

Water-Energy Grant Application  
Cross Valley Canal Extension Lining - Pool No. 8

Appendix 4.3 – Proposal for Geotechnical  
Investigation



## SOILS ENGINEERING, INC.

August 18, 2014

Proposal No. 14-288b

Kern County Water Agency  
3200 Rio Mirada Dr.  
P.O. Box 58  
Bakersfield, CA 93302-0058

Attention: Martin Varga, Engineering & Groundwater Services Manager

Subject: Proposal for Geotechnical Investigation  
For the proposed lining of Pool 8 of the  
Cross Valley Canal East of Friant-Kern Canal  
In Bakersfield, Kern County, California

Dear Mr. Varga:

In accordance with your email communication, and the scope of work provided by Provost & Pritchard, we are issuing the following proposal to provide a Geotechnical Investigation for the proposed concrete lining of portions of the Cross Valley Canal between the Highway 99-24<sup>th</sup> Street Siphon and the Golden State Avenue siphon. Pool 8 has two reaches and is comprised of approximately 6,400 linear feet of unlined canal that would be concrete lined.

The proposal is to remove unsuitable material from the existing cross-section, bench and side slopes, and bring in import fill material (a foot or two on the bottom and three feet or so on the sides). Compaction testing of the fill material will be necessary to guarantee a good foundation for the concrete lining.

### 1. Field Investigation

Our scope of work will consist of drilling at total of twelve (12) borings to a maximum depth of fifteen (15) feet below existing levee grade.

Boring will be advanced using a 4- $\frac{1}{4}$  inch I.D. hollow-stem auger attached to a CME-75 drill rig. Earth materials encountered will be logged, classified in accordance with the Unified Soils Classification System, and graphically presented on Test Boring Logs.

Undisturbed and bulk soil samples of representative subsurface soils will be obtained at five (5) foot intervals. Undisturbed samples will be retrieved using ASTM D1586 for granular soils and ASTM D1587 for cohesive soils. Standard Penetration Test results will be recorded for each sampling process.

### 2. Laboratory Testing

The following laboratory tests are anticipated:

- 14 Sieve Analyses (ASTM D-422)
- 4 Direct Shear test (ASTM D-3080)
- 6 PH/Sulfate & Chloride Test
- 36 In-Place Tube Density Determinations (ASTM D-2937)
- 36 In-Place Moisture Content (ASTM D-2216)

PROPOSAL – Geotechnical Investigation  
Cross Valley Canal Extension Lining Project, Pool 7  
Bakersfield, Kern County, CA

SEI Proposal No. 14-288a  
August 18, 2014  
Page 2

**3. Report**

Our report will address to following subjects:

- Earthwork for the existing canal and pool which includes the removal of unsuitable material from the existing cross-section and the following remedial recommendations:
  - a. Slope construction that includes slope keys & benching;
  - c. Engineered fill construction; compaction, thickness and gradation;

**4. Fees for Services**

Following is our cost breakdown for providing the above described services:

Drilling Services .....	\$ 12,280.00
Laboratory testing .....	\$ 4,400.00
Engineering & Report.....	<u>\$ 4,500.00</u>
Total Cost for Geotechnical Investigation.....	\$ 21,180.00

Cost estimate for Earthwork Testing (40 days @ \$ 900/day)..... \$ 36,000.00

Our cost for providing the above mentioned services will be an estimate of fifty-seven thousand one hundred eighty dollars (\$ 57,180.00).

A complete report will be mailed within four to six weeks following your written authorization to proceed. Verbal recommendations and field data could be provided to the civil engineer at an earlier date to expedite the design process.

Thank you for the opportunity to be of service.

Respectfully submitted,  
SOILS ENGINEERING, INC.

Tony Frangie, P.E., REA II  
Vice President

