

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2012	2013	2014	2015	2016
Capital Expenditures	<u>\$173,792</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
External Revenues	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Program Income (County)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
In-Kind Match County	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
CCRT Funds	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
NET FISCAL IMPACT	<u>\$173,792</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
 # ADDITIONAL FTE POSITIONS (Cumulative)	 <u>0</u>	 <u>0</u>	 <u>0</u>	 <u>0</u>	 <u>0</u>

Budget Account No.: Fund 4001 Dept 720 Unit 2322 Object 3120

Is Item Included in Current Budget? Yes X No

Reporting Category N/A

B. Recommended Sources of Funds/Summary of Fiscal Impact:

One (1) time operating expenditure from the user fees and balance brought forward.

C. Department Fiscal Review: Debra M. West

III. REVIEW COMMENTS

A. OFMB Fiscal and/or Contract Development and Control Comments:

Contract cost is estimated at \$173,791.53

[Signature] 9/28/11
OFMB
al 9/29/11
[Signature] 9/28/11

[Signature] 9/28/11
Contract Development and Control
9-28-11 *[Signature]*

B. Legal Sufficiency:

[Signature] 9/30/11
Assistant County Attorney

This item complies with current County policies.

C. Other Department Review:

Department Director

This summary is not to be used as a basis for payment.



**Palm Beach County
Water Utilities
Department
Service Area (SA) and
Major Facilities**

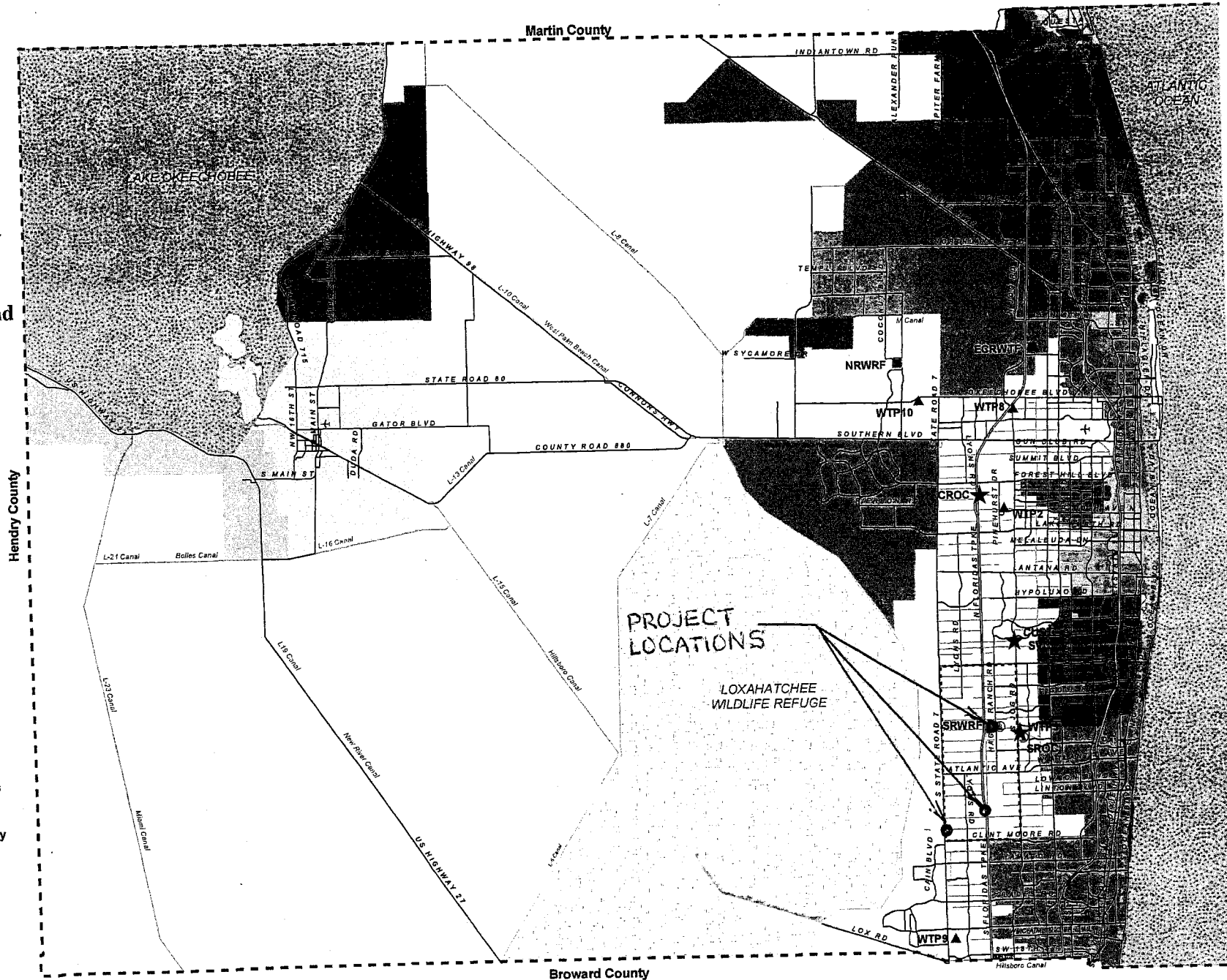
Attachment 1

Legend

- P.B.C.W.U.D. SA
- Mandatory Reclaimed SA
- - - - - Palm Beach County Limits
- ★ Administration
- Water Reclamation Facility
- ▲ Water Treatment Facility
- ⊙ Wetlands



NOT TO SCALE



CONSULTANT SERVICES AUTHORIZATION NO. 01

Project No. WUD 11-032

Budget Line Item No. 4001-720-2322-3120

Project Title: South County Pre-stressed Concrete Cylinder Pipe (PCCP) Evaluation

District No.: 5

THIS AUTHORIZATION # 01 to the Contract for Consulting/Professional Services dated 5/3/2011 with an effective date of 6/3/2011 (Resolution/Document R2011-0635), by and between Palm Beach County and the Consultant identified herein, is for the Consultant Services described in Item 3 of this Authorization. The Contract provides for 95% SBE participation overall. This Consultant Services Authorization includes 19.15% overall participation. The cumulative SBE participation, including this authorization is 19.15% overall. Additional authorization will be utilized to meet or exceed the stated overall participation goal.

1. CONSULTANT: Holtz Consulting Engineers, Inc. (HCE)
2. ADDRESS: 50 South US Highway One, Suite 206, Jupiter FL 33477
3. Description of Services to be provided by the Consultant:
Evaluation of 36" and 42" pre-stressed concrete
cylinder pipe (PCCP) between PS 9N at Yamato Road and the South
Regional Water Reclamation Facility (SRWRF) at four aerial crossings.

See EXHIBIT "A".
4. Services completed by the Consultant to date:

See EXHIBIT "B" and "C".
5. Consultant shall begin work promptly on the requested services.
6. The compensation to be paid to the Consultant for providing the requested services shall be:
 - A. Computation of time charges plus expenses, not to exceed N/A
 - B. Fixed price of \$173,791.53
7. This Authorization may be terminated by the County without cause or prior notice. In the event of termination not the fault of the Consultant, the Consultant shall be compensated for all services performed through the date of termination, together with reimbursable expenses (if applicable) then due.

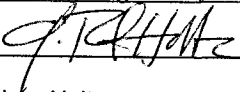
PROJECT NO. WUD 11-032 AUTHORIZATION NO. 1
Budget Line Item No. 4001-720-2322-3120

8. EXCEPT AS HEREBY AMENDED, CHANGED OR MODIFIED, all other terms, conditions and obligations of the Contract dated 5/3/2011 with an effective date of 6/3/2011 remain in full force and effect.

IN WITNESS WHEREOF, this Authorization is accepted, subject to the terms, conditions and obligations of the aforementioned Contract.

CONSULTANT:

FIRM: Holtz Consulting Engineers, Inc

Signed: 

Typed Name: Andrea Holtz

Title: President

Date: 9/21/11

ATTEST:

(Signed)

PALM BEACH COUNTY
A POLITICAL SUBDIVISION OF THE
STATE OF FLORIDA
BOARD OF COUNTY COMMISSIONERS
OF PALM BEACH COUNTY, FLORIDA

Signed: _____

Typed Name: Karen T. Marcus, Chair

Date: _____

ATTEST:


Sharon R. Bock, Clerk & Comptroller

(Deputy Clerk)

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:

(County Attorney)

APPROVED AS TO TERMS AND CONDITIONS


Bevin A. Beaudet, Director, PBC Water Utilities Dept.

Date: 9/26/11

EXHIBIT A

CONSULTANT SERVICE AUTHORIZATION NO. 1

PALM BEACH COUNTY WATER UTILITIES DEPARTMENT ENGINEERING/PROFESSIONAL SERVICES

SCOPE OF WORK FOR

SOUTH COUNTY PRE-STRESSED CONCRETE CYLINDER PIPE (PCCP) EVALUATION

INTRODUCTION

Palm Beach County (COUNTY) entered into an agreement entitled Contract for Engineering/Professional Services – Utility Distribution and Collection System Consulting Services, Palm Beach County Utilities Department Project No. WUD 11-005 (CONTRACT) with Holtz Consulting Engineers, Inc. (CONSULTANT) to provide engineering services for various utility distribution and collection system projects (Reference Document R2011-0635). This Consultant Service Authorization will be performed under that CONTRACT.

This Consultant Services Authorization encompasses professional engineering services for the evaluation of existing 36" and 42" pre-stressed concrete cylinder pipe (PCCP) at four aerial crossing locations. The existing PCCP force main was put into service in 1992 and COUNTY desires to have an evaluation performed on the piping system to determine its current condition at these four locations and use the evaluation as a baseline condition assessment for future analysis.

This force main serves all of the Boca Raton service area, with over 100,000 residents. The pipeline route is generally from LS 9N, which is located just south of Yamato Road, extending north along SR 7/US 441 to the Lake Worth Drainage District (LWDD) L-38 Canal and then east along the LWDD L-38 Canal to the Florida Turnpike right-of-way. The pipe then extends north along the E-2-W Canal approximately 1,300' and then crosses the Florida Turnpike to the E-2-E Canal. It then extends north along the E-2-E canal to the LWDD L-30 Canal near its termination at the Southern Regional Water Reclamation Facility (SRWRF).

The four aerial crossings where the pipe evaluation will be performed include the following:

- 1) L39 canal crossing approximately 1 mile north of Clint Moore Road on the east side of SR 7(441). The PCCP aerial crossing is a 36" pipe and has a span of approximately 61'.
- 2) E-1 canal crossing approximately 1 mile north of Clint Moore Road on the east side of SR 7(441). The PCCP aerial crossing is a 36" pipe and has a span of approximately 52'.
- 3) L38 canal crossing at 12751 Hagen Ranch Road at the southwest corner of the Southern Region Reclamation Facility property. The PCCP aerial crossing is a 42" pipe and has a span of approximately 72'.

- 4) Crossing on West side of Florida Turnpike approximately 1500' North of Hidden Valley Canal & 1300' South of Mizner Country Club (S.E. corner of property). The PCCP aerial crossing is a 42" pipe and has a span of approximately 61'.

This evaluation will generally include conducting an assessment of the condition of the existing pipeline at these four locations using non-destructive methods. These methods will evaluate the condition of the pipeline while maintaining it under operation. Once the testing of the pipeline at these locations is completed, the CONSULTANT will then perform an engineering evaluation which includes structural modeling and a risk analysis of the pipe to determine the estimated condition of these sections of the pipeline and recommendations for continued use of the pipeline. The results of the analysis will be summarized in an engineering report.

BACKGROUND

The South County 36" and 42" force main from LS 9N to the SRWRF has been in operation since 1992. Typical pressures in the pipeline range from 8 psi to 25 psi. There have been no known failures or breaks in this pipeline nor any major repairs performed on the pipeline. The pipeline was generally installed approximately 3-5 feet below grade and must be kept in service at all times.

In 2007 the PBC Water Utilities Department (WUD) implemented an Asset Management Program to establish service levels and control risks of failure. As part of the effort to control risks, PBC WUD identified the subject force main as a critical force main due to its size and the fact that it would be difficult to bypass a failed section of piping.

The four locations selected for inspection and condition assessment are at aerial crossings, which are generally the high points in the pipe. These high points are subject to the collection of gases which can accumulate and cause a deterioration of the pipe. For this reason, these four exposed locations were selected for detailed pipe inspections and evaluation. This evaluation will provide a good baseline condition assessment of this main at these locations which can be used to compare future condition analysis. Depending upon the results of this evaluation at these locations, further inspections and testing of the pipeline at other locations may be warranted.

SCOPE OF SERVICES

CONSULTANT shall perform the engineering Scope of Services as described herein.

The Consultant will be responsible for the following items:

Task 1 - Kickoff Meeting and Review of Existing Conditions and Documentation

- 1.1. The Consultant shall attend a kick-off meeting with PBCWUD to outline the detailed parameters of the project.
- 1.2. The Consultant shall perform a one-day field reconnaissance site visit of the existing pipeline, specifically at the four aerial crossings to be evaluated. Photographs will be taken to document the site visit. In addition, access and methods of inspecting the piping, including safety measures, will be identified.

- 1.3. The Consultant shall review the utility information provided by PBC WUD including record drawings, pipe layout drawings, specifications, pipeline pressure data, pipeline maintenance documents, photographs and all other pertinent information.

Palm Beach County Water Utilities Department (PBCWUD) will provide the Consultant the following information and/or be responsible for the following items:

1. Record drawings of the existing force main
2. Pipe lay sheets, fabrication drawings and/or layout drawings
3. Piping specifications
4. Pipeline operation and maintenance data
5. Geotechnical data including borings, soil surveys, etc.
6. Review comments on draft deliverables

Task 2 - Perform Air Release Valve Inspection and Evaluation

- 2.1. Based on a cursory review of the Record Drawings, it appears that there are approximately 27 Air Release Valves (ARVs) on the pipeline. CONSULTANT will perform a visual and functional inspection of all ARVs with PBC WUD Staff. CONSULTANT will provide written recommendations to WUD indentifying necessary repairs and upgrades to existing ARVs and recommend locations for new ARVs, if necessary.

Task 3 – PCCP Piping Evaluation

- 3.1 External inspections and engineering evaluations will be performed at each of the four aerial crossings. The external inspection will consists of visual/sounding, electromagnetic and sonic/ultrasonic inspections. The visual/sounding inspection will include a detailed inspection of the pipe joints and will be used to identify obvious signs of distress such as longitudinal and circumferential cracking on each pipe section. In addition, a sounding inspection of the pipeline will be performed to identify any 'hollow' sounding areas that would suggest delamination of the concrete core from the cylinder. Internal cracking and delamination are indicators that the pipe has lost compression generally as a result of broken prestressing wires.
- 3.2 The electromagnetic inspection will be performed concurrently with the visual/sounding inspection. The electromagnetic inspection is a nondestructive testing technique that provides quantitative information on the number and location of broken pre-stressing wires on each section of pipe.
- 3.3 Sonic/ultrasonic testing will be performed along the top half of the exposed pipes. The sonic/ultrasonic testing will assess the wall thickness of the pipe at the unique, above ground crossings where pockets of trapped gas may be present with an increased probability of wall thinning due to hydrogen sulfide corrosion. The combination of visual/sounding, electromagnetic and sonic/ultrasonic inspection provides the best baseline information on the condition of these sections of the pipeline.
- 3.4 After completion of the field work an engineering evaluation will be performed to provide structural modeling and risk analysis of the force main aerial crossings,

including three dimensional nonlinear finite element modeling, to provide performance curves for each class of pipe. All pipe information, i.e., pipe specifications, laying schedules, as-built drawings and operating conditions will be utilized in developing the performance curves. The engineering analysis will be compared to the wall thickness test results obtained from the sonic/ultrasonic testing.

- 3.5** The occurrence of pressure transients within a pressure pipeline can have adverse effects on the integrity of a pipe section as they can cause damage such as fatigue stress, cracking of the mortar coating and/or wire breaks in PCCP, or even a pipe failure depending on the magnitude of the transient and current condition of the pipe. Accumulated damage of this nature can eventually decrease the structural integrity of the pipe. Therefore, it is important to understand the frequency and magnitude of pressure transients in a pipeline to ensure that operational protocols can be implemented to maintain the pressures below the specified design. An understanding of the actual pressure in a line will also permit knowledgeable decisions regarding future modifications to the line or facilities that affect the performance of the pipeline. Traditional pressure monitors collect data in intervals of seconds while transients may occur in fractions of seconds. A transient pressure monitoring system addresses the sampling frequency issue by continuously monitoring pressure and while under normal operating conditions, only records data every few minutes. However, when a transient occurs in the pipeline, the device detects the transient and begins sampling at a high rate of up to 100 samples per second. This provides periodic pressure readings as well as data on transient events. In order to monitor transients within the pipeline, Consultant will install up to two (2) pressure transient monitors for up to sixty (60) days to perform periodic data collection. The results will be presented in the engineering report.

Task 4 – PCCP Evaluation Engineering Report

- 4.1 An engineering report will be developed once the field inspections, transient pressure monitoring and engineering evaluations are complete. The engineering report will describe the methodologies used to inspect the force main segments as well as document the results of the inspections, including the inspections of the air release valves. The report will also discuss the implication of the results and provide any recommendations for the continued use of the pipeline or if measures should be taken to minimize the risk of failure. The inspection data will be compiled into bound reports and provided on a portable hard drive at the conclusion of the project.
- 4.2 CONSULTANT will attend one meeting with PBCWUD to present the findings and recommendations included in the engineering report.

Task 5 – Project Management

- 5.1. CONSULTANT will provide the services of Pure Technologies (who recently acquired Pressure Pipe Inspection Company (PPIC)) to perform external pipe inspections and engineering evaluations of the four aerial crossings.
- 5.2. Consultant will provide bi-weekly progress reports.

Assumptions:

In addition to the work items discussed above, the following assumptions were made in establishing the scope of work for this Consultant Services Authorization and associated fee:

1. PBC WUD will provide access and personnel to accompany project team members to sites.
2. PBC to remove the fan guards at each crossing.
3. Pipe excavations, if necessary, will be performed by others.
4. PBC will be responsible for traffic control.
5. Utility location services are by others.
6. If scaffolding is required for the canal crossings it will be provided by others.
7. CONSULTANT will provide safety equipment (i.e. tripods, winches, etc.) for access to the pipeline. Rope support for the equipment and inspection teams will also be provided.

Exclusions:

The services outlined below are not included as part of the Scope of Services, although additional Consultant Services Authorizations can be executed to assist the COUNTY with these services if necessary:

1. Topographic surveys
2. Geotechnical surveys
3. Excavating, backfilling or hot tapping piping
4. Hydraulic Model Runs
5. Additional mobilizations due to pipeline not being available for inspection upon arrival

COMPENSATION

COUNTY agrees to pay CONSULTANT a fix fee of \$173,791.53 for the Scope of Services provided for in this Consultant Services Authorization in accordance with Section 5 of the CONTRACT. A breakdown of the fee is shown in Attachment A.

M/WBE PARTICIPATION

As prescribed under Section 7.5 of the CONTRACT, M/WBE participation is included in Attachment C and Exhibit C under this Authorization. The attached Schedule 1 (Attachment C) defines the M/WBE participation for this Consultant Services Authorization, and Schedule 2 defines the summary of SBE/Minority Business tracking for this and all approved Consultant Services Authorizations.

ATTACHMENT – A	Budget Summary
ATTACHMENT – B	Project Schedule
ATTACHMENT – C	SBE-M/WBE Schedule
ATTACHMENT – D	Project Location Map

ATTACHMENT - B

PROJECT SCHEDULE

SCHEDULE

The completion dates for this work will be as follows (starting from CONSULTANT'S receipt of Notice-to-Proceed).

<u>Engineering Services</u>	<u>Completion Date From Notice to Proceed</u>
Tasks 1.1 - 1.3: Kick-off Meeting and Review of Existing Conditions and Documentation	2 weeks
Tasks 2.1: Perform ARV Inspection	2 week (4 weeks cumulative)
Tasks 3.1 – 3.5: PCCP Piping Evaluation	12 weeks (16 weeks cumulative)
Tasks 4.1 – 4.2: PCCP Evaluation Engineering Report	7 weeks (23 weeks cumulative) (Summary letter will be provided within 1 week of field testing)
Tasks 5.1 – 5.2: Project Management	Concurrent with Other Tasks

ATTACHMENT C

SCHEDULE #1

LIST OF PROPOSED SBE-M/WBE PRIME/SUBCONTRACTORS

PROJECT NAME: South County Pre-Stressed Concrete Cylinder Pipe (PCCP) Evaluation PROJECT NUMBER: WUD 11-032

PROJECT OF PRIME BIDDER: Holtz Consulting Engineers, Inc. ADDRESS: 50 South US Highway One, Suite 206, Jupiter FL 33477

CONTACT PERSON: David Xavier, PE PHONE NO.: 561-575-2005 FAX NO.: 561-575-2009

BID OPENING DATE: N/A DEPARTMENT: Water Utilities

PLEASE IDENTIFY ALL APPLICABLE CATEGORIES

Name, Address and Telephone Number of Minority Contractor	(Check one or both Categories)		Black	Hispanic	Woman	Caucasian	Other (Please Specify)
	Minority Business	Small Business					
Holtz Consulting Engineers, Inc. 50 South US Highway One, Suite 206 Jupiter, FL 33477 (561) 575 - 2005	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$ -	\$ 33,291.53	\$ -	\$ -	\$ -
	<input type="checkbox"/>	<input type="checkbox"/>	\$ -	\$ -	\$ -	\$ -	\$ -
	<input type="checkbox"/>	<input type="checkbox"/>	\$ -	\$ -	\$ -	\$ -	\$ -
	<input type="checkbox"/>	<input type="checkbox"/>	\$ -	\$ -	\$ -	\$ -	\$ -
	<input type="checkbox"/>	<input type="checkbox"/>	\$ -	\$ -	\$ -	\$ -	\$ -
PRIME CONTRACTOR TO COMPLETE:		TOTAL	\$ -	\$ 33,291.53	\$ -	\$ -	\$ -

BID PRICE: \$ 173,791.53 Total Value of SBE Participation \$ 33,291.53

- NOTE:
1. The amount listed on this form for a Subcontractor must be supported by price or percentage included on Schedule 2 or a proposal from each Subcontractor listed in order to be counted toward goal attainment.
 2. Firms may be certified by Palm Beach County as an SBE and/or an M/WBE. If firms are certified as both an SBE and M/WBE, please indicate the dollar amount under the appropriate category.
 3. M/WBE information is being collected for tracking purposes only.

South County PCCP Force Main Evaluation

Aerial Crossing No. 3

Aerial Crossing No. 4

Aerial Crossing Nos. 1 & 2

Legend
42" Concrete Force Main
48" Concrete Force Main

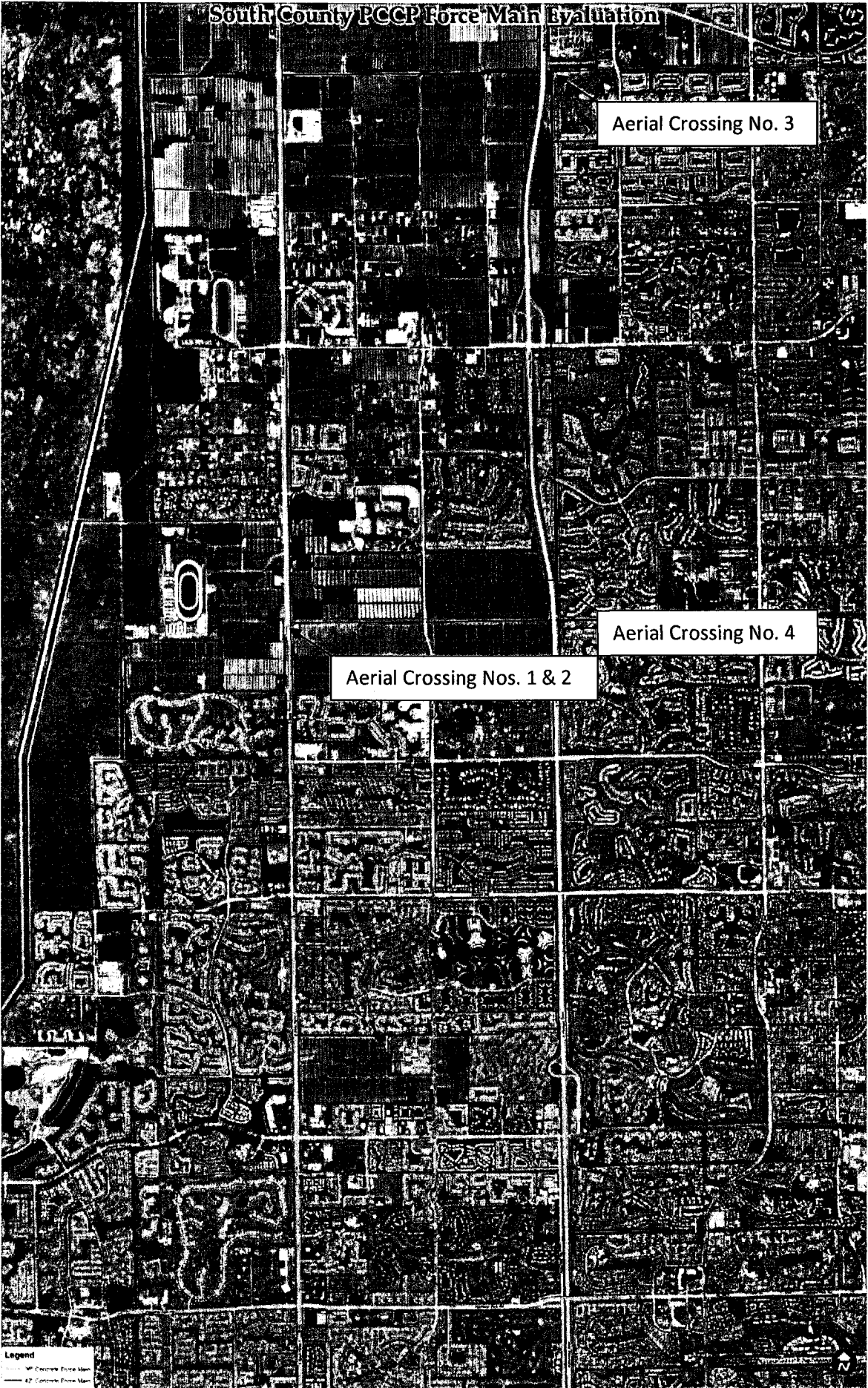


EXHIBIT -C

**UTILITY DISTRIBUTION & COLLECTION SYSTEM CONSULTING SERVICES
SUMMARY OF SMALL BUSINESS ENTERPRISE TRACKING SYSTEM**

Work Authorization No.1

	TOTAL	SBE
Current Proposal		
Value of Authorization No. 1	\$173,791.53	
Value of SBE Letters of Intent	\$33,291.53	\$33,291.53
Actual Percentage	19.15%	19.15%
Signed Authorizations		
Total Value of Authorizations	\$0.00	\$0.00
Total Value of SBE Signed Subcontracts	\$0.00	\$0.00
Actual Percentage		0.00%
Signed Authorizations plus Current Proposal		
Total Value of Authorizations	\$173,791.53	
Total Value of Subcontracts & Letters of Intent	\$33,291.53	\$33,291.53
Actual Percentage	19.15%	19.15%
GOAL	95.00%	19.16%