

**SUPPLEMENTAL SERVICES AGREEMENT NO.  
8 LANDFILL ENVIRONMENTAL SERVICES**

THIS SUPPLEMENTAL SERVICES AGREEMENT NO. 8, hereinafter referred to as SSA8, is made and entered into this \_\_\_\_ day of \_\_\_\_\_, 2025, by and between the County of Lake, hereinafter referred to as COUNTY, and SHN Consulting Engineers, Inc., hereinafter referred to as ENGINEER:

WITNESSETH:

WHEREAS, the COUNTY has entered into a General Services Agreement with ENGINEER to provide environmental services at the Eastlake Sanitary Landfill; and

WHEREAS the COUNTY and ENGINEER now desire to also enter into this SSA8 with the scope of services described herein for the implementation of corrective action for Cleanup and Abatement Order No. R5-2015-0713 for the Eastlake Sanitary Landfill.

NOW, THEREFORE, in consideration of the covenants and agreements herein set forth, it is hereby agreed:

1. The General Services Agreement remains in full force and effect, and in the performance of this Supplemental Agreement ENGINEER is held to all provisions and the terms of the General Services Agreement.

2. PROJECTS

The project(s) covered by this Supplemental Agreement shall include work necessary in accordance with the Corrective Action Workplan Amendment submitted to the Central Valley Regional Water Quality Control Board on April 23, 2025, including:

- a) Prepare design specifications and permitting for system construction;
- b) Drilling and installation of five extraction wells;
- c) Groundwater extraction system assembly and discharge piping;

- d) Soil vapor extraction well assembly and gas control system tie-in;
- e) System activation and testing; and
- f) Preparation of a correction action installation report.

### 3. SCOPE OF WORK

The scope of work covered by this Agreement is described in the Scope of Work and Cost Proposal prepared by ENGINEER, which is attached as Exhibit "A".

### 4. COMPENSATION

As full compensation for all work or services to be provided by ENGINEER hereunder, COUNTY shall make payments to ENGINEER based on monthly invoices for all services performed under this SSA8. Invoices shall reference the project title and be billed on a time-and-expense basis. The total fee for the project will not exceed \$291,870.00 without prior approval of the COUNTY.

Upon satisfactory completion of services summarized in Exhibit "A", the final payment of any balance will be due upon receipt of the final invoice. The final invoice shall be submitted within 60 calendar days after completion of the ENGINEER'S work.

### 5. TERM

ENGINEER shall begin immediately on the work as assigned and this AGREEMENT shall remain in full force for a period of one (1) year from the date of approval or until terminated by either party.

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IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT the day and year first written above.

COUNTY

By \_\_\_\_\_  
Chair, Board of Supervisors

ENGINEER

*Earl J. Hunter*  
*Environmental Services Principle*  
SHN Engineers & Geologists, Inc.

ATTEST: SUSAN PARKER  
Clerk to the Board of Supervisors

APPROVED AS TO FORM:

LLOYD GUINTIVANO  
County Counsel

Signed For By: Jackson Benumen  
Deputy County Counsel

*Jackson Benumen* 8/7/25



Phone: (707) 459-4518 Email: info@shn-engr.com Web: shn-engr.com  
335 S. Main Street, Willits, CA 95490-3977

Reference: 405057.403

July 29, 2025

Lars Ewing, PE, Public Services Director  
Lake County Public Services Department  
333 Second Street  
Lakeport, CA 95453

**Subject: Scope of Work and Estimate of Costs for Corrective Active Program Implementation, Eastlake Sanitary Landfill, Lake County, California, Cleanup and Abatement Order No. R5-2015-0713**

Dear Lars Ewing:

SHN has prepared the following scope of work and estimate of fees for implementing corrective action at the Eastlake Sanitary Landfill in Clearlake, California. This work is being conducted in response to Cleanup and Abatement Order No. R5-2015-0713 (CAO) issued by the Central Valley Regional Water Quality Control Board (RWQCB) for a release to groundwater from facility operations. Work is to be conducted in accordance with the Corrective Action Workplan Amendment submitted to the RWQCB on April 23, 2025, to address impacts to groundwater from volatile organic compounds (VOCs) in landfill gas (LFG) and inorganic constituents in leachate. This work scope provides a description of services to be conducted that includes the following:

- Prepare design specifications and permitting for system construction
- Drilling operations and installation of five extraction wells
- Groundwater extraction system assembly and discharge piping
- Soil vapor extraction (SVE) well assembly and gas control system tie-in
- System activation and testing
- Prepare a corrective action installation report

## Scope of Work

### Task 1. Design Specifications and System Permitting

SHN will prepare and submit design specifications for the treatment systems to the County of Lake (County) and RWQCB for review and approval. The design specifications will describe construction of each well, pump model with controls and installation, and well head completion and discharge piping for containment and control of groundwater and soil gas. This task will include a description of planned construction, vendors services required, and a schedule of activities for CAO compliance.



Lars Ewing, PE, Lake County Public Services Director

**Scope of Work and Estimate of Costs for Corrective Action Implementation, Eastlake Sanitary Landfill, Lake County, California, Cleanup and Abatement Order No. R5-2015-0713**

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Permits required for system construction and discharges will be acquired from the County of Lake Environmental Health Department and the Air Quality Management District (AQMD).

## **Task 2. Drilling and Well Installation**

The approved corrective action will consist of installing five extraction wells at the site. Three extraction wells will be located along the western ridge boundary that are designed for SVE. The two remaining wells will be used for groundwater extraction and located at the toe of the landfill face. Drilling will be conducted by a California C-57 Licensed drilling contractor using air rotary methods to a depth range from 50 to 80 feet below existing grade. Well casing will consist of polyvinyl chloride (PVC) with a diameter of 4 or 6 inches depending on the intended application. Following construction activities, each well will be developed using standard industry practices.

## **Task 3. Groundwater Extraction Well Assembly and Discharge**

Upon completion of extraction well construction, pneumatic pumps will be installed in each well and equipped with compressed air and discharge pipe. Piping will extend from each well to the leachate collection pond and will have a flow meter to measure extracted groundwater flow. A dedicated compressor will be located in a vault at each well, and power will be supplied by connecting to an existing electrical service near the surface impoundment. This task will include the purchase of equipment necessary for groundwater extraction and discharge in addition to vendor services and coordination for electrical connection and installation of conduit.

## **Task 4. Soil Vapor Extraction Well System Connection**

Following installation of the three SVE wells, a well-head assembly with manifold will be installed at each well for vacuum control and gas monitoring. The well head will have a 4-inch-diameter discharge pipe to accommodate extracted LFG and condensate removed from the well that will be tied-in to the existing gas collection and condensate system (GCCS). This task includes costs for equipment and services provided by SCS Engineers to facilitate the SVE well tied to the GCCS.

## **Task 5. System Activation and Testing**

After installation and tie in of the groundwater and SVE well systems, SHN will coordinate with vendors and operations staff to ensure full functionality of both systems. SHN staff will be onsite to certify systems and affirm all components meet project specifications.

## **Task 6. Corrective Action Installation Report**

A report summarizing construction and activation of the system will be prepared and submitted to the County and the RWQCB. The report will describe final specifications for wells and equipment installed, as built plans for the system layout, and system operation and maintenance (O&M) instructions. The report is expected to be uploaded to GeoTracker at the completion of the field program by October 1, 2025.



Lars Ewing, PE, Lake County Public Services Director

**Scope of Work and Estimate of Costs for Corrective Action Implementation, Eastlake Sanitary Landfill, Lake County, California, Cleanup and Abatement Order No. R5-2015-0713**

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## **Corrective Action Implementation Costs**

Due to the potential for encountering unforeseen surface and subsurface conditions, the estimate of costs for the work described by vendors and materials is conservative. SHN is proposing to complete the corrective action implementation and activation program as outlined in this scope of work and the approved workplan on a time-and-expenses basis not to exceed \$291,870. The task costs are summarized below, and a detailed breakdown is provided in Attachment 1.

Task 1. Design Specifications and Permitting .....	\$20,605
Task 2. Drilling and Well Installation .....	\$93,110
Task 3. Groundwater Extraction Well Assembly .....	\$94,860
Task 4. Soil Vapor Extraction Well Connection .....	\$51,885
Task 5. System Activation and Testing .....	\$19,485
Task 6. Corrective Action System Installation Report.....	\$11,925
<b>Total .....</b>	<b>\$291,870</b>

SHN is committed to this partnership with the County of Lake to ensure high quality, cost-effective, engineering-related services. Thank you for this opportunity to continue providing environmental engineering services to the County of Lake.

Please call me at (707) 441-8855 if you have any questions.

Sincerely,

**SHN**



Erik J. Nielsen, PG, CHG  
Senior Environmental Hydrogeologist

EJN:JPA:ame

Attachment 1. Corrective Action Implementation Cost Estimate Summary



**Corrective Action  
Implementation Cost  
Estimate Summary**

**1**

	Task 1						Task 2						Task 3						Task 4						Task 5						Task 6						Totals
	Design Specs & Permitting						Drilling, Well Installation, & Development						GW Well Head, Pump Installation, & Discharge Line						SCS tie in to existing GCS						Start up & Testing						Reporting						
	hrs	cost	rates	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost	hrs	cost								
Labor																																					
Project Manager	8	\$ 1,720	\$215	8	\$ 1,720	8	\$ 1,720	12	\$ 2,580	8	\$ 1,720	8	\$ 1,720	12	\$ 2,580	8	\$ 1,720	12	\$ 2,580	8	\$ 1,720	56	\$ 12,040														
Civil Senior Engineer	12	\$ 2,520	\$210	16	\$ 3,360	8	\$ 1,680	8	\$ 1,680	4	\$ 840	16	\$ 3,360	16	\$ 3,360	8	\$ 1,680	48	\$ 10,080																		
Project Engineer/Geologist	24	\$ 4,080	\$170	24	\$ 4,080	16	\$ 2,720	12	\$ 2,040	12	\$ 2,040	32	\$ 5,440	32	\$ 5,440	24	\$ 4,080	120	\$ 20,400																		
Staff Engineer/Geologist	60	\$ 7,800	\$130	60	\$ 7,800	80	\$ 10,400	8	\$ 1,040	24	\$ 3,120	24	\$ 3,120	208	\$ 27,040																						
Drafting	12	\$ 1,500	\$125																																		
Admin	4	\$ 400	\$100																																		
Subtotal Labor		\$ 18,020			\$ 14,840		\$ 7,340		\$ 7,720		\$ 14,500		\$ 10,840		\$ 73,260		\$ 7,328																				
Contingency		\$ 1,802	10%		\$ 1,484		\$ 734		\$ 772		\$ 1,450		\$ 1,084		\$ 7,328		\$ 7,328																				
Total Labor		\$ 19,822			\$ 16,324		\$ 8,074		\$ 8,492		\$ 15,950		\$ 11,924		\$ 80,588		\$ 80,588																				

Direct Costs	Units	cost	rates	units	cost	rates	units	cost	rates	units	cost	rates	units	cost	rates	units	cost	rates	
Vehicle (100 mi roundtrip)	300	\$ 285	\$0.95	300	\$ 285	\$0.95	300	\$ 285	\$0.95	160	\$ 143	\$0.90	300	\$ 285	\$0.95				\$ 1,283
Lab Testing	Each	\$500								5	\$ 2,500			\$ 2,500					\$ 2,500
Lodging	Nights	\$250		2	\$ 500		2	\$ 500		1	\$ 250		3	\$ 750					\$ 3,250
Subtotal Direct Costs		\$ 785			\$ 1,535			\$ 785			\$ 383			\$ 3,535					\$ 7,033
<b>Total Direct Costs</b>		<b>\$ 785</b>			<b>\$ 1,535</b>			<b>\$ 785</b>			<b>\$ 383</b>			<b>\$ 3,535</b>					<b>\$ 7,033</b>

Subcontractor	Units	cost	rates	units	cost	rates	units	cost	rates	units	cost	rates	units	cost	rates	units	cost	rates	
Drilling	each	\$70,000		1	\$ 70,000														\$ 70,000
SCS	LS	\$40,000								1	\$ 40,000								\$ 40,000
Materials	LS	\$60,000					1	\$ 60,000											\$ 60,000
Electrical	LS	\$20,000					1	\$ 20,000											\$ 20,000
Subtotal Subcontractors					\$ 70,000			\$ 80,000			\$ 40,000			\$ -					\$ 190,000
Markup 7.5%					\$ 5,250			\$ 6,000			\$ 3,000			\$ -					\$ 14,250
<b>Total Subcontractors</b>					<b>\$ 75,250</b>			<b>\$ 86,000</b>			<b>\$ 43,000</b>			<b>\$ -</b>					<b>\$ 204,250</b>

SHN Labor and Direct Costs Total	\$ 20,607	\$ 17,059	\$ 8,859	\$ 8,859	\$ 19,485	\$ 11,524	\$ 11,524	\$ 19,485	\$ 11,524	\$ 11,524	\$ 11,524	\$ 11,524	\$ 19,485	\$ 11,524	\$ 11,524	\$ 11,524	\$ 11,524	\$ 11,524	\$ 87,619
<b>Total Task Costs</b>	<b>\$ 20,607</b>	<b>\$ 93,109</b>	<b>\$ 94,059</b>	<b>\$ 94,059</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 51,885</b>	<b>\$ 291,869</b>

