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**From:** Dave Larsen <dlarsen@reiengineering.com>  
**Sent:** Monday, April 24, 2017 1:05 PM  
**To:** Smith, Ralph N - DNR  
**Subject:** RE: Mack Lake Proposed SOW  
**Attachments:** 5586 April Well Install SOW.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Ralph, this is the proper U&C cost estimate, it includes the change order charge and variance breakdown on the U&C sheet.




Thank you,  
*David N. Larsen P.G*  
*Hydrogeologist / Professional Geologist*



**David N. Larsen, P.G.**  
**Hydrogeologist**  
Dlarsen@REIengineering.com

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**From:** Dave Larsen  
**Sent:** Monday, April 24, 2017 1:03 PM  
**To:** 'Smith, Ralph N - DNR' <Ralph.Smith@wisconsin.gov>  
**Subject:** RE: Mack Lake Proposed SOW

SOW:  
Install 3 blind drilled PZ's to 40'  
Sample wells PZ1, SP800, MW900, MW1000, MW1200, MW1300 and MW1400, 3 new wells and 2 potables qtly for 3 qtrs and then sample all wells for final quarter. Letter reports after 2<sup>nd</sup> and 4<sup>th</sup> sample event.  
Variance for both traffic control and low profile drill rig requirement.

Please contact me with questions or concerns.




Thank you,  
*David N. Larsen P.G*  
*Hydrogeologist / Professional Geologist*



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**From:** Smith, Ralph N - DNR [<mailto:Ralph.Smith@wisconsin.gov>]  
**Sent:** Tuesday, April 04, 2017 10:38 AM  
**To:** Dave Larsen <[dlarsen@reiengineering.com](mailto:dlarsen@reiengineering.com)>  
**Subject:** RE: Mack Lake Proposed SOW

Hi Dave,

Further soil sampling to evaluate residual soil concentrations from or near the excavation footprint and evaluation of potential petroleum soil vapors appear to be addressed enough, so, we disagree on that recommendation. Three piezometers screened from 35-40 ft bgs depth appears to be fine, in addition those piezometers can be blind-drilled. Piezometers in the downgradient extent of the plume would be more prudent, so the one proposed near MW500 should located roughly downgradient and centerline of the estimated plume. The piezometer proposed between the tavern and the lake does not appear to be necessary. Quarterly groundwater sampling for PVOCS + Naphthalene and elevations for the monitoring well network – minus groundwater monitoring wells that are below regulatory standards would be appreciated.

Please provide a costs estimate – thanks.

**We are committed to service excellence.**

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

**Ralph N. Smith**

Hydrogeologist – Remediation and Redevelopment Program  
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Wisconsin Department of Natural Resources  
101 S. Webster St., PO Box 7921  
Madison, WI 53707-7921  
Phone: (608) 261-6543  
Fax: (608) 267-7646  
[Ralph.Smith@wisconsin.gov](mailto:Ralph.Smith@wisconsin.gov)



**From:** Dave Larsen [<mailto:dlarsen@reiengineering.com>]  
**Sent:** Wednesday, March 22, 2017 11:24 AM  
**To:** Smith, Ralph N - DNR  
**Cc:** Robinson, John H - DNR  
**Subject:** Mack Lake Proposed SOW

Ralph and John, following the case closure denial at Mack Lake REI has proposed the following SOW.

- While no DC soil exceedances were reported in the residual soil sample data post excavation, a NTEDC non-industrial exceedance was reported from ethylbenzene at CSS#23 at a depth of 12'. While the DC was noted, neither the cumulative HI or CR was close to being exceeded.
- SVP-3 sample collected from 15' did exhibit elevated PID and LEL readings.

REI is recommending the following:

- Install 4 piezometers to 40' depth (see attachment for proposed locations)
- Sample entire well network quarterly for 1 year
- Perform GP borings near SVP-3 and CSS#23 to determine current soil contaminant concentrations
- If soil near SVP-3 is still elevated, REI will install 2" vapor extraction well during well install mobilization. REI to install short term use SVE system (1-3 months) to reduce residual soil impact.

Once a scope of services is agreed upon, REI will prepare a cost approval request.

Thank you,

*David N. Larsen P.G.*

*Hydrogeologist / Professional Geologist*



<b>David N. Larsen, P.G.</b> Hydrogeologist Dlarsen@REIengineering.com
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# Usual and Customary Standardized Invoice #21

## January 2017- June 2017



RR-061A

PECFA #: 54888-9299-02  
 BRRT's #: 03-66-000858  
 Site Name: Mack Lake Tavern  
 Site Address: N10202 Cty Hwy K, Trego

Vendor Name: REI  
 Invoice #: \_\_\_\_\_  
 Invoice Date: Proposal Date (4/24/17)  
 Check #: \_\_\_\_\_

U&C Total \$ 21,822.97  
 Variance to U&C Total \$ 750.00  
 Grand Total \$ 22,572.97

TASK	TASK DESCRIPTION	SERVICES	ACTIVITY CODE	ACTIVITY REFERENCE CODE DESCRIPTION	UNIT	MAX UNIT COST	UNITS	TOTAL MAX
1	GW Sampling		GS05	Sample Collection	Well	\$ 72.45	50	\$ 3,622.50
1	GW Sampling		GS25	Primary Mob/Demob	Site	\$ 628.11	1	\$ 628.11
4	Waste Disposal	Consultant	WD05	Consultant Coordination	Site	\$ 137.13	5	\$ 685.65
4	Waste Disposal	Commodity	WD10	GW Sample and/or Purge	Drum	\$ 42.11	8	\$ 336.88
4	Waste Disposal	Commodity	WD15	Drill Cuttings	Drum	\$ 108.15	8	\$ 865.20
4	Waste Disposal	Commodity	WD25	Primary Mob/Demob	Site	\$ 287.70	5	\$ 1,438.50
6	Letter Report/Addendum		LRA05	Letter Report/Addendum	Letter	\$ 1,039.29	2	\$ 2,078.58
10	Initial Site Survey	Consultant	IS10	Subsequent Surveys	Well	\$ 110.15	3	\$ 330.45
13.b	Drilling In Unconsolidated Soils - Without Soil And/Or GW Sampling	Consultant	DR25	Consultant Oversight	Ft	\$ 1.58	120	\$ 189.60
13.b	Drilling In Unconsolidated Soils - Without Soil And/Or GW Sampling	Consultant	DR30	Primary Mob/Demob	Site	\$ 505.16	1	\$ 505.16
13.e	Drilling In Unconsolidated Soils - Without Soil And/Or GW Sampling	Commodity	DR60	Drilling in Unconsolidated Soils	Ft	\$ 11.97	120	\$ 1,436.40
14	Monitoring Well Installation	Consultant	MWI05	0 - 25 ft bgs	Ft	\$ 3.89	75	\$ 291.75
14	Monitoring Well Installation	Consultant	MWI10	26 - 75 ft bgs	Ft	\$ 2.73	45	\$ 122.85
14	Monitoring Well Installation	Commodity	MWI15	2 inch PVC Casing	Ft	\$ 16.70	120	\$ 2,004.00
14	Monitoring Well Installation	Commodity	MWI20	Well Development	Well	\$ 147.63	3	\$ 442.89
15	Misc. Drilling Activities & Supplies		MDT05	Drill Rig Mob/Demob	Mob/Demob	\$ 963.38	1	\$ 963.38
15	Misc. Drilling Activities & Supplies		MDT10	Well Cover/flushmount	Each	\$ 202.65	3	\$ 607.95
15	Misc. Drilling Activities & Supplies		MDT21	Drum, 55 gal. DOT steel	Each	\$ 55.13	16	\$ 882.08
15	Misc. Drilling Activities & Supplies		MDT25	Commodity Service Provider Per Diem (drilling and direct push)	Person	\$ 203.28	2	\$ 406.56
21	Access Agreements		AA05	Access Agreements	Property	\$ 401.94	2	\$ 803.88
31	Consultant Overnight Per Diem		COPD05	Overnight	Night	\$ 113.72	1	\$ 113.72

TASK	TASK DESCRIPTION	SERVICES	ACTIVITY CODE	ACTIVITY REFERENCE CODE DESCRIPTION	UNIT	MAX UNIT COST	UNITS	TOTAL MAX
36	Change Order Request		COR05	Change Order Request (cost cap exceedance requests)	Change Order	\$ 381.78	1 \$	381.78
Variance	Traffic Control				Variance	\$250.00	1 \$	250.00
Variance	Low Profile Drill Rig				Variance	\$500.00	1 \$	500.00

# Usual and Customary Standardized Invoice #20

## July 2016 - December 2016



RR-061A

**TOTAL LAB CHARGES \$ 2,685.10 TASK 33 50 \$ 2,685.10 TASK 24 0 \$ -**

MATRIX	REF CODE	REIMBURSABLE ANALYTE	UNITS	MAX COST	SAMPLES	TOTAL	MAX COST	SAMPLES	TOTAL
AIR	A1	Benzene	SAMPLE	\$ 44.94		\$ -			
AIR	A2	BETX	SAMPLE	\$ 49.46		\$ -			
AIR	A3	GRO	SAMPLE	\$ 46.10		\$ -			
AIR	A4	VOC's	SAMPLE	\$ 71.93		\$ -			
WATER	W1	GRO/PVOC	SAMPLE	\$ 29.19		\$ -			
WATER	W2	PVOC	SAMPLE	\$ 26.99		\$ -			
WATER	W3	PVOC + 1,2 DCA	SAMPLE	\$ 43.79		\$ -			
WATER	W4	PVOC + Naphthalene	SAMPLE	\$ 30.35	42	\$ 1,274.70			
WATER	W5	VOC	SAMPLE	\$ 71.93		\$ -			
WATER	W6	PAH	SAMPLE	\$ 72.98		\$ -			
WATER	W7	Lead	SAMPLE	\$ 12.39		\$ -			
WATER	W8	Cadmium	SAMPLE	\$ 13.55		\$ -			
WATER	W9	Hardness	SAMPLE	\$ 12.39		\$ -			
WATER	W10	BOD, Total	SAMPLE	\$ 23.63		\$ -			
WATER	W11	Nitrate	SAMPLE	\$ 11.24		\$ -			
WATER	W12	Total Kjeldahl	SAMPLE	\$ 20.27		\$ -			
WATER	W13	Ammonia	SAMPLE	\$ 16.91		\$ -			
WATER	W14	Sulfate	SAMPLE	\$ 10.19		\$ -			
WATER	W15	Iron	SAMPLE	\$ 10.19		\$ -			
WATER	W16	Manganese	SAMPLE	\$ 10.19		\$ -			
WATER	W17	Alkalinity	SAMPLE	\$ 10.19		\$ -			
WATER	W18	methane	SAMPLE	\$ 46.10		\$ -			
WATER	W19	Phosphorous	SAMPLE	\$ 18.06		\$ -			
WATER	W20	VOC Method 524.2	SAMPLE	\$ 176.30	8	\$ 1,410.40			
WATER	W21	EDB Method 504	SAMPLE	\$ 95.45		\$ -			
SOILS	S1	GRO	SAMPLE	\$ 24.78		\$ -	\$ 24.78		\$ -
SOILS	S2	DRO	SAMPLE	\$ 30.35		\$ -	\$ 30.35		\$ -
SOILS	S3	GRO/PVOC	SAMPLE	\$ 28.14		\$ -	\$ 28.14		\$ -
SOILS	S4	PVOC	SAMPLE	\$ 25.83		\$ -	\$ 25.83		\$ -
SOILS	S5	PVOC + 1,2 DCA + Naphthalene	SAMPLE	\$ 49.46		\$ -	\$ 49.46		\$ -
SOILS	S6	PVOC + Naphthalene	SAMPLE	\$ 36.02		\$ -	\$ 36.02		\$ -
SOILS	S7	VOC	SAMPLE	\$ 71.93		\$ -	\$ 71.93		\$ -
SOILS	S8	SPLP Extraction VOC only	SAMPLE	\$ 50.61		\$ -	\$ 50.61		\$ -
SOILS	S9	PAH	SAMPLE	\$ 72.98		\$ -	\$ 72.98		\$ -
SOILS	S10	Lead	SAMPLE	\$ 12.39		\$ -	\$ 12.39		\$ -
SOILS	S11	Cadmium	SAMPLE	\$ 14.60		\$ -			
SOILS	S12	Free Liquid	SAMPLE	\$ 11.24		\$ -			
SOILS	S13	Flash Point	SAMPLE	\$ 25.83		\$ -			
SOILS	S14	Grain Size - dry	SAMPLE	\$ 42.74		\$ -			
SOILS	S15	Grain Size - wet	SAMPLE	\$ 57.33		\$ -			
SOILS	S16	Bulk Density	SAMPLE	\$ 13.55		\$ -			
							<b>TASK 24 TOTAL</b>	<b>\$</b>	<b>-</b>

MATRIX	REF CODE	REIMBURSABLE ANALYTE	UNITS	MAX COST	SAMPLES	TOTAL	MAX COST	SAMPLES	TOTAL
SOILS	S17	Permeability	SAMPLE	\$ 41.58		\$ -			
SOILS	S18	Nitrogen as Total Kjeldahl	SAMPLE	\$ 20.27		\$ -			
SOILS	S19	Nitrogen as Ammonia	SAMPLE	\$ 16.91		\$ -			
SOILS	S20	% Organic Matter	SAMPLE	\$ 29.19		\$ -			
SOILS	S21	TOC as NPOC	SAMPLE	\$ 57.33		\$ -			
SOILS	S22	Soil Moisture Content	SAMPLE	\$ 6.83		\$ -			
SOILS	S23	Air Filled Porosity	SAMPLE	\$ 25.83		\$ -			
SOILS	S24	% Total Solids	SAMPLE	\$ 6.83		\$ -			
SOILS	S25	Field Capacity	SAMPLE	\$ 28.14		\$ -			
SOILS	S26	TCLP Lead	SAMPLE	\$ 83.16		\$ -			
SOILS	S27	Cation Exchange (Ca, MG, & K)	SAMPLE	\$ 26.99		\$ -			
SOILS	S28	TCLP Cadmium	SAMPLE	\$ 83.16		\$ -			
SOILS	S29	TCLP Benzene	SAMPLE	\$ 83.16		\$ -			
		Viscosity + Density							
LNAPL	LFPS01	Interfacial tension I (LNAPL/water [dyne/cm])	SAMPLE	\$ 561.33		\$ -			
		Interfacial tension II (LNAPL/air [dyne/cm])							
		Interfacial tension III (water/air) [dyne/cm])							
<b>TASK 33 TOTAL</b>						<b>\$ 2,685.10</b>			

**Variance Request**  
**Mack Lake Tavern**  
**Traffic Control**  
Proposal Date (4/24/17)

**Unit Costs are based on present values on above listed date**

<b>Cat #</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Event</b>	<b>Total Cost</b>
	Provide signage for traffic control	ls	1	\$ 250.00	1	\$250.00
<b>Total</b>						<b>\$250.00</b>

\\reifnp\projects\5500-5599\5586-Mack Lake\5586 Mack Lake - Moved to P\5586 Proposed Work\2017\5586 March proposal.xlsx]Traffic Control



**Variance Request**

**Mack Lake Tavern  
Low Profile Track Rig  
Proposal Date (4/24/17)**

**Unit Costs are based on present values on above listed date**

<b>Cat #</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Event</b>	<b>Total Cost</b>
	Low Profile Rig due to Overhead Power	ls	1	\$ 500.00	1	\$500.00
<b>Total</b>						<b>\$500.00</b>

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