

AGENDA

**ENGINEERING COMMITTEE MEETING
LEUCADIA WASTEWATER DISTRICT**

Wednesday, July 6, 2016 – 8:30 a.m.
1960 La Costa Avenue, Carlsbad, CA 92009

1. Call to Order

2. Roll Call

3. Public Comment

4. New Business

- A. Authorize the General Manager to execute an agreement with SCW Contracting Corporation for construction services to complete the Village Park No. 5 Pump Station Replacement Project in an amount not to exceed \$780,751. (Pages 2 - 7)
- B. Authorize the General Manager to execute Task Order No. 27 to the Engineering Design Services Agreement with Infrastructure Engineering Corporation (IEC) for engineering design services for the Gafner Advanced Water Treatment (AWT) Improvement Project in an amount not to exceed \$60,928. (Pages 8 - 12)
- C. Authorize the General Manager to execute Task Order No. 28 to the Engineering Design Services Agreement with Infrastructure Engineering Corporation (IEC) for engineering design services for the Fiscal Year 2017 Gravity Pipeline Rehabilitation Project in an amount not to exceed \$41,305. (Pages 13 - 18)
- D. Authorize the General Manager to execute a five year professional services agreement with ADS Environmental Services to provide flow monitoring services in the amount of \$275,442 consisting of the following: (Pages 19 - 24)
 - 1. A cost of \$67,122 over the first year for mobilization and flow monitoring services.
 - 2. A cost of \$52,080 per year over the subsequent four years for flow monitoring services.

5. Information Items


- A. Saxony Pump Station Rehabilitation Project completion. (verbal)

6. Director's Comments

7. General Manager's Comments

8. Adjournment

MEMORANDUM

DATE: June 29, 2016
TO: Engineering Committee
FROM: Paul J. Bushee, General Manager 
SUBJECT: **Village Park No. 5 Pump Station Replacement Project Construction Contract**

RECOMMENDATION:

Staff requests that the Engineering Committee recommend that the Board of Directors:

1. Authorize the General Manager to execute an agreement with SCW Contracting Corporation for construction services to complete the Village Park No. 5 Pump Station Replacement Project in an amount not to exceed \$780,751.
2. Discuss and take other action as appropriate.

DISCUSSION:

Tactical Goal: Infrastructure and Technology / Village Park No. 5 Pump Station Replacement

The Village Park No. 5 Pump Station Replacement Project is included as a goal under the Technology and Infrastructure Strategy in the Fiscal Year 2017 (FY17) Tactics & Action Plan.

In April 2014, Infrastructure Engineering Corporation (IEC) completed the District's pump stations assessment. As a result of the assessment, IEC recommended the replacement of the Village Park No. 5 (VP5) Pump Station (a Smith & Loveless packaged pump station) with a submersible pump station. The option of rehabilitating the pump station was considered because it would save on construction and design costs. However, after careful consideration, staff and IEC determined that the advantages of replacement outweighed the additional expense over rehabilitation. The Board agreed and in October 2015 authorized the execution of an agreement with IEC for project design.

In May 2016, IEC completed the design and the project was advertised for bid. Bids were due on June 21, 2016. Seven bids were received with the following results:

| <u>Construction Firm</u> | <u>Bid Submitted</u> |
|---|-----------------------|
| Metro Builders and Engineers Group, Ltd. | \$697,000 (withdrawn) |
| SCW Contracting Corporation | \$780,751 |
| Wright Construction Engineering Corporation | \$782,903 |
| NeWest Construction Company | \$857,200 |
| Piperin Corporation | \$875,000 |
| Pyramid Building & Engineering Inc. | \$981,500 |
| MMC Incorporated | \$990,130 |

The day after bid opening, June 22nd, the District received a letter from the apparent low bidder, Metro Builders and Engineers Group (Metro), withdrawing their bid due to a clerical error. The

error was in the bid item for electrical work. The clerical error occurred when material costs for the Motor Control Center (MCC), Sump Pump Termination Panel and other related electrical materials were not carried through in Metro's calculation. This error resulted in Metro's bid being \$132,250 less than it should have been. Section IFB-11, Withdrawal Of Bid After Bid Opening, of the contract documents allows a bidder to withdraw their bid in writing within five days of the opening of bids if a mistake was made in preparing the bid. As a result of Metro's bid withdrawal, SCW Contracting Corporation (SCW Contracting) was the apparent low bidder.

The bids were reviewed by Jane Costello, Anthony Salvani, Jamie Fagnant and Robert Weber at IEC. The bid review memorandum is attached for your review. SCW Contracting's bid had one issue. On Bid Item No. 2, Sewage Pumps and Motors, SCW transposed the unit cost & total cost columns on the Bid Schedule. However, the unit cost of each pump was correct in the "written in words" unit cost column and the total bid correctly reflected the cost for two pumps. Legal counsel and IEC consider the error to be a minor irregularity and should not result in disqualification of the bid. They recommend this discrepancy be waived.

SCW's total bid is \$142,751 or 22% more than the engineer's opinion of probable cost of \$638,000. IEC believes that the bid costs reflect the current market conditions and reasonably stringent installation guidelines. SCW's individual bid item amounts roughly correlate with those of the engineer's opinion of probable cost and the other bidders. The difference in the bid price can be attributed to the following:

- The engineer's opinion of probable cost did not capture the cost of programming and controls work by Base 9, contributing to a lower total bid estimate in comparison to SCW's. The difference was approximately \$70,000.
- SCW's Bid Item No. 10 for Electrical work was approximately 10% higher than the engineer's opinion of probable cost. The electrical design engineer stated that the market for electrical contractors appears to be tight.
- The remaining differences appear to be the valve vault & wet well preparation. The engineer's opinion of probable cost was lower.

As a result of their evaluation, IEC recommends that SCW Contracting be awarded the contract as the lowest responsive and responsible bidder. Staff agrees with IEC's assessment and recommends that the Board award the construction contract for the VP5 Pump Station Replacement Project to SCW Contracting in an amount not to exceed \$780,751.

FISCAL IMPACT:

The FY 17 budget contains sufficient funds to cover the construction of the VP5 Pump Station Replacement Project.

rym:PJB

Attachment



BID REVIEW MEMORANDUM

Date: June 28, 2016

Subject: **Village Park No. 5 Pump Station Replacement Project**

Prepared By: *aml* Anthony Salvani and Jane Costello, P.E. *gc*

Reviewed By: Jamie Fagnant, P.E., Rob Weber, P.E.

PURPOSE

This memorandum provides a summary of our evaluation of bid results and the responsiveness of the low bid for the subject project.

BID RESULTS

Seven bids were received and opened on June 21st, 2016. The bids are summarized on Table 1 - Bid Summary (see attached) and characteristics of the bids are as follows:

| | |
|--------------------------------------|---------------------------|
| Apparent Low Bid: | \$697,000 (Bid Withdrawn) |
| Second Apparent Low Bid: | \$780,751 |
| Average Bid: | \$852,069 |
| High Bid: | \$990,130 |
| Engineer's Opinion of Probable Cost: | \$638,000 |

The low bid was approximately 18% greater than the engineer's opinion of probable cost. IEC reviewed the seven bids and found that the bid item amounts were similar between the seven bidders and roughly correlated to the engineer's opinion. Although the bid cost is slightly higher than the engineer's opinion of probable construction cost, it is our opinion that the bid costs reflect the current market conditions and reasonably stringent installation guidelines and do not constitute grounds to reject the received bids.

REVIEW OF LOW BIDDER

SCW Contractors (SCW or Contractor), Santee, California submitted the apparent low bid. IEC has determined SCW to be responsive to the bid requirements and recommends that the District award the project to SCW. The following reviews have been completed:

Contractor's License: The Contractor holds the required Class A License (No. 630435). The license is current and active.

Bid Bond: A bid bond in the amount of ten percent (10%) of the bid amount was submitted with Liberty Mutual Insurance Company as surety. This surety company has a rating of A XV with Best's Key Rating Guide.

Signatures: The Contractor's President, Jeffery Scrape signed the Non-Collusion Affidavit, Closing Statement, and Bidders Bond. The Secretary Suzanne Scrape signed the Closing Statement as the attesting officer.

Addenda Acknowledged: Addenda Nos 1 and 2 were acknowledged by SCW. SCW signed the Addendum Certification Form and faxed it to LWD.



Project Manager's Experience: A resume for the project manager was not included in any of the bids, but was supplied upon request. IEC reviewed the resume. The Project Manager's appears to be qualified.

Approach to Work: The Contractor addressed the anticipated project issues as required in the Approach to Work section of the Bid Documents as outlined below:

Staging: Due to the tight site constraints, SCW will strictly coordinate delivery of equipment and materials with subcontractors and vendors. These deliveries will be scheduled well in advance to minimize impacts to the surrounding areas and Encinitas Blvd.

Fabrication: There is limited on site fabrication on this project. In the event of on site or off site fabrication, SCW will ensure their Injury and Illness Prevention Plan (IIPP) is followed, a Job Hazard Analysis (JHA) is performed, and required safety measures are implemented (i.e. fire watch, protect existing facilities, etc.)

Safety Measures & Accident Prevention: SCW performs weekly tailgate safety meetings in accordance to IIPP. These weekly meetings go over safety procedures such as personal protective equipment, hand signals, confined space, excavation & trench safety, pinch points, working around heavy equipment, lifting/hoisting, welding/cutting (hot work), proper use of chemicals, fall protection etc. SCW will hold safety meetings that follow JHA prior to commencing the work activity.

Hazardous Waste Management: At all times SCW follows BMPs (Best Management Practices) for storm water pollution prevention and hazardous material handling and storage.

Reference Documents:

Sample Job Hazard Analysis

CALOSHA Excavation Permit

CALTRANS Storm Water Quality Handbook (BMPs)* 257 pages

SCW Injury Illness Prevention Plan* 114 Pages

*Due to the size this information is available electronically or hard copy upon request by the Leucadia Wastewater District

Worker's Compensation Insurance: Policy is in affect through 01/01/2017. The most recent workers' compensation experience modification factor for SCW is 0.097.

Experience Requirements: The bid documents require the Contractor to submit three project references where the Contractor was required to have bypassed 100% of the existing wastewater flow in order to complete the project with no incidents or spills. Additionally the bid documents require the Contractor to submit three project references where the Contractor replaced/rehabilitated three pumps stations with 15 hp pumps or greater. SCW submitted project references that meet the requirements.

References: IEC contacted SCW's listed references to perform an assessment of the Contractor's prior work. In all cases, SCW was recommended as a good contractor with no record of claims.



Registration with the Department of Industrial Relations (DIR): As of 03/01/2015 contractors and their subcontractors are required to be registered with the DIR prior to bidding a public works project. The table below demonstrates that SCW and each of its subcontractors have met this requirement.

| Contractor Legal Name | Registration Number | Registration Date | Expiration Date |
|------------------------------|----------------------------|--------------------------|------------------------|
| SCW CONTRACTING CORPORATION | 1000001579 | 06/29/2015 | 06/30/2016 |
| SOUTHERN CONTRACTING | 1000002172 | 06/04/2015 | 06/30/2016 |
| MC PAINTING | 1000026859 | 07/27/2015 | 06/30/2016 |

Source: <https://efiling.dir.ca.gov/PWCR/Search.action>

List of Subcontractors:

The contract documents also required the contractor to specifically utilize Base9 for this work. The Base9 quote is included in Bid Item Line No. 11, Controls Work. The Base9 quote according to Base 9 for the VP 5 project is \$82,500.

Bid Item Review: SCW's total bid is \$142,751 more than the engineer's opinion of probable cost. SCW's individual bid item amounts roughly correlate with those of the engineer's opinion of probable cost and the other bidders with the exception of the following:

- The engineer's opinion of probable cost did not capture the cost of controls work by Base 9, contributing to a lower total bid overall in comparison to SCW's. The difference was \$70,000.
- Item 10, consisting of Electrical work, was about 10% higher than the engineer's opinion of probable cost. The electrical design engineer states that the market for electrical contractors appears to be tight.
- The remaining differences appear to be the valve vault & wet well preparation. The engineer's opinion of probable cost judged the costs lower.

For Bid Item Line No. 2, Sewage Pumps and Motors, SCW transposed the unit cost & total cost columns, however, the unit cost of each pump was correct in the "written in words" unit cost column. IEC recommends that this minor bid form irregularity be waived.

RECOMMENDATION

IEC recommends award of the contract to SCW Contracting Corporation.

Attachments

Table 1 – Bid Summary

Leucadia Wastewater District
 Village Park No. 5 Pump Station Replacement Project
 Table 1 - Bid Summary

| Item | Description | Unit | Qty. | Engineer's Opinion of Probable Construction Cost | Withdrawn | | | Apparent Low Bid | | | |
|------|--|------|------|--|--|-----------------|--|-----------------------------|---------------------|-------------------------------------|-----------|
| | | | | | Metro Builders & Engineers Group, Ltd. | SCW Contracting | Wright Construction Engineering Group, Ltd | NEWest Construction Company | Pipelin Corporation | Pyramid Building & Engineering Inc. | MMC Inc. |
| 1 | Mobilization, Bonds, Permits, Cleanup and Demobilization | LS | 1 | \$21,388 | \$75,000 | \$96,548 | \$37,000 | \$30,000 | \$30,000 | \$45,000 | \$80,000 |
| 2 | New Submersible Sewage Pumps (16,302 ea) | EA | 2 | \$48,906 | \$102,000 | \$37,540 | \$67,516 | \$42,000 | \$40,000 | \$56,000 | \$96,850 |
| 3 | Precast Wet Well with Hatch, PVC Liner | LS | 1 | \$28,175 | \$55,000 | \$60,652 | \$66,893 | \$65,000 | \$75,000 | \$86,000 | \$88,850 |
| 4 | Excavation, Overexcavation, Backfill, Export, Import | LS | 1 | \$50,000 | \$25,000 | \$35,724 | \$37,388 | \$99,000 | \$50,000 | \$99,000 | \$39,750 |
| 5 | Valves, Flow Meter, Vault Piping and Supports | LS | 1 | \$47,400 | \$85,000 | \$72,380 | \$60,872 | \$59,000 | \$60,000 | \$45,500 | \$48,130 |
| 6 | New Precast Valve Vault with Hatches & Ladders | EA | 1 | \$30,975 | \$65,000 | \$67,193 | \$50,000 | \$67,000 | \$67,000 | \$48,000 | \$90,750 |
| 7 | Yard Piping | LS | 1 | \$18,750 | \$30,000 | \$42,294 | \$29,003 | \$62,000 | \$65,000 | \$16,500 | \$29,800 |
| 8 | Existing Wet Well Modifications | LS | 1 | \$18,750 | \$25,000 | \$25,008 | \$33,623 | \$10,000 | \$50,000 | \$61,000 | \$50,000 |
| 9 | Bypass Pumping | LS | 1 | \$80,000 | \$20,000 | \$24,232 | \$37,500 | \$22,000 | \$50,000 | \$57,000 | \$25,500 |
| 10 | Electrical Work | LS | 1 | \$168,000 | \$60,000 | \$208,044 | \$207,562 | \$234,000 | \$220,000 | \$239,000 | \$240,000 |
| 11 | Controls Work by Base 9 | LS | 1 | \$12,500 | \$90,000 | \$94,572 | \$105,850 | \$85,200 | \$95,000 | \$96,500 | \$102,500 |
| 12 | Painting | LS | 1 | \$15,000 | \$15,000 | \$13,795 | \$1,500 | \$35,000 | \$10,000 | \$6,000 | \$20,000 |
| 13 | Site Restoration | LS | 1 | \$15,000 | \$15,000 | \$32,211 | \$7,566 | \$12,000 | \$20,000 | \$18,000 | \$35,500 |
| 14 | Demolition | LS | 1 | \$12,500 | \$20,000 | \$20,418 | \$30,000 | \$17,000 | \$25,000 | \$38,000 | \$21,750 |
| 15 | Spare Submersible Sewage Pump | EA | 1 | \$16,302 | \$15,000 | \$10,189 | \$10,650 | \$18,000 | \$18,000 | \$16,000 | \$10,850 |

Engineer's Opinion of Probable Construction Cost
 \$638,000

Total: \$588,596

Check Total:

\$780,751

Seven Hundred Eighty Thousand Seven Hundred Fifty One

\$487,400

Six Hundred Ninety Seven Thousand

\$782,803

Seven Hundred Eighty Two Thousand Nine Hundred Three

\$857,200

Eight Hundred Fifty Seven Thousand Five Hundred

\$875,000

Eight Hundred Seventy Five Thousand

\$981,500

Nine Hundred Eighty One Thousand Five Hundred

\$990,130

Nine Hundred Ninety Thousand One Hundred Thirty

MEMORANDUM

DATE: June 29, 2016
TO: Engineering Committee
FROM: Paul J. Bushee, General Manager 
SUBJECT: **Gafner Advanced Water Treatment (AWT) Improvement Project Design**

RECOMMENDATION:

Staff requests that the Engineering Committee recommend that the Board of Directors:

1. Authorize the General Manager to execute Task Order No. 27 to the Engineering Design Services Agreement with Infrastructure Engineering Corporation (IEC) for engineering design services for the Gafner Advanced Water Treatment (AWT) Improvement Project in an amount not to exceed \$60,928.
2. Discuss and take other action as appropriate.

DISCUSSION:**Tactical Goal: Infrastructure and Technology / Gafner AWT Improvement Project**

The Gafner AWT Improvement Project is included as a goal under the Technology and Infrastructure Strategy in the Fiscal Year 2017 (FY17) Tactics & Action Plan.

The Gafner AWT (Gafner) was last upgraded in 1993 to meet recycled water regulatory standards and has not undergone a major rehabilitation or equipment replacement since then. The 2013 Asset Management Plan (AMP) recommended that the District complete a Gafner condition assessment within five years to identify plant rehabilitation or replacement projects for the District's Capital Improvement Program. To implement this recommendation, in December 2015 staff executed a task order with Infrastructure Engineering Corporation (IEC) to conduct the assessment. As you may recall, in April 2016 the Board received and filed the Gafner Condition Assessment Report completed by IEC.

During the condition assessment, staff established priority criteria to keep cost reasonable in order to preserve as much of the \$1.7M recycled water reserve fund as possible. Additionally, the unknown nature of renewing the Carlsbad Recycled Water Agreement necessitated a cautious approach in the rehabilitation or replacement of assets at Gafner. Therefore, staff focused on improving or maintaining safety items and rehabilitating or replacing critical equipment to keep the plant operating within regulatory parameters.

As a result of the prioritization, the following items were recommended to be replaced or rehabilitated as part of a Gafner Plant Improvements project:

- Failsafe Alternative Pumps, Valves and Piping
- Influent Well Structural Retrofit
- Handrails (Safety)
- Reactor Clarifier Mixers – Rapid and Flocculator

- Sand Filters – Turbidity Meter and Covers
- Chlorine Contact Basin – Mixer and Covers
- Electrical Improvements (Safety)
- Control Valve and Actuators

The project has transitioned into the design phase. Staff requested that IEC submit a proposal for project design. IEC submitted their proposal, attached, to complete the design. The Scope of Work includes:

Task 4 – As Built Creation

As built or base plans of for the final design need to be created from existing Gafner hard copy drawings dating back to 1961. There are currently no electronic drawing files of Gafner. The base plans to be created will include the concrete influent tank and each of the areas of the plant where a mixer or valve/actuator are to be replaced. The base plans will not encompass the entire plant.

Task 5 – Final Design

IEC will prepare contract documents including plans, specifications, calculations and an engineer's opinion of probable construction cost. Two submittals will be provided for staff review and comment at the 75% and 100% Final Design levels.

IEC proposed fee for design services is \$60,928 which includes services to support project design, such as electrical and structural engineering subcontractor services. This fee is 16.5% of the estimated construction cost. Staff believes the proposal is fair and reasonable. Therefore, staff recommends that the Board authorize the General Manager to execute Task Order No. 27 to the Engineering Design Services Agreement with IEC for engineering design services for the Gafner Improvement Project.

FISCAL IMPACT:

Staff appropriated funds in the FY 2017 Budget in anticipation of this project. The budget contains sufficient funds to cover the design services under this agreement.

rym:PJB

Attachment



June 23, 2016

Mr. Robin Morishita
Technical Services Manager
Leucadia Wastewater District
1960 La Costa Avenue
Carlsbad, CA 92009

Reference: Gafner AWT Improvement Project – Design Services

Dear Mr. Morishita:

It has been our pleasure to assist the District with the Gafner AWT Condition Assessment Project. This letter presents the scope and fee for the final design of the Proposed Project No. 1 recommended in the Condition Assessment. The project includes those items requiring replacement to maintain operability and safety at the plant.

SCOPE OF WORK DESIGN SERVICES

Task 4 – As Built Creation

As built or base plans for the final design need to be created from existing hard copy drawings dating back to 1961. There are currently no electronic drawing files of the Gafner AWT. The base plans to be created will include the concrete influent tank and each of the areas of the plant where a mixer or valve/actuator are to be replaced. The base plans will not encompass the entire plant.

Task 5 – Final Design

IEC will prepare contract documents comprised of plans and specifications as well as an engineer's opinion of probable construction cost. Project plans are expected to be composed of the following sheets:

- (4) General Sheets - Title, Sheet Index, General notes, Pump Curve
- (4) Civil Sheets – Partial Site Layout, Yard Piping, Pavement, Details
- (6) Structural Sheets – Structural Notes, Plans, Section and Details
- (5) Mechanical Sheets – Mechanical Plans, Sections and Details
- (6) Electrical Sheets – Standard Symbols and Abbreviations, Electrical Partial Site Plan, Single Line Diagram/Elevations/Schedules, Electrical Area Plans, Control Diagrams, Details

The Task 5 Final Design scope includes two submittals: 75% and 100% Contract Document design levels. One meeting is anticipated to review District comments on the 75% specifications and drawings.

The design submittal will include the elements of Proposed Project No. 1 including structural retrofit of the steel beams and concrete baffle walls of the influent well/clearwell; electrical improvements; new pumps and VFDs for the Fail Safe pump alternative; three mixers, three 10-

Mr. Robin Morishita
Leucadia Wastewater District
June 23, 2016
Page 2 of 2

inch plug valve and actuators; guardrail replacement and repair; a turbidity meter and covers for the grating at the filters and chlorine contact basin.

FEE ESTIMATE

A breakdown of the scope and fee is attached.

We propose to complete this work on a time and materials basis at a total cost not to exceed **\$60,928**.

Sincerely,

A handwritten signature in blue ink that reads "Jane Costello".

Jane M. Costello, P.E.
Project Manager

Cc: Robert S. Weber, Senior Project Manager, PE, IEC
Jamie Fagnant, PE, IEC

FEE ESTIMATE
LEUCADIA WASTEWATER DISTRICT
Gafner AWT Improvement Project - Design Services

| Task/ Subtask | Task/Subtask Description | <i>Sr. Project Manager (Rob Weber)</i> | <i>Project Manager (Jane Costello)</i> | <i>Project Engineer (Ross Maxwell)</i> | <i>Project Engineer/ Designer (Bodhan Czarnocki)</i> | <i>Engineer I/ CAD I Designer (Anthony Salvani)</i> | <i>Word Processor (Annette Moore)</i> | Subtask Labor-Hours | Subtask Labor Cost | Direct Cost | Subcontract | Total Cost |
|------------------|---------------------------|--|--|--|--|---|---|------------------------|-----------------------|----------------|-------------|-----------------|
| | | \$180.00 | \$170.00 | \$130.00 | \$130.00 | \$105.00 | \$65.00 | | | | | |
| TASK 3 | Preliminary Design | | | | | | | | | | | \$7,650 |
| | Meetings (1) | 2 | 2 | 2 | | | | 6 | \$960 | \$70 | \$0 | \$1,030 |
| | Base Plans | | 2 | 16 | | 40 | | 58 | \$6,620 | \$0 | \$0 | \$6,620 |
| TASK 4 | Design | | | | | | | | | | | \$53,278 |
| | Meetings (1) | | 2 | 2 | | | | 4 | \$600 | \$140 | | \$740 |
| | 75% Submittal | | 8 | 64 | 64 | 12 | 8 | 156 | \$19,780 | \$0 | | \$19,780 |
| | Structural Design | | | | | | | 0 | \$0 | \$0 | \$11,550 | \$11,550 |
| | Electrical Design | | | | | | | 0 | \$0 | \$0 | \$11,008 | \$11,008 |
| | 100% Submittal | 2 | 4 | 32 | 32 | 8 | | 78 | \$10,200 | \$0 | | \$10,200 |
| | | 4 | 18 | 116 | 96 | 60 | 8 | 238 | | | | |
| | | \$720 | \$3,060 | \$15,080 | \$12,480 | \$6,300 | \$520 | | \$38,160 | \$210 | \$22,558 | \$60,928 |

TOTAL NOT-TO-EXCEED FEE: \$60,928

12

MEMORANDUM

DATE: June 29, 2016
TO: Engineering Committee
FROM: Paul J. Bushee, General Manager 
SUBJECT: Fiscal Year 2017 Gravity Pipeline Rehabilitation Project Engineering Design Services

RECOMMENDATION:

Staff requests that the Engineering Committee recommend that the Board of Directors:

1. Authorize the General Manager to execute Task Order No. 28 to the Engineering Design Services Agreement with Infrastructure Engineering Corporation (IEC) for engineering design services for the Fiscal Year 2017 Gravity Pipeline Rehabilitation Project in an amount not to exceed \$41,305.
2. Discuss and take other action as appropriate.

DISCUSSION:**Tactical Goal: Infrastructure and Technology / FY 2017 Gravity Pipeline Rehabilitation**

The Fiscal Year 2017 (FY17) Gravity Pipeline Rehabilitation project is included as a goal under the Technology and Infrastructure Strategy in the FY17 Tactics & Action Plan.

The District's 2013 Asset Management Plan (AMP) included a 5 year Capital Improvement Program for each of the five District asset categories – gravity sewers, manhole, pump stations, force mains, and jointly-owned facilities. The gravity sewer pipeline category included an annual gravity pipeline project for the programmatic replacement of vitrified clay pipe (VCP). This programmatic replacement was intended to replace the older VCP lines, starting with the older Leucadia area, which have been noted to have root intrusion.

The shift in Field Service focus from hydro-cleaning to Closed Circuit Television (CCTV) Inspection has resulted in the discovery of significant pipe defects throughout the collection system that are of a high priority for repair. In 2014, Staff developed a process to generate and maintain a prioritized list of pipelines with defects, a Repair Priority List, as a result of CCTV inspections. Defects discovered include major sags, severe cracks, offset joints, broken pipe and other major defects in the collection system. In 2015, Staff added manholes to the Repair Priority List. Staff believes the repair of pipelines and manholes with defects on the Repair Priority List take precedence over the programmatic replacement of VCP lines due to root intrusion. Therefore, the Gravity Pipeline Rehabilitation Project (Project) for FY17 and subsequent fiscal years will focus on the repair of prioritized collection system defects on the Repair Priority List.

The FY17 Project is anticipated to include the repair or rehabilitation of eight (8) gravity line segments and nine (9) manholes.

Infrastructure Engineering Corporation (IEC) has submitted a proposal, attached, to complete the design phase of the FY17 Project. The Scope of Services includes:

Task 1 – Project Management and Administration

- Two meetings – discuss preliminary engineering assessment and 90% design review.

Task 2 – Preliminary Engineering Assessment

- Prepare a preliminary engineering assessment composed of an overview map and a spreadsheet of recommendations.
- Preliminary engineering assessment will consist of:
 - Review CCTV records of facilities recommended for repair
 - Obtain and review record drawings for facilities recommended for repair
 - Perform a limited site reconnaissance for each facility to assess site constraints

Task 3 – Final Design

- Prepare bid package.

The proposed cost for these design services is \$41,305. Staff has reviewed and discussed the scope of work and proposed fee with IEC. Staff believes the proposal is fair and reasonable. Therefore, Staff recommends the execution of Task Order No. 28 to the Engineering Design Services Agreement with Infrastructure Engineering Corporation (IEC) for engineering design services for the FY17 Gravity Pipeline Rehabilitation Project.

FISCAL IMPACT:

Staff appropriated funds in the FY17 Budget in anticipation of this project. The budget contains sufficient funds to cover the design services under this agreement.

rym:PJB

Attachment

June 22, 2016

Mr. Robin Morishita
Leucadia Wastewater District
1960 La Costa Avenue
Carlsbad, California 92009

RE: Proposal for Engineering Services for FY 17 Gravity Sewer Repairs Project

Dear Mr. Morishita:

Infrastructure Engineering Corporation (IEC) is pleased to provide the Leucadia Wastewater District with this proposal for Engineering Services for the FY 17 Gravity Sewer Repairs Project. The proposed scope of services and fee is based on discussions with District staff and the highlighted sites in the attached repair priority list.

PROJECT BACKGROUND AND APPROACH

As documented in the District's Asset Management Master Plan prepared by Dexter Wilson Engineering, Inc., dated January 2013, the District systematically inspects its gravity sewer system via closed circuit television (CCTV). As District staff performs these CCTV sections gravity main sections in need of repair are flagged for repair within the District's sewer maintenance and operation software system. On an annual basis, these facilities flagged for repair are compiled into a capital improvement project for potential repair or rehabilitation.

We have prepared this scope and approach to provide a preliminary review of facilities identified for inclusion in the FY 17 Gravity Sewer Repair Project, repair and rehabilitation recommendations, and final design plans, specifications and engineer's opinion of probable cost. The scope of work is based on the highlighted items on the attached list. The FY17 Gravity Sewer Repair Project scope includes preliminary assessment and final design for the following items:

- Repair or rehabilitation of 13 facilities by cured-in-place pipe (CIPP) lining, CIPP point repair, or manhole rehabilitation.
- Repair or replacement of three sites by excavated point repairs or open trench replacement.

The scope and fee includes the preparation of a plan view for each site where trenchless repair will be performed utilizing available aerial imagery to document site access conditions. Utility research, utility plotting, and a profile view will be included for the three sites requiring open trench excavation in addition to the plan view based on available aerial imagery. For the point repair location on Doris/Crest St. Easement the utility mapping will be plotted based on existing record drawings against available aerial imagery and a profile will be provided utilizing existing record drawings.

The proposed project includes the repair of a sag along a City of Carlsbad trail between Camino Serbal and Quebrada Circle. For the purposes of this proposal, the repair of the sewer is assumed to be a replacement in place. Scope and fee is not included for detailed investigation of

alternative alignments. IEC recommends a more detailed design process for this site as detailed below.

- IEC recommends that project plans be based on detailed survey obtained via aerial mapping and field survey. Right of way, property lines, sewer and drainage easements, and corner monument locations will be plotted from available record drawings.
- Review of the sewer record drawings indicates the existing sewer was constructed partly in fill and partly through existing soil. To facilitate proper repair of the existing sag IEC recommends performing two geotechnical borings along the trail and obtaining geotechnical recommendations for remedial over excavation in existing fill to properly bed the replacement pipe.
- IEC recommends that the District incorporate long term access needs along the trail into the design of the sewer sag repair. This is expected to include installation of a driveway from Rancho Santa Fe onto the existing trail, and trimming of adjacent vegetation. IEC will discuss with the District the feasibility of maintaining this reach utilizing a vector truck versus an easement jetter during preliminary design.

Preliminary Engineering Assessment Format

Per the request of District staff during previous similar projects, in lieu of a formal preliminary design report, IEC proposes to perform a preliminary engineering assessment composed of an overview map and a spreadsheet of recommendations to be discussed in a review meeting with District staff and documented in meeting minutes.

IEC's below scope is crafted to be responsive to the above approach and does not include CEQA determination of the proposed project(s), environmental support, survey services except where specifically noted, manhole inspection, flow monitoring, or a detailed preliminary design report or memorandum.

SCOPE OF SERVICES

The following detailed scope of services describes the specific tasks and deliverables that will be performed.

Task 1 – Project Management and Administration

In order to expedite the project, we anticipate two coordination meetings will be required during the project, one to discuss the results of the preliminary engineering assessment and one to review the 90% bid package during final design. Additional coordination, project status reports and schedule updates will be addressed via e-mail and telephone.

Task 2 – Preliminary Engineering Assessment

IEC will prepare a preliminary engineering assessment composed of an overview map and a spreadsheet of recommendations. The Preliminary Engineering Assessment will consist of the following:

- Review CCTV records of facilities recommended for repair. In general, IEC will review the CCTV records for suitability of proposed repair methods. It is assumed the District will provide Go-Pro videos of existing manholes for review.
- Obtain and review record drawings for facilities recommended for repair.



Mr. Robin Morishita
Leucadia Wastewater District
June 22, 2016
Page 3 of 3

- Perform a limited site reconnaissance for each facility to assess site constraints including paving requirements, traffic control, access conditions, identification of the City of jurisdiction and bypass requirements. It is anticipated that the District will notify property owners and escort IEC staff to these site visits located on private property.

Task 3 – Final Design

Final design is expected to consist of a bid package containing D-sized sheets, CSI format specifications and a cost estimate. The D-sized sheets are anticipated to consist of a title sheet, a general notes sheet and a sheet containing an overview map of the District's system indicating location of facilities to be repaired or rehabilitated and a corresponding table documenting facility length, District segment number, existing pipe size and material and required repairs. A site specific plan view will be included for each site utilizing available aerial imaging. For sites requiring excavation existing utilities will also be plotted, along with a profile view. For the sewer sag repair at Quebrada the plan and profile will be developed based on a detailed aerial/field survey. At this point it is anticipated that this will be sufficient to convey design intent and site parameters such as traffic control needs (detailed traffic control plans are to be prepared by the Contractor), paving requirements, and adjacent buried utilities. IEC will conduct a Dig Alert design request, contact utility owners indicated to have buried facilities in the area and plot utilities based on data received from utility owners for the three sites requiring excavation.

This scope does not include right-of-way permit coordination, traffic control or surveying except as previously noted.

SCHEDULE

IEC will attend a preliminary engineering feasibility assessment meeting at the District four weeks following the notice to proceed. Following the meeting IEC will prepare meeting minutes documenting the results of the meeting within one week. Following the meeting, IEC will prepare a 90% level bid package within four weeks. Following a two week review period by the District IEC will prepare a final signed bid package incorporating District comments within three weeks. Additional drafts or a change in scope from the scope proposed herein will require additional time and budget.

FEE

The proposed level of effort and fee is indicated on the attached table. Billing will be in accordance with our current agreement for as-needed engineering services. We sincerely appreciate the opportunity to provide this proposal and assist the District with this project. Please contact me at (858) 842-6990 should you have any questions or need further information.

Sincerely,

Robert S. Weber, P.E.
Senior Project Manager

cc: Jamie Fagnant, P.E., IEC

**FEE ESTIMATE
LEUCADIA WASTEWATER DISTRICT
FY 17 Gravity Sewer Mains Repairs**

| Task/ Subtask | Task/Subtask Description | <i>Sr. Project Manager (Rob Weber)</i> | <i>Project Engineer (Jamie Fagnant)</i> | <i>Project Surveyor (Gary Rush)</i> | <i>Engineer I/ CAD I Designer (Marie Fawcett)</i> | <i>Word Processor (Annette Moore)</i> | Subtask Labor-Hours | Subtask Labor Cost | Direct Cost | Subcontract | Total Cost |
|------------------|---|--|---|---|---|---|------------------------|-----------------------|----------------|-------------|-----------------|
| | | \$190.00 | \$130.00 | \$130.00 | \$105.00 | \$65.00 | | | | | |
| TASK 1 | Project Management and Administration | | | | | | | | | | \$3,590 |
| | Design Meetings (2) | 4 | 8 | | | | 12 | \$1,800 | \$250 | \$0 | \$2,050 |
| | Project Status Reports/Coordination | 4 | 6 | | | | 10 | \$1,540 | \$0 | \$0 | \$1,540 |
| TASK 2 | Preliminary Engineering Feasibility Assessment | | | | | | | | | | \$19,465 |
| | Review CCTV (13 sites) | | 4 | | 13 | | 17 | \$1,885 | \$0 | \$0 | \$1,885 |
| | Review rec dwgs/site conditions/bypass requirements | 4 | 8 | | 6 | | 18 | \$2,430 | \$0 | \$0 | \$2,430 |
| | Site Visits | | 8 | | 8 | | 16 | \$1,880 | \$100 | \$0 | \$1,980 |
| | Quebrada Geotechnical | | | | | | 0 | \$0 | \$0 | \$6,825 | \$6,825 |
| | Quebrada Survey | | | 27 | 8 | | 35 | \$4,350 | \$0 | \$1,995 | \$6,345 |
| TASK 3 | Final Design | | | | | | | | | | \$18,250 |
| | Excavation utility research | 1 | 2 | | 8 | | 11 | \$1,290 | \$0 | \$0 | \$1,290 |
| | 90% submittal | 4 | 16 | | 80 | | 100 | \$11,240 | \$0 | \$0 | \$11,240 |
| | Final Submittal | 2 | 8 | | 36 | 8 | 54 | \$5,720 | \$0 | \$0 | \$5,720 |
| | | 19 | 60 | 27 | 159 | 8 | 273 | | | | |
| | | \$3,610 | \$7,800 | \$3,510 | \$16,695 | \$520 | | \$32,135 | \$350 | \$8,820 | \$41,305 |

TOTAL NOT-TO-EXCEED FEE: \$41,305

MEMORANDUM

DATE: June 29, 2016
TO: Engineering Committee
FROM: Paul J. Bushee, General Manager 
SUBJECT: **ADS Environmental Services Agreement for Flow Monitoring Services**

RECOMMENDATION:

Staff requests that the Engineering Committee recommend that the Board of Directors:

1. Authorize the General Manager to execute a five year professional services agreement with ADS Environmental Services to provide flow monitoring services in the amount of \$275,442 consisting of the following:
 - a. A cost of \$67,122 over the first year for mobilization and flow monitoring services
 - b. A cost of \$52,080 over the subsequent four years for flow monitoring services
2. Discuss and take other action as appropriate.

DISCUSSION:

In October 2007, the Board of Directors approved a contract with ADS Environmental Services (ADS) for the installation of seven District owned flow meters in the District's collection system. In addition to installation, the contract included equipment maintenance and repair along with flow data collection, analysis and reporting. The seven meters were installed at the following locations

| <u>Meter No.</u> | <u>Location</u> |
|------------------|---|
| L1 | Highway 101 |
| L2 | Olivenhain Road |
| L3 | South Green Valley |
| L4 | La Costa Avenue |
| L5 | North Green Valley |
| L6 | Saxony Pump Station (Clamp-on flow meter) |
| L7 | La Costa Pump Station (Clamp-on flow meter) |

The ADS contract is up for renewal on July 1, 2016. The existing meters are at the end of their useful life, obsolete and their data transmitters will not be supported by the cellular service provider in the near future. ADS has proposed to provide flow monitoring services to include flow metering, data collection, data analysis, graphing, reporting and ADS website access. Additionally, as part of the services, ADS will supply, install and maintain seven new meters for the five year period, from July 2016 to June 2021, for a total five year cost of \$275,442. Their proposal includes the removal and disposal of the old equipment.

In the past, the District owned the equipment. In ADS's proposed agreement, ADS will provide

flow monitoring services to the District and will own, operate and maintain all necessary equipment. ADS will be responsible for the flow metering equipment including replacement as necessary, such as upgrades or equipment failure. Therefore, the District will not be purchasing any equipment saving significant upfront capital costs.

The current equipment has been operating for eight and a half years. Therefore, staff used that period to compare the overall cost of the ADS proposal to the current agreement in the chart below.

| | Current | Proposed |
|--|----------------------|----------------------|
| Cost of Equipment Purchase and Installation with 6 Months of Monitoring Service (Note: Equipment was installed in the middle of the Fiscal year) | \$ 121,809.22 | |
| Mobilization | | \$ 15,042.00 |
| Flow Monitoring Service for 8 Years | \$ 474,707.94 | |
| Flow Monitoring Service for 8.5 Years | | \$ 442,680.00 |
| Total Cost Over 8.5 Years | \$ 596,517.16 | \$ 457,722.00 |
| Cost per Year for 8.5 Years | \$ 70,178.49 | \$ 53,849.65 |

As indicated in the chart, the District will save \$138,795.16 over the eight and a half year period or \$16,328.84 per year under the proposed service agreement.

ADS provided excellent service over the past eight years. Paragraph 12.4, Continuing Services, of the District's Procurement Policy allows that, in the best interest of the District, a consultant can be retained for subsequent phases of work.

Based on the projected savings and ADS's record of excellent performance, staff recommends executing a five year agreement with ADS for flow monitoring services. The attached scope of work is provided for your review.

FISCAL IMPACT:

Sufficient funds have been appropriated in the Fiscal Year 2017 Operating Budget to cover the costs associated with this agreement. Sufficient funds will be appropriated in succeeding fiscal years.

js:PJB

Attachment

ATTACHMENT A

Scope of Work

ADS Environmental Services ("ADS") will perform turn-key sewer flow monitoring services at seven (7) locations for the Leucadia Wastewater District ("District") in the City of Carlsbad, California. The objective of this project is to deliver highly reliable and accurate sewer flow data for the term of this contract. The work will be performed as set forth below:

1.0 Mobilization

ADS will use new Triton+ flow meter technology which is our newest flow meter based on the proven FlowShark model. This is a multiple technology monitor that is flexible enough to collect data from almost every available sensor technology that is used in wastewater applications today. The Triton+ monitor will be equipped with wireless communication which will allow for remote collection and review of all data. The ADS Triton+ Flow meters are certified under IECEx (International Electrotechnical Commission Explosion Proof) Intrinsic Safety standards for use in Zone 0/Class I, Div. 1, Groups C&D rated hazardous areas.

2.0 Comprehensive Service

ADS will provide professional services to maintain and operate the flow monitoring equipment (July 1, 2016 through June 30, 2021). As part of this Comprehensive Service Program, ADS will perform the following services:

- 1) **Diagnostics:** Remote diagnostic inspection of all equipment using the most current procedures and programs from its facilities in San Diego, CA. or other service locations.

Repair: Repair and preventative maintenance services, including battery replacement (assuming a 15-minute sample rate), necessary to keep the equipment operating in accordance with the manufacturer's design specifications. ADS will respond to a malfunction within two (2) business days and perform repairs or temporary repairs within (2) business days thereafter. The types of conditions to be repaired and repair services to be performed under this Agreement include but are not limited to the following:

- a) Communication link failure – including control boards, modem, and modem interface;
 - b) Depth sensor replacement – A depth sensor shall be considered for replacement if the sensor has less than two (2) good sensor pair firing in both directions,
 - c) Battery replacement - Battery voltages shall be considered as being low when the voltage is less than 7.0 VDC;
 - d) Velocity sensor replacement - A velocity sensor shall be considered for replacement if the sensor readings are a constant value or zero, indicating a loss of sensitivity;
 - e) Sensor scrubbing; and
 - f) Pressure sensor replacement, if applicable.
- 2) **Hydraulic Confirmations:** ADS will perform annual field confirmations according to ADS's current internal quality procedures for all of the ADS Triton+ flow monitors including:
 - a) Verification of the depth of flow measurement;
 - b) Verification of the velocity measurement;
 - c) Manual field flow to monitor flow comparison;
 - d) Pipe condition assessment; and
 - e) Statement of confirmation with the exception of the closed pipe flow meters,

- 3) **Service Schedule:** The field service shall occur during the normal operating hours of 8:00 a.m. to 12:00 noon and 1:00 p.m. to 5:00 p.m. Monday through Friday (excluding holidays).
- 4) **Service Statement:** ADS shall prepare a statement of repair whenever service or diagnostic functions are performed. These forms will be made available to the District when requested.
- 5) **Primary Contact:** ADS shall designate a field service representative who shall be the primary contact with the District for the resolution of field problems.

3.0 Data Analysis, Alarming, and Reporting Services Performed

Data services will be conducted from our National Data Center where trained Data Analysts utilize FlowView Operations® and Profile® software, as well as Six Sigma quality assurance procedures to maximize data usability and ensure data up-time.

- 1) **Data Collection and Diagnosis:** Raw data will be uploaded from the flow monitors every twenty-four (24) hours to the FlowView Operations™ web-hosted system. ADS data analysts will review the data (e.g. bi-weekly) to verify that equipment is in working order and will dispatch ADS field crews to perform equipment repair or hydraulic confirmations as needed.
- 2) **Data Editing and Analysis:** A trained ADS data analyst will use ADS Profile® software to directly calculate flow using the continuity equation from recorded depth and average velocity data. Flow quantities as determined by the continuity equation will be plotted. The analyst will also utilize scatter plots (depth vs. velocity readings) and field hydraulic confirmation both to verify monitor accuracy.
- 3) **Data Reporting:** The Final flow data will be reported to the District on a monthly basis via our FlowView Operations™ web hosting system, no later than thirty (30) days after the end of the monthly monitoring period, and will include the following.
 - a) Key manhole identification, pipe diameter, pipe shape, and silt levels;
 - b) Days of the week constituting the long table, up to seven (7) days;
 - c) Depth of flow in fifteen (15) minute intervals from 0:00 to 23:45;
 - d) Average Velocity in fifteen (15) minute increments in feet per second (fps);
 - e) Flows calculated in fifteen (15) minute increments in millions of gallons per day (mgd);
 - f) Minimum and maximum flows with time of occurrence measured daily in millions of gallons per day (mgd);
 - g) Average weekly flow measured in millions of gallons per day (mgd);
 - h) Daily and weekly flow totals in millions of gallons; and
 - i) Data provided in electronic format.
- 4) **Data Alarming:** The FlowView Operations™ web hosting system will send out real-time alarms (via the web, pagers, cell phones, emails) if any set triggers are reached at the individual flow monitors. Alarm triggers can be set for High Depth and Low Flow.

4.0 Exclusions

- 1) Civil Engineer's Stamp on any plans submitted for permitting;
- 2) Work conducted outside of Service Schedule,
- 3) ADS is not responsible for repair of the Districts owned Mag Mater
- 4) Communication line work external to the flow monitoring equipment;
- 5) Changes or alterations in specifications;
- 6) Painting, refinishing or furnishing materials therefore except as damaged by ADS during service work;
- 7) Installation, moving, or removing of equipment unless required as part of the repair process;
- 8) Repairs made necessary due to the negligence of the District, its employees, agents, invitees, or contractors;
- 9) Repairs made necessary due to attempts by the District to repair or maintain the equipment unless authorized by ADS;
- 10) Maintenance and repair necessary to put equipment not under the comprehensive scheduled service contract in good repair;
- 11) Equipment repair or replacement outside manufacturer's design specifications when knowingly directed by the District; and
- 12) Repairs made necessary due to events beyond ADS's control (force majeure).

5.0 District Responsibilities

- 1) Access to the site of work with sufficient area for placement of personnel and equipment, including all right-of-way and ramps, if required. This includes, but is not limited to, exposing manholes, clearing easements and/or constructing roads or ramps suitable for truck/van, if necessary.
- 2) Pay all local licenses and permits fees, if required;
- 3) Assist in obtaining and complying with any special permits;
- 4) Ensure that selected sites have been jet cleaned to minimize hydraulic deficiencies; and
- 5) Provide any information concerning bypasses, overflows, base flows, critical surcharge areas, and maintenance habits.

VI. Pricing

Five-Year Service Period July 1, 2016- June 30, 2021

| Mobilization: | | | | |
|---------------|-----|--------------|--------------|---------------|
| Item | QTY | Description | Unit Cost | Extended Cost |
| 1 | 1 | Mobilization | \$ 15,042.00 | \$ 15,042.00 |

| Monthly Field Services, Analysis and Web Reporting Costs: | | | | |
|---|-----|---|--|----------------------|
| Item | QTY | Description | Monthly Unit Cost | Yearly Extended Cost |
| 2 | 5 | Sites 1-5 - Gravity Area Velocity Flow Meters, Includes FlowView Operations Per/Month/Meter | \$ 650.00 | \$ 39,000.00 |
| 3 | 2 | Sites 6 & 7 - Pump Station Flow Meters, Includes FlowView Operations | \$ 545.00 | \$ 13,080.00 |
| | | | 1st. Year Contract Value: | \$ 67,122.00 |
| | | | 2nd. Year Contract Value: | \$ 52,080.00 |
| | | | 3rd. Year Contract Value: | \$ 52,080.00 |
| | | | * 4th. Year Contract Value | \$ 52,080.00 |
| | | | * 5th. Year Contract Value: | \$ 52,080.00 |
| | | | 2016-2021 Total Contract Value: | \$ 275,442.00 |

* Subject to CPI Increases for Year 4 & 5