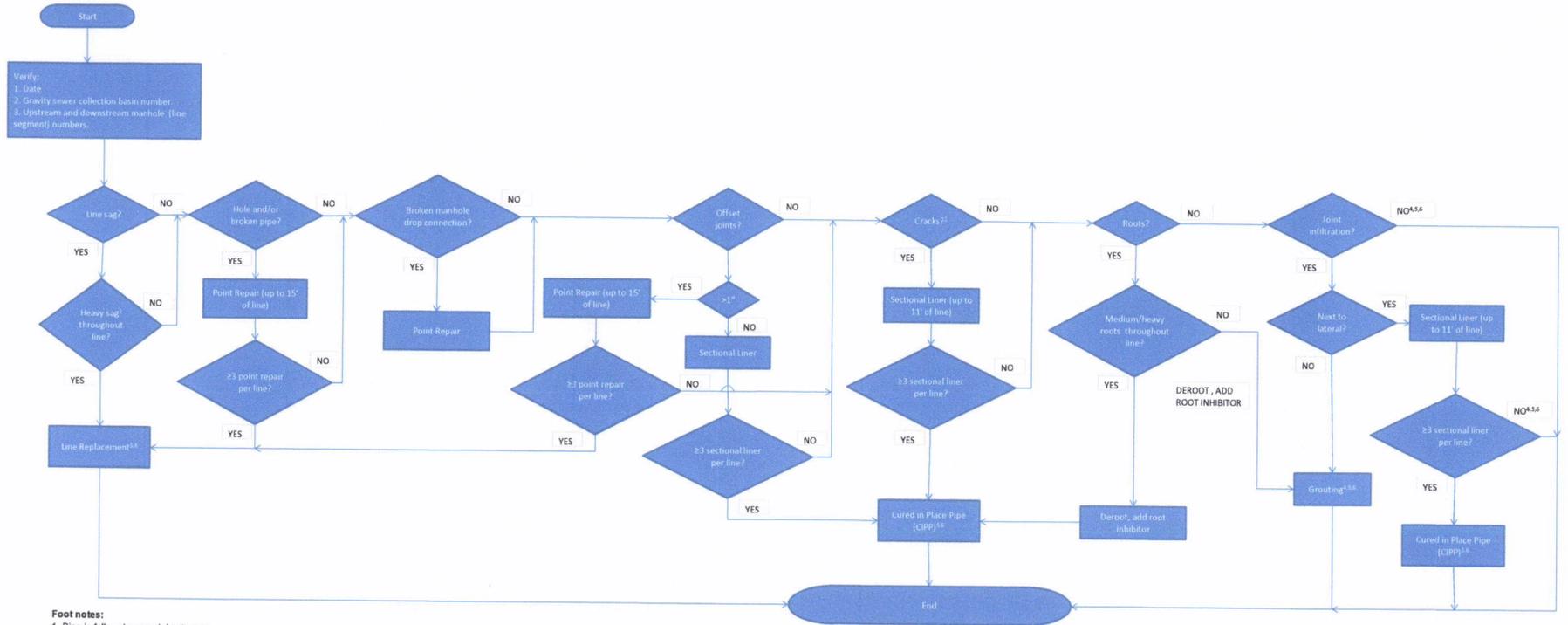
The scope of work is based on the following assumptions:

- LBTS sanitary sewer collection system consists of 55,000 linear feet of pipeline, 165 manholes and two (2) Pump Stations.

# APPENDIX "A"

## Proposed Repair Protocol

## Appendix A Proposed Repair Protocol



**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.

**APPENDIX "B"**  
**Proposed Fee Estimate**



**Appendix B**  
**Town of Lauderdale-By-The-Sea**  
**"Sanitary Sewer Capital Improvements Plan"**  
**Proposal Fee Schedule**



Task	Rate, \$/Hr	Rata, \$/Hr					Budget		Remarks		
		Principal \$175.00	Project Manager \$150.00	Senior Engineer \$140.00	Junior Engineer \$85.00	Clerical \$53.00	Total Hours	Labor		Subtotal	
100	<b>Video Review and R&amp;R Identification</b>									\$12,740	165 Videos
	Review Videos (Gravity System)		4		86		90	\$7,910	\$7,910		
	Repairs Prioritization/Cost Estimates (NASSCO's PACP)		4		40		44	\$4,000	\$4,000		
	Timelines		1		8		9	\$830	\$830		
200	<b>Flow Meter Evaluation</b>									\$3,040	Seagrape Flow Meter (1)
	Data Collection and Evaluation			12	16		28	\$3,040	\$3,040		
300	<b>Pump Station Inspection &amp; Evaluation</b>									\$9,750	PS 24 - Seagrape and PS 25 - Hibiscus
	Pump Station Meetings		4		4		8	\$940	\$940		
	Data Compilation and Review		4		24		28	\$2,640	\$2,640		
	Conduct Field Reconnaissance/Pump Down Test		2	8			10	\$1,420	\$1,420		Electrical-Sub/Not included/See ODC
	Pump Stations Review and Analysis (Hydraulic/Spacing/Mechanical)	2		12	32		46	\$4,750	\$4,750		Electrical-Sub/Not included/See ODC
400	<b>Infiltration and Inflow Evaluation</b>									\$12,260	PS 24 - Seagrape and PS 25 - Hibiscus
	Pump Stations' Hydrographs (Dry and Wet Weather)/Analysis	4	4	20	80		108	\$10,900	\$10,900		
	I/I Estimation				16		16	\$1,360	\$1,360		
500	<b>Sanitary Sewer Capital Improvements Plan</b>									\$13,672	
	Draft Sanitary Sewer Capital Improvements Plan	4	8	16	60	16	104	\$10,088	\$10,088		
	Final Sanitary Sewer Capital Improvements Plan		4		8	8	20	\$1,704	\$1,704		
	Presentation to Town Commission		8		8		16	\$1,880	\$1,880		
	<b>Total (Hours)</b>	<b>10</b>	<b>43</b>	<b>88</b>	<b>382</b>	<b>24</b>	<b>627</b>			<b>\$51,462</b>	
	<b>Sub-Total Labor Fee</b>							<b>\$61,462</b>	<b>\$61,462</b>		
	<b>ODC's (Electrical Engineer/Mileage/Tolls)</b>								<b>\$2,920</b>		
	<b>Total Project Cost (Labor/ODC)</b>								<b>\$64,382</b>		
	<b>Total (\$)</b>	<b>\$1,750.00</b>	<b>\$6,450.00</b>	<b>\$9,520.00</b>	<b>\$32,470.00</b>	<b>\$1,272.00</b>					

**Exhibit B**  
**Hourly Compensation Rates**

See attached.

King Engineering Associates, Inc.

Hourly Rates

Classification	Hourly Rate
Designer 1	\$70.00
Designer 2	\$75.00
Designer 3	\$80.00
Designer 4	\$85.00
Designer 5	\$90.00
Engineer 1	\$80.00
Engineer 2	\$85.00
Engineer 3	\$90.00
Engineer 4	\$95.00
Engineer 5	\$105.00
Engineer 6	\$115.00
Engineer 7	\$130.00
Environ Scientist 1	\$75.00
Environ Scientist 2	\$85.00
Environ Scientist 3	\$100.00
Environ Scientist 4	\$125.00
Environ Scientist 5	\$150.00
Field Coordinator 1	\$60.00
Field Coordinator 2	\$65.00
Field Coordinator 3	\$70.00
Field Coordinator 4	\$80.00
Field Coordinator 5	\$90.00
Land Surveyor 1	\$90.00
Land Surveyor 2	\$100.00
Land Surveyor 3	\$110.00
Land Surveyor 4	\$125.00
Land Surveyor 5	\$150.00
Landscape Architect 1	\$90.00
Landscape Architect 2	\$100.00
Landscape Architect 3	\$110.00
Landscape Architect 4	\$120.00
Landscape Architect 5	\$150.00
Nonbillable	\$0.00
Planner 1	\$70.00
Planner 2	\$85.00
Planner 3	\$100.00
Planner 4	\$115.00
Planner 5	\$150.00
Principal	\$175.00
Project Mgr 1	\$105.00
Project Mgr 10	\$150.00
Project Mgr 2	\$110.00
Project Mgr 3	\$115.00
Project Mgr 4	\$120.00
Project Mgr 5	\$125.00
Project Mgr 6	\$130.00
Project Mgr 7	\$135.00
Project Mgr 8	\$140.00
Project Mgr 9	\$145.00
Survey Crew - 1 Man	\$70.00
Survey Crew - 2 Man	\$105.00

King Engineering Associates, Inc.

Survey Crew - 3 Man .....	\$135.00
Survey Crew - 4 Man .....	\$150.00
Survey Crew - GPS .....	\$150.00
Survey Crew - N/C .....	\$0.00
Tech 1 .....	\$55.00
Tech 2 .....	\$60.00
Tech 3 .....	\$65.00
Tech 4 .....	\$70.00
Tech 5 .....	\$75.00
Tech 6 .....	\$80.00
Tech 7 .....	\$85.00
Technical Support 1 .....	\$53.00
Technical Support 2 .....	\$60.00
Technical Support 3 .....	\$75.00
Technical Support 4 .....	\$90.00
Technical Support 5 .....	\$110.00
Transp Planner 1 .....	\$80.00
Transp Planner 2 .....	\$90.00
Transp Planner 3 .....	\$100.00
Transp Planner 4 .....	\$115.00
Transp Planner 5 .....	\$150.00

NOTE: Does not include rates for Expert Witness Services

# APPENDIX "C"

## Proposed Project Schedule

**Exhibit C**  
**Work Authorization Schedule**

**SCHEDULE**

The schedule for the completion of the Work Authorization, is as follows:

<b><u>Task</u></b>	<b><u>Task Duration</u></b>	<b><u>Completion Date</u></b>
Video Review and R&R Identification	4 weeks	September 23, 2011
Flow Meter Evaluation	1 week	September 30, 2011
Pump Station Inspection & Evaluation	5 weeks	October 28, 2011
Infiltration and Inflow Evaluation	2 weeks	October 7, 2011
Sanitary Sewer Capital Improvements Plan	6 weeks	December 13, 2011

Personnel	Hourly Rate						Totals	
		Task 1 (100)	Task 2 (200)	Task 3 (300)	Task 4 (400)	Task 5 (500)	Hrs	Cost
<b>Administration</b>								
Project Manager	\$150.00					8	8	\$1,200
Junior Engineer	\$85.00					8	8	\$680
							0	\$0
Sub Total (hours)		0	0	0	0	16	16	\$1,880
<b>Engineering / Landscape Arch</b>								
Principal	\$175.00			2	4	4	10	\$1,750
Project Manager	\$150.00	9		10	4	12	35	\$5,250
Senior Engineer	\$140.00		12	20	20	16	68	\$9,520
Junior Engineer	\$85.00	134	16	60	96	68	374	\$31,790
Clerical	\$53.00					24	24	\$1,272
							0	\$0
Sub Total (hours)		143	28	90	120	120	501	\$49,582
<b>Surveying</b>								
N/A							0	\$0
							0	\$0
							0	\$0
							0	\$0
Sub Total (hours)		0	0	0	0	0	0	\$0
<b>Cost per Task (\$)</b>		\$12,740	\$3,040	\$9,750	\$12,260	\$13,672		\$51,462
<b>Budget \$ per Task</b>		\$12,740	\$3,040	\$9,750	\$12,260	\$13,672		\$51,462
<b>Subconsultants</b>								
Hillers Electrical Engineering, Inc.								\$1,920
<b>Total Labor and Subconsultants</b>		\$12,740	\$3,040	\$9,750	\$12,260	\$13,672		\$53,382
<b>Direct Expenses</b>								\$1,000
<b>Work Authorization Total</b>								<b>\$54,382</b>

Exhibit D-2 Staff Time Estimate

Hillers Electrical Engineering, Inc.

Personnel	Hourly Rate						Totals	
		Task 1 (100)	Task 2 (200)	Task 3 (300)	Task 4 (400)	Task 5 (500)	Hrs	Cost
<b>Administration</b>								
							0	\$0
							0	\$0
							0	\$0
Sub Total (hours)		0	0	0	0	0	0	\$0
<b>Engineering / Landscape Arch</b>								
<b>Specific Discipline</b>							0	\$0
Project Manager	\$140.00			3			3	\$420
Project Engineer	\$125.00			12			12	\$1,500
							0	\$0
							0	\$0
							0	\$0
							0	\$0
Sub Total (hours)		0	0	15	0	0	15	\$1,920
<b>Surveying</b>								
							0	\$0
							0	\$0
							0	\$0
							0	\$0
Sub Total (hours)		0	0	0	0	0	0	\$0
<b>Cost per Task (\$)</b>		\$0	\$0	\$1,920	\$0	\$0		\$1,920
<b>Budget \$ per Task</b>		\$0	\$0	\$1,920	\$0	\$0		\$1,920
<b>Subconsultants</b>								
<b>Total Labor and Subconsultants</b>		\$0	\$0	\$1,920	\$0	\$0		\$1,920
<b>Direct Expenses</b>								\$0
<b>Work Authorization Total</b>								<b>\$1,920</b>

