



**SUPPLEMENTAL WORK ORDER INITIATION FORM  
for the CITY OF CLEARWATER**

**Date:** April 26, 2016

**Project Number:** 2110-203-008

**City Project Number:** 15-0039-UT

**1. PROJECT TITLE:**

East WRF Clarifier Rehabilitation Project  
Supplemental Work Order – East Clarifier Repair

**2. SCOPE OF SERVICES:**

The eastern-most clarifier at the City's East WRF was recently damaged due to the failure of the dewatering system. Under this Supplemental Work Order, the City authorizes King Engineering Associates, Inc (King) to provide engineering design services for the repair of the damaged clarifier. This work includes the design of repairs to the tank center pier and floor slab, the tank's dewatering system, and provisions for testing and repairing, if necessary, the tank's associated underground piping systems.

The work associated with the repair of the clarifier, underground piping and dewatering system will be bid and constructed with the clarifier rehabilitation project, which includes replacement of the mechanism and the scum pump and piping system. As such, the design of these repairs will be incorporated into the bid documents for the clarifier rehabilitation project.

**I. PROJECT COORDINATION**

Project coordination activities will encompass the following:

1. Coordinate the activities of King's staff with those of the City and administer communications among the project team members.
2. Administer a quality assurance program covering the technical work of the project team.

3. Administer a document control program for Contractor Work Change Directives, Field Orders, Field Observation Reports, test results and other field-related documents during construction.
4. Communicate and discuss project progress with King's Field Representative on a daily basis. Report weekly to the City Project Manager.

## II. DESIGN PHASE

Design phase services will be provided for the A) tank structural repair, B) piping repair under tank, and C) dewatering system improvements.

### A. Tank Structural Repair

1. Perform geotechnical investigations. Through a subconsultant, perform two (2) borings to investigate conditions in the vicinity of the eastern clarifier to provide information for planned repairs, and install one (1) 4-inch test well to provide information for design of the dewatering system improvements. Limited laboratory testing will be made on samples to characterize the engineering properties of the subsurface soils, and may include grainsize analysis, organic content and Atterberg limits, where warranted.
2. Design tank structural repairs.
  - Repairs will generally consist of filling voids under the tank, stabilizing the center pier using mini-piles or screw anchors, and pouring a new reinforced concrete slab with connections to the existing center pier and perimeter walls designed to reduce leakage.
  - Prepare plans, sections and details.
  - Prepare technical specifications.
  - Prepare an opinion of probable construction cost for the tank repairs.

### B. Pipe Repair

1. Prepare specifications for cleaning, leak testing, and video inspection of the existing influent mixed liquor piping, the return sludge piping and the drain piping under the tank. Specify Contractor reporting requirements.
2. Specify CIPP repairs that would be implemented if piping is found to leak.
3. Prepare CIPP drawings/details.
4. Prepare an opinion of probable construction cost for the pipe repairs.

### C. Clarifier Dewatering System Improvements Design

1. Prepare a specification requiring the contractor to document the existing dewatering system including cleaning, elevational surveying, and televising the wet well, manhole and piping systems.
2. Specify cleaning and inspection/reporting requirements.
3. Design dewatering system.

- Evaluate alternate dewatering system designs.
  - Perform pumping test on the installed test well to determine shallow aquifer characteristics.
  - Design selected dewatering system.
4. Prepare dewatering system design documents.
    - Prepare plans, sections and details.
    - Prepare technical specifications.
    - Prepare an opinion of probable construction cost for the dewatering system improvements.

### III. FINAL DESIGN PHASE

Final design phase services will consist of the submittal of 90% and final documents.

1. Prepare and submit 90% design including:
  - City standard front ends
  - Modify Division 1 specs
  - Modify bid form and Measurement & Payment specs
  - Submit 90% plans , specs and cost estimate
  - Attend review meeting, incorporate comments
2. Submit final plans, specifications and cost estimate.
3. Attend review meeting, incorporate comments.

### IV. BIDDING PHASE

Bidding phase services assume that this work will be bid with the clarifier rehabilitation project and will include:

1. Submit bid sets (5)
2. Prepare addenda.

## 3. **PROJECT GOALS:**

Project deliverables for the above Tasks will include:

- Copies of drawings and specifications as described;
- Meeting Agendas and Minutes.

## 4. **BUDGET:**

See Attachment "B". This price includes all labor and expenses anticipated to be incurred by King Engineering Associates, Inc. for the completion of all Tasks in accordance with Professional Services Method "B" – Lump Sum – Percentage of Completion by Task for a fee not to exceed Sixty Seven Thousand Seven Hundred Fifty-Seven Dollars (\$67,757).

**5. SCHEDULE:**

Tasks I through III will be completed in 30 days, and Task IV will be completed in accordance with the City's schedule.

**6. STAFF ASSIGNMENT (Consultant):**

City Staff

Project Manager	Jeff E. Walker, P.E.
Engineering Manager, Utilities	Robert Fahey, P.E.
Assistant Public Utilities Director	Richard Gardner, P.E.
Wastewater Environmental Technology Manager	Kathryn McGrath
Chief Operator – East WRF	Jeff Borden

King Engineering Associates Staff

Principal	Christopher F. Kuzler, P.E.
Sr. Project Manager	Thomas A. Traina, P.E.
Sr. Project Engineer	Jeffrey E. Elick, P.E.
Clerical /Document Control	Paula Eldon

**7. CORRESPONDENCE/REPORTING PROCEDURES:**

Engineer's project correspondence shall be directed to Thomas A. Traina, P.E. All City project correspondence shall be directed to Jeff Walker, P.E. with copies to others as may be appropriate.

**8. INVOICING/FUNDING PROCEDURES:**

For work performed, invoices shall be submitted monthly to the City of Clearwater, Engineering Department, Attn.: Veronica Josef, Senior Staff Assistant, PO Box 4748, Clearwater, Florida 33758-4748.

City Invoicing Code: [0327-96654-561300-535-000-0000](tel:0327-96654-561300-535-000-0000)

**9. INVOICING PROCEDURES**

At a minimum, in addition to the invoice amount(s) the following information shall be provided on all invoices submitted on the Work Order:

- A. Purchase Order Number and Contract Amount.
- B. The time period (begin and end date) covered by the invoice.
- C. A short narrative summary of activities completed in the time period
- D. Contract billing method – Lump Sum or Cost Times Multiplier
- E. If Lump Sum, the percent completion, amount due, previous amount earned and total earned to date for all tasks (direct costs, if any, shall be included in lump sum amount).
- F. If Cost Times Multiplier, hours, hourly rates, names of individuals being billed, amount due, previous amount earned, total earned to date for each task and other direct costs (receipts will be required for any single item with a cost of \$50 or greater or cumulative monthly expenses greater than \$100).

- G. If the Work Order is funded by multiple funding codes, an itemization of tasks and invoice amounts by funding code.

**10. SPECIAL CONSIDERATIONS:**

- A. The consultant shall comply with Section 119.0701, Florida Statutes (2013) where applicable.

**PREPARED BY:**

**APPROVED BY:**

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**Christopher F. Kuzler, P.E.**  
**Sr. Vice President**  
**King Engineering Associates, Inc.**

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**Michael D. Quillen, PE**  
**City Engineer**  
**City of Clearwater**

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**Date**

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**Date**



# CITY OF CLEARWATER ENGINEERING DEPARTMENT

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## WORK ORDER INITIATION FORM CITY DELIVERABLES

### 1. **FORMAT**

The design plans shall be compiled utilizing the following methods:

1. City of Clearwater CAD standards.
2. Datum: Horizontal and Vertical datum shall be referenced to North American Vertical Datum of 1988 (vertical) and North American Datum of 1983/90 (horizontal). The unit of measurement shall be the United States Foot. Any deviation from this datum will not be accepted unless reviewed by City of Clearwater Engineering/Geographic Technology Division.

### 2. **DELIVERABLES**

The design plans shall be produced on bond material, 24" x 36" at a scale of 1" = 20' unless approved otherwise. Upon completion the consultant shall deliver all drawing files in digital format with all project data in Autodesk Civil 3D file format. If not available Land Desktop files are still acceptable, however the City or Clearwater is currently phasing out Land Desktop.

NOTE: If approved deviation from Clearwater CAD standards are used the Consultant shall include all necessary information to aid in manipulating the drawings including either PCP, CTB file or pen schedule for plotting. The drawing file shall include only authorized fonts, shapes, line types or other attributes contained in the standard release of Autodesk, Inc. software. All block references and references contained within the drawing file shall be included. Please address any questions regarding format to Mr. Tom Mahony, at (727) 562 4762 or email address Tom.Mahony@myClearwater.com.

All electronic files (CAD and Specification files) must be delivered upon completion of project or with 100% plan submittal to City of Clearwater.

East WRF Clarifier Rehabilitation Project  
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King Engineering Associates, Inc.

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**WORK ORDER INITIATION FORM  
PROJECT BUDGET**

<b>Task</b>	<b>Description</b>	<b>Subconsultant Services</b>	<b>Labor and Materials</b>	<b>Total</b>
I.	Project Coordination	\$2,290	\$6,572	\$8,862
II.	Design Phase Services	26,140	15,905	42,045
III.	Final Design Phase	4,425	8,467	12,892
IV.	Bidding Assistance	2,000	1,958	3,958
<b>Grand Total</b>				<b>\$67,757</b>