

Name of Project: **Ongoing Groundwater Investigations**

## **SOLANO COUNTY WATER AGENCY**

### **AGREEMENT FOR PROFESSIONAL SERVICES (Professional Services/Consultant)**

THIS AGREEMENT, effective **July 1, 2020**, is between SOLANO COUNTY WATER AGENCY, a public agency existing under and by virtue of Chapter 573 of the 1989 statutes of the State of California, hereinafter referred to as "Agency," and **Luhdorff & Scalmanini**, hereinafter referred to as "Contractor."

The Agency requires services for **Ongoing Groundwater Investigations**; and the Contractor is willing to perform these services pursuant to the terms and conditions set out in this Agreement.

IT IS MUTUALLY AGREED, as follows:

#### **1. SCOPE OF SERVICES**

The Agency hereby engages the Contractor, and the Contractor agrees to perform the services for **Ongoing Groundwater Investigations**, as described in Exhibit A, in accordance with the terms of this Agreement and any applicable laws, codes, ordinances, rules or regulations. In case of conflict between any part of this Agreement, this Agreement shall control over any Exhibit.

#### **2. COMPENSATION**

Compensation for services shall be as follows: Hourly rate of personnel plus any allowed reimbursable expenses based on unit costs as indicated on any allowed reimbursable expense in Exhibit B **not to exceed \$ 259,184** for all work contemplated by this Agreement.

#### **3. METHOD OF PAYMENT**

Upon submission of an invoice by the Contractor, and upon approval of the Agency's representative, the Agency shall pay the Contractor monthly in arrears for fees and allowed expenses incurred the prior month, **however in no event shall the cumulative total paid pursuant to this agreement exceed the maximum amount provided for in paragraph 2 of this Agreement.** Every invoice shall specify hours worked for each task identified in Exhibit A undertaken.

Each invoice shall be accompanied by a spreadsheet showing, by month, costs incurred to date for the project broken down by the Tasks identified in Exhibit A. The spreadsheet shall show, for each task, budget amounts, total expended and remaining amounts. The spreadsheet shall show a subtotal for each fiscal year covered by the contract. Any amendments to the contract shall be listed and incorporated into spreadsheet. An example of a typical spreadsheet shall be provided by the Agency.

4. **TIME OF PERFORMANCE**

This Agreement shall become effective as of the date it is executed and said services will take place between this date and **June 30, 2021**, as directed by the Agency.

5. **MODIFICATION AND TERMINATION**

This Agreement may be modified or amended only by written instrument signed by the parties hereto, and the Contractor's compensation and time of performance of this Agreement shall be adjusted if they are materially affected by such modification or amendment.

*(Note: this paragraph is optional)* Any change in the scope of the professional services to be done, method of performance, nature of materials or price thereof, or to any other matter materially affecting the performance or nature of the professional services will not be paid for or accepted unless such change, addition or deletion be approved in advance, in writing, by the Agency's General Manager.

This Agreement may be terminated by the Agency at any time, without cause, upon written notification to the Contractor. The Contractor may terminate this Agreement upon 30 days written notice to Agency.

Following termination by the Agency or the Contractor, the Contractor shall be reimbursed for all expenditures made in good faith in accordance with the terms of this Agreement that are unpaid at the time of termination.

6. **PERMITS** *(Note: include only if permits are required)*

Permits required by governmental authorities will be obtained at the Contractor's expense, and the Contractor will comply with local, state and federal regulations and statutes including Cal/OSHA requirements.

7. **INDEMNIFY AND HOLD HARMLESS**

*To the extent permitted by law, Consultant shall hold harmless, defend at its own expense, and indemnify Solano County Water Agency, its directors, officers, employees, and authorized volunteers, against any and all liability, claims, losses, damages, or expenses, including reasonable attorney's fees and costs, arising from all acts or omissions of Consultant or its officers, agents, or employees in rendering services under this contract; excluding, however, such liability, claims, losses, damages or expenses arising Solano County Water Agency's sole negligence or willful acts.*

8. **INSURANCE**

**Minimum Insurance Requirements:** Consultant shall procure and maintain for the duration of the contract insurance against claims for injuries or death to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by the Consultant, his agents, representatives, employees or sub-contractors.

**Coverage** - Coverage shall be at least as broad as the following:

1. **Commercial General Liability (CGL)** - Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 00 01) including products and completed operations, property damage, bodily injury, personal and advertising injury with limit of at least two million dollars (\$2,000,000) per occurrence or the full per occurrence limits of the policies available, whichever is greater. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location (coverage as broad as the ISO CG 25 03, or ISO CG 25 04 endorsement provided to Solano County Water Agency) or the general aggregate limit shall be twice the required occurrence limit.
2. **Automobile Liability** – (if necessary) Insurance Services Office (ISO) Business Auto Coverage (Form CA 00 01), covering Symbol 1 (any auto) or if Consultant has no owned autos, Symbol 8 (hired) and 9 (non-owned) with limit of one million dollars (\$1,000,000) for bodily injury and property damage each accident.
3. **Workers' Compensation Insurance** - as required by the State of California, with Statutory Limits, and Employer's Liability Insurance with limit of no less than \$1,000,000 per accident for bodily injury or disease. **Waiver of Subrogation:** The insurer(s) named above agree to waive all rights of subrogation against the Solano County Water Agency, its elected or appointed officers, officials, agents, authorized volunteers and employees for losses paid under the terms of this policy which arise from work performed by the Named Insured for the Agency; but this provision applies regardless of whether or not the Solano County Water Agency has received a waiver of subrogation from the insurer.

If the Consultant maintains broader coverage and/or higher limits than the minimums shown above, the Solano County Water Agency requires and shall be entitled to the broader coverage and/or higher limits maintained by the Consultant. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the Solano County Water Agency.

**Other Required Provisions** - The general liability policy must contain, or be endorsed to contain, the following provisions:

1. **Additional Insured Status:** Solano County Water Agency, its directors, officers, employees, and authorized volunteers are to be given insured status (at least as broad as ISO Form CG 20 10 10 01), with respect to liability arising out of work or operations performed by or on behalf of the Consultant including materials, parts, or equipment furnished in connection with such work or operations.
2. **Primary Coverage:** For any claims related to this project, the Consultant's insurance coverage shall be primary at least as broad as ISO CG 20 01 04 13 as respects to the Solano County Water Agency, its directors, officers, employees and authorized volunteers. Any insurance or self-insurance maintained by the Solano County Water Agency its directors, officers, employees and authorized volunteers shall be excess of the Consultant's insurance and shall not contribute with it.

**Notice of Cancellation:** Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Solano County Water Agency.

**Self-Insured Retentions** - Self-insured retentions must be declared to and approved by the Solano County Water Agency. The Solano County Water Agency require the Consultant to provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention. The policy language shall provide, or be endorsed to

provide, that the self-insured retention may be satisfied by either the named insured or Solano County Water Agency.

**Acceptability of Insurers** - Insurance is to be placed with insurers having a current A.M. Best rating of no less than A: VII or as otherwise approved by Solano County Water Agency.

**Verification of Coverage** – Consultant shall furnish the Solano County Water Agency with certificates and amendatory endorsements or copies of the applicable policy language effecting coverage required by this clause. All certificates and endorsements are to be received and approved by the Solano County Water Agency before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Consultant's obligation to provide them. The Solano County Water Agency reserves the right to require complete, certified copies of all required insurance policies, including policy Declaration pages and Endorsement pages.

**Sub-contractors** - Consultant shall require and verify that all sub-contractor maintain insurance meeting all the requirements stated herein, and Consultant shall ensure that Solano County Water Agency its directors, officers, employees, and authorized volunteers are an additional insured are an additional insured on Commercial General Liability Coverage.

9. **COMPLIANCE WITH LAW** *(Note: This section is optional)*

The Contractor shall be subject to and comply with all federal, state and local laws and regulations applicable with respect to its performance under this Agreement, including but not limited to, licensing, employment and purchasing practices; and wages, hours and conditions of employment.

10. **RECORD RETENTION** *(Note: This section is optional)*

Except for materials and records, delivered to the Agency, the Contractor shall retain all materials and records prepared or obtained in the performance of this Agreement, including financial records, for a period of at least three years after the Contractor's receipt of the final payment under this Agreement. Upon request by the Agency, the Contractor shall make such materials and records available to the Agency at no additional charge and without restriction or limitation to State and federal governments at no additional charge.

11. **OWNERSHIP OF DOCUMENTS** *(Note: This section is optional)*

All materials and records of a finished nature, such as final plans, specifications, reports and maps, prepared or obtained in the performance of this Agreement, shall be delivered to and become the property of the Agency. All materials of a preliminary nature, such as survey notes, sketches, preliminary plans, computations and other data, prepared or obtained in the performance of this Agreement, shall be made available, upon request, to the Agency at no additional charge and without restriction or limitation on their use.

12. **SUBCONTRACT AND ASSIGNMENT**

This Agreement binds the heirs, successors, assigns and representatives of the Contractor. The Contractor shall not enter into subcontracts for any work contemplated under this

Agreement and shall not assign this Agreement or monies due or to become due, without the prior written consent of the General Manager of the Agency or his designee, subject to any required state or federal approval. *(Note: list any subcontractors here)*

13. **NONRENEWAL** *(Note: This section is optional)*

The Contractor understands and agrees that there is no representation, implication, or understanding that the services provided by the Contractor under this Agreement will be purchased by the Agency under a new agreement following expiration or termination of this Agreement, and waives all rights or claims to notice or hearing respecting any failure to continue purchase of all or any such services from the Contractor.

14. **NOTICE**

Any notice provided for herein are necessary to the performance of this Agreement and shall be given in writing by personal delivery or by prepaid first-class mail addressed as follows:

AGENCY

Roland Sanford, General Manager  
Solano County Water Agency  
810 Vaca Valley Parkway, Suite 203  
Vacaville, CA 95688

CONTRACTOR

Vicki Kretsinger Grabert, President  
Luhdorff & Scalmanini  
Consulting Engineers  
500 First Street  
Woodland, CA 95695

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The parties have executed this Agreement the day and year first above written. If the Contractor is a corporation, documentation must be provided that the person signing below for the Contractor has the authority to do so.

Solano County Water Agency  
a Public Agency

By: \_\_\_\_\_  
Roland Sanford  
General Manager

By: \_\_\_\_\_  
Vicki Kretsinger,  
President

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**FOR SCWA USE ONLY**

Contract Period: July 1, 2020 to June 30, 2021  
File Number: AG-L-4  
Account Manager: C.Lee  
G/L Account #: 6611 AC  
Job Cost #: 1704  
Contract Type: Professional Services

**EXHIBIT A**  
**SCOPE OF SERVICES**

March 31, 2020  
File No. 20-1-045

Mr. Chris Lee  
Solano County Water Agency  
810 Vaca Valley Parkway, Suite 203  
Vacaville, CA 95688

**SUBJECT: 2020-2021 Groundwater Services – Groundwater Conditions Annual Update and Groundwater Management Assistance**

Dear Mr. Lee:

In response to your request, Luhdorff & Scalmanini, Consulting Engineers (LSCE) is pleased to provide this letter describing groundwater conditions reporting and groundwater management assistance to be completed during the 2020-2021 fiscal year.

This scope of work describes the following tasks:

- Task 1: Groundwater Conditions Annual Update Report
- Task 2: Sustainable Groundwater Management Act (SGMA) Technical Assistance
- Task 3: Groundwater Monitoring Facilities to Track Surface Water-Groundwater Interrelationships
- Task 4: Data Management System (DMS) Update

**Task 1: Groundwater Conditions Annual Update Report**

Regular groundwater conditions reporting is an increasingly useful tool to demonstrate the sustainability of local groundwater resources to stakeholders and state agencies. Reporting also provides a means for proactively addressing stakeholder concerns and synthesizing data across monitoring programs. For these reasons, LSCE proposes to prepare an annual report describing current groundwater level, groundwater quality, and subsidence conditions and trends in the Solano Subbasin and Suisun-Fairfield Valley Basin relative to historical conditions.

Solano County has a complex groundwater system consisting of multiple geologically differentiated aquifer units, each supporting a variety of groundwater uses, with interactions between neighboring groundwater subbasins and surface waters including the Sacramento-San Joaquin Delta. As such, it is essential that the interpretation of available groundwater data account for the aquifer unit(s) from which the data are collected. The proposed report will present groundwater levels in each aquifer/hydrostratigraphic unit separately.

Work to be performed under this Task will include:

- Updating the existing Solano County Data Management System (DMS) with the following data:
  - Groundwater levels
    - DWR (CA Department of Water Resources)
    - SCWA
    - City of Vacaville (*monitoring and production wells*)
    - Solano Irrigation District (SID)
    - Geotracker (SWRCB) (*as available*)
    - U.S. Bureau of Reclamation (*as available*)
  - Land subsidence
    - SCWA monitoring facilities
    - Plate Boundary Observatory (PBO) stations
  - Assignment of additional monitoring wells to designated aquifer units based on well construction and hydrostratigraphic interpretations (*as needed*)
- Incorporate additional data from sites monitored by the City of Dixon, City of Rio Vista, and SID (*as available*)
  - Incorporate well construction information and available water level and water quality data into the DMS
  - Groundwater quality (*as available*)
- Groundwater Conditions Annual Update Report
  - Background
  - Brief description of the geologic setting with reference to existing reports and key figures
  - Description of existing groundwater and subsidence monitoring networks, including planned monitoring wells to track surface water-groundwater interactions (including summary tables and figures)
  - Evaluation of groundwater conditions and trends including levels in each aquifer unit; contouring of groundwater levels in different aquifer zones for spring and fall 2020
  - Evaluation of groundwater quality (concentrations of selected constituents)
  - Presentation/evaluation of subsidence data and the relationship of subsidence to groundwater level fluctuations (data from 13 stations, including the two local stations installed by SCWA)
  - Conclusions and recommendations

## **Task 2: Sustainable Groundwater Management Act (SGMA) Technical Assistance**

Through this task, LSCE will provide technical assistance, as requested, to support SCWA as it participates in sustainable groundwater management activities in Solano County. Assistance provided under this task, will support efforts beyond the scope of services contracted separately for the



development of a Groundwater Sustainability Plan for the Solano Subbasin Groundwater Sustainability Agency. Services may include:

- participation in stakeholder meetings and preparatory meetings in advance of stakeholder meetings
- continued development of maps and other outreach materials to support stakeholder education and engagement efforts as part of facilitation services led by others (i.e., Ag Innovations)
- supporting coordination and information-sharing with Groundwater Sustainability Agencies (GSAs) in adjacent basins, including the Yolo Subbasin
- developing additional grant proposals to support Groundwater Sustainability Plan (GSP) development, including proposals for the DWR Technical Support Services program or other GSP-related funding and support opportunities
- other SGMA-related technical assistance as needed

### **Task 3: Groundwater Monitoring Facilities to Track Surface Water-Groundwater Interrelationships**

Task 3 includes work to support the installation of facilities for monitoring and characterization of shallow groundwater conditions and interactions between surface waterways and groundwater at key locations within Solano County and the Solano Subbasin. The required scope of this task will depend on grant funding and other Technical Support Services (TSS) awarded by DWR. Task 3 will include technical services by LSCE to assist with DWR's TSS efforts (anticipated for 2021) for installing twelve groundwater monitoring wells at six different sites to fill identified groundwater monitoring data gaps in the Solano Subbasin for the purpose of implementing SGMA and the GSP (referred to as SGMA MWs). In addition to the proposed SGMA monitoring facilities, as part of Task 3 a separate network of monitoring wells is planned to be installed along Lower Putah Creek, at locations closer to the active Putah Creek channel. These are referred to herein as "Seepage MWs". These complementary monitoring wells are planned to be constructed in transects roughly perpendicular to the Creek to record horizontal and vertical gradients at a higher resolution than the SGMA MWs would provide.

In Fall 2019, in response to DWR's recommendation, SCWA submitted both an application for Proposition 68 (Prop 68) grant funds and also a DWR Technical Services Support (TSS) application for the construction, development, and instrumentation of up to six dual-completion groundwater monitoring wells along Lower Putah Creek and Lindsey Slough in the Subbasin to fill data gaps in existing monitoring networks and improve the characterization of shallow hydrogeologic conditions, particularly for shallow aquifer zones near important surface water and potential groundwater dependent ecosystems (GDEs). As part of this planned work, an existing telemetry system will be leveraged to provide remote data reporting for newly constructed monitoring sites. These new sites are anticipated to become SGMA representative sites for the Subbasin for purposes of tracking measurable objectives and minimum thresholds to be established for the Subbasin. Tracking and quantifying surface water-groundwater interactions, particularly the influence of groundwater conditions on streamflow depletion, is among the most challenging

aspects of implementing SGMA in the Solano Subbasin. Several important surface water bodies exist in the Subbasin, including perennial creeks, freshwater marshes, and coastal marshes. Spatial and vertical resolution are lacking in current monitoring networks near key surface water bodies, resulting in data gaps and difficulty trying to characterize groundwater conditions and avoiding undesirable depletions of interconnected surface water. The proposed groundwater-surface water (GW-SW) trend monitoring wells will fill data gaps in current monitoring networks and improve the characterization of shallow hydrogeologic conditions near important surface waters.

SCWA received notice from DWR in March 13, 2020 that the final grant award includes the requested component for the construction of the six dual-completion monitoring wells for SGMA purposes (hereafter these are referred to as the SGMA MWs). However, the grant award includes both Prop 68 funds and also future Prop 1 funds; whether the Prop 1 funds will be fully appropriated and available is uncertain at this time. Separately, DWR staff has partially completed review of the TSS application. Communications to date indicate favorable review; however, DWR still needs to complete its review process.

Based on the parallel paths pursued by SCWA for the construction of the SGMA MWs, it appears likely that the dedicated SGMA monitoring facilities will be constructed with DWR grant fund support or through DWR's TSS program. The actual construction of these facilities will probably be delayed until sometime in 2021. It is anticipated that, if DWR decides to provide either grant funding or TSS, costs for SGMA monitoring well construction, development, and transducer purchase may be substantially offset by grant or TSS funds. Task 3 includes technical services by LSCE as needed to support SCWA during the implementation of the TSS program.

Task 3 also includes efforts for the purpose of implementing a companion project that stems from collaboration among SCWA, Dr. Mark Grismer of the University of California and LSCE related to the assessment of seepage at key locations along Putah Creek.

Between 1949 and 2002, seepage rate investigations performed along Lower Putah Creek by SCWA, DWR, U.S. Geological Survey (USGS), and U.S. Bureau of Reclamation (USBR) all found evidence of spatially and temporally variable streamflow accretion and depletion. It has been documented recently that extensive streamflow measurements between 1990 and 2002 show the existence of a perennial groundwater ridge, in direct hydraulic communication with the stream channel, extending from the Putah Diversion Dam to Stevenson Bridge under all but severe drought conditions. In addition to seepage rate investigations, historical groundwater level monitoring along Lower Putah Creek by the USBR and DWR provided data on water table conditions near the creek, although the temporal and spatial availability of data have been limited.

### Task 3.1 Provide Technical Support for DWR TSS Program

Task 3 includes technical services by LSCE as needed to support SCWA during the implementation of the TSS program. The TSS program, pending this is approved and implemented by DWR, would involve the installation of 12 SGMA MWs at six sites.

### Task 3.2 Construction of Seepage Monitoring Wells (Outside Contractor)

LSCE will retain a licensed C-57 well drilling contractor to drill and construct up to 16 seepage monitoring wells at three monitoring transect sites. The proposed cost (**Table 1**) is an estimate. The estimate will be updated once well locations, monitoring well specifications, and drilling contractor are finalized. The estimated cost includes mobilization, test hole drilling, cost of materials, well development, well completion, and site cleanup.

SCWA has already been engaged in communications with property owners about the monitoring sites of interest. This task assumes that SCWA has already or will receive permission to drill and construct monitoring wells at three sites.

### Task 3.3 Monitoring Well Installation Oversight, Inspection, and Sampling

The monitoring sites are located along Putah Creek on the north side of Solano County. LSCE will prepare a project description and bid sheet and solicit bids from a select group of drilling contractors familiar with LSCE's requirements. All work performed by the contractor will be overseen by LSCE to ensure that it is performed in accordance with project specifications. LSCE will provide onsite drilling and sampling inspection and general project oversight. LSCE will provide documentation and sampling services during the test hole drilling process, including preparation of a drilling log, collection of lithologic samples at a minimum of 10-foot intervals at each of the three monitoring sites (LSCE will coordinate with UCD). All work will be performed by a California Professional Geologist or by experienced personnel under the direct supervision of a California Professional Geologist.

LSCE will develop final monitoring well designs based on data gathered during test hole evaluation. The principal design elements will include screen, casing, and seal depths. The piezometers will be constructed of 2-inch diameter, Schedule 40 PVC blank casing. The screen sections will be of the same material and will have machine cut 0.040-inch slots. A No. 8 gradation gravel will be placed in the annulus between the casings and the borehole wall. A sand/cement grout sanitary seal will be placed from a minimum depth of 20 feet to ground surface, pending any modifications needed due to the actual conditions encountered.

LSCE will verify that the monitoring wells are constructed as designed and according to accepted industry standards and regulatory requirements. Measures will be taken to ensure monitoring well security and public safety. LSCE will witness well development and verify completeness. LSCE will ensure that the contractor complies with all discharge, permit, and site cleanup and restoration requirements.

LSCE will prepare a well construction summary for each monitoring well which will include an as built well profile, lithologic descriptions of the formations encountered, a California Well Drillers Completion Report, and baseline water quality results (approximately six of the 16 monitoring wells would be sampled to establish shallow groundwater quality conditions). LSCE will provide the well construction summary report information to Dr. Grismer for his analysis of seepage conditions. LSCE anticipates receiving data collected by Dr. Grismer, along with his synthesis of the collected data, for integration in

work being conducted the LSCE team for the preparation of the Groundwater Sustainability Plan for the Solano Subbasin.

#### **Task 4: Data Management System (DMS) Update**

We understand that SCWA plans to upgrade its Information Technology (IT) systems over the next fiscal year and is interested in upgrades to the groundwater Data Management System (DMS) that will provide for compatibility with those planned IT upgrades. The existing SCWA groundwater DMS was developed by LSCE in 2012 and has been in use since then for the storage and analysis of groundwater-related datasets. The DMS currently resides in a Microsoft Access (MS Access) database stored locally on LSCE servers with copies transferred to SCWA, as requested. As SCWA and other entities continue development of the Solano Subbasin GSP, we anticipate the need for certain upgrades to the DMS to provide improved data availability for SCWA staff and potentially others involved in GSP development and eventually for stakeholders and the public through means such as web-based platforms to present data on groundwater conditions.

Through this task, LSCE will develop a SQL Server database to serve as the primary data repository for the DMS datasets. It is anticipated that this effort will occur in the first quarter of 2021 in order to coincide with draft GSP development and in consideration of the datasets to be housed in the DMS for ongoing SGMA implementation purposes. SQL Server offers several advantages relative to Microsoft Access. While MS Access and SQL Server are both used to develop relational databases, SQL Server is intended for enterprise-level database applications. SQL Server databases can store much larger data sets, such as time-series datasets collected by continuously recording transducers such as those used in SCWA's deep aquifer monitoring wells and Continuous GPS subsidence monitoring stations. SQL Server databases can also support simultaneous users more effectively and more reliably, including the ability to track and log modifications to the data over time for improved quality control.

LSCE will replicate data currently stored in the MS Access database into a new SQL Server database stored in the Microsoft Cloud. LSCE will communicate with SCWA regarding SCWA's planned IT system upgrade and assist in transferring the SQL Server database to SCWA for local or cloud hosting by SCWA, as requested. LSCE will continue to perform quality control, data analysis, and data reporting functions on local instances of the database, using existing DMS queries and reports, linked to the remote SQL Server database.

#### **Cost Estimate**

**Table 1** details the estimated cost for the recommended activities proposed in Tasks 1 through 4. The estimated cost to complete these tasks is \$259,814. The current LSCE Schedule of Fees is enclosed for your reference. In the event that SCWA requests out-of-scope work and additional funds are needed to complete the task(s), SCWA will be contacted before proceeding with further work.

If you have any questions, or wish to discuss any of the above, we would be pleased to respond.

Mr. Chris Lee  
March 31, 2020  
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Sincerely,

LUHDORFF & SCALMANINI  
CONSULTING ENGINEERS



Vicki Kretsinger Grabert  
President/Senior Principal Hydrologist



Nick Watterson, PG  
Supervising Hydrogeologist



Debra M. Cannon, PG  
Senior Hydrogeologist

Enclosures:  
Table 1 – Cost Estimate  
LSCE Schedule of Fees

**Table 1**  
**Cost Estimate: Groundwater Services — Solano County Water Agency Groundwater Conditions Annual Update, Groundwater Monitoring Facilities, SGMA Assistance--Fiscal Year 2020-2021**

Task Description		Hours							Cost			
		Sr. Prin. Hydrol.	Suprv. Hydrogeologist	Sr. Hydro-geol.	Pjt. Hydro-geol.	Staff Hydro-geol./Geol.	GIS/ Data Tech.	Clerical	LSCE	Outside Services/ Equipment <sup>1</sup>	Subtask	Task
Billing Rate (\$/hr)		\$225	\$210	\$192	\$165	\$140	\$135	\$75				
Task 1 – Groundwater Conditions Annual Update Report and Data Management System Update												
Task 1.1	Data Management System data acquisition and quality control review of the following: PBO subsidence data (SCWA and PBO stations) and groundwater levels (DWR, SCWA, City of Vacaville, SID, Geotracker, USBR).		4	12	80	12	16		\$20,184		\$20,184	
Task 1.2	Update tables, figures and appendices with most current groundwater level (e.g., 2018 groundwater level contour maps) and subsidence data.	2		10	30	30	24		\$14,760		\$14,760	
Task 1.3.1	Draft report preparation and distribution	6	6	20	60			4	\$16,650	\$50	\$16,700	
Task 1.3.2	Final report preparation and distribution	2	2	4	16			8	\$4,878	\$200	\$5,078	
Task Total												\$56,722
Task 2 – SGMA Technical Assistance												
Task 2.1	Support for stakeholder related materials and meetings	40	24						\$14,040		\$14,040	
Task 2.2	Continued development of maps and other outreach materials to support stakeholder education and engagement efforts as part of facilitation services led by others	12	16	24		24	20		\$16,728	\$60	\$16,788	
Task 2.3	Supporting coordination and information-sharing with Groundwater Sustainability Agencies (GSAs) in adjacent basins, including the Yolo Subbasin	8		8					\$3,336		\$3,336	
Task 2.4	Developing additional funding proposals to support GSP development, including proposals for the DWR Technical Support Services program	4	4	8	16	6	8		\$7,836		\$7,836	
Task Total												\$42,000
Task 3 – Dedicated Groundwater Monitoring Facilities to Track Surface Water-Groundwater Interrelationships												
Task 3.1	Provide support to SCWA during TSS installation of SGMA monitoring facilities	4	16	12	16		16		\$11,364		\$11,364	
Task 3.2	Construction of up to 16 seepage monitoring wells at 3 sites. The estimated cost includes mobilization, test hole drilling, cost of materials, well development, well completion and site cleanup. (Outside Drilling Contractor) 1									\$111,304	\$111,304	
Task 3.3	Project oversight and inspection including documentation and lithologic sampling, final well design, observe well development, water quality sampling (general minerals, metals [dissolved and total], preparation of well construction summary.	8	36		24	160			\$35,720	\$2,300	\$38,020	
Task Total												\$149,324
Task 4 – Data Management System Upgrade												
Task 4.1	Initial development and data replication of the current DMS data from the existing MS Access database into a new SQL Server database stored in the Microsoft Cloud. LSCE will communicate with SCWA regarding SCWA's planned IT system upgrade and assist in transferring the SQL Server database to SCWA for local or cloud hosting by SCWA, as requested.			4	40		30		\$11,418	\$350	\$11,768	
Task Total												\$11,768
Totals		86	108	102	282	232	114	12	\$156,914	\$114,264		\$259,814

1. Includes outside services fee (see Schedule of Fees)

Note: As in previous years, the direct contract between SCWA and UNAVCO for ongoing maintenance, data management, and reporting related to the two CORS subsidence monitoring stations is not included in this budget but should be included in SCWA's annual budget for the coming fiscal year.

**EXHIBIT B**

**RATE OF COMPENSATION**



**Luhdorff &  
Scalmanini**  
Consulting Engineers

## **SCHEDULE OF FEES - ENGINEERING AND FIELD SERVICES 2020**

<b>Professional</b>	
Senior Principal	\$225/hr
Principal Professional	\$220/hr
Supervising Professional	\$210/hr
Senior Professional	\$192/hr
Project Professional	\$150 to 170/hr
Staff Professional	\$135 to 145/hr
<b>Technical</b>	
Engineering Inspector	\$140/hr
ACAD Drafting/GIS	\$135/hr
Engineering Assistant	\$105 to 125/hr
Scientist	\$105 to 125/hr
Technician	\$105 to 125/hr
<b>Clerical Support</b>	
Word Processing, Clerical	\$80/hr
Digital Communications Specialist	\$90/hr
Project Admin/Accounting Assistant	\$100/hr
<b>Other Services</b>	
Vehicle Use	\$0.58/mi
Subsistence	Cost Plus 15%
Groundwater Sampling Equipment (Includes Operator)	\$170.00/hr
Copies	0.20 ea
Professional or Technical Testimony	200% of Regular Rates
Technical Overtime (if required)	150% of Regular Rates
Outside Services/Rentals	Cost Plus 15%
Services by Associate Firms	Cost Plus 15%