

Glenn Groundwater Authority

Groundwater Sustainability Agency

225 N. Tehama Street, Willows, CA 95988 | 530.934.6540

Board of Directors Meeting Materials

December 19, 2022 | 9:00 a.m.

225 North Tehama Street, Willows, CA 95988

Remote Public Participation Option:

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1. CALL TO ORDER

The Chairperson will call the meeting to order and lead the [flag salute](#).

2. ROLL CALL

Roll call will be conducted.

3. PERIOD OF PUBLIC COMMENT

Members of the public are encouraged to address the GGA Board of Directors on items relevant to the GGA. Public comments are limited to no more than 5 minutes. No action may be taken on public comments.

4. FINANCIAL REPORT

- a. *Review and consider approval of claims.

The Claims Summary is attached.

Attachments

- Claims Summary

Claims Summary

Glenn Groundwater Authority
Invoices to be paid
Meeting Date: December 19, 2022

Invoice Date	Invoice Number	Description	Amount
11/11/2022	491103	Geosyntec Consultants; (GW Recharge Services)	\$ 7,118.13
12/1/2022	2035	Paris Kincaid Wasiewski, LLP; Matter #1850	\$ 2,240.00
12/1/2022	2034	Paris Kincaid Wasiewski, LLP; Matter #1851	\$ 2,030.00
12/9/2022	1178.05-5443	Davids Engineering, Inc. (On Call Support)	\$ 426.50
Total			\$ 11,814.63

5. RECOMMENDATION TO APPROVE PROPOSAL FROM DAVIDS ENGINEERING/LUHDORFF AND SCALMANINI FOR PREPARATION OF COLUSA SUBBASIN ANNUAL REPORT

- a. *Approve recommendation from CGA and GGA Annual Report Ad Hoc Committees to accept proposal from Davids Engineering/LSCE for preparation of Water Year 2022 Annual Report for Colusa Subbasin
- b. *Approve options to include Task 6 – Summary of Drought Impacts, and Task 7 – Annual Report Preparation for Water Years 2023 – 2025
- c. *Approve sharing of costs 50/50 with Colusa Groundwater Authority, in an amount not to exceed \$69,778 without prior approval

At the July 11, 2022 meeting, the Board held initial discussion on potential approaches to complete the Water Year (WY) 2022 Annual Report, which is due to DWR by April 1, 2023. The water year ended September 30, 2022. After some discussion, the Board requested this item be brought back to a future meeting to determine whether to issue a Request for Proposals (RFP) for this project. It was also understood that this effort would be completed in coordination with the Colusa Groundwater Authority (CGA) and it is important to have concurrence with the approach selected.

At the August 8, 2022 meeting, the Board approved the approach of issuing a Request for Proposals to develop the Water Year 2022 Annual Report, pending concurrence with the CGA. At that time staff recommended the approach to issue an RFP include the option to extend the agreement for two additional years (Annual Reports 2, 3, and 4).

On August 23, 2022, the CGA Board concurred with the approach, appointed an ad hoc committee and authorized staff to work with the GGA to develop and issue an RFP for this purpose.

On September 13, 2022, the GGA Board approved the RFP for the Colusa Subbasin Water Year 2022 Annual Report pending concurrence with CGA and appointed an Annual Report Ad Hoc Committee to coordinate with the CGA and complete all tasks necessary to bring a consultant selection recommendation to the GGA Board.

The RFP was issued on October 10, 2022, an addendum was issued October 27, 2022, and the submittal period closed on November 14, 2022.

Five proposals were received which included submittals from Daniel B. Stephens & Associates, Inc. a Geo-Logic Company, Davids Engineering, Inc./Luhdorff & Scalmanini Consulting Engineers, Geosyntec Consultants, Larry Walker Associates/Todd Groundwater, and Montgomery & Associates. Costs (not including optional tasks) ranged from \$35,757-\$55,800.


The CGA and GGA Annual Report Ad Hoc Committees met December 13, 2022 and agreed on a recommendation to select Davids Engineering, Inc./Luhdorff & Scalmanini Consulting Engineers to complete the Colusa Subbasin Water Year 2022 Annual Report and include Optional Task 6- Summary of Drought Impact and Optional Task 7- Annual Report Preparation for Water Years 2023-2025 (does not include the 5-year update). Additional details can be found in the attached proposal.

The CGA and GGA Annual Report Ad Hoc Committees also discussed the logistics of contracting and suggested Colusa Groundwater Authority hold the contract with Davids Engineering, Inc. and the cost be split evenly between the GSAs. The expected cost for the Water Year 2022 Annual Report including Optional Tasks 6 and 7 is \$69,778.

Colusa Groundwater Authority will be considering approval of the proposal and agreement at their December 19, 2022 meeting.

Attachments

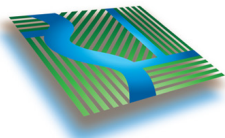
- Davids Engineering/Luhdorff & Scalmanini Colusa Subbasin Annual Report Proposal



Response to Request for Proposals to
**Develop and Submit the Colusa
Subbasin Water Year 2022 Groundwater
Sustainability Plan Annual Report**

Colusa Groundwater Authority and
Glenn Groundwater Authority

NOVEMBER 14, 2022



DAVIDS
ENGINEERING, INC



**Luhdorff &
Scalmanini**
Consulting Engineers



November 14, 2022

Glenn Groundwater Authority
ATTN: Lisa Hunter
225 North Tehama Street
Willows, CA 95988

SUBJECT: Response to Request for Proposals - Development and Submittal of the Colusa Subbasin Water Year 2022 Groundwater Sustainability Plan Annual Report

Dear Ms. Hunter:

We are pleased to submit this proposal to the Colusa Groundwater Authority (CGA) and Glenn Groundwater Authority (GGA) to offer our services for the Development and Submittal of the Colusa Subbasin Water Year 2022 Groundwater Sustainability Plan Annual Report (Project).

Dauids Engineering, Inc. (DE) and Luhdorff & Scalmanini Consulting Engineers (LSCE) have joined together to offer the CGA and GGA a technical team of professionals that are deeply experienced in the Colusa Subbasin and have a proven record of successfully developing Groundwater Sustainability Plans (GSPs) and GSP annual reports together for numerous basins and subbasins across California. We know the Sustainable Groundwater Management Act (SGMA) requirements for annual reports, how to meet them, and how to efficiently create reporting tools and processes that maximize consistency and cost savings for future annual reports.

The DE-LSCE Team is fully qualified and ready to achieve the Project's main objective: to develop, present, and successfully submit the Water Year 2022 GSP annual report for the Colusa Subbasin. Our handpicked team combines past knowledge gained during development of the Colusa Subbasin GSP and first GSP annual report and ongoing efforts to support GSP implementation in the Colusa Subbasin and adjacent subbasins. Our resources, connections, and experience will allow us to begin work immediately and follow through effectively.

As requested, this proposal includes a summary of the DE-LSCE Team's capabilities, experience, personnel, and qualifications; our proposed scope of work and schedule for successfully completing the Project (and optional, complementary efforts); estimated costs for completing the proposed scope of work; and a copy of DE's standard contract. The DE-LSCE Team has been assembled to provide high-value support to the CGA and GGA Groundwater Sustainability Agencies (GSAs) by offering the following benefits:



In-Depth Knowledge of the Colusa Subbasin GSP and Implementation Efforts

The DE-LSCE Team knows the GSAs, member agencies, and stakeholders in the Colusa Subbasin. Our Team members were directly involved in developing and submitting the Colusa Subbasin GSP and the first GSP annual report or are currently supporting the GSAs with planning and prioritizing GSP implementation projects. We understand the community leadership, local planning, and initiatives that have led up to this Project and are sensitive to local needs and issues.



Extensive Knowledge of GSP Annual Report Development Across California

Members of the DE-LSCE Team have prepared or supported 11 annual reports for critically overdrafted basins since 2020 and 10 annual reports for medium and high priority basins during 2022. Together, the DE-LSCE Team has prepared 11 annual reports across seven subbasins. From

our extensive experience, we understand that sound management, communication, and adhering to schedule are essential to maintain trust amongst member agencies and stakeholders.



Dedicated, Cohesive, Local Team

This project will be led by Jeff Davids, PhD, PE (DE) and Eddy Teasdale, PG, CHG (LSCE), based out of the DE and LSCE offices in Chico, CA. The DE-LSCE Team has successfully collaborated on numerous projects in the past, including annual reports in seven subbasins. DE and LSCE will work closely as an integrated team supporting each other on all tasks. We are prepared to start work immediately, directing our cohesive experience toward completing this Project in a timely and efficient manner.



Familiar with Local and Northern California SGMA Policy Implementation and Coordination

Through our many past and current projects supporting water resources management across the Northern Sacramento Valley, the DE-LSCE Team recognizes the need for local engagement and regional coordination for effective SGMA implementation. Our Team's shared insights gained from experience in Colusa, Glenn, Tehama, Butte, Sutter, and Solano Counties has taught us 1) how local Northern California stakeholders view SGMA (which is very different from firms working predominately in the San Joaquin Valley), 2) the importance of developing annual reports in a transparent way, and 3) engaging in outreach efforts and providing updates to local managers and stakeholders.

In summary, the DE-LSCE Team has the range and depth of technical capabilities and the local knowledge necessary to effectively support the CGA and GGA with developing and submitting the annual report and with communicating current conditions in the Colusa Subbasin with stakeholders.

We would welcome the opportunity to perform this important work, building upon past efforts to support the GSAs and maintain locally managed sustainable groundwater resources in the Colusa Subbasin. Please feel free to contact our proposed Project Manager, Jeff Davids at (530) 588-3064 or jeff@davidsengineering.com, should you have any additional questions about our proposal or our proposed Team.

Sincerely,

DAVIDS ENGINEERING

Jeff Davids, PhD, PE
Supervising Engineer, Project Manager

Authorized Contact

Jeff Davids, PhD, PE
Supervising Engineer
1095 Nelson Street, Suite 130
Chico, CA 95926
Office: 530.757.6107. x201
Cell: 530.588.3064
jeff@davidsengineering.com

Federal Tax ID Number

68-0346173

Project Subconsultants

Luhdorff and Scalmanini, Consulting Engineers (LSCE)



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Section 1.

Team Capabilities & Experience

This section presents the background, experience, and organizational structure of the proposed DE-LSCE Team, the roles and decision-making responsibilities of our DE-LSCE Team leader and key personnel, our past experience in successfully completing other GSP annual reports, and our resources for successfully completing this Project.

BACKGROUND AND EXPERIENCE

Both DE and LSCE are recognized leaders in Northern California water resources consulting and engineering. With local offices in Chico, Woodland, and Davis, the DE-LSCE Team understands the local and regional dynamics of SGMA implementation in the Sacramento Valley.

Members of the DE-LSCE Team have supported the GSAs and member agencies with GSP development, GSP implementation, and many of the projects and activities that will be reported in this Project. Members of our DE-LSCE Team were also directly involved in creating the first GSP annual report submitted in April 2022, which will serve as the foundation for completing this Project. These experiences offer many advantages for this Project, including:

- Greater insight into local concerns and issues expressed by stakeholders across the Colusa Subbasin.
- Existing contacts, relationships, and resources needed to successfully complete the Project.
- Enhanced continuity between past GSP reporting, ongoing GSP implementation, and future work completed for this Project.

The elements described above are ideal for the specific nature of this Project and ensure that we have the organizational structure and decision makers to complete this Project in a timely and efficient manner.

While DE and LSCE will work collaboratively as a team, DE would serve as the prime consultant and LSCE would serve as the subconsultant. Following the structure outlined in the RFP, DE's background and experience are presented first in this section, followed by LSCE's qualifications and experience.

Firm Background

DE was founded nearly 30 years ago with a focused dedication to providing excellent professional engineering and scientific services to public and private entities managing surface water and groundwater resources. The firm has grown from a sole proprietorship to a firm of over 20 professionals based in two Northern California offices in Chico and Davis. These locations enable efficient, timely responses to the needs and requests of the CGA, GGA, and stakeholders across the Colusa Subbasin. The firm's client base stretches from the southern San Joaquin Valley to the Shasta Valley and several other western states. The firm is directed by a Leadership Team of three senior professional staff, with founder Grant Davids serving as President and senior firm advisor. More information about DE can be found on the firm's website (<https://davidsengineering.com/>).

As a small firm, DE routinely teams with other firms, from small to large, to provide the customized set of professional services needed for each project undertaken. For this Project, we have teamed with LSCE to meet the specific needs of the GSAs during annual report development, while carrying forward the knowledge, data, and experience gained from development of the Colusa Subbasin GSP, the first GSP annual report, and GSP implementation activities.

Dauids Engineering Has Proudly Served Stewards of Western Water Since 1993



Offering professional engineering and scientific services to public agencies, private entities, and landowners responsible for managing water resources in the western United States.



Founded on a commitment to the highest standards of professional integrity and intellectual honesty



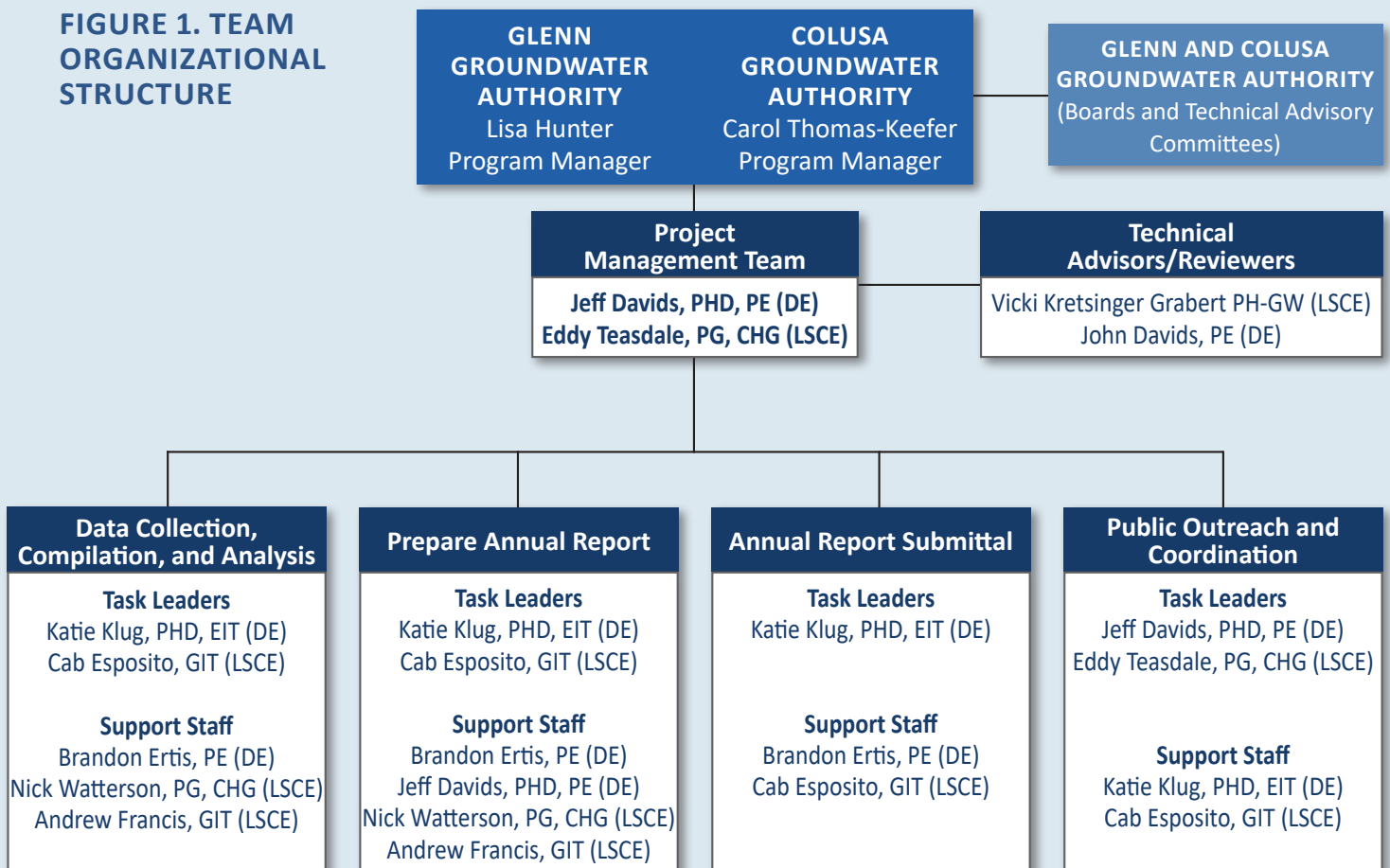
A team of professionals who are passionate and committed to helping our clients identify local solutions to managing water resources in a strategic, positive manner by seeking appropriate, responsible balances between commercial agricultural enterprise and environmental stewardship

ORGANIZATIONAL STRUCTURE, ROLES, AND DECISION-MAKING RESPONSIBILITIES

The proposed DE-LSCE Team organizational structure is illustrated below. Working under the technical direction of the CGA and GGA GSAs, our Team will be co-led by Jeff Davids, supervising engineer for DE, and Eddy Teasdale, principal hydrogeologist for LSCE. Jeff Davids is our proposed DE-LSCE Team Leader, as DE is the proposed prime consultant for contracting and administrative purposes. Eddy Teasdale will provide support in project management with emphasis on coordination of technical work. John Davids, principal engineer for DE, and Vicki Kretsinger Grabert, president of LSCE, will serve in senior advisory roles to assist in strategic Project planning and review. Other key Team members who will lead the technical efforts of specific tasks include Katie Klug (DE) and Cab Esposito (LSCE). A pool of staff and subject matter specialists from each firm is available for additional technical support. Resumes outlining each team member’s relevant project experience are included in **Appendix A**.

Our Team members were selected through careful evaluation of the technical needs of this Project and selection of the most appropriate staff in each discipline. As a result, we have selected a highly qualified, experienced, streamlined group of professionals who have worked together on similar projects. All proposed team members are thoroughly familiar with SGMA and the Colusa Subbasin GSP, and are also extensively involved in sustainable groundwater management in other groundwater subbasins in California. Members of our proposed Team were also directly involved in preparing and submitting the first Colusa Subbasin GSP annual report in April 2022. Our Team’s collective experience and organizational structure are advantageous to this Project as they will allow us to start work quickly and move efficiently, utilizing tools and processes that will maximize consistency, both with the first Colusa Subbasin GSP annual report and with other annual reports in neighboring subbasins. These advantages may also provide opportunities for cost savings in developing future annual reports.

FIGURE 1. TEAM ORGANIZATIONAL STRUCTURE



DE = Davids Engineering; LSCE = Luhdorff & Scalmanini Consulting Engineers

TEAM HISTORY AND EXPERIENCE PROVIDING SIMILAR SERVICES

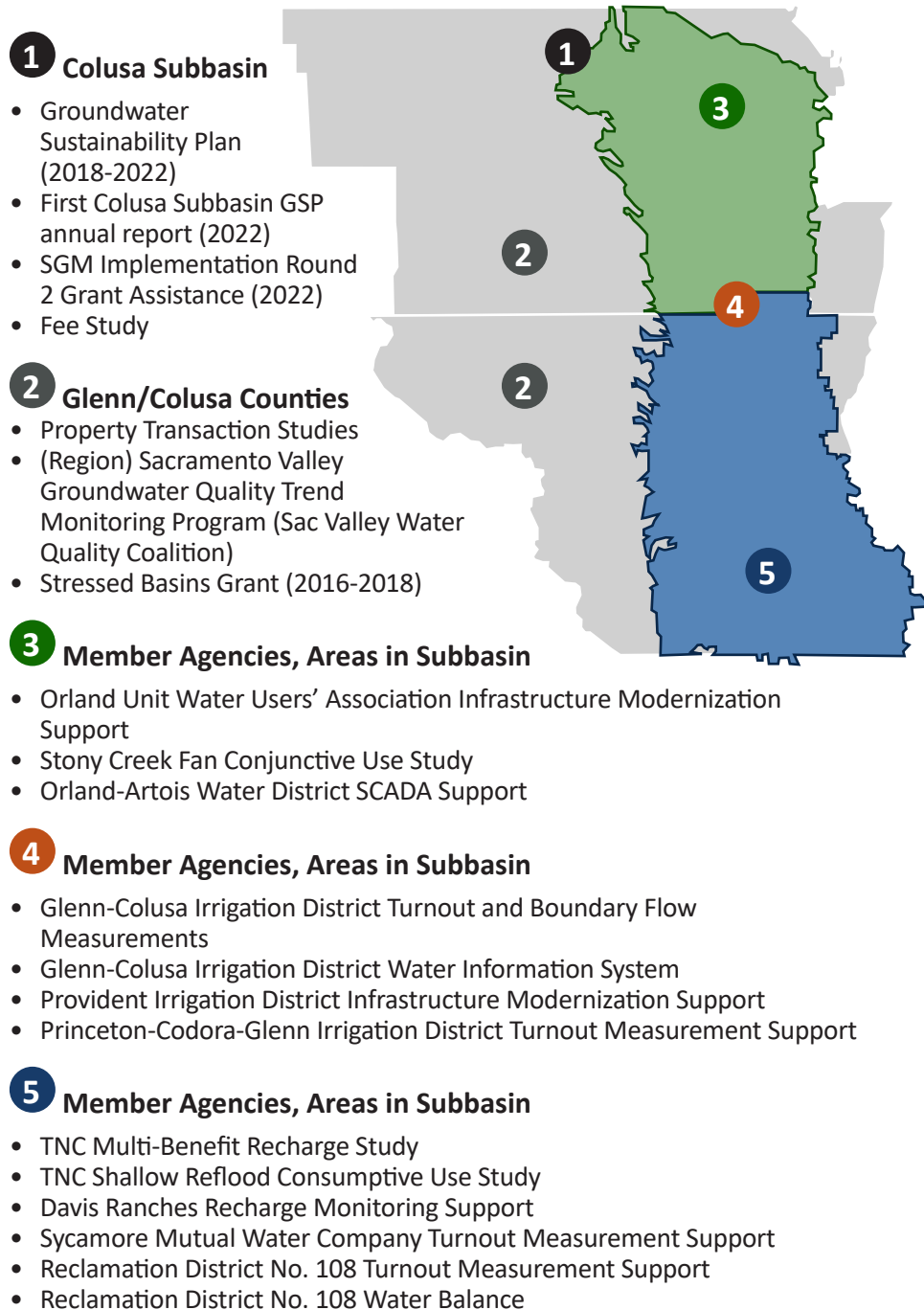
Both DE (founded in 1993) and LSCE (founded in 1980) have extensive experience with SGMA implementation, groundwater sustainability planning, and GSP annual report development, which we have cultivated and proven through many past projects across California (Table 1). The DE-LSCE Team has also supported many past SGMA implementation initiatives in the Colusa Subbasin, as well as various other projects on behalf of member agencies and stakeholders in Colusa and Glenn County (Figure 2).

TABLE 1. DE-LSCE TEAM ANNUAL REPORT EXPERIENCE

Client/Services	2020	2021	2022
Tahama County (Los Molinos, Antelope, Red Bluff, and Bowman Subbasins)			■
Solano Subbasin			■
Corning Subbasin (development support)			■
Colusa Subbasin			■
Sutter Subbasin (GSA supported)			■
Eastern San Joaquin Subbasin (GSA supported)			■
Turlock Subbasin (GSA supported)			■
Madera Subbasin	■	■	■
Chowchilla Subbasin	■	■	■
Westside Subbasin	■	■	■
Delta Mendota Subbasin	■	■	■
Indian Wells Valley Subbasin (technical advisory committee review)	■	■	■
Merced Subbasin (review for Turner Island GSA)	■	■	
East Contra Costa Subbasin			■
East Bay Plains Subbasin			■

■ LSCE/DE ■ LSCE ■ DE

FIGURE 2. DE-LSCE TEAM EXPERIENCE IN THE COLUSA SUBBASIN



RELATED PAST PROJECTS

Three past projects that have been successfully completed by the DE-LSCE Team are described below. These represent only a sampling of related projects completed by the DE-LSCE Team, both together and independently.



SGMA and GSP-Related Services

MADERA AND CHOWCHILLA SUBBASINS

REFERENCE: Madera Subbasin (Madera County), Ms. Stephanie Anagnoson, Director, Madera County Department of Water and Natural Resources; **ADDRESS:** 200 W 4th St, Madera, CA 93637; **PHONE:** 559.675.7703 x2265; **EMAIL:** stephanie.anagnoson@maderacounty.com

REFERENCE: Chowchilla Subbasin (Chowchilla WD), Mr. Doug Welch, General Resources Manager, Chowchilla Water District; **ADDRESS:** 327 S. Chowchilla Blvd. Chowchilla, CA 93610; **PHONE:** 559.665.3747; **EMAIL:** dwelch@cwdwater.com

Since 2017, DE and LSCE have been working together on behalf of GSAs in the Madera and Chowchilla Subbasins on tasks related to the development, implementation, monitoring, and annual reporting for two separate GSPs. Between 2020-2022, DE and LSCE successfully developed, submitted, and presented six annual reports.

Similar Services:

- Annual report development and submittal (2020, 2021, and 2022)
- Analysis of current groundwater conditions, water use, and subsidence
- Coordination with multiple GSAs and agencies
- Stakeholder presentations and engagement

GSP and Annual Report Development Services

TEHAMA COUNTY

REFERENCE: Mr. Justin Jenson, Deputy Director of Public Works – Water Resources; **ADDRESS:** 9380 San Benito Avenue, Gerber, CA 96035; **PHONE:** 530.385.1462; **EMAIL:** jenson@tcpw.ca.gov

LSCE, with support from DE, developed GSPs and the first-year annual reports for the Bowman, Antelope, Los Molinos, and Red Bluff Subbasins. Annual reports were successfully developed and submitted in 2022.

Similar Services:

- Annual report development and submittal (2022)
- Analysis of current groundwater conditions and water use
- Stakeholder communication

GSP and Annual Report Development Services

VINA, BUTTE, AND WYANDOTTE CREEK SUBBASINS

REFERENCE: Dr. Christina Buck, Assistant Director, Butte County Department of Water and Resource Conservation; **ADDRESS:** 308 Nelson Avenue Oroville, CA 95965; **PHONE:** 530.552.3593; **EMAIL:** cbuck@buttecounty.net

In 2022, LSCE and DE provided technical support to Butte County in the development of the first annual reports for the Vina, Butte, and Wyandotte Creek Subbasins. LSCE and DE are currently contracted with Butte County to complete annual reports for the same three subbasins through 2025.

Similar Services:

- Annual report development and submittal (2022)
- Analysis of current groundwater conditions and water use

KEY PERSONNEL

Brief bio-sketches for our proposed DE-LSCE Team Leader and other key Team members are presented in this section. Full length resumes are presented in **Appendix A**. All key team members have successfully collaborated on a variety of groundwater sustainability planning and related projects, ensuring seamless workflow on this Project.



Jeff Davids, PhD, PE (DE)

DE-LSCE TEAM LEADER AND PROJECT MANAGER

Jeff has over 15 years of experience focused on how sustainable management of water, energy, and

food are supported by innovative sources of data, education, integrated systems thinking, modeling tools, social engagement, storytelling, and outreach. He has consulted for a variety of water managers and suppliers (local, state, and federal) in the major irrigated regions of California and in a variety of locations abroad. He has led and contributed to a variety of SGMA-related efforts throughout Northern California and the San Joaquin Valley.



John Davids, PE (DE)

TECHNICAL ADVISOR/REVIEWER

John has nearly 20 years of public- and private-sector professional experience in public policy, FERC relicensing, SGMA implementation,

groundwater sustainability planning, water resources management and master planning, irrigation system modernization, permitting, design, and construction. He brings a unique perspective to consulting from his management experience at Modesto and Oakdale Irrigation Districts. John has led and overseen a variety of SGMA-related projects across disciplines in both the public and private sector.



Katie Klug, PhD (DE)

TECHNICAL LEAD

Katie has experience in GSP development, SGMA-related planning and reporting, water resources studies, and water management

planning. Since 2018, she has contributed to the development of GSPs in more than 10 subbasins and has supported annual report development in many of those subbasins. From 2021-2022, Katie directly supported the successful completion and submittal of

the Colusa Subbasin GSP. Katie also led the successful development and submittal of the first Colusa Subbasin GSP annual report and presented updates on current groundwater conditions to the GSA Boards and stakeholders. Her experience will be instrumental in ensuring continuity with previous GSP and annual report efforts.



Brandon Ertis, MS, PE (DE)

TECHNICAL TEAM

Brandon has provided a variety of water and environmental management services to clients in California for over 10 years including

environmental data acquisition; water budgets; mapping and spatial analysis; development of water management tools for agricultural water suppliers (including tool design, implementation and staff training, and ongoing support); presenting technical information orally to stakeholders and the public, and preparation of technical reports and documents. He has contributed to a variety of SGMA-related efforts, including those in the Colusa Subbasin and the Butte Subbasin.



Eddy Teasdale, PG, CHG (LSCE)

PROJECT MANAGER

Eddy Teasdale has 25 years of experience in hydrogeologic, hydrologic, environmental, and scientific consultation for

planning projects throughout California. He has managed a wide variety of projects, including water resources, groundwater investigations, modeling, and environmental permitting. Eddy is currently working on several groundwater and SGMA-related projects in Colusa, Glenn, Butte, Sutter, and Tehama Counties. Eddy served as the project manager for the development and submittal of annual reports for the Los Molinos, Antelope, Red Bluff, and Bowman Subbasins on behalf of Tehama County, and the Vina, Butte, and Wyandotte Creek Subbasins on behalf of Butte County.



Vicki Kretsinger Grabert (LSCE)

TECHNICAL ADVISOR/REVIEWER

Vicki has over 30 years of experience in regional groundwater resource management and quality assessments, including groundwater supply sufficiency and availability assessments, design of monitoring networks and programs, long-term groundwater quality monitoring and protection programs for twelve agricultural coalitions in the Central Valley, and groundwater technical assistance to the Central Valley Salinity Coalition since 2009. She has been the principal-in-charge of all SGMA-related technical work in the Napa Valley Subbasin and preparation of many SGMA-related technical documents, including four GSP annual reports. She is the Founding President of the Groundwater Resources Association of California and served as a director for 23 years.



Andrew Francis, GIT (LSCE)

TECHNICAL TEAM

Andrew has five years of professional experience in the development and implementation of GSPs throughout the Central Valley and Southern California. Andrew’s GSP work has included characterizing geologic and groundwater conditions, developing sustainable management criteria, participating in technical advisory committees, and assisting with grant applications. Andrew has also presented on GSP development at public workshops on multiple occasions and has experience with stakeholder engagement. Andrew’s primary area of expertise is in hydrogeologic conceptualization, and GIS analysis and mapping.

STATEMENT OF QUALIFICATIONS FOR SUBCONTRACTORS



LSCE is a full-service consulting and services company with proven expertise in groundwater. LSCE was founded to fill a recognized need for technical and management expertise in a broad range of issues associated with groundwater resources development and its efficient use.

LSCE has extensive history of SGMA-related experience, beginning with LSCE’s service on technical advisory groups to the California Department of Water Resources (DWR) during the development of the GSP emergency regulations and Best Management Practices for SGMA implementation. Since then, LSCE has supported agencies across California to fulfill SGMA requirements through the development of GSPs and annual reports. LSCE’s experience spans many critically overdrafted, high-, and medium-priority subbasins, including those highlighted in Figure 2. LSCE and DE connected through much of this work and continue to collaborate on GSP-related projects, including all three projects highlighted above.

In this Project, LSCE will provide hydrogeologic support to DE in collecting, evaluating, and representing groundwater elevations, change in groundwater storage, and groundwater extraction in the Colusa Subbasin. LSCE will take the lead in evaluating subsidence conditions and summarizing groundwater conditions relative to the Sustainable Management Criteria. LSCE will also support preparation of the draft annual report sections and presentations to GSA Boards and stakeholders on these topics.



Cab Esposito, GIT (LSCE)

TECHNICAL LEAD

Cab has over ten years of experience working on geologic and hydrologic projects. Cab has supported numerous GSPs throughout California since 2018, including technical planning efforts in the Shasta Valley. He is experienced with many different facets of GSP development, including conceptual model development, water budget calculations, public outreach, numerical model development, scenario analysis, and annual report development. In 2021-2022, Cab supported the Butte County Drought Impact Analysis for the Vina, Butte, and Wyandotte Creek Subbasins, and subsequent development of the 2022 annual reports in those subbasins.



Nick Watterson, PG (LSCE)

TECHNICAL TEAM

Nick has over 20 years of experience studying surface and groundwater hydrology. He has extensive experience with the acquisition, analysis, and display of complex geospatial water resources data. His experience includes quantification of groundwater supply and aquifer storage capacity; characterization of aquifer and well mechanics, well construction design, well rehabilitation program design and implementation; evaluation of groundwater-surface water interactions; and hydrologic modeling in varied hydrogeologic settings in California and Colorado. Nick has supported the development of numerous GSPs and annual reports across the Sacramento and San Joaquin Valleys.

SCHEDULING



The DE-LSCE Team understands that timely advancement and completion of work is essential to ensuring the annual report is developed efficiently; reviewed and verified by the GSAs, Technical Advisory Committees (TACs), and member agencies; and ultimately submitted to DWR in compliance with SGMA requirements before the April 1, 2023 deadline.

From our experience, we understand that sound management, communication, and adhering to schedule are essential to maintain trust amongst member agencies and stakeholders. We recognize the critical importance of engaging with GSAs and member agencies early in the reporting process to provide adequate time for acquiring and ensuring the accuracy of reported information about water supplies, water use, and GSP implementation activities. Likewise, we recognize the critical importance of building time into the schedule for review and feedback from the GSAs, TACs, and member agencies.

DE and LSCE take pride in maintaining pre-planned, client-approved project implementation schedules. Our basic scheduling approach on every project is to work with the client to identify key, achievable milestones and then to allocate and manage staff resources to accomplish those milestones. Milestone dates have to reflect not only the effort needed to accomplish the technical work, but also the time required for internal review, client review, and for client and public meetings.

In this Project, we plan to follow a similar approach guided by:

Regular project communications and updates between GSA staff, the DE-LSCE Team project managers, and other DE-LSCE Team members, through regularly scheduled calls and meetings.

Verification of project milestone dates with GSA staff, with consideration of scheduling needs for GSA staff review, TAC review, and Board review of deliverables in advance of presentation dates and the annual report submittal deadline.

Timely advancement of Project efforts, with consideration for those project milestone dates and building in time for internal review of all work products to ensure their quality and accuracy.

Our proposed schedule for Project completion is outlined in Section 2 of this proposal. During Project development, the DE-LSCE Team may recommend schedule changes to keep the project on schedule and within budget. Schedule changes will only be implemented with client approval, and only as required.

Each of the three relevant past projects described in this proposal included critical milestones for specified deliverables in advance of SGMA-required deadlines. The schedules for these projects were managed through a process similar to that proposed for this Project. In all cases, DE and LSCE have met the defined deadlines as set forth by the client and SGMA. When you contact our project references, we encourage you to ask each reference how we maintained the schedule for their project.

Section 2.

Scope of Work and Schedule

Davids Engineering (DE) and Luhdorff and Scalmanini Consulting Engineers (LSCE) are pleased to submit this Scope of Work for the Development and Submittal of the Colusa Subbasin Water Year 2022 Groundwater Sustainability Plan Annual Report (Project).

As outlined in California Code of Regulations Title 23 (23 CCR) §356.2, annual reports must be submitted to the Department of Water Resources (DWR) by April 1 of each year following the adoption of the GSP. The water year 2022 annual report for the Colusa Subbasin GSP is required to be submitted by April 1, 2023. This scope of work describes the tasks that will be completed to prepare the water year 2022 annual report for the Colusa Subbasin GSP in compliance with all of the requirements of 23 CCR §356.2 (Table 2). DE and LSCE will work closely as an integrated team supporting each other for all tasks, as described below.

Table 2. Summary of GSP Annual Report Requirements and Associated Tasks		
GSP Regulations Section (23 CCR)	Description	Task(s) to Fulfill Requirements
§ 356.2	Submit an annual report to DWR by April 1 that includes the following components for the preceding water year:	3
(a)	General information, including an executive summary and a location map depicting the basin covered by the report.	2.5
(b)	Description and graphical representation of the following conditions of the basin managed in the Plan:	2
(b)(1)	Groundwater elevation data from monitoring wells identified in the monitoring network (contour maps, hydrographs)	2.1
(b)(2)	Groundwater extraction (table, map)	2.2
(b)(3)	Surface water supply used or available for use, for groundwater recharge or in-lieu use	2.2
(b)(4)	Total water use	2.2
(b)(5)	Change in groundwater storage (maps, graph)	2.1
(c)	Description of progress toward implementing Plan, achieving interim milestones, and implementing projects or management actions since the last annual report.	2.4
§ 354.4	Include a copy of the monitoring data from the data management system in the annual report	1, 2.6

SCOPE OF WORK

Task 1: Data Collection, Compilation, and Analysis (DE-LSCE)

In this task, data will be collected, compiled, evaluated, and analyzed through the end of the preceding water year (water year 2022), extending the period of data gathered for the previous annual report (water years 2016-2021) and the historical water budget period in the GSP (water years 1990-2015).

Data collection will include all data sources required to evaluate and report on current groundwater conditions, water supply and water use, and GSP implementation activities in the Colusa Subbasin through water year 2022. Data collection, compilation, evaluation, and analysis will directly facilitate preparation of the annual report (Task 2) in compliance with the SGMA requirements. Anticipated data sources include, but are not necessarily limited to:

- Groundwater elevation data
- Subsidence monitoring data (e.g., InSAR)
- Water supply data (e.g., diversions, deliveries, drainage, spillage)
- Groundwater pumping data (e.g., meter records)
- Land use data (e.g., crop reports)
- Precipitation
- Updates on implementation of projects and management actions
- Actual benefit of projects and management actions to date (if applicable)
- Actual costs of projects and management actions to date (if applicable)

Data will be collected and compiled from publicly available sources, the Colusa Subbasin GSP monitoring network, and through data requests from agencies in the Colusa Subbasin. All applicable data will be quality controlled, organized, and stored in the initial Data Management System (DMS) developed during GSP development. A summary of the compiled data sources will also be provided to the GSAs to allow transparency and feedback, as needed, and for their future reference.

Analyses of the compiled data sources will be conducted in coordination with Task 2 to prepare all data summaries and tables required by 23 CCR §356.2 and all data summaries required to accurately report current conditions in the Colusa Subbasin. Planned results of these analyses are described in Task 2.

Task 2: Prepare Annual Report (DE-LSCE)

This task encompasses all necessary work to compile, prepare, and finalize the water year 2022 annual report. This task will result in the development of one draft annual report delivered to the GSAs for their feedback, one final annual report incorporating revisions based on feedback from the GSAs, and a set of tables summarizing the annual report information in the format required for submittal to DWR. This task assumes that the Colusa Subbasin groundwater model used in GSP development will not be updated.

SUBTASK 2.1 PREPARE A DESCRIPTION AND GRAPHICAL REPRESENTATION OF GROUNDWATER ELEVATIONS AND CHANGE IN GROUNDWATER STORAGE (DE, WITH SUPPORT FROM LSCE)

For this subtask, groundwater elevations and change in groundwater storage in the Colusa Subbasin will be quantified, described, and graphically represented as required in 23 CCR §356.2. This subtask will use groundwater elevation data gathered in Task 1 from Representative Monitoring Sites (RMS) included in the GSP monitoring network to generate the necessary seasonal representations of groundwater elevations and change in groundwater storage:

Groundwater Elevation Contour Maps: Contour maps will be prepared for the principal aquifer for seasonal high (spring) and low (fall) conditions in at least the preceding water year (2022). Data from RMS included in the GSP monitoring network will be used in conjunction with consideration of any supplemental groundwater elevation data available from other (non-GSP) monitoring programs.

Groundwater Elevation Hydrographs: Hydrographs through the preceding water year (2022) will be prepared for RMS wells with available data.

Change in Groundwater Storage Maps: Maps of the change in groundwater storage will be prepared for the principal aquifer to represent the change in seasonal high (spring) conditions in the preceding water year (2022).

Change in Groundwater Storage Graph: A graph depicting annual change in groundwater storage, cumulative change in groundwater storage, groundwater extraction (Subtask 2.2), and water year type, will be developed based on historical data to the greatest extent available, including from January 1, 2015, through the current reporting year.

This subtask will result in tabular and graphical summaries of groundwater elevations and change in groundwater storage, as required for submittal to DWR. This subtask will build on the processes used in the first annual report to ensure consistency with contour maps, hydrographs, and change in storage representations in previous water years.

SUBTASK 2.2. PREPARE A DESCRIPTION AND GRAPHICAL REPRESENTATION OF WATER SUPPLY AND WATER USE (DE, WITH SUPPORT FROM LSCE)

For this subtask, water supply and water use in the Colusa Subbasin will be quantified, described, and graphically represented as required in 23 CCR §356.2. This subtask will use data gathered in Task 1 to generate the necessary annual (water year) water budget components needed for these summaries.

Water budget components that will be developed for the preceding water year (2022) include:

Groundwater Extraction: Total groundwater extractions in the Colusa Subbasin will be quantified and summarized by water use sector. The volume of groundwater extraction that is measured or estimated will also be summarized according to their relative source and accuracy, distinguishing volumes directly measured and volumes estimated by land use and water demand. All data and methods used to characterize groundwater extractions will be based on the best available measurement methods and best available science, and will be described in the annual report.

Surface Water Supply Used or Available for Use, for Groundwater Recharge or In-lieu Use: The volume of surface water supply used or available for use will be summarized based on available surface water diversions and deliveries records and estimates for surface water purveyors and surface water users in the Colusa Subbasin. All surface water supply used or available for use in the Colusa Subbasin will be reported by water source type and based on annual quantitative volumetric data where available.

Total Water Use: The total water use in the Subbasin will be summarized, consistent with the previous annual report, as the total applied water from all sources and precipitation in the Subbasin, including all consumptive water use (evapotranspiration) and non-consumptive water use (other water uses, e.g. deep percolation and runoff). Total water use will be quantified based on the total groundwater extraction and the total applied surface water use quantified as part of this subtask. Water use data will be collected using the best available measurement methods.

The method and accuracy of measurements will be described.

This subtask will result in:

- Tabular and graphical summaries of groundwater extraction by water use sector and measurement/calculation method (tabular summaries will be formatted as required for submittal to DWR)
- Map showing the general location and volumes of groundwater extraction
- Tabular and graphical summaries of surface water supply used or available for use by water source type (tabular summaries will be formatted as required for submittal to DWR)
- Tabular and graphical summaries of total water use by water use sector and water source type (tabular summaries will be formatted as required for submittal to DWR)

This subtask will build on the processes used in the first annual report to ensure consistency with water supply and water use representations in previous water years.

SUBTASK 2.3 PREPARE A DESCRIPTION AND GRAPHICAL REPRESENTATION OF SUBSIDENCE CONDITIONS (LSCE)

For this subtask, subsidence information gathered in Task 1, including InSAR data available from DWR, will be used to create graphical representations of subsidence conditions in the Colusa Subbasin. This subtask will generate maps of recent subsidence rates since the previous annual report (water year 2022), and cumulative subsidence extending the period evaluated in the previous annual report. This subtask will build on the processes used in the first annual report to ensure consistency with subsidence representations in previous water years.

SUBTASK 2.4 SUMMARIZE PROGRESS TOWARDS IMPLEMENTING THE GSP (DE-LSCE)

This subtask will summarize progress toward implementing the GSP and other GSA-related activities since the previous annual report and will summarize progress toward achieving the interim milestones identified in the GSP.

This subtask will result in:

- Tabular and descriptive summary of changes in implementation of projects and management actions, including any applicable costs and benefits since the previous annual report.
- Tabular summary of groundwater levels relative to interim milestones, using information from Subtask 2.1.

SUBTASK 2.5 PREPARE DRAFT ANNUAL REPORT (DE, WITH SUPPORT FROM LSCE)

In accordance with 23 CCR §356.2, this subtask will assemble information from the preceding subtasks to create a complete draft annual report document. This subtask will also prepare updates, as required, to general content required in the annual report (e.g., subbasin location map, executive summary). Following document assembly and internal quality control, the draft annual report will be distributed to the GSAs for review and feedback. That feedback will be used to revise and assemble the final annual report.

SUBTASK 2.6 PREPARE FINAL ANNUAL REPORT (DE)

In accordance with 23 CCR §356.2, this subtask will revise the draft annual report in response to feedback received from the GSAs, and will assemble all required GSP annual report components into the final annual report document. This subtask will result in the final annual report document, final copies of all tables required for submittal to DWR, and a final copy of the GSP monitoring data collected in Task 1.

This subtask should include all necessary tasks to compile, prepare, and finalize the annual report. This will include one draft annual report and revisions based on comments received by the GSAs.

Task 3: Annual Report Submittal (DE)

In this task, the final annual report document, final copies of all tables required for submittal to DWR, and the final copy of the GSP monitoring data (Subtask 2.6) will be uploaded to the DWR SGMA portal along with the elements guide. DE will review the SGMA portal uploads for accuracy and coordinate with GSA staff to submit the annual report in a timely manner.



Task 4: Meetings and Outreach (DE-LSCE)

The development of the annual report is expected to be a collaborative process between the DE-LSCE Team and the GSAs. This task will include regular project communications and updates between GSA staff, the DE-LSCE Team project managers, and other DE-LSCE Team members, through regularly scheduled calls and meetings, as described in our scheduling approach in Section 1. This task will also include updates to the GSA Boards and TACs, as directed by GSA staff.

Concurrent with development of the draft and final annual reports (Subtasks 2.5 and 2.6), the DE-LSCE Team will prepare two presentations:

- One presentation for the GSA Boards, summarizing current groundwater conditions and updates from the annual report pertaining to GSP implementation, especially from a policy perspective.
- One presentation for stakeholders, summarizing current groundwater conditions and updates from the annual report pertaining to GSP implementation, especially pertaining to local concerns for subsidence and groundwater levels.

It is expected that two presentations, one to each Board, will be given in early March, and that two public outreach presentations will be given in late March or early April. The DE-LSCE Team will proactively work with GSA staff to schedule meetings during the chosen timeframe.

It is assumed that all four meetings will be attended in-person by the presenting members of the DE-LSCE Team.

Task 5: Project Management (DE)

This task includes:

- Project task and budget tracking
- Coordinating budgets, invoicing amongst the DE-LSCE Team
- Preparing and submitting invoices to the GSAs
- Preparing project update memos, as requested by the GSAs

Task 6: Summary of Drought Impacts (Optional) (LSCE)

DWR, in coordination with the State Water Resources Control Board (SWRCB), has developed an online mapping tool to assess areas where domestic wells are susceptible to going dry. This tool uses well completions reports, water levels from spring 2021, and the maximum five-year change in spring groundwater levels from 2011 to 2021 to estimate the dry well susceptibility. In this optional task, the DE-LSCE Team will evaluate the most recently available assessment of domestic well susceptibility in the Colusa Subbasin and prepare maps and a short summary of conditions for the GSAs' information and use. The maps and summary may be incorporated into the annual report document, public outreach presentations, or other materials, at the discretion of the GSAs.

Task 7: Annual Report Preparation and Submittal for Water Years 2023-2025 (Optional) (DE-LSCE)

LSCE and DE are prepared to commit to developing and submitting the Colusa Subbasin GSP annual reports for water years 2023 through 2025. With the efficiencies and knowledge of the Colusa Subbasin from preparation of the water year 2022 annual report, we can reduce our annual cost as outlined in the cost section. This task does not include the preparation of the five-year GSP update.



SCHEDULE

An approximate timeline is presented in Table 3 for Tasks 1-5. This schedule provides time for GSA review of the draft documents and finalization and submittal of the GSP annual report before April 1, 2023, in accordance with SGMA requirements.

Tasks	2022	2023			
	Dec	Jan	Feb	Mar	Apr
Task 1. Data Collection, Compilation, and Analysis.					
Task 2. Prepare Annual Report.					
Task 3. Annual Report Submittal.					
Task 4. Meetings and Outreach					
Task 5. Project Management					

Anticipated Milestones:

- December 2022: Awarded contract and finalize scope with GSAs.
- Week of February 27, 2023: Draft annual report delivered to GSAs for review
- Early- to Mid-March: GSA Board presentations, feedback received on draft annual report
- March 29, 2023: Annual report submittal (in advance of the April 1, 2023 deadline)
- Late March/Early April (TBD in Coordination with GSAs): Public outreach presentations

Section 3.

Cost

WATER YEAR 2022 ANNUAL REPORT (TASKS 1-5)

The cost estimate for developing, submitting, and presenting the water year 2022 annual report is summarized in Table 5 on the following page. This total includes the billing rates for each DE-LSCE Team member, their classification, and the number of proposed hours and expenses for each task and subtask. Annual hourly rate adjustments may be requested at the beginning of each calendar year without affecting the not-to-exceed contract amount.

Our cost estimate represents the level of effort to fulfill the scope of services outlined in the RFP to:

- Develop and submit the water year 2022 annual report for the Subbasin (Tasks 1-3, approximately \$48,000).
- Prepare two presentations and present at four total meetings, two at GSA Board meetings and two at public outreach meetings (Task 4, approximately \$15,000).
- Project management (Task 5, approximately \$3,000).

SUMMARY OF DROUGHT IMPACTS (TASK 6, OPTIONAL)

If optional Task 6 is selected, the DE-LSCE Team will complete this task for approximately \$4,000 (Table 5).

ANNUAL REPORT PREPARATION AND SUBMITTAL FOR WATER YEARS 2023-2025 (TASK 7, OPTIONAL)

If optional Task 7 is selected, the DE-LSCE Team is prepared to reduce the annual cost for developing, submitting, and presenting the Colusa Subbasin GSP annual report by 15% in 2023 (from the \$65,620 cost in WY 2022) with an inflation adjustment of 3% for each of the following years (Table 4). As described under Task 7 of the scope of work, these costs do not include preparation of the five-year GSP update.

Table 4. Cost Estimate for Annual Report Preparation and Submittal for Water Years 2023-2025 (Task 7, Optional)			
Water Year	2023	2024	2025
Proposed Cost (\$) (For Work Corresponding to Tasks 1-5)	\$55,800	\$57,500	\$59,200

Table 5. DE-LSCE Proposed Cost Estimate

Project Task/Subtask	Labor Costs											Labor Costs Subtotal (\$)	Current IRS Mileage (\$ / mile) Rates \$0.56	Direct Costs Subtotal (\$)	Total Cost (\$)
	DE Principal Engineer (John Davids)	DE Supervising Engineer (Jeff Davids)	DE Associate Engineer II (Brandon Ertis)	DE Associate Engineer I (Katie Klug)	DE Staff Project Assistant	LSCE Senior Principal Hydrogeologist (Vicki Kretsinger Grabert)	LSCE Principal Hydrogeologist (Eddy Teasdale)	LSCE Principal Hydrogeologist (Nick Watterson)	LSCE Project Hydrogeologist (Cab Esposito)	LSCE Staff Hydrogeologist (Andrew Francis)	LSCE Clerical				
	\$233	\$213	\$186	\$175	\$81	\$235	\$215	\$196	\$168	\$165	\$87				
Task 1 - Data Collection, Compilation, and Analysis															
1.1 Data Collection, Compilation, and Analysis.	1	1	4	8	2		1	1	6	8	2	\$5,665			\$5,665
Task 1 Subtotals	1	1	4	8	2		1	1	6	8	2	\$5,665			\$5,665
Task 2 - Prepare Annual Report															
2.1 Prepare a Description and Graphical Representation of Groundwater Elevations and Change in Groundwater Storage	2	8	10	12			2		8	4		\$8,564			\$8,564
2.2 Prepare a Description and Graphical Representation of Water Supply and Water Use	1	4	10	16			4		12	8		\$9,941			\$9,941
2.3 Prepare a Description and Graphical Representation of Subsidence Conditions							8	4	8	8		\$5,168			\$5,168
2.4 Summarize Progress Towards Implementing the GSP		4	8	12			4		8	8		\$7,964			\$7,964
2.5 Prepare Draft Annual Report	2	2	4	12	4	2	2		4	4	4	\$6,640			\$6,640
2.6 Prepare Final Annual Report	1	1	2	4	4	1	1		2	2		\$2,958			\$2,958
Task 2 Subtotals	6	19	34	56	8	3	21	4	42	34	4	\$41,235			\$41,235
Task 3 - Annual Report Submittal															
3.1 Annual Report Submittal				4	2							\$862			\$862
Task 3 Subtotals				4	2							\$862			\$862
Task 4 - Meetings and Outreach															
4.1 Meetings and Outreach	2	20	2	12		2	20	2	12			\$14,376	500	\$280	\$14,656
Task 4 Subtotals	2	20	2	12		2	20	2	12			\$14,376	\$280	\$280	\$14,656
Task 5 - Project Management															
5.1 Project Management	1	4		2	4	1	4				4	\$3,202			\$3,202
Task 5 Subtotals	1	4		2	4	1	4				4	\$3,202			\$3,202
Task 6 - Summary of Drought Impacts															
6.1 Summary of Drought Impacts							2	2	12	8		\$4,158			\$4,158
Task 6 Subtotals							2	2	12	8		\$4,158			\$4,158
Task 1-3 Totals	7	20	38	68	12	3	22	5	48	42	6	47,762			47,762
Task 1-5 Totals	10	44	40	82	16	6	46	7	60	42	10	65,340	280	280	65,620
Task 1-6 Totals	10	44	40	82	16	6	48	9	72	50	10	69,498	280	280	69,778



Dauids Engineering Copy of Standard Contract

Agreement for Professional Engineering Services

To: <Contact name>
<Contact title>
<Client name>

From: <Name>
Davids Engineering, Inc.

Date: <Date>

Project name: <Project name>

Project #: <ClientNumber.ProjectNumber>

1 Scope of Services

The services to be performed by Davids Engineering, Inc. (CONSULTANT or DE) for <Client> (CLIENT) under this AGREEMENT are set forth in Attachment A, incorporated herein by reference.

2 Compensation

CLIENT will compensate CONSULTANT on the basis of labor plus direct expenses, not to exceed <project budget in writing and number>. CONSULTANT labor will be charged according to the hourly rates listed in Attachment B. Direct expenses will be billed without markup. Vehicle and equipment usage will be charged at the rates indicated in Attachment C.

3 Other Terms

Services covered by this AGREEMENT will be performed in accordance with the PROVISIONS and any attachments or schedules, incorporated herein by reference. This AGREEMENT is binding, represents the entire agreement of CLIENT and CONSULTANT concerning the subject matter hereof, and supersedes all prior agreements and understandings and may only be changed by written amendment executed by both parties.

4 Professional Engineering Services Agreement Signatures

Approved for CLIENT

Signed: _____

Name: _____

Title: _____

Date: _____

Accepted for Davids Engineering, Inc.

Signed: _____

Name: _____

Title: _____

Date: _____

5 Provisions

1. Authorization to Proceed

Execution of this AGREEMENT by CLIENT will be authorization for CONSULTANT to proceed with the work, unless otherwise provided for in this AGREEMENT.

2. Labor Rates

CONSULTANT's Labor Rates are those hourly rates charged for work performed on the PROJECT by CONSULTANT's employees of the indicated labor classifications. These rates are subject to annual calendar year adjustments and include all allowances for salary, overheads, and fee, but do not include allowances for Direct Expenses. On-call, emergency, and/or unplanned work requested by the Client to be completed outside of normal business hours (8am to 5pm), including holidays and weekends, will be billed at 1.5 times the hourly rates listed in Attachment B.

3. Direct Expenses

CONSULTANT's direct expenses are those necessary costs and charges incurred for the PROJECT including, but not limited to: (1) the direct costs of transportation, meals and lodging, mail, sub-contractors and outside services; special CLIENT-approved PROJECT-specific insurance, letters of credit, bonds, and equipment and supplies; (2) CONSULTANT's current standard rate charges for direct use of CONSULTANT's vehicles, computing systems, printing and reproduction services.

4. Cost Opinions

Any cost opinions or PROJECT economic evaluations provided by CONSULTANT will be on a basis of experience and judgment, but, since CONSULTANT has no control over

market conditions or bidding procedures, CONSULTANT cannot warrant that bids, ultimate construction cost, or PROJECT economics will not vary from these opinions.

5. Standard of Care

The standard of care applicable to CONSULTANT services will be the degree of skill and diligence normally employed by professional engineers or consultants performing the same or similar services at the time CONSULTANT's services are performed.

6. Insurance

During the term of this AGREEMENT, CONSULTANT shall maintain worker's compensation and employer's liability insurance as required by California law and comprehensive automobile insurance and general liability insurance that provide protection for claims which may arise out of CONSULTANT's performance under this AGREEMENT. The amount of such comprehensive automobile and general liability insurance coverages shall be not less than a single limit coverage applying to bodily and personal injury liability and property damage of \$1,000,000 each occurrence and \$2,000,000 annual aggregate. CONSULTANT will maintain professional errors and omissions insurance of \$1,000,000 each occurrence and \$1,000,000 annual aggregate during the term of this AGREEMENT.

7. Termination

This AGREEMENT may be terminated by CLIENT for convenience on 30 days' written notice. CONSULTANT may terminate this AGREEMENT only upon the breach of same by CLIENT. If either party defaults in the performance of

this AGREEMENT or materially breaches any of its PROVISIONS, the non-breaching party may terminate this agreement by giving written notification to the breaching party. Termination will take effect immediately on receipt of notice by the breaching party, or five business days after mailing of notice, whichever occurs first. For purposes of this PROVISION, material breach of the AGREEMENT includes, but is not limited to: CLIENT's failure to pay CONSULTANT any compensation due as provided for in PROVISION 8; or CLIENT's or CONSULTANT's material breach of any representation or agreement contained in this AGREEMENT. On termination, CONSULTANT will immediately cease performing any further services under this AGREEMENT, and will be paid for all work performed up to the termination date plus termination expenses such as, but not limited to, reassignment of personnel, subcontract termination costs, and related closeout costs. If no notice of termination is given, relationships and obligations created by this AGREEMENT will be terminated upon completion of all applicable requirements of this AGREEMENT.

8. Payment to CONSULTANT

Monthly invoices will be issued by CONSULTANT for all work performed under this AGREEMENT. Invoices are due and payable on receipt. Interest at a rate of 1 percent per month, or that permitted by law if lesser, will be charged on all past-due amounts starting 45 days after date of invoice. Payments will first be credited to interest and then to principal. In the event of a disputed or contested billing, only that portion so contested will be withheld from payment, and the undisputed portion will be paid. CLIENT will exercise reasonableness in contesting any bill or portion thereof.

9. Indemnity

CONSULTANT shall indemnify (but not defend) CLIENT and its directors, officers, agents, and employees for and against liability or loss, including litigation costs and expenses and attorney fees, to the extent caused by the negligence or willful misconduct of CONSULTANT, or its agents, employees, or subcontractors, or of other persons for whom CONSULTANT is legally responsible, in connection with this AGREEMENT or the prosecution of work under it, except for liability or loss arising from CLIENT's willful misconduct or negligence. Indemnity shall extend to liability or loss occurring after completion of the work, as well as during the work's progress. CONSULTANT specifically agrees that this indemnification agreement includes indemnity for any claims, damages or liability for injuries (including death) incurred or sustained by CONSULTANT's own employees.

CLIENT shall indemnify CONSULTANT and its directors, officers, agents, and employees for and against liability or loss, including litigation costs and expenses and attorney

fees, to the extent caused by the negligence or willful misconduct of CLIENT, or its agents, employees, or subcontractors, or of other persons for whom CLIENT is legally responsible, in connection with this AGREEMENT or the prosecution of work under it, except for liability or loss arising from CONSULTANT's willful misconduct or negligence. Indemnity shall extend to liability or loss occurring after completion of the work, as well as during the work's progress. CLIENT specifically agrees that this indemnification agreement includes indemnity for any claims, damages or liability for injuries (including death) incurred or sustained by CLIENT's own employees.

10. Relationship of the Parties

It is mutually understood and expressly agreed that the obligations under this AGREEMENT are of an independent contractor, and not as an employee of CLIENT. Accordingly, CONSULTANT will not be eligible for any of CLIENT's employee benefits, and CLIENT will have no duty to make any deduction or withholding from the consulting fees or reimbursements.

11. No Third Party Beneficiaries

This AGREEMENT gives no rights or benefits to anyone other than CLIENT and CONSULTANT and has no third party beneficiaries. CONSULTANT's services are defined solely by the AGREEMENT, and not by any other contract or AGREEMENT that may be associated with the Project.

12. Assignments

This is a bilateral personal services AGREEMENT. Neither party shall have the power to or will assign any of the duties or rights or any claim arising out of or related to this AGREEMENT, whether arising in tort, contract or otherwise, without the written consent of the other party. Any unauthorized assignment is void and unenforceable. These conditions and the entire AGREEMENT are binding on the heirs, successors, and assigns of the parties hereto.

13. Force Majeure

Neither CONSULTANT nor CLIENT shall be liable to the other for damages or delay in performing under this AGREEMENT, or for the direct or indirect costs resulting from such delay, arising out of labor strikes, riot, public disturbances, war, fire, accidents, extraordinary weather conditions or natural catastrophes, or any other cause beyond the control of either party.

14. AGREEMENT Not Exclusive

This AGREEMENT is understood and agreed not to be exclusive as both CLIENT and CONSULTANT reserve the right to enter into arrangements for consulting services with others.

15. Limitation of Liability/Waiver of Consequential Damages

To the maximum extent permitted by law, CONSULTANT's liability to CLIENT and all other consultants, contractors and subcontractors on the PROJECT arising from CONSULTANT's negligent acts, errors and omissions or breach of this AGREEMENT shall be limited, such that the total aggregate liability of CONSULTANT to all those named shall not exceed CONSULTANT's total compensation received from CLIENT for the services rendered under this AGREEMENT. CLIENT agrees that in no instance shall CONSULTANT be responsible, in whole or in part, for the negligent errors or omissions of any other party, including other consultants or contractors. This limitation shall apply regardless of the cause of action or legal theory asserted. CLIENT and CONSULTANT waive punitive and consequential damages for claims, disputes or other matters in question arising out of or relating to this AGREEMENT, including, without limitation, rental expenses, indirect loss or damage of any kind, losses of use, income, profit, financing, business and reputation, and additional financing costs.

16. Rights in Result of Services

The results or products of CONSULTANT's services under this AGREEMENT shall be, upon full payment of the amounts owed to CONSULTANT hereunder, the property of CLIENT, including all documents (including without limitation, all writings, drawings, blueprints, pictures, recordings, computer or machine readable data, and all copies or reproductions thereof) which describe or relate to the services performed or to be performed pursuant to this AGREEMENT or the results thereof, and shall be delivered to CLIENT upon request, except for one copy, which may be retained by CONSULTANT for CONSULTANT's files. CLIENT shall defend, indemnify and hold harmless CONSULTANT from and against any claims, liabilities or losses, including litigation costs and expenses and attorneys' fees, arising out of the use of the results or products of CONSULTANT's services other than on the PROJECT.

17. CONSULTANT'S Qualifications

CONSULTANT is experienced and qualified to perform the Services and is authorized to do business in the State of California. CONSULTANT has, and shall maintain at all times it is performing the Services, sufficient facilities, expertise, staff, assets and other resources to perform its duties under this AGREEMENT. CONSULTANT holds, and shall maintain at all times it is performing the Services, all licenses, permits or other certifications necessary to perform its duties under this AGREEMENT. CONSULTANT is in compliance with and shall continue to comply with all laws that apply to it, subject to the right of reasonable contest. CONSULTANT is a corporation, duly organized, validly existing and in good standing under the laws of the State of California, and has the full right, power and authority to enter into this AGREEMENT and to perform all of the obligations and

liabilities of CONSULTANT required to be performed hereunder.

18. Hazardous Materials

CONSULTANT shall have no duty to identify, discover, handle, remove or remediate any hazardous materials or toxic substances ("Hazardous Materials") in any form. To the fullest extent permitted by law, CLIENT shall indemnify, defend and hold harmless CONSULTANT from and against any claim, defense costs, damages or liability which in any way arises out of the presence, alleged presence of, or alleged exposure to Hazardous Materials.

19. Sole Corporate Remedy

It is intended by the parties to this AGREEMENT that CONSULTANT's services in connection with the PROJECT shall not subject CONSULTANT's individual employees, officers, directors or principals to any personal legal exposure for the risks associated with this PROJECT. Therefore, and notwithstanding anything to the contrary contained herein, the CLIENT agrees that as the CLIENT's sole and exclusive remedy, any claim, demand or suit shall be directed and/or asserted only against Davids Engineering, Inc, a California corporation, and not against any of CONSULTANT's employees, officers, directors, or principals.

20. Notices

Any notices required to be given under this AGREEMENT by either party to the other may be effected by personal delivery in writing or by mail, registered or certified, postage prepaid with return receipt requested. Mailed notices must be addressed to the parties at the addresses appearing on the first page of this AGREEMENT, but either party may change the address by giving written notice in accordance with this PROVISION. Notices delivered personally will be deemed communicated as of actual receipt; mailed notices will be deemed communicated as of the day of receipt or the fifth day after mailing, whichever occurs first.

21. Governing Law/Venue

This AGREEMENT will be governed by and construed in accordance with the laws of the State of California. Venue for any dispute shall be in the county where the PROJECT is located.

22. SEVERABILITY

If any provision of this AGREEMENT is held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of this AGREEMENT is invalid or unenforceable, but that by limiting such provision, it would become valid and enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

Attachment A

Services

1 Project Overview and Objective

<Why?>

2 Project Approach

<How?>

3 Project Proposal

3.1 Scope of Services

The scope of services to be performed by Davids Engineering is organized into XX tasks as described below:

1. Task 1

3.2 Deliverables

The following deliverable(s) will be provided to <Client>:

1. Deliverable 1

3.3 Assumptions

The following assumptions were made in developing this proposal. To the extent that these assumptions do not hold true, the effort and therefore the cost and schedule required to perform the services could be affected.

1. Assumption 1

3.4 Schedule

DE proposes to complete all work by <date>. Work will progress to meet milestones on a timeline as defined in the table below. Delays in the notice to proceed from <Client> will result in corresponding delays or shifts to the subsequent milestones. Schedule implications or deviations from the milestone dates that occur during the work will be made known to <Client> as soon as practicable.

Milestone	Milestone Date
Notice to Proceed	

3.5 Cost Proposal

The estimated budget required to perform the work described above is \$#####. For budgeting purposes, a detailed subtask budget was prepared and is provided in Table #. While estimated costs are based on a detailed task-by-task buildup, actual project costs will not necessarily be tracked on a task basis nor will individual task budgets constrain charges for work performed up to the total estimated budget.

<insert budget table>

Attachment B

Labor Rate Schedule

Dauids Engineering 2022 Rate Schedule

Labor Rates (Effective January 1, 2022)

Labor Classification	Hourly Rate ¹	Labor Classification	Hourly Rate ¹
Engineering Team		Technical Team	
Senior Principal Engineer	\$246	Supervising Technician	\$163
Principal Engineer	\$233	Senior Technician	\$150
Supervising Engineer	\$213	Associate Technician II	\$142
Senior Engineer	\$195	Associate Technician I	\$134
Associate Engineer II	\$186	Staff Technician II	\$126
Associate Engineer I	\$175	Staff Technician I	\$116
Staff Engineer II	\$164	Assistant Technician II	\$99
Staff Engineer I	\$151	Assistant Technician I	\$85
Assistant Engineer II	\$129	Intern Team	
Assistant Engineer I	\$111	Intern II	\$72
Data Science Team		Intern I	\$50
Supervising Data Scientist	\$192	Client Intern ³	\$28
Senior Data Scientist	\$176	Support Team	
Associate Data Scientist II	\$167	Senior Project Assistant	\$105
Associate Data Scientist I	\$158	Associate Project Assistant	\$94
Staff Data Scientist II	\$148	Staff Project Assistant	\$81
Staff Data Scientist I	\$136	Other	
Assistant Scientist II	\$116	Expert Witness	Market Rate ²
Assistant Scientist I	\$100	Strategic Advisor	Market Rate ²

Notes:

¹ Labor and equipment rates are subject to revision at the beginning of each calendar year.

² Market rates subject to negotiation.

³ DE team member working under direct client supervision.

Attachment C

Equipment Rate Schedule

Davids Engineering 2022 Rate Schedule

Vehicle, Equipment, and Material Rates (Effective January 1, 2022)

Item	Rate ¹
Current IRS Mileage (\$ / mile)	\$0.585
Field Vehicle (4 x 4) (\$ / mile)	\$1.00
Meals (\$ / person / day)	\$40.00
Hotel (\$ / person / day)	\$120.00
SonTek RiverSurveyor Acoustic Doppler Current Profiler (ADCP) (\$ / day)	\$285.00
EMLID Real Time Kinematic (RTK) Survey (\$ / day)	\$175.00
Fuji Portaflow Transit Time (\$ / day)	\$75.00
SonTek FlowTracker Acoustic Doppler Velocimeter (ADV) (\$ / day)	\$100.00
Pressure Transducer (\$ / month)	\$75.00
Color Plotter (\$ / square foot)	\$7.00
Monitoring and control equipment and materials (\$ / item)	Unit Costs

Notes:

¹ Labor and equipment rates are subject to revision at the beginning of each calendar year.



Appendix A

Team Resumes

- Jeff Davids, PHD, PE
- John Davids, PE
- Katie Klug, PHD, EIT
- Brandon Ertis, PE
- Eddy Teasdale, PG, CHG
- Vicki Kretsinger Grabert, PH-GW
- Cab Esposito, GIT
- Nick Watterson, PG, CHG
- Andrew Francis, GIT

Education

Ph.D., Civil Engineering,
Water Management, Delft
University of Technology,
Delft, Netherlands

M.S., Hydrology and
Hydrogeology, Graduation
with Distinction, California
State University, Chico, CA,
USA

B.Sc., General Engineering,
California Polytechnic State
University, San Luis Obispo,
CA, USA

Registration

Civil Engineer, CA
No. C75656

Years of Experience:

15 Years

Distinguishing Qualifications

- Innovative methods for measurement of hydrologic fluxes (e.g. remote sensing and citizen science)
- Stakeholder capacity building and communication of complex materials to diverse audiences
- Hydrologic data analytics, database development, quality control, and visualization

Summary

Dr. Davids's keenness for water resources and food production blossomed amongst the vast agricultural lands of California's Great Central Valley and pristine streams of the Sierra Nevada Mountains. His educational background, broad consulting experience, and dedication to the development of human resources from diverse backgrounds demonstrate his commitment to improved and sustainable management of the Earth's limited natural resources through appropriate applications of engineering and technology, education, and research. Dr. Davids is a licensed Professional Engineer (PE) in the State of California, and has a Ph.D. in Civil Engineering (Water Management) from Delft University of Technology, an M.Sc. from California State University Chico in Geosciences and Hydrogeology, and a B.Sc. in General Engineering from California State University San Luis Obispo. His interest and experience focus on how sustainable management of water, energy, and food are supported by innovative sources of data (e.g., low-cost sensors, remote sensing, citizen science), education, integrated systems thinking, modeling tools, social engagement, storytelling, and outreach. He has consulted for a variety of water managers and suppliers (local, state, and federal) in all the major irrigated regions of California, including the Imperial, San Joaquin, Sacramento, and Shasta Valleys. Dr. Davids also consults for the UN Food and Agriculture Organization (FAO) in Afghanistan, Myanmar, and China, along with various clients in Nepal, Ghana, Thailand, and the Netherlands. He has managed diverse international teams and large projects, including the design, installation, calibration, and maintenance of several large flow measurement and data acquisition networks in the US and abroad.

Relevant Experience

Madera County Groundwater Sustainability Agency Allocation Program Implementation Support. Madera County GSA, Madera County, CA. Dr. Davids developed accounting methodology, implementation logic, and data management protocols and procedures in coordination with County staff to administer Madera County's groundwater allocation resolutions. This work included the conceptual development and Python coding for monthly groundwater allocation reports including tabular summaries, mapping, and data visualizations (e.g., histograms). Dr. Davids worked with team of remote sensing experts (IrriWatch) to develop an online platform for growers to view and interact with crop evapotranspiration data and groundwater allocations.

Water Accounting Training and Implementation. Food and Agriculture Organization of the United Nations (UN-FAO), Afghanistan and Myanmar. Dr. Davids served as the development team member for open-source pixel based water balance software called Scalable Water balances from Earth Observations (SWEQ). Additionally, Dr. Davids was the lead author for the development of comprehensive

curricula for water accounting training including packages on: the water cycle; water balances; agricultural water use; environmental data acquisition; spatial and temporal domains; fluxes and changes in storage; geographical information systems (GIS); remote sensing (RS); hydrological modeling; green, blue, and grey water; crop physiology and transpiration processes; crop yields; consumptive vs. non-consumptive water uses; water productivity; climate change; Water Accounting Plus (WA+); interpretation of WA+ fact sheets; UN sustainable development goals; and development of appropriate water sector intervention packages. This included leading a diverse teaching team of international specialists from the Netherlands, Nepal, Thailand, UK, Afghanistan, the US, and the UAE. Water accounting training packages were implemented via an eight series training for 30 water resources specialists from three different Afghan water related ministries and a three series training for 25 water managers and researchers in Myanmar.

Buena Vista Water Storage District Historical Irrigation Water Demand Analysis. Downey Brand, Kern County, CA. Dr. Davids led the analysis of historical (i.e., 1885 through 2019) land use and associated consumptive water use within the current Buena Vista Water Storage District (BVWSD) service area. Dr. Davids developed Python code to perform a

pixel-based analysis of consumptive use. This included creation of a PRISM-based reference evapotranspiration (ET_o) time series from pixel-based temperature and relative humidity data spanning from 1895 through 2019. Dr. Davids testified before the Administrative Hearings Office (AHO) of the California State Water Resources Control Board.

Teaching Spatial Hydrology, Irrigation, GIS and Remote Sensing, and Water Resources Engineering. California State University, Chico, Butte County, CA. Dr. Davids served as an assistant professor for three years, and is currently an adjunct professor, with the California State University, Chico. During his time at Chico State, Dr. Davids developed new curriculum and taught courses on Spatial Hydrology (CIVL 564), Water Resources Engineering (CIVL 461), GPS and GIS in Agriculture and Natural Resource Management (AGET 340), and Irrigation (AGET 360). During this time, he also continued research on the applications of citizen science in water resources management and agriculture. Dr. Davids secured \$1 million in funding from the U.S. Bureau of Reclamation (USBR) for the Irrigation Training Facility at the California State University, Chico Farm, and two grants from the California Agricultural Research Initiative (ARI) related to monitoring of the soil-plant-water-atmosphere continuum and using videos to measure surface flows in stream and canals.

Consumptive Use Analysis on Shallowly Flooded Rice Fields. The Nature Conservancy, Yolo and Colusa Counties. Dr. Davids led the implementation of eddy covariance (EC) and remote sensing methods for quantifying incremental evapotranspiration from brief shallow flooding of fallowed rice fields. This included the comparison of evapotranspiration results from eddy covariance measurements, simplified surface renewal, and remote sensing to determine strengths and weaknesses of each approach. Dr. Davids developed recommendations to the California Department of Water Resources (DWR) for policies on transferable water for re-flooded rice fields.

Flow Measurement Improvement Projects. Reclamation District No. 108, Colusa County, CA. Since 2008, Dr. Davids has worked with Reclamation District No. 108 to improve their flow measurement, data management, and decision support systems. This work has included drain pump calibrations, testing of alternative turnout flow measurement options, training of water system operators, database development, and development of a wireless acoustic doppler flow measurement device. Dr. Davids led the pilot testing of alternative measurement methods that were potentially capable of achieving heightening regulatory standards, including: existing orifice gates, weirs set in precast boxes, and a recently introduced portable acoustic Doppler flow measurement device. The pilot program included (1) customization of the portable measurement device for District needs, (2) selection and inventory of a test reach, (3) calibration of upstream and downstream measurement devices, (4) development of an automated data transfer process and (5) development of a Water Information System for water accounting and billing.

Flow Measurement Plan Development and Implementation. South San Joaquin Irrigation District, San Joaquin County, CA. Dr. Davids supported the development and implementation of a Flow Measurement Plan (Plan) for the South San Joaquin Irrigation District (SSJID). The goals of the Plan are (1) to provide cost-effective service to customers; (2) generate improved operational records for planning and analysis, and; (3) comply with recently passed California legislation (SBx7-7). As part of this effort, Dr. Davids has designed a range of flow measurement methodologies and site improvements for SSJID involving standard critical depth structures (e.g. flumes and weirs) and acoustic Doppler flow measurement devices. Dr. Davids also participated in the field testing of acoustic Doppler devices.

Drain and Turnout Flow Measurement. Glenn-Colusa Irrigation District, Glenn and Colusa Counties, CA. Dr. Davids designed flow measurement methodology and improvement plans for 12 drain flow measurement sites around the low gradient borders of Glenn-Colusa Irrigation District. Key tasks included selecting appropriate measurement sites, performing detailed hydraulic calculations necessary for the design of the various flow measurement structures, creating conceptual designs, and developing specifications for measurement equipment and materials needed at the various measurement sites.

Glenn-Colusa Irrigation District, Princeton-Codora-Glenn Irrigation District, Provident Irrigation District, Natomas Central Mutual Water Company, Richvale Irrigation District, Biggs-West Gridley Water District, and Western Canal Water District Turnout Flow Measurement Program Piloting and Implementation. Reclamation District No. 108, Glenn, Yolo, Colusa, Butte, and Sacramento Counties, CA. Dr. Davids led the development, piloting, implementation of an innovative turnout flow measurement solution for the irrigation which is now in use on over 150,000 acres. Dr. Davids has conducted various training sessions with district operators in the basics of open channel flow measurement, critical flow devices, and hydroacoustics. For each district, Dr. Davids has inventoried district distribution systems, established standardized naming conventions, pilot tested alternative measurement devices, selected preferred measurement alternatives, and developed custom database applications for quality controlling and managing turnout flow data.

Education

B.S., BioResource and Agricultural Engineering, California Polytechnic University, San Luis Obispo

Registration

Civil Engineer, CA (No. C73036)

Years of Experience:

20 Years

Distinguishing Qualifications

- Building and fostering relationships with stakeholders and outside agencies and representatives to deliver best possible professional solutions.
- Proficient at coordinating multi-disciplinary projects, communicating changes and progress and completing projects on time and within budget.
- Aptitude to navigate dynamic regulatory and legislative climate.

Summary

Mr. Davids joined DE in June of 2021 and currently serves as a Principal Engineer, working across all three of DE's solutions – Water, Infrastructure, and Technology. John has 20 years of progressive experience in public policy, FERC relicensing, water resources master planning, irrigation system modernization, permitting, design, construction, and groundwater management. Mr. Davids is an active member of the United States Committee on Irrigation and Drainage, past member of the Association of California Water Agencies Groundwater Committee and Agriculture Committee, past Chair of the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, and past member of the Oakdale Rotary Club where he served as the Sergeant at Arms.

Prior to joining DE, Mr. Davids worked for Modesto Irrigation District (MID) as one of their Assistant General Managers overseeing MID's Water Operations (ag water and domestic water), Federal Energy Regulatory Commission (FERC) relicensing of Don Pedro Reservoir, Voluntary Agreement negotiations with the State of California related to Phase I of the Bay-Delta Water Quality Control Plan and Chair of the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency. From 2004 to 2013, Mr. Davids managed Oakdale Irrigation District's (OID) Engineering Department coordinating all department functions including, subdivision/parcel map review, California Environmental Quality Act (CEQA) compliance, master planning and capital project design. Prior to OID, from 2002 to 2004, Mr. Davids worked for a large international consulting firm, working on a wide variety of water resources projects in the Western United States including projects for irrigation districts, various municipalities and the Los Angeles Department of Water and Power.

Relevant Experience

Chowchilla Subbasin Groundwater Sustainability Plan Revisions. Chowchilla Water District, Chowchilla, CA. Mr Davids served as Team Leader of a multi-firm and multi-disciplinary team of professionals assembled to revise the Chowchilla Subbasin GSP submitted in January of 2020 consistent with the three deficiencies identified by the Department of Water Resources. The three deficiencies identified were related to groundwater levels, subsidence, and interconnected surface water. As part of the revised GSP, Mr. Davids led development of a Domestic Well Mitigation Memorandum of

Understanding among the four GSAs, which led to establishment of a Domestic Well Mitigation Program for the Chowchilla Subbasin.

Madera County Recharge Study. County of Madera, Madera, CA. Mr. Davids is serving as Team Leader of a multi-firm and multi-disciplinary team of professional and has successfully expedited the preliminary development of 10 recharge projects – 5 in the Chowchilla Subbasin and 5 in the Madera Subbasin. In general, the projects include a mix of dedicated recharge basins and Flood-MAR and range in total recharge capacity at full build-out from 8,000 acre-feet (AF)/year to nearly 30,000 AF/year. Collectively, the total recharge potential in wet years is approximately 80,000 AF in the Chowchilla Subbasin and nearly 116,000 AF in the Madera Subbasin.

Madera/Chowchilla Recharge Projects, County of Madera, Madera, CA. Mr. Davids is serving as Team Leader of a multi-firm and multi-disciplinary team of professionals designing, permitting, and constructing recharge projects in both the Madera and Chowchilla Subbasin. To date, both projects are approaching 60% design and construction is expected to commence during the first quarter of 2023. Collectively, the projects will be designed to have a recharge capacity of approximately 19,000 AF per year when flood flows are available. Completion of the projects is being funded by a grant from the Department of Water Resources (DWR) and a local cost share. DE prepared the successful grant applications for these two projects.

Non-District East Groundwater Recharge Project Development and Ranking, L.F. Brichetto, Oakdale, CA. In an effort to prepare for upcoming grant funding opportunities and on behalf of approximately 15,000 acres of privately developed agricultural in the white area of the Modesto Subbasin, Mr. Davids is leading the DE Team tasked with

completing a Groundwater Recharge Project Development and Ranking Project. Tasks for this project include acquisition of GIS data, completion and distribution of a recharge survey interest form, completion of GIS base mapping, completion of a recharge suitability analysis, water supply negotiations, and conceptual project development and ranking. A ranking of the projects developed will serve as a “menu” of recharge options as funding becomes available. It is contemplated that further design, environmental permitting, construction management, and monitoring and assessment will be performed as part of subsequent work activities following successful grant award.

Measurement Consulting Services, County of Madera, Madera, CA. Mr. Davids currently serves in an on-call capacity at the direction of the General Manager on a variety of ongoing strategic projects. Mr. Davids provides professional services related to Phase I of the Bay-Delta Water Quality Control Plan, SGMA, and FERC relicensing of the Don Pedro Project.

Assistant General Manager, Water Operations, Modesto Irrigation District, Modesto, CA. As Assistant General Manager, it was Mr. Davids’ responsibility to plan, organize, direct and review the activities and operations of the Water Operations Division including civil engineering, water use, planning and conservation, irrigation services, construction management, domestic water operations, and to coordinate assigned activities with other divisions and outside agencies and provide highly responsible and complex administration support to the General Manager and the Board of Directors. Mr. Davids was responsible for transparent development and implementation of the Water Operations Division annual budget – approximately \$40M (2020).

District Engineer, Oakdale Irrigation District, Oakdale, CA. As District Engineer, it was Mr. Davids’ responsibility to manage and direct all Engineering Department activities. During Mr. Davids decade at Oakdale Irrigation District, Mr. Davids lead the implementation of the Comprehensive Water Resources Plan and the subsequent design and construction of over \$50M in capital improvements.

Representative Projects

- Don Pedro and La Grange Federal Energy Regulatory Commission Relicensing and Licensing, Modesto Irrigation District
- Main Canal Regulating Reservoir, Modesto Irrigation District
- Water Operations Cost of Service Model, Modesto Irrigation District
- Development and implementation of volumetric billing, Modesto Irrigation District
- Development and implementation of special drought programs and drought surcharge, Modesto Irrigation District
- Creation, development and implementation of Water Resources Planning Department, Modesto Irrigation District
- Annual revisions to Rules and Regulations Governing the Distribution of Irrigation Water with the Modesto Irrigation District, Modesto Irrigation District
- 2015/2020 Agricultural Water Management Plans, Modesto Irrigation District
- Successful introduction and use of new aquatic herbicides in irrigation conveyance infrastructure, Modesto Irrigation District
- Modesto Regional Water Treatment Plant Phase II construction activities, contract closeout and commissioning, Modesto Irrigation District
- Oral testimony to State Water Resources Control Board at December 20, 2016 public hearing regarding revisions to the Water Quality Control for the Bay-Delta, Modesto Irrigation District
- Successful coordination and operation of 2017 flood management operations, Modesto Irrigation District
- Development and implementation of 2017, 2018 and 2019 Groundwater Replenishment Plan, Modesto Irrigation District (1st place award in the 2020 CMUA Resource Efficiency & Community Service Awards)
- Creation of Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency, Modesto Irrigation District
- Successful good faith negotiation of Tuolumne River Voluntary Agreement, Modesto Irrigation District
- Settlement Agreement with the U.S. Bureau of Land Management regarding Don Pedro Relicensing, Modesto Irrigation District
- Revised 10(j) conditions with U.S. Fish and Wildlife Service regarding Don Pedro Relicensing, Modesto Irrigation District
- Memorandum of Understanding with U.S. Fish and Wildlife Service regarding early implementation of habitat improvement projects on the Lower Tuolumne River, Modesto Irrigation District
- Water Resources Plan, Oakdale Irrigation District
- North Side Regulating Reservoir, Oakdale Irrigation District (2009 ASCE Project of Merit)

JOHN B. DAVIDS, P.E.

- Honolulu Bar Habitat Restoration Project on the Stanislaus River, Oakdale Irrigation District
- Cashman Dam Rehabilitation Project, Oakdale Irrigation District
- Little Johns Creek Diversion, Oakdale Irrigation District
- Fairbanks Crossing at South San Joaquin Irrigation District, Oakdale Irrigation District
- 2012 Standard Details, Oakdale Irrigation District
- System-wide GIS Mapping, Oakdale Irrigation District
- Numerous automation projects, Oakdale Irrigation District
- Numerous flow measurement projects, Oakdale Irrigation District
- Numerous pipeline replacement projects, Oakdale Irrigation District
- Numerous canal rehabilitation projects, Oakdale Irrigation District
- Total Channel Control Pilot Program, Oakdale Irrigation District
- 2012 Agricultural Water Management Plan (SBx7-7 Measurement and Volumetric Billing Sections), Oakdale Irrigation District
- Glenn Colusa, Canal Enlargement Study, CH2MHill (now Jacobs)
- Orland Unit, Modernization Analysis, CH2MHill (now Jacobs)
- L.A. Department of Water and Power, Owens Lake Mitigation Project, CH2MHill (now Jacobs)

Education

Ph.D., Agricultural & Biosystems Engineering, University of Arizona

B.S., Biosystems Engineering, University of Arizona

Years of Experience:

4 Years

Distinguishing Qualifications

- Wide-ranging experience supporting groundwater sustainability and recharge planning efforts, from field-level to subbasin-level.
- Authored various planning documents, grant applications, and technical reports for diverse audiences and clients.
- Instrumental in Groundwater Sustainability Plan (GSP) development and/or implementation for twelve (12) subbasins, including the Colusa Subbasin.

Summary

Dr. Klug is an associate engineer with a strong background in supporting collaborative water and groundwater management planning efforts, including those with a foundational modeling component. Since joining Davids Engineering in early 2018, she has been instrumental in completing all aspects of various Water Management Plans (WMPs), Agricultural Water Management Plans (AWMPs) and Groundwater Sustainability Plans (GSPs) for water districts and public agencies in California's Central Valley. Dr. Klug has also led or supported documentation efforts and modeling analyses for other major plans and studies in California and the Southwestern United States.

Relevant Experience

SGMA GSP Development, Multiple Locations, CA. Since 2018, Dr. Klug has contributed in varying capacities to Groundwater Sustainability Plan (GSP) development – including development, analysis, and documentation of recharge projects – in multiple subbasins across the Sacramento and San Joaquin Valleys (including Antelope, Bowman, Butte, Chowchilla, Colusa, Corning, Los Molinos, Madera, Red Bluff, Solano, Sutter, and Turlock subbasins in the Sacramento and San Joaquin Valleys. These subbasins are considered high- or medium-priority according to the SGMA 2019 Basin Prioritization, and were required to complete, adopt, and submit a GSP by January 2022.

Dr. Klug's contributions to GSP development have generally included one or more of the following: developing, documenting, and evaluating projects and management actions to support sustainable water management, including numerous groundwater recharge projects; preparing model inputs to characterize historical, current, and future water demand; developing and analyzing district-level, subregion-level, and subbasin-level water budgets and model results summaries; preparing GSP documentation; and/or presenting various sections of the GSPs and related findings to GSA representatives and stakeholders. Dr. Klug has communicated directly with GSA

representatives and stakeholders, presenting and discussing presentation materials to make certain that subbasin conditions and input from stakeholders are accurately represented.

Since January 2022, Dr. Klug is also supporting development of annual reports, updates to water demand-related model inputs and/or water budget components, implementation and tracking of projects and management actions, and other efforts to support GSP implementation in the majority of these subbasins.

SGMA Implementation, Madera County, Madera, CA. Since 2018, Dr. Klug has supported SGMA Groundwater Sustainability Plan (GSP) development and implementation in the Chowchilla and Madera Subbasins in Madera County. Both subbasins are considered critically overdrafted, and were required to complete, adopt, and submit GSPs by January 2020. Her key contributions to these efforts include: evaluating and documenting projects and management actions, including recharge projects; developing historical and current water budgets; and preparing select sections of the draft and final GSP documentation. Since 2020, Dr. Klug has also supported annual reporting, ongoing water budget development, implementation and tracking of projects and management actions, and other efforts to support GSP implementation among various GSAs in the Chowchilla and Madera Subbasins. In 2019-2021, Dr. Klug supported the development of four successful grant applications to fund prioritization, development, and construction of groundwater recharge projects.

Guidance for Multi-Benefit Recharge Project Analyses and Reporting, The Nature Conservancy. In 2021, Dr. Klug supported The Nature Conservancy (TNC) in creating a guidance document for Groundwater Sustainability Agencies (GSAs) to facilitate consistent and accurate reporting of multi-benefit recharge projects in their Groundwater Sustainability Plans (GSPs). Through a collaborative process, Dr. Klug synthesized findings from TNC's Colusa Demonstration Multi-Benefit Recharge Project to create a process for other agencies to implement and quantify the recharge benefits of their own multi-benefit recharge projects. Guidance provided by this project was used to inform development and documentation of multi-benefit recharge projects in multiple subbasins in the Sacramento and San Joaquin Valleys.

Agricultural Water Management Planning, Turlock Irrigation District and South San Joaquin Irrigation District, CA. In 2020-2021, Dr. Klug prepared Agricultural Water Management Plans (AWMPs) for submittal to the California Department of Water Resources in separate projects for the Turlock Irrigation District (TID) and the South San Joaquin Irrigation District (SSJID). Each effort included updating the district's system-wide water budget; communicating with district staff to identify recent projects and efforts to implement Efficient Water Management Practices (EWMPs); and preparing reports for District staff and for submittal to DWR. The water budget updates involved quantifying agricultural water demand and water use using a daily root zone water balance model on the basis of cropping, soil characteristics, weather (evaporative demand and precipitation), and crop coefficients developed from remotely-sensed surface energy balance results. Besides supporting the AWMP, these results also provide a technical basis for district policies and help to identify water conservation opportunities.

Water Management Planning and Water Budget Development, Stockton East Water District, Stockton, CA. In 2019, Dr. Klug served as the primary project engineer and point of contact for development of the Stockton East Water District (SEWD) 2019 Water Management Plan (WMP). In this project, Dr. Klug managed communication between Davids Engineering and SEWD to identify all data, relevant project information, and changes to the District's conveyance system, infrastructure, and operating practices between 2010 and 2019. She then integrated this information to narrate the District's implementation of Agricultural and Urban Best Management Practices (BMPs) over the past decade, and to quantify the SEWD system water budget. The water budget updates involved quantifying agricultural water demand and water use using a daily root zone water balance model on the basis of cropping, soil characteristics, weather (evaporative demand and precipitation), and crop coefficients developed from remotely-sensed surface energy balance results. Dr. Klug led a workshop at SEWD to discuss these efforts, and prepared a final WMP document to SEWD for submittal to the U.S. Bureau of Reclamation.

Agricultural Water Consumptive Use Determination, New Mexico Interstate Stream Commission. In 2018-2020, Dr. Klug supported the analyses to determine agricultural water consumptive use for the lands irrigated along the Rio Grande in New Mexico and Texas by the Rio Grande Project. Her contributions to these efforts included documentation and reporting of all technical analyses, including calculation of reference ET, development of crop coefficients from remotely sensed energy balance analyses, and the application of the ET Demands root zone model to parse crop ET into ET of applied water and ET of precipitation. The reports on these technical analyses were in used in the matter of: *State of Texas v. State of New Mexico and State of Colorado* No. 141, Original Before the United States Supreme Court.

Irrigation Facilities Master Plan, Turlock Irrigation District, Turlock, CA. In 2018-2019, Dr. Klug supported development of the Turlock Irrigation District (TID) Irrigation Facilities Master Plan (IFMP). The IFMP was developed in coordination with TID to identify and evaluate modernization projects for the District's water distribution infrastructure. Projects proposed in the IFMP were designed to modernize TID's infrastructure with the intent of allowing growers to adopt more efficient and productive on-farm irrigation systems, leading to increased water conservation over time as well as increased farm profitability. In her many contributions to this effort, Dr. Klug prepared and/or documented: analyses of existing service levels in the District; descriptions and evaluations of 15 potential modernization projects; systematic analyses and comparisons of project benefits; evaluation of synergistic multi-project packages; and project implantation strategies. Dr. Klug's efforts and participation in meetings with District staff contributed to the creation of more than 50 work products, including technical memoranda, spreadsheets, databases, design drawings, presentations, workshop notes, and other items.

Water Management Planning and Water Budget Development, Solano Irrigation District, Vacaville, CA. In 2018-2019, Dr. Klug prepared the Solano Irrigation District (SID) Water Management Plan (WMP) for submittal the U.S. Bureau of Reclamation. Concurrent with these efforts, Dr. Klug also prepared supporting materials to complete the 2020 Agricultural Water Management Plan (AWMP) for submittal to the California Department of Water Resources. These efforts included drafting and/or editing all document text; communicating with SID staff to identify the district's efforts to implement Best Management Practices (BMPs) and Efficient Water Management Practices (EWMPs); and updating the SID system-wide water budget. The water budget updates involved quantifying agricultural water demand and water use using a daily root zone water balance model on the basis of cropping, soil characteristics, weather (evaporative demand and precipitation), and crop coefficients developed from remotely-sensed surface energy balance results. Besides supporting the AWMP and WMP, these results also provide a technical basis for SID to consider water allocation and annexation policies and to identify water conservation opportunities.

Education

M.S., Environmental Science, California State University, Chico, CA.

B.S., Civil Engineering, University of California, Davis, CA.

Registration

Civil Engineer, California (No. C84037)

Years of Experience:

10 Years

Distinguishing Qualifications

- Authored and assisted with various major plans and technical reports, including multiple related to water supply and groundwater sustainability
- Assembly and analysis of historical land and water use data for water budget development
- Geographic Information Systems – mapping and spatial analyses

Experience Summary

Mr. Ertis has provided a variety of water and environmental management services to clients in California for over 10 years. These services include environmental data acquisition; designing and completing detailed water budgets; utilizing GIS techniques for a variety of mapping and spatial analysis procedures and processes; development of water management tools for agricultural water suppliers (including tool design, implementation and staff training, and ongoing support); presenting technical information orally to stakeholders and the public, and preparation of technical reports and documents. He has been involved in dozens of successful projects for a variety of clients

Relevant Experience

El Dorado County Agricultural Development Feasibility Assessment, El Dorado County Water Agency, El Dorado County, CA. The El Dorado County Water Agency (EDCWA) engaged Davids Engineering and ERA Economics to complete an agricultural development feasibility assessment by developing baseline data regarding historical cropping trends, spatial distribution of crops, and irrigation practices and evaluating historical, current, and projected future cropping and water demands within El Dorado County. This effort informs an evaluation of the feasibility of developing additional water supplies to expand irrigated agriculture in the County. Mr. Ertis assisted in this project through assembly and evaluation of datasets (including assembly and review of inputs for and results of the water demand model), developing maps and completing spatial analyses in GIS, drafting sections of the report, and presenting project results to an Agricultural Advisory Group comprised of local stakeholders formed to provide feedback and inform the feasibility assessment process.

Feather River Regional Agricultural Water Management Plan, Northern California Water Association, Sacramento, CA. The Northern California Water Association (NCWA) engaged Davids Engineering to develop the Feather River Regional Agricultural Water Management Plan (FRRAWMP). A detailed plan for the 470,000 acre region was developed, including extensive consultation with nine water suppliers, several refuge and wildlife area managers, and representatives of Butte County and the California Department of Water Resources. The FRRAWMP includes a detailed inventory of surface water and groundwater supplies and uses and, through multiple water budget analyses spanning

scales of individual suppliers to the region as a whole, characterizes the interaction between surface water and underlying groundwater systems in the region. Mr. Ertis was involved for the duration of the project in a supporting role, developing maps and completing spatial analyses in GIS, assembling supplier infrastructure inventories, identifying potential system improvement projects, preparing conceptual cost estimates for improvement projects, assisting in the preparation and calculation of water balances, drafting sections of the report, analyzing datasets, and meeting with agricultural water suppliers in the region. Mr. Ertis has also led state-mandated periodic updates to AWMPs for individual water suppliers included in the FRRAWMP region.

Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plan (GSP) Development, Multiple Locations, CA. Mr. Ertis has both assisted and led multiple components of Groundwater Sustainability Plan (GSP) development in multiple groundwater basins in California including the Madera, Chowchilla, Solano, Colusa, Corning, and Butte Subbasins. His contributions include preparing draft and final GSP documentation, preparing draft and final Annual Report documentation, reviewing and editing all GSP documentation to ensure SGMA compliance; reviewing and responding to public comments, developing water budgets, evaluating sustainable management criteria, evaluating projects and management actions, development of maps and figures, preparing and presenting information to stakeholders and the public, and participation in coordination and meetings.

Groundwater Risk Assessment, Tehama County, CA. Mr. Ertis assisted in a high level risk assessment of SGMA undesirable results, assessing localized groundwater declines, subsidence risks, overdraft, and impacts due to climate change. He prepared maps and figures for public presentation showing historical and recent trends in groundwater conditions using publicly available information provided by state and local agencies.

Water Budget Development and Water Management Planning Oakdale Irrigation District, Oakdale, CA. Mr. Ertis prepared the 2020 Agricultural Water Management Plan (AWMP) update for submittal to the California Department of Water Resources. This preparation included drafting and/or editing all document text; communicating with OID staff to identify District efforts to implement Efficient Water Management Practices (EWMPs); and updating the OID system-wide water budget. The water budget updates involved quantifying agricultural water demand and water use using a daily root zone water balance model on the basis of cropping, soil characteristics, weather (evaporative demand and precipitation), and crop coefficients developed from remotely-sensed surface energy balance results. In addition to meeting state-mandated requirements, the AWMP is used by OID to review the ongoing implementation of their Water Resources Plan.

Colusa and Yolo Counties In-Lieu Groundwater Recharge Investigation, Reclamation District No. 108, Grimes, CA. Mr. Ertis assisted with an analysis of the potential to use RD108 surplus water, when available, to supplement available water supplies in Colusa County Water District and in Dunnigan Water District (Yolo County). An operations model spanning a 65-year planning horizon quantifying water demands, water supplies, and associated costs was developed that simulated the purchase of water by growers in each district. Mr. Ertis assisted in the project effort with data analysis and development of maps and figures using GIS and other software. Based on the model results, the parties have moved forward with a multi-year water transfer pilot program to test the water transfer concept and terms.

Implementation of Delivery Measurement, Data Management and Accounting, and Volumetric Billing, Reclamation District No. 108 (RD108), Richvale Irrigation District (RID), Biggs-West Gridley Water District (BWGWD), Western Canal Water District (WCWD), Butte, Colusa, Glenn, and Sutter Counties, CA. According to California Water Code Section 597 (CWC §597), agricultural water providers over 25,000 acres are required to measure the volume of water delivered to customers with sufficient accuracy to: (1) report aggregated farm-gate delivery data to the state and (2) adopt a pricing structure based at least in part on the volume of water delivered to each field. Mr. Ertis performed surveys of farm-gate deliveries to evaluate existing conditions, assisted in an effort to test alternative measurement methods that are potentially capable of satisfying the accuracy requirements of CWC §597 by performing flow measurements and data acquisition in the field and completing a water balance using different measurement methods on a specific canal reach, processing and analyzing datasets, and developing a report detailing existing conditions and presenting various options of improving flow measurement in order to comply with the accuracy standards presented in CWC §597.

Following this effort, Mr. Ertis has both assisted and led aspects of the development and implementation of a customer delivery measurement program that will satisfy the requirements of CWC §597. This included design and development of customer delivery measurement and water management tools used by district staff to record and manage deliveries and volumetric billing, development of a districtwide inventory and accounting database, implementation of tools and training with district staff members, and ongoing support for the customer delivery measurement program.

Agricultural Water Management Plan and Measurement Improvement Plan Development and Implementation, Yuba Water Agency, Yuba County, CA. Mr. Ertis assisted with development of the original Agricultural Water Management Plan (AWMP) for the YWA and led preparation of the 2020 AWMP update for submittal to the California Department of Water Resources. This preparation included drafting and/or editing document text; communicating with YWA staff to identify Agency efforts to implement Efficient Water Management Practices (EWMPs); and updating the YWA system-wide water budget (which included quantification of water demand and use).

The Yuba Water Agency (YWA) also moved forward to implement measures described in the Agency's Agricultural Water Measurement Plan (AWMP). This effort included the installation of multiple permanent flow measurement stations and the construction of conveyance system infrastructure. Mr. Ertis led the surveying and design of infrastructure improvements, participated in measurement station installations, and contributed to the construction management and inspection of the new infrastructure. Mr. Ertis also performed discharge measurements for velocity indexing purposes.



EDDY TEASDALE, PG, CHG

Principal Hydrogeologist

Title

Principal Hydrogeologist

Years of Experience

24

Education

MS, Hydrogeology, University of Idaho, Moscow

BS, Geology, University of Texas, Arlington

Professional Registrations

Professional Geologist
CA No. 7791; ID No. 1561

Certified Hydrogeologist
CA No. No. 926

Professional Affiliations

- California Groundwater Resources Association
- Butte County Well Drillers Advisory Group

Eddy Teasdale has over 24 years of experience working on geological and hydrogeological investigations in the United States and internationally. Projects have involved complex, comprehensive geology, hydrogeology, conveyance, flood control, and environmental issues. He has worked in all major aquifer types (alluvial basins, volcanic, carbonate and bedrock terrains). Eddy is an experienced project manager who has successfully managed large, complex projects. He has extensive experience in writing technical reports and working with local, state, and federal regulatory agencies including presenting project information and resolving project issues.

Eddy’s primary areas of technical expertise are in hydrogeologic characterization and groundwater modeling. He is the current President of the North Sacramento Valley Groundwater Resources Association and is a member on the technical advisory committee for the Butte County Well Drillers Advisory Group.

EXPERIENCE

GSP/SGMA EXPERIENCE

Groundwater Sustainability Plan, Tehama County Flood Control and Water Conservation District, Tehama County: Led the development of 4 GSPs for the Bowman, Antelope, Los Molinos and Red Bluff Subbasins, including the technical work on the GSP chapters related to water budgets, sustainable management criteria, evaluating sustainability management actions and projects, and collaborating with the GSA and stakeholders.

Groundwater Sustainability Plan, Big Valley, Lake County: Led the development of the Big Valley Basin GSP, including the technical work on the GSP chapters related to water budgets, sustainable management criteria, evaluating sustainability management actions and projects, and collaborating with the GSA and stakeholders.

Groundwater Sustainability Plan, Westside Subbasin, Westlands Water District, San Joaquin Valley, CA: Provided senior guidance on technical and policy support to the GSA for the Westside Subbasin. Oversaw technical activities including basin description and water budgets. Guided the client through the process to develop sustainability management criteria and helped to coordinate projects and management actions. Also the project manager who oversaw the design, installation, and testing of 5 multi-completion monitoring wells that will be integrated into the current monitoring program.

Groundwater Sustainability Plan, McMullin Area Groundwater Sustainability Agency, Kings Subbasin, Kerman, CA: Provided technical assistance to the GSA's legal counsel. Specific tasks included leading a groundwater modeling analysis to evaluate the impact of agricultural pumping in the basin to help refine the overall water budget, developing a sub-basin water budget, identifying possible projects and management actions, including an assessment on pumping allocations and the effects that would have on defining sustainability indicators.

Groundwater Sustainability Technical Support, Turner Island Water District, Merced and Delta Mendota Sub-basins: Reviewed all work being prepared by the Subbasins and GSA consultant. Tasks included review of all GSP chapters, technical assistance to improve the understanding and management of water resources, and refined and further characterized areas of potential recharge.

SGMA Support, Indian Wells Valley, CA: Appointed to the Technical Advisory Committee (TAC) to the Indian Wells Valley (IWW) Cooperative Groundwater Management Group (CGMG) while at Kennedy Jenks (KJ). KJ represented a large alfalfa grower on the TAC. In 2014, municipal, agricultural, domestic, China Lake (US Navy), and mineral exploration groundwater use exceeded 25,000 acre-feet per year (AFY). Estimates for safe yield in this basin range from approximately 7,500 to 10,000 AFY and groundwater levels have been declining on average between 1 to 3 feet/year. In August 2015, the DWR designated IWW a critically over-drafted basin. Served as a trusted advisor in planning for implementation of the GSP through regional coordination.

BUTTE COUNTY EXPERIENCE

Chico Urban Area Nitrate Compliance Program (CUANCP), Butte County, CA: Managed the CUANCP, which involved semiannual to annual groundwater monitoring to evaluate trends in nitrate concentrations in groundwater beneath the Chico urban area. As the program evolved over the past few years, the list of analytes grew to include isotopic sampling of groundwater along with other key-indicator constituents of septic waste such as acesulfame-K. The isotopic relationships in groundwater beneath densely populated areas on septic systems compared to agricultural areas have become the focus for monitoring to evaluate impacts to the shallow aquifer. The monitoring program has shifted from tracking simple nitrate concentration trends, to evaluating trends in specific areas that should

show nitrate concentration decreases with time due to destruction of septic systems, or where agricultural use contributes some portion of the nitrate loading seen in the monitoring results. The objective of the recent changes in the program is to facilitate long term tracking of related isotopes to distinguish fractionation of septic wastes in the shallow aquifer and a reduction of those wastes over time.

Groundwater Sampling, Analysis and Reporting, Butte County, CA: Coordinated the sampling and analysis for the semiannual groundwater monitoring to evaluate trends in nitrate concentrations in groundwater beneath the Chico urban area in response to a Regional Water Quality Control Board Prohibition Order restricting the use of individual septic systems in high density residential areas. The project tracks nitrate concentration trends in groundwater in response to construction of a new sewer pipeline. As new residential connections are established and septic systems are abandoned, nitrate concentrations in shallow groundwater should decrease. Assisted in the semiannual reporting.

Nitrogen Isotope Study, Chico, CA: Designed an investigation program for Butte County to assess the source of elevated nitrate in local groundwater. The City was seeking data that would indicate whether elevated nitrate concentrations were attributable to leaky water conveyance piping or to agricultural practices. The study relied on collecting groundwater samples from strategically located regional water wells and analyzing them for stable nitrogen isotopes and indicator parameters that are associated with municipal wastewater, agricultural fertilizers, and other livestock wastes.

Groundwater Evaluation and Modeling, Victor Industries Site, and Central Plume Site, State of California, Chico, CA: *Project Hydrogeologist.* Study included the evaluation of the aquifer system beneath the City of Chico and Butte County, a regional water balance, and detailed spatial and temporal correlation of groundwater pumping and influences in site monitoring wells. The project also involves development of a two 3-D numerical groundwater flow and transport models. The models are being used to aid in implementing an interim remedial design that will clean-up dissolved concentrations of trichloroethylene (TCE) and tetrachlorethene (PCE). The preliminary design includes two extraction wells, a treatment plan and injection of treated water.

Groundwater Well Installation, Chico Unified School District, Nord, CA: Provided technical oversight for the drilling, testing, and design construction of one 900-foot groundwater supply well to support drinking water at the Nord School. Provided review of the open hole geophysical logs to confirm producing zones, evaluated the borehole conditions for well completion, and evaluated and approved the final design of the well screen and casing. The identification of an elevated nitrate zone for potential isolation was also an issue at this site. Oversaw technical review of the well development and testing program, which included the successful development and aquifer testing of the well.

Groundwater Resource Investigation, Chico, CA: *Supervising Hydrogeologist.* Installation, site characterization and general testing of 6, 200-foot exploratory test borings. Testing involved general lithological characterization using sample cuttings and geophysical logs. Utilized downhole video, optical televiewer, and flowmeter equipment to further characterize an existing agricultural well.

Nitrate Well Assessment, Town of Paradise, CA: The project involved assessing the impacts to groundwater from septic systems. Assisted the Town in identifying potential contaminant sources. Preliminary data led to identifying data gaps, and installation of additional monitoring wells.

Chico Urban Area Nitrate Compliance Program, Chico, CA: Primary report author and lead geochemist for the evaluation of stable isotopes of water, boron, and nitrate, as well as the presence/absence of caffeine and artificial sweeteners Ace-K and sucralose to determine the source of nitrate in groundwater

Chico Central Plume (aka Flair Cleaners Site) Department of Toxic Substances Control (DTSC) Project, Chico, CA: The project consists of intermediate and deep aquifer groundwater extraction and treatment system expansion in central Chico. Groundwater contaminated with the dry-cleaning solvent PCE is extracted and treated with liquid granular activated carbon for unrestricted use. Shallow groundwater is treated in-situ with the chemical oxidant, potassium permanganate. Responsible for semiannual sampling of site monitoring wells using the Passive Diffusion Bag (PDB) method. Prepared monthly and semiannual monitoring reports including all site maps.

Victor (20th Street) DTSC Project, Chico, CA: *Geologist.* Remedial investigation and design at a former aluminum manufacturing facility contaminated with toxic metals and TCE. Responsible for semiannual sampling of site monitoring wells using the PDB method. Prepared monthly and semiannual monitoring reports including all site maps. Responsible for supervising and conducting field drilling and sampling, installation, abandonment and development of groundwater monitoring wells.

Southwest Plume Project, DTSC Chico, CA: Consists of characterization of the Southwest Plume, a PCE plume in groundwater originating in downtown Chico. Primary duties included groundwater collection, tracking and shipment of samples. Also responsible for using GIS to determine groundwater characteristics including flow direction and contaminant distribution.

Nance Canyon Partners, LP, Hydrogeological Input, Nance Canyon, Butte County, CA: Consulting services in support of a well siting project on 5,000 acres located near the City of Chico to site well(s) capable of providing water of sufficient quality and production to support grape vineyards, olive groves, and hops farming. Reviewed available historical project reports, public records, proposed project design to focus the site visit, determine possible data gaps, and aid in the planning level analysis. Conducted a site visit to stake three well locations.

Groundwater Resource Assessment, California State University, Chico (CSU-Chico), CA: Conducted construction and testing of the CSU-Chico Irrigation Well Relining Project. Prepared contractor bid documentation and an engineering cost estimate. Supervised all field related activities including geophysical investigation consisting of downhole video camera, caliper log and gyroscopic surveys, temporary removal of existing irrigation infrastructure, installation of well casing and screen relining, installation of temporary test pump, aquifer testing tasks and installation of permanent pump. Prior to relining activities, the irrigation well produced 500 gallons per minute (gpm) (with 150 feet of drawdown) and after relining the wells produced 1,200 gpm (with only 25 feet of drawdown).



VICKI J. KRETSINGER GRABERT, PH-GW

Senior Principal Hydrologist

Years of Experience

>30

Education

MS, Water Science,
University of California, Davis

BS, Environmental Toxicology,
University of California, Davis

Professional Registrations

Professional Hydrologist -
Ground Water No. 870
(American Institute of Hydrology)

Awards

- Keith E. Anderson Award, 2008
- Robert Storm Award, 2010
- Groundwater Resources Association of California Awards; President’s Award, 2014; The Foundation, The Rock of GRA; GRA’s Founding Mother, 1992-2014
- University of California Davis Alumni “2019 College of Agricultural and Environmental Sciences Award of Distinction”
- Charles Vernon Theis Award, 2021

Selected Professional Affiliations

- American Institute of Hydrology
- American Geophysical Union
- Association of Ground Water Scientists and Engineers
- California Groundwater Association

Vicki has more than 30 years of experience in regional groundwater resource management and quality assessments, including groundwater supply sufficiency and availability assessments, design of monitoring networks and programs, long-term groundwater quality monitoring and protection programs for twelve agricultural coalitions in the Central Valley, and groundwater technical assistance to the Central Valley Salinity Coalition since 2009. She worked with a County Groundwater Resources Advisory Committee for two and a half years at their regular bimonthly meetings to educate the Committee on the County’s groundwater resources and to aid County staff and the Committee in community outreach and education efforts.

Vicki has been involved in SGMA from the beginning. As founding President of the Groundwater Resources Association of California (GRA) and director for 23 years, Vicki was heavily involved in groundwater related issues including the Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plan (GSP) regulation development and feedback as part of GRA’s Sustainable Groundwater Management Committee. Since 2015, she has served as a member of DWR’s Practitioner Advisory Panel that is providing input to DWR on SGMA implementation. She contributed input on the Berkeley Law/UC Water paper on *Navigating Groundwater and Surface Water Interactions Under the Sustainable Groundwater Management Act* and reviewed and contributed input on the *Recharge Net Metering to Enhance Groundwater Sustainability*. She is highly familiar with the provisions of SGMA through extensive involvement in SGMA-related work in groundwater basins across California, including GSP development and annual reports.

EXPERIENCE

GSP/SGMA, and Groundwater Management, Napa County, CA: Vicki has provided regular technical reports to the Napa County Board of Supervisors since 2011. She was the principal in charge of an Alternative to a GSP. Subsequently, in the same basin, a groundwater flow model was developed in 2017 to assess various sustainability interests including surface water groundwater interaction and potential streamflow depletion factors, a SGMA Management Area was designated, a SGMA-related report on the Management Area was prepared and submitted to DWR in March 2018, and the first SGMA Annual Report was filed in March 2018.

Land Subsidence Analysis, CA: Managed preparation of a comprehensive report by LSCE, in conjunction with James W. Borchers and Michael Carpenter, focusing on the escalating occurrence and severity of land subsidence due to groundwater pumping in California.

The report, *Land Subsidence from Groundwater Use in California*, provides key examples of significant and far-reaching impacts of subsidence and includes recommendations to avoid those impacts. This report provides an analysis and examples from throughout California where groundwater pumping and land subsidence have been particularly significant and recommendations for improving subsidence monitoring and assessment.

Central Valley Salinity Alternatives for Long-Term Sustainability Program, CA: Managed LSCE's technical work as part of a four-consulting firm team that designed and implemented the Salt and Nitrate Sources Pilot Implementation Study, which was a key initial step in the effort by the Coalition toward the development of a Basin Plan amendment to address the issue of salt and nutrient management in California's Central Valley. The study developed and documented procedures and methodologies to quantify the significant salt and nitrate sources in the Central Valley. The procedures were piloted in selected areas to evaluate their appropriateness and region-wide applicability. LSCE's work focused on groundwater aspects of the study in the Yolo County study area. Salt and nitrate mass loads in the Yolo area were simulated and compared to historical groundwater quality observations. Subsequently managed conceptual modeling and technical analysis leading to the development of the Central Valley Salt and Nitrate Management Plan (CV-SNMP). The work is foundational for the more detailed, subregional analyses that will be undertaken later by local stakeholder groups when they develop local SNMPs.

Managed the preparation of high resolution groundwater quality maps for nitrate and TDS for three defined groundwater zones (Upper, Lower, and Production Zones) throughout the Central Valley Floor on behalf of the Central Valley Salinity Coalition to provide a more refined and accurate characterization of the ambient groundwater quality and assimilative capacity than what was provided previously as a part of the aggregated Initial Analysis Zones (IAZ) analysis. The high resolution detail will facilitate regional salt and nitrate management for Region 5's jurisdiction, including the planning and implementation of long-term strategies and assessment of interim measures and background information for identifying monitoring data gaps and for developing future groundwater quality monitoring programs.

Central Valley Representative Monitoring Program, CA: Provided technical support to the California dairy industry that ultimately resulted in the CVRWQCB's

revision of the General Order Monitoring and Reporting Program, which led to the representative groundwater monitoring as an alternative to the CVRWQCB's site-by-site approach. The Phase 1 Representative Monitoring Program (RMP) Work plan provides a detailed discussion of the scientific basis supporting representative monitoring and the extrapolation of monitoring results, an explanation of the process of dynamic refinement, innovative monitoring well design specific to the needs of and requirements for the RMP, and a design of a comprehensive network of 135 dedicated monitoring sites on 18 dairy farms in Stanislaus and Merced Counties. Phase 2 of the RMP has also been completed; the RMP network now includes 42 dairies and over 400 monitoring wells.

GROUNDWATER ASSESSMENT REPORTS

East San Joaquin County, CA: Managed overall technical work for the development of East San Joaquin Water Quality Coalition's Groundwater Quality Assessment Report (GAR), as required by the Coalition's Waste Discharge Requirements for the Irrigated Lands Regulatory Program. LSCE developed a geostatistical method to quantitatively delineate relatively higher and lower vulnerability areas. The vulnerability of groundwater quality to agricultural impacts is being assessed and prioritized based on (1) hydrogeological sensitivity, (2) overlying land uses and practices, and (3) the beneficial uses of the groundwater.

Westside San Joaquin River, CA: Managed overall technical work for the development of Westside San Joaquin River GAR and a Groundwater Quality Management Plan, as required by the Coalition's Waste Discharge Requirements for the Irrigated Lands Regulatory Program. LSCE developed a geostatistical method to quantitatively delineate relatively higher and lower vulnerability areas. The vulnerability of groundwater quality to agricultural impacts was assessed and prioritized based on (1) hydrogeological sensitivity, (2) overlying land uses and practices, and (3) the beneficial uses of the groundwater.

Grassland Drainage Area, CA: Managed overall technical work for the development of Grassland Drainage Area GAR and a Groundwater Quality Management Plan, as required by the Waste Discharge Requirements for the Irrigated Lands Regulatory Program. The vulnerability of groundwater quality to agricultural impacts was assessed and prioritized based on (1) hydrogeological sensitivity, (2) overlying land uses and practices, and (3) the beneficial uses of the groundwater.

Western Tulare Lake Basin, CA: Managed overall technical work for the development of Western Tulare Lake Basin Area GAR, as required by the Coalition’s Waste Discharge Requirements for the Irrigated Lands Regulatory Program. LSCE developed a geostatistical method to quantitatively delineate relatively higher and lower vulnerability areas. The vulnerability of groundwater quality to agricultural impacts was assessed and prioritized based on (1) hydrogeological sensitivity, (2) overlying land uses and practices, and (3) the beneficial uses of the groundwater.

ADDITIONAL EXPERIENCE

Northern and Southern Counties of the Central Coast Region, CA: Managed overall technical work for the groundwater quality characterization reports.

MUN de-designation Target Area of the Tulare Lakebed, CA: Managed LSCE’s technical work as part of a multi-firm team identifying the background conditions and geographical extent relating to the proposed MUN de-designation Target Area of the Tulare Lakebed. The team addressed the purpose and need for the proposed MUN de-designation, a precise geographic description of the Target Area, regulatory requirements and circumstances relevant to the de-designation, a discussion of pertinent state and federal regulations, laws, and policies, and an overview of the proposed amendments to the Basin Plan. As part of this effort, Vicki reviewed and provided comprehensive comments on Ken Schmidt Draft Report (April 2013), *Hydrogeologic Evaluation of Delisting Part of the Tulare Lakebed Area*.

Water Supply Assessment, Rohnert Park, CA: Managed services provided on behalf of the City of Rohnert Park to prepare the groundwater portion of the Water Supply Assessment needed to satisfy the requirements of SB 610 and the City’s Water Policy Resolution. The WSA was required due to six planning applications that meet the definition of a “project” under SB 610 or that require annexation to the City. The WSA includes water demands (surface and groundwater) that will occur as the City reaches build-out under its General Plan. The WSA also considers the demands of other pumpers in the groundwater basin.

Yolo County Groundwater Monitoring Program, CA: Managed an AB 303 Groundwater Monitoring Program for Yolo County on behalf of the Yolo County Flood Control and Water Conservation District (District). The project contained three phases, including Phase 1 – Data Collection, Evaluation, and Recommended Groundwater Monitoring Program; Phase 2 – Database Management System; and Phase 3 – Report of Baseline Groundwater

Quality Conditions and State of Groundwater Conditions. The Project included review of the existing extensive groundwater level monitoring network (approximately 300 wells) and establishment of a groundwater quality monitoring network (approximately 110 wells) to gather and assess the necessary data to ensure the long-term protection of the basin. Managed LSCE’s work to develop and implement a database management system for storage and evaluation of pertinent groundwater data, as well as for exchange of data with area cooperators, state and federal agencies and the public (via web site and other means) to promote coordinated and effective water resources management and dissemination of information on water resource management (especially groundwater conditions).

Vacaville Hydrogeologic Conditions Assessment, CA: Managed a comprehensive evaluation of current and historical hydrogeologic conditions in the vicinity of the City of Vacaville; prepared an SB 221/610 report as a supporting document to the City’s WSA. Developed an initial estimate of sustainable pumpage for the principal aquifer in the Vacaville study area and the reasonably foreseeable impacts of projected municipal demands on the availability of water for agricultural and industrial users within the City water service area that are not currently receiving water from the City but are drawing water from the same aquifer.

Integrated Regional Water Management Plan, CA: Managed the support provided to CDM to prepare the Integrated Regional Water Management Plan developed for Solano County Water Agency and its member agencies. LSCE’s support focused on hydrogeologic conditions in the plan area and groundwater-related planning efforts.

Multiple Completion Groundwater Monitoring, Solano County, CA: Managed LSCE’s work on the design and construction of multiple completion groundwater monitoring facilities at four locations within the Northern Solano County area. The data collected from the deep monitoring wells will aid in the ongoing assessment of basin conditions and groundwater management activities. Additional subsidence monitoring stations are also being implemented as an important component of the regional monitoring program. LSCE prepared a report that describes the physical conceptualization of the area complemented by groundwater level and quality data; this report includes a preliminary evaluation of depositional processes and an initial assessment of the sources of groundwater recharge for the basal Tehama Formation.



CAB M. ESPOSITO, GIT

Project Hydrogeologist

Years of Experience

10

Education

MS, Geosciences: Hydrology/
Hydrogeology (with Distinction),
California State University, Chico

BS, Geology/Geochemistry,
Northern Arizona University, AZ

Professional Registrations

Professional Geologist-in-Training
No. 1240

Professional Affiliations

- California Groundwater Resources Association

Cab has over ten years of experience working on geologic and hydrologic projects. He began as an environmental geologist working on a range of remediation projects which included designing and implementing field sampling programs and coordinating with federal agencies. Sampling of environmental contaminants included sampling of soil, surface water, and groundwater. Additional responsibilities included mine remediation design, Phase I site assessments, hydrologic investigations, and groundwater modeling.

Cab has been involved in Groundwater Sustainability Plan (GSP) development since 2018, when he led the technical effort in Shasta Valley and worked on numerous other GSPs throughout California. He was involved with many different facets of GSP development, including conceptual model development, water budget calculations, public outreach, numerical model development, scenario analysis, and annual report development.

Cab has experience working in Butte County where he developed the 2022 Nitrate Sampling and Analysis Plan and developed the 2021 Drought Impact Analysis. He currently serves on the Technical Advisory Committee for the Chico State Ecological Reserve, Čakawì ódiknonà.

EXPERIENCE

Groundwater Sustainability Plan Implementation, Napa County, CA:

Staff Hydrogeologist. Working on implementation of projects and management actions in Napa Valley, CA. Technical work includes processing model scenarios to inform management decisions and use remote sensing to quantify evapotranspiration. Monthly presentations to the Technical Advisory Group is done to inform them of ongoing work.

Groundwater Sustainability Plan, Siskiyou County, CA: *Project Scientist.*

Led the technical aspects of the development of a Groundwater Sustainability Plan for Shasta and Butte Valley. Built a watershed scale, fully coupled GSFLOW model for the Shasta River Watershed. Led stakeholder meetings and public meetings to present findings and to increase public support. Coordinated with the State Water Resource Control Board for instream-flow requirement discussions within the watershed. Assisted in building and installing a data collection system consisting of Campbell Scientific data loggers, pressure transducers, weather stations, and solar panels.

Big Valley Groundwater Sustainability Plan Annual Report

Development, Lake County, CA: *Staff Hydrogeologist.* Assisted in preparing the 2021 Big Valley Annual Report.

Drought Impact Analysis, Butte County, CA: *Project Scientist.* Developed the Drought Impact Analysis while working closely with economists from California State University, Chico to estimate the water use and impacts of the 2021 drought. He coordinated with water providers to estimate municipal water use and irrigation districts to estimate applied water. He was responsible for presenting the results to the Butte County Board of Supervisors.

Watermaster Services, Santa Maria Valley Management Area: *Project Hydrologist.* Santa Maria Valley Management Area is an adjudicated groundwater basin which requires annual water accounting. Cab is responsible for the water accounting within the valley. He aids in the management of the data, including climate data, groundwater levels, pumping, and water quality.

Fort Knox Gold Mine, Fairbanks, AK: *Project Geologist.* Conducted a hydrogeologic field investigation to assist in permitting of future mine expansion.

Platoro Mine, Platoro, CO: *Project Geologist.* Conducted bench-scale analysis of the water treatment plant. Collected water samples from shallow groundwater wells, open channels, treatment ponds, and within wastewater treatment facility. Standard field parameters and analytes of concern were measured on site to evaluate the water treatment plant efficiency. Management of the hydrologic database including groundwater measurements, streamflow, and climate data.

Removal Design/Removal Action at a Uranium Mine Site, Cibola County, NM: *Project Geologist.* Supported radiological site characterization of a historic uranium mine. Collected radiological surface and subsurface soil samples, measured static direct gamma radiation levels, conducted gamma scans, and performed debris surveys. Assisted in development of closure plans, provided construction oversight of large earthworks activities, and conducted quality assurance and quality control testing during remediation construction activities.

Midnite Mine Superfund, Wellpinit, WA: *Project Geologist.* Responsible for rock fall safety analysis for pit walls. Part of the design team for the 30%, 60%, and 90% Basis of Design reports.

Probabilistic Seismic Hazard Analysis, Blanding, UT: *Project Geologist.* Responsible for a probabilistic seismic hazard analyses to calculate anticipated ground motion at the site resulting from an earthquake. This analysis was conducted to support geotechnical design of new facilities in the short-term and reclamation efforts in the long-term.

Tampa Election Company Injection Well, Tampa, FL: *Project Geologist.* Supervised drilling activities for a wastewater injection well and associated monitoring well. Responsibilities included geologic characterization from drill cuttings, reviewing geophysical logs, conducting aquifer tests, and construction management of casing installation.



NICK WATTERSON, PG, CHG

Principal Hydrogeologist

Years of Experience

20+

Education

MS, Geography (Hydrology),
Oregon State University

BA, Geology,
The Colorado College

Professional Registrations

Professional Geologist
CA No. 9076

Certified Hydrogeologist
CA No. 1088

Professional Affiliations

- National Ground Water Association
- California Groundwater Resources Association

Nick has over 20 years of experience studying surface and groundwater hydrology. He has extensive experience with the acquisition, analysis, and display of geospatial water resources data for projects of widely ranging spatial extent and data complexity. His experience includes quantification of groundwater supply and aquifer storage capacity; characterization of aquifer and well mechanics, well construction design, well rehabilitation program design and implementation; evaluation of groundwater-surface water interactions; and hydrologic modeling in varied hydrogeologic settings of California and Colorado. His recent work has involved evaluation of groundwater conditions in agricultural areas and providing technical support for local entities during implementation of the Sustainable Groundwater Management Act (SGMA).

EXPERIENCE

Groundwater Sustainability Plans

Ongoing work in preparation of Groundwater Sustainability Plans (GSP) in multiple groundwater subbasins in California. Provided technical support on development and implementation of GSPs and preparation of GSP Annual Reports in the Solano, Napa Valley, Madera, Chowchilla, and other subbasins in the Sacramento and San Joaquin Valleys. Support on GSPs has involved hydrogeologic characterization and conceptual model development, hydrologic modeling, water budget and sustainable yield analysis, evaluation of potential projects and management actions to achieve or maintain sustainability, and other technical work related to compliance with SGMA. Work supporting implementation of GSPs has included conducting well inventories, monitoring of groundwater and surface water conditions, evaluation and design of recharge project opportunities and management actions, and outreach to stakeholders.

- Madera Subbasin GSP – Madera County
- Chowchilla Subbasin GSP – Chowchilla Water District
- Napa Valley Subbasin GSP – Napa County
- Solano Subbasin GSP – Solano GSA
- Westside Subbasin GSP – Westlands Water District
- Bowman, Los Molinos, Red Bluff, and Antelope Subbasin GSPs – Tehema County

Technical Evaluations and Monitoring Programs

Designed and implemented technical evaluations and monitoring programs to assess aquifer and groundwater characteristics and interconnections with surface water.

- Designed and performed well and aquifer testing programs to investigate aquifer and well characteristics and evaluate impacts of pumping on local groundwater and surface water.
- Included monitoring programs in Napa, Mendocino, Sacramento, Yolo, and Solano Counties. Involved analysis and reporting of monitoring data including streamflow and stage, groundwater levels, and water quality characteristics to understand relationships between the surface water and groundwater systems.
- Evaluated feasibility of using vertical wells or a horizontal infiltration gallery for diversion of Russian River underflow as an alternative to direct streamflow diversion.

Agriculture Technical Assistance

Provided technical assistance to agricultural coalitions encompassing more than 8.5 million acres.

- Included over 1.7 million acres of irrigated land, in the Central Valley. Included preparing Groundwater Quality Assessment Reports (GARs), Groundwater Quality Management Plans, and Groundwater Quality Trend Monitoring Work Plans to fulfill requirements of the Irrigated Lands Regulatory Program.
- Evaluated quantitative relationships between groundwater quality and hydrogeologic characteristics using statistical techniques to assess groundwater vulnerability.
- Developed quantitative priorities for monitoring areas and designed plans for groundwater quality management and regional groundwater quality trend monitoring.

Hydrogeologic Modeling

Developed and performed hydrologic modeling to support water resources management planning decisions in groundwater basins and subbasins throughout northern California.

- Developed and applied integrated hydrologic models using the MODFLOW and IWFEM platforms to estimate water budgets, analyze the benefits and impacts from water resources projects, and evaluate influence of future hydrology and climate change.
- Utilized regional models developed by USGS (CVHM) and DWR (C2VSim and SVSim) to support water resources assessments in areas of the Central Valley.
- Updated, refined, and applied the Salinas Valley Integrated Ground and Surface Water Model (SVIGSM) to support analyses of a water supply project involving the construction and operation of slant wells installed beneath the Monterey Bay seafloor.

Water Resource Assessments

Performed water resource assessments in Colorado including hydrogeologic characterization and evaluation of potential for developing groundwater as a source of supply.

- Developed three-dimensional hydrostratigraphic models in basins throughout Colorado using surface and subsurface geologic and geophysical data to map the configuration of geologic units including evaluating aquifer depths, thickness, groundwater elevation, and storage capacity.
- Prepared and assembled surface hydrologic models using HEC-RAS and FLO-2D modeling software to simulate effects of a water release from a mine drainage tunnel and post-wildfire hydrology and sediment transport in watersheds in Colorado.
- Completed aquifer recharge and storage studies for the Lost Creek and Upper Black Squirrel Creek basins, Colorado. Mapped bedrock and alluvial aquifer configuration; estimated existing and potential groundwater storage; identified locations for recharge project implementation.
- Managed and served as principal scientist on project assessing the vulnerability of groundwater to contamination in a complex mountainous hydrogeologic setting near Crested Butte, Colorado. Applied the EPA-developed DRASTIC semi-quantitative model using GIS to evaluate groundwater resource vulnerability to potential surface contamination.



ANDREW FRANCIS, GIT

Project Hydrogeologist

Years of Experience

5

Education

MS, Hydrogeology,
Illinois State University, Normal, IL

BS, Geology, Wittenberg
University, Springfield, OH

Professional Registrations

Geologist in Training
CA No. 1094

Professional Geologist
Idaho 1717; Oregon G2750

Professional Affiliations

- American Water Works Association
- American Geophysical Union
- Groundwater Resources Association

Andrew has five years of professional experience in groundwater consulting working on projects in California, Idaho, Oregon, and Utah. His expertise is in hydrogeological conceptualization and has worked on multiple projects providing well design and construction oversight. Andrew is also well versed in GIS including geospatial analysis, mapping, and managing large geospatial datasets. He has worked in a variety of geologic settings including alluvial basins, volcanics, and bedrock terrains. A majority of his experience has been related to the development and implementation of Groundwater Sustainability Plans (GSPs) throughout California. This has included characterization of geologic and groundwater conditions, technical writing, and technical advisory committee participation.

EXPERIENCE

Delta-Mendota Groundwater Sustainability Plans, Fresno County, CA: *Hydrogeologist/Project Hydrogeologist.* In order to comply with the Sustainable Groundwater Management Act (SGMA), many groundwater subbasin throughout California including the Delta-Mendota were required to develop a GSP. The Delta-Mendota Subbasin is comprised of six individual GSP's, two of which were prepared by LSCE (Farmers Water District and Fresno County). Andrew was lead on the developing the hydrogeological conceptual models, designing monitoring networks, and setting minimum thresholds and measurable objectives for the various groundwater sustainability indicators. He also was an active participant in the coordination meetings with the other Delta-Mendota GSP groups. Andrew has also been involved with preparing annual reports for Farmers Water District and Fresno County.

Tehama County Groundwater Sustainability Plans: *Hydrogeologist.* Assisted with the development of four GSPs in Tehama County, CA. Analyzed shallow groundwater conditions for the identification of groundwater dependent ecosystems. This included utilizing publicly available database for well construction and water level data.

Westside (Westlands) Subbasin Groundwater Sustainability Plan, Fresno County, CA: *Hydrogeologist.* Assisted with the development of the Westside Subbasin GSP. Developed water level contours and storage change calculations for GSP annual reports.

Santa Clara River Valley Subbasin Groundwater Sustainability Plan, Los Angeles County, CA: *Hydrogeologist.* Prepared groundwater conditions section for the Santa Clara River Valley Subbasin GSP. Presented (Zoom) at public workshops to interested stakeholders.

Indian Wells Valley GSP Support, Ridgecrest, CA: *Hydrogeologist.* Prepared technical memoranda on hydrogeologic conditions in the Indian Wells Valley Subbasin.

Mendota Pool Group Transfer Program, Fresno County, CA: *Hydrogeologist.* Assisted with the preparation of annual reports on groundwater and surface water conditions in the Mendota, California. Planned and conducted groundwater quality sampling events.

Ryer Island Drawdown Assessment, Solano County, CA: *Project Hydrogeologist.* Performed analytical drawdown analysis for planned vineyard. Determined approximate pumping rate to drawdown water table below root zone.

Santa Clarita Water Agency (Formerly Castaic Lake Water Agency) Annual Water Supply Reporting, Santa Clarita, CA: *Hydrogeologist.* Assisted with the preparation of annual water supply reports. Created water level contour maps, hydrographs, and evaluated groundwater quality data.

Groundwater Baseline Report, Malheur County, OR: *Project Hydrogeologist.* Provided revisions for Groundwater Baseline Report. Addressed comments provided by the Bureau of Land Management (BLM) and Oregon Department of Geology and Mineral Industries (DOGAMI). Presented revision to report to BLM and DOGAMI.

Idaho Landfill Well Siting, Adams County: *Project Hydrogeologist.* Conducted a site visit and reviewed available geologic data to determine locations for monitoring wells. Prepared a technical memorandum providing well locations and rationale for those future well sites.

New Subdivision Groundwater Use/Drawdown Assessments, Various sites in Idaho: *Project Hydrogeologist.* Conducted multiple drawdown analysis for new subdivision throughout Idaho. Determined the impact of new domestic wells on existing groundwater conditions. Attended zoning hearings and community meetings to discuss the results of drawdown assessments.

Irrigation Well Testing, Rich County, UT: *Project Hydrogeologist.* Performed pumping testing monitoring flow rate and water levels to determine well capacity. Reviewed available geologic information and made recommendation for new well location. Prepared memo documenting well testing and proposed well locations.

Hart Mountain National Antelope Refuge Downhole Video Log and Well Reconnaissance, Plush OR: *Project Hydrogeologist.* Performed downhole video log on existing well and provided recommendation for new well location

City of Lathrop ASR Feasibility Study – Monitoring Well Permitting and Design, Lathrop, CA: *Project Hydrogeologist.* Prepared permits and provided specifications for monitoring well design as a part of an aquifer storage and recovery project.

City of Meridian Municipal Supply Well, Meridian, ID: *Project Hydrogeologist.* Provided oversight for well construction and well testing and prepared well completion report for City of Meridian public supply well.

City of Kuna Test Well and Municipal Supply Well, Kuna, ID: *Project Hydrogeologist.* Provide well design, construction and testing oversight, and prepared well completion report for test and a public supply well for the City of Kuna.

Buckeye Farms Irrigation Wells, Hagerman, ID: *Project Hydrogeologist.* Provided construction and well testing oversight for two large irrigation well (~8-10 CFS).

City of Boise Well Park Well Cleaning, Boise, ID: *Project Hydrogeologist.* Performed downhole video survey, developed specification, and oversaw well cleaning for park well that lost production due to clogged screens. Methods included bailing, swabbing, packer pumping, and chemical cleaning.

Pre-Engineering Report for Crouch Community Church, Crouch, ID: *Project Hydrogeologist.* Conducted site visit, pumping test, and prepared preliminary engineering report for previously constructed public supply well confirming all regulatory requirements were met.

Pre-Engineering Report for Oregon Military Department, Boardman, OR: *Project Hydrogeologist.* Conducted site visit, pumping test, and prepared preliminary engineering report for previously constructed public supply well confirming all regulatory requirements were met.

Pre-Engineering Report for Idaho Power Fish Hatcher, Wendell, ID: *Project Hydrogeologist.* Conducted site visit and prepared preliminary engineering report for planned public supply well.

6. AGREEMENT WITH LUHDORFF & SCALMANINI CONSULTING ENGINEERS TO PROVIDE GROUNDWATER SUSTAINABILITY AGENCY DATA REVIEW, FEE ANALYSIS, AND RATE SETTING SERVICES

- a. *Review and approve agreement with Luhdorff & Scalmanini Consulting Engineers (LSCE) to provide Groundwater Sustainability Agency Data Review, Fee Analysis, and Rate Setting services and authorize the chairman to execute the agreement with an amount not to exceed \$89,249.
- b. *Appoint a fee study ad hoc committee to work with staff and consultant team, provide guidance on the fee study, and bring options and recommendations to the board.

At the July 11, 2022 GGA Board meeting, the Board discussed the status of the current GGA fee, and consideration of future GSP implementation funding. There also mention that there may be interest for the Colusa Groundwater Authority and the GGA to explore the option to coordinate efforts on future GSP implementation funding approaches. At the July 11, 2022 meeting, the GGA Board approved issuing the RFP for Groundwater Sustainability Agency Data Review, Fee Analysis, and Rate Setting Services. The RFP was issued on July 15, 2022 and the submittal period closed September 2, 2022.

On October 31, 2022 the Colusa Groundwater Authority Long Term Funding Ad Hoc Committee and GGA Funding Ad Hoc Committee provided a summary of each GSA's RFP process, proposals received by each GSA, and joint interviews with selected consultant teams. The ad hoc committees provided a joint recommendation to select Luhdorff & Scalmanini Consulting Engineers (LSCE) for Groundwater Sustainability Agency Data Review, Fee Analysis, and Rate Setting services and to pursue a coordinated effort. The GGA Board approved the recommendation on October 31, 2022, and the Colusa Groundwater Authority Board considered and approved the item at its November 8, 2022 meeting.

LSCE and GGA and Colusa Groundwater Authority staff have explored the opportunity to coordinate efforts on this process and ultimately decided separate contracts would be most efficient and allow flexibility for each GSA to conduct its own processes with the understanding that there may be opportunities to consolidate efforts in certain tasks, particularly in the early exploration of potential options and in outreach efforts. Those potential cost savings have been included in the scope of work attached to the agreement. A draft agreement and updated scope of work have been developed and reviewed by counsel.

Staff is recommending approval of the agreement with LSCE and appointing an ad hoc committee to provide support to staff and the consultant team, provide guidance on the fee study, and bring options and recommendations to the GGA Board.

Attachments

- Agreement for Professional Services, Luhdorff & Scalmanini Consulting Engineers, Inc. Project No. 22-1-096

**AGREEMENT FOR PROFESSIONAL SERVICES
LUHDORFF & SCALMANINI CONSULTING ENGINEERS, INC.**

THIS AGREEMENT FOR PROFESSIONAL SERVICES (this "**Agreement**") is entered into as of December 13, 2022 (the "**Effective Date**"), by and between Glenn Groundwater Authority, a California Joint Powers Authority (hereafter called "**Client**"), and Luhdorff & Scalmanini Consulting Engineers, Inc., a California corporation (hereafter called "**LSCE**").

Client Contact:	Lisa Hunter	LSCE Contact:	Eddy Teasdale, PG
Address:	225 N. Tehama Street	Address:	500 First Street
City, State, Zip:	Willows, CA 95988	City, State, Zip:	Woodland, CA 95695
Phone:	530-934-6540	Phone:	(530) 661-0109
Email:	LHunter@countyofglenn.net	Email:	eteasdale@lsce.com

RECITALS:

- A. WHEREAS, Client desires to retain LSCE to perform certain consulting services in connection with a project as described herein.
- B. WHEREAS, LSCE desires to perform the consulting services as described herein, pursuant to the terms and subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Client and LSCE hereby agree as follows:

PROVISIONS OF AGREEMENT

1. Services. LSCE shall provide the services set forth in **Exhibit A**, attached hereto and incorporated herein by this reference (the "**Services**").
2. Compensation. As consideration for the Services, Client shall pay LSCE the total amount of compensation set forth in **Exhibit B**, attached hereto and incorporated herein by this reference.
3. Term. The term of this Agreement shall commence on the Effective Date and shall remain in effect until the Services have been completed or, if a different term is stated in **Exhibit A**, for such term as is stated in **Exhibit A** (the "**Term**").
4. Invoicing and Payment.
 - (a) Monthly Invoices. All fees and other charges due to LSCE will be billed monthly and shall be due at the time of billing unless specified otherwise in this Agreement. If Client fails to pay LSCE within forty-five (45) days after invoices are rendered, LSCE shall have the right in its sole discretion to consider such default in payment a material breach of this Agreement, and, upon written notice, LSCE's duties, obligations, and responsibilities under this Agreement may be suspended or terminated. In such event, Client shall promptly pay LSCE for all outstanding fees and charges due to LSCE at the time of suspension or termination. If LSCE elects to suspend or terminate LSCE's services pursuant to this provision, LSCE is entitled to reasonable suspension or termination costs and expenses.
 - (b) Accuracy of Invoices. Client agrees that all billings from LSCE to Client are correct and binding on Client unless Client, within ten (10) days from the date of receipt of such billing, notifies LSCE in writing of alleged inaccuracies, discrepancies, or errors in billing.
 - (c) Late Payment Charge. Client agrees to pay a monthly late payment charge, which will be the lesser of one and one-

half percent (1-1/2%) per month or a monthly charge not to exceed the maximum legal rate, which will be applied to any unpaid balance commencing forty-five (45) days after the date of the billing.

~~(d) Fee Schedule Changes. In the event LSCE's fee schedule changes due to any increase of costs such as the granting of wage increases and/ or other employee benefits to field or office employees due to the terms of any labor agreement, or increase in the cost of living, during the Term of this Agreement, a percentage increase shall be applied to all remaining fees and charges to reflect the increased costs.~~

(e) Client agrees that if Client requests services not specified in **Exhibit A**, Client will pay for all such additional services as extra services, in accordance with LSCE's billing rates for extra services set forth in **Exhibit C**, attached hereto and incorporated herein by this reference.

5. **Work Product.** The parties acknowledge and agree that all reports, plans, specifications, field data and notes and other documents, including all such documents on electronic media, prepared by LSCE under this Agreement shall become the property of Client, ~~for itself and for the Glenn Groundwater Authority,~~ and may be used by LSCE ~~without limitation~~ without the consent of Client. Upon request and payment of all costs related thereto, Client is entitled to a copy of all final plans and specifications for use in connection with the project for which the plans and specifications have been prepared. Client acknowledges and agrees that assignment of such records shall automatically occur upon Client's performance all of its obligations under this Agreement. In the event Client is in default of any of the terms or conditions of this Agreement and such default is not timely cured, Client's right to the work products produced under this agreement by LSCE shall be automatically revoked.

6. **Non-Use of Draft Work Product; Use of Final Work Product.** Client agrees not to use or permit any other person to use plans, specifications, drawings, cost estimates, reports or other documents prepared by LSCE which plans, specifications, drawings, cost estimates, reports or other documents are not final and which are not signed and stamped or sealed by LSCE. Client acknowledges and agrees that all documents on electronic files, or drawings, reports, and data on any form of electronic media generated and furnished by the LSCE, are not final plans or documents. Client shall be liable for any such use of all non-final or draft plans, specifications, drawings, cost estimates, reports, electronic files, or other documents that are not signed and stamped or sealed by LSCE. Client hereby waives any claim for liability against LSCE for such use. Client agrees, to the extent permitted by law, to indemnify and hold harmless LSCE, its officers, directors, employees, and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from a violation of this paragraph by Client. Client further agrees that final plans, specifications, drawings, cost estimates, reports or other documents are for the exclusive use of Client and may be used by Client only for the project described in **Exhibit A** and such use is subject to the terms and conditions of this Agreement. Such final plans, specifications, drawings, cost estimates, reports or other documents may not be changed or used on a different project without written authorization or approval by LSCE. If signed check prints are required to be submitted with a stamp or seal, they shall not be considered final for purposes of this paragraph.

7. **Electronic Files.**

(a) **Ownership of Electronic Files.** The parties agree that any electronic files, or drawings, reports and data on any form of electronic media generated and furnished by LSCE ("**Electronic Files**") under this Agreement shall become the property ~~of CGA for itself and on behalf of GGA,~~ following final payment for the Services, ~~and CGA and~~ GGA shall retain all common law, statutory law and other rights, including copyrights.

~~(b) Use of Electronic Files. Client agrees not to use or reuse any Electronic Files, in whole or in part, for any purpose or project other than the project that is the subject of this Agreement. Client agrees not to make changes to or transfer the Electronic Files to any person or entity without the prior written consent of LSCE. Client further agrees to waive all claims against LSCE resulting in any way from any unauthorized changes, use, or reuse of the Electronic Files for any other project by anyone other than LSCE.~~ final stamped

(c) **Technological Specifications.** Client acknowledges and agrees that Client and LSCE have agreed on all hardware and software specifications that may be necessary for transmission of Electronic Files relevant to the project. These specifications, if applicable, are attached as **Exhibit D** to this Agreement, which is incorporated herein by this reference.

(d) **Acceptance of Electronic Files.** Electronic Files furnished by LSCE to Client shall be subject to an acceptance period of fifteen (15) days during which the Client agrees to perform appropriate acceptance tests. LSCE shall correct any discrepancies or errors detected and reported within the acceptance period. After the acceptance period, the Electronic Files shall be deemed to be accepted and LSCE shall not have any obligation to correct errors or maintain Electronic Files.

(e) **Electronic Files Are Not Construction Documents.** Electronic Files, such as computer-aided drafting and design files,

are not construction documents, and LSCE makes no representation as to their accuracy or completeness. Client is aware and agrees that differences may exist between the Electronic Files delivered and the printed hard copy construction documents. In the event of a conflict between the signed construction documents prepared by LSCE and any Electronic Files, the signed and stamped or sealed hard copy construction documents, copies of which shall be kept by LSCE, shall govern.

(f) Indemnity and Indemnification Related to Electronic Files. Client agrees, to the fullest extent permitted by law, to indemnify and hold harmless LSCE, its officers, directors, employees and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any unauthorized changes made by anyone other than LSCE or from any use or reuse of the Electronic Files for any other project by anyone other than LSCE.

(g) No Warranties; LSCE Not Liable. Under no circumstances shall delivery of electronic files for use by Client be deemed a sale of a product by LSCE, and LSCE makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall LSCE be liable for indirect or consequential damages as a result of Client's use or reuse of the electronic files.

8. Termination.

(a) Client acknowledges LSCE has the right to complete all services agreed to be rendered pursuant to this Agreement. In the event this Agreement is terminated before the completion of all Services, unless LSCE is responsible for such early termination, Client hereby agrees to release LSCE from all liability for Services performed. In the event all or any portion of the Services by LSCE are suspended, abandoned, or otherwise terminated, Client shall pay LSCE all fees and charges for Services provided prior to termination.

(b) Client acknowledges and agrees that, if project Services are terminated for the convenience of Client, LSCE is entitled to reasonable termination costs and expenses, to be paid by Client as extra services pursuant to the terms set forth in Exhibit C.

(c) If Client is in default regarding the Client's payment obligations under this Agreement, and Client requests LSCE continue providing some or all of the Services, LSCE shall have no obligation to provide any further Services unless Client provides financial assurances satisfactory to LSCE in LSCE's sole discretion.

9. Suspension of Services. Client acknowledges and agrees that, if this Agreement or the Services are suspended and restarted and LSCE incurs costs in connection therewith, Client shall reimburse LSCE for such reasonable costs that LSCE actually incurs as a direct result of such suspension and restart as extra services pursuant to the terms set forth in Exhibit C.

10. Prevailing Wage; Public Works. Unless the Services to be provided by LSCE expressly include LSCE's assistance in determinations regarding the application of prevailing wages, Client and LSCE acknowledge and agree that it is Client's exclusive responsibility to determine whether the project that is the subject of this Agreement is a "public work" as defined in California Labor Code Section 1720, or whether prevailing wage rates are to be paid to certain workers in connection with the project, or determine the rate of prevailing wages to be paid to certain workers. LSCE will develop its schedule of labor rates in reliance on the determinations of Client. In the event of a dispute regarding whether the project is a "public work", whether prevailing wages are to be paid, or the amount of prevailing wages to be paid to individual workers, Client agrees to pay LSCE for any and all additional costs and expenses (including additional wages, penalties & interest) incurred by LSCE and further agrees, to the extent permitted by law, to defend, indemnify and hold harmless LSCE, its officers, directors, employees and subconsultants from all damages, liabilities or costs, including reasonable attorneys' fees and costs, arising from or related to the Client's determinations regarding the application of or payment of prevailing wages.

11. Construction Phase Services. If the Services do not include construction-phase services for this project, Client acknowledges such construction-phase services will be provided by Client or by others and Client assumes all responsibility for interpretation of the contract documents and for construction observation and supervision and waives any claim against LSCE that may in any way be connected thereto. In addition, Client agrees, to the fullest extent permitted by law, to indemnify and hold LSCE harmless from any loss, claim, or cost, including reasonable attorneys' fees and costs of defense, arising or resulting from the performance of such construction-phase services by other persons or entities and from any and all claims arising from the modification, clarification, interpretation, adjustments or changes made to the contract documents to reflect changed field or other conditions.

12. Common Interest Developments.

(a) Pre-Litigation Costs. If the Services include the rendition of professional services for a project which is a common

interest development subject to the provisions of Civil Code section 6000, Client agrees to reimburse LSCE for all costs associated with LSCE's participation in the pre-litigation process described in Civil Code section 1375. Further, Client agrees to pay LSCE's fees for time incurred participating in the pre-litigation process. These fees and costs shall be paid as extra services in accordance with the terms set forth in **Exhibit C**. Such extra services shall be paid at LSCE's normal hourly rates in effect at the time LSCE participates in the pre-litigation process. For purposes of this paragraph, a "common interest development" shall be a common interest development as defined in Civil Code section 6000.

(b) **Indemnification**. Client agrees, to the extent permitted by law, to defend, indemnify and hold harmless LSCE, its officers, directors, employees and subconsultants from all damages, liabilities or costs, including reasonable attorneys' fees and costs, arising from or related to LSCE's participation in the pre-litigation process pursuant to Civil Code section 1375.

(c) **Notice**. Client agrees that, if Client receives a Notice of Commencement of Legal Proceedings pursuant to Civil Code section 1375, Client will notify LSCE within 10 days of Client's receipt of the Notice of Commencement of Legal Proceedings, provided the Notice of Commencement of Legal Proceedings either identifies LSCE as a potentially responsible party or the face of the Notice contains information which identifies LSCE's potential responsibility. If Client does not timely notify LSCE, then Client agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless LSCE, its officers, directors, employees and subconsultants from all damages, liabilities or costs, including reasonable attorneys' fees and costs, arising from or related to Client's failure to timely notify LSCE.

13. **Effect of Client Bankruptcy**. If Client files a voluntary petition seeking relief under the United States Bankruptcy Code or if there is an involuntary bankruptcy petition filed against Client in the United States Bankruptcy Court, and that petition is not dismissed within fifteen (15) days of its filing, LSCE shall be entitled to suspend its performance of any and all of its obligations pursuant to this Agreement. If, upon filing a voluntary petition or an involuntary petition in the United States Bankruptcy Court, Client seeks to have LSCE continue to provide Services pursuant to this Agreement, Client agrees to comply with applicable provisions of the United States Bankruptcy Code to ensure payment for any continuing or reinstated Services.
14. **Non-Waiver of Liens**. This Agreement shall not be construed to alter, affect, or waive any design professional's lien, mechanic's lien, or stop notice right which LSCE may have for the performance of Services pursuant to this Agreement. Client agrees to provide to LSCE the present name and address of the record owner of the property upon which the project is to be located. Client also agrees to provide LSCE with the name and address of any and all lenders who may loan money on the project and who are entitled to receive a preliminary notice.
15. **No Additional Obligations**. LSCE shall not be required to execute any documents subsequent to the signing of this Agreement, including but not limited to any documents that in any way might, in the judgment of LSCE, increase LSCE's contractual or legal obligations or risk, or adversely affect the availability or cost of its professional or general liability insurance. Nor shall LSCE be required to sign any documents, requested by any party, including Client, that would result in LSCE's having to certify, guarantee, warrant, or state the existence of conditions whose existence LSCE cannot ascertain. The Client also agrees not to make resolution of any dispute with LSCE or payment of any money due to LSCE, in any way contingent upon LSCE's signing any such certification, guarantee, warranty or statement.
16. **Field Conditions**. Client acknowledges that the design services performed pursuant to this agreement are based upon field and other conditions existing at the time these services were performed. Client further acknowledges that field and other conditions may change by the time project construction occurs and clarification, adjustments, modifications and other changes may be necessary to reflect changed field or other conditions. Such clarifications, adjustments, modifications and other changes shall be paid for by Client as extra services in accordance with the terms set forth in **Exhibit C**.
17. **Force Majeure**. LSCE is not responsible for delay caused by activities or factors beyond LSCE's reasonable control, including but not limited to, delays by reason of strikes, lockouts, work slowdowns or stoppages, power failures, accidents or equipment malfunctions, acts of God, failure of Client to furnish timely information or approve or disapprove of LSCE's services or instruments of service promptly, faulty performance by Client or other contractors or governmental agencies. When such delays beyond LSCE's reasonable control occur, Client agrees LSCE shall not be responsible for damages nor shall LSCE be deemed to be in default of this Agreement. Further, when such delays occur, Client agrees that, to the extent such delays cause LSCE to perform extra services, such services shall be paid for by Client as extra services in accordance with the terms set forth in **Exhibit C**.
18. **Government Actions; Limitation of Liability**. LSCE shall not be liable for damages resulting from the actions or inactions of governmental agencies including, but not limited to, permit processing, environmental impact reports, dedications, general plans and amendments thereto, zoning matters, annexations or consolidations, use or conditional use permits, project or plan approvals, and building permits. Client agrees that it is the responsibility of Client to maintain in good standing all governmental approvals or permits and to timely apply for any necessary extensions thereof.

19. Quantity Estimates. If the Services require LSCE to estimate quantities, such estimates are made on the basis of LSCE's experience and qualifications and represent LSCE's best judgment as a professional generally familiar with the industry. However, such estimates are only estimates and shall not constitute representations, warranties or guarantees of the quantities of the subject of the estimate. If the Services require LSCE to provide its opinion of probable construction costs, such opinion is to be made on the basis of LSCE's experience and qualifications and represents LSCE's best judgment as to the probable construction costs. However, since LSCE has no control over costs or the price of labor, equipment or materials, or over the contractor's method of pricing, such opinions of probable construction costs do not constitute representations, warranties or guarantees of the accuracy of such opinions, as compared to bid or actual costs.
20. Work By Third Parties. Client acknowledges that except for subconsultants or subcontractors retained by LSCE in connection with this Agreement, LSCE is not responsible for the performance of work by third parties including, but not limited to, the construction contractor and its subcontractors.
21. No Warranties. LSCE makes no warranty, either express or implied, as to its findings, recommendations, plans, specifications, or professional advice except that the services were performed pursuant to generally accepted standards of professional practice in effect at the time of performance.
22. LSCE Not Liable For Client Plan Changes Not Authorized By LSCE. In the event (1) Client agrees to, authorizes, or permits changes in the plans, specifications, documents, or electronic files prepared by LSCE, which changes are not consented to in writing by LSCE, or (2) Client agrees to, authorizes or permits construction of unauthorized changes in the plans, specifications, documents, or electronic files prepared by LSCE, which changes are not consented to in writing by LSCE, or (3) Client does not follow recommendations prepared by LSCE pursuant to this Agreement, which changed recommendations are not consented to in writing by LSCE: Client acknowledges that the unauthorized changes and their effects are not the responsibility of LSCE and Client agrees to release LSCE from all liability arising from the use of such changes, and further agrees, to the extent permitted by law, to defend, indemnify and hold harmless LSCE, its officers, directors, employees and subconsultants from and against all claims, demands, damages or costs, including attorneys' fees, arising from the unauthorized changes.
23. Venue. Client agrees that in the event LSCE institutes litigation to enforce or interpret the provisions of this Agreement, such litigation is to be brought and adjudicated in the appropriate court in Colusa County, Glenn.
24. Disputes.
- (a) Except as provided in subdivisions (b) and (c), in an effort to resolve any conflicts that arise during the design or construction of the project or following completion of the project, Client and LSCE agree that all disputes between them arising out of or relating to this Agreement shall be submitted to nonbinding mediation, unless the parties mutually agree otherwise.
- (b) Client and LSCE further agree to include a similar mediation provision in all agreements with independent contractors and consultants retained for the project and to require all independent contractors and consultants also to include a similar mediation provision in all agreements with subcontractors, subconsultants, suppliers or fabricators so retained, thereby providing for mediation as the primary method for dispute resolution between the parties to those agreements.
- (c) Subdivision (a) shall not preclude or limit LSCE's right to file an action for collection of fees if the amount in dispute is within the jurisdiction of the small claims court. Subdivision (a) shall not preclude or limit LSCE's right to record, perfect or enforce applicable mechanic's lien or stop notice remedies.
- (d) Either party shall have the option to pursue litigation to resolve any dispute arising in connection with this Agreement that is not capable of resolution by the nonbinding mediation provided for in this Section 24.
25. Independent Contractor. Client engages LSCE hereunder as an independent contractor. Client shall have no right to control, supervise, or direct the manner or method by which LSCE performs its obligations under this Agreement. In performance of this Agreement, LSCE, including any and all of LSCE's officers, agents, employees, and independent contractors, will at all times be acting and performing as an independent contractor, and will act in its independent capacity and not as an officer, agent, servant, employee, joint venturer, partner, or associate of Client. LSCE shall be solely responsible for its officers, agents, employees, and subcontractors, as applicable, and for their compensation, benefits, contributions, insurance and taxes, if any, and to the extent permitted by law, shall defend, indemnify and hold harmless Client, its officers, directors, employees and subconsultants from all damages, liabilities or costs, including reasonable attorneys' fees and costs, arising from or related to LSCE's failure to fully and timely pay same. LSCE shall not have any right or authority to make any representation nor to assume or create any obligation, express or implied, on behalf of Client.

26. Cooperation. Client and LSCE agree to cooperate with each other in order to fulfill their responsibilities and obligations under this agreement. Both Client and LSCE shall endeavor to maintain good working relationships among members of the project team.
27. Binding Agreement. This Agreement shall be binding upon the heirs, executors, administrators, successors and assigns of Client and LSCE.
28. Assignment. This Agreement shall not be assigned by either Client or LSCE without prior written consent of the other. Neither Client nor LSCE shall assign claims arising from the Agreement without prior written consent of the other.
29. Entire Agreement; Amendment. This Agreement contains the entire agreement between Client and LSCE relating to the project and the provision of services for the project. Any prior agreements, promises, negotiations or representations not expressly set forth in this Agreement are of no force or effect. Subsequent modifications to this Agreement shall be in writing and signed by both Client and LSCE.
30. Waiver. LSCE's or Client's waiver of any term, condition or covenant shall not constitute the waiver of any other term, condition or covenant. LSCE's or Client's waiver of any breach of this Agreement shall not constitute the waiver of any other breach of the Agreement.
31. Severability. If any term, condition or covenant of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Agreement shall be valid and binding on Client and LSCE.
32. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of California.
33. Notices. All notices, approvals, demands, reports and other communications provided for in this Agreement (each, a "**Notice**") shall be in writing and shall be given to such party at its address as set forth above or such address as such party may hereafter specify for the purpose by Notice to the other party listed below. Each Notice shall be deemed delivered to the party to whom it is addressed: (a) if personally served or delivered, upon delivery; (b) if given by electronic mail, upon the sender's receipt of written acknowledgment or confirmation of receipt of the entire Notice; (c) if given by mail with first-class postage prepaid, seventy-two (72) hours after such Notice is deposited with the United States Mail; or (d) if given by overnight courier with overnight courier charges prepaid, twenty-four (24) hours after delivery to said overnight courier.
34. Indian Law Provisions. If Client is a federally recognized Indian Tribe, the following additional provisions shall apply to this Agreement:
 - (a) Waiver of Sovereign Immunity. Client, for itself and by action of its tribal council and general council (together with Client and all other tribal entities of Client, collectively, the "**Tribe**") hereby expressly, unequivocally and irrevocably waives the Tribe's sovereign immunity on a limited basis in favor of LSCE (and any defense based thereon) for enforcement of this Agreement and submits, for itself, to the jurisdiction of the Superior Court State of California for the County of Yolo and any United States District Court for the Eastern District of California, over any such action and over Client, and the Tribe and LSCE each irrevocably and unconditionally agrees that all claims in respect of any such action or proceeding may be heard and determined in such California state court or in such federal court. The Tribe and LSCE each agrees that a final judgment in any such action or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by law.
 - (b) Consent to Jurisdiction. The Tribe and LSCE each consents to the jurisdiction and venue of any court referred to in subparagraph (a) above and waives any argument that venue in such forums is not convenient. In the event the Tribe commences any action in another jurisdiction or venue under any tort or contract theory arising directly or indirectly from the relationship created by this Agreement, LSCE at its option shall be entitled to have the case transferred to one of the jurisdictions and venues above-described, or if such transfer cannot be accomplished under applicable law, to have such case dismissed without prejudice.

IN WITNESS WHEREOF, the parties hereby execute this Agreement to be effective as of the Effective Date.

Client: Glenn Groundwater Authority _____ LSCE: William Z. Halligan

By: _____ By: William Halligan

GGA Chair _____ Title: Vice President

Date Signed: December 13, 2022 _____ Date Signed: 12/16/2022

EXHIBIT A
Services

[See ~~Full Proposal indicating services to be provided for the deliverables specified~~

[Attached Scope of Services](#)

EXHIBIT A

SCOPE OF SERVICES

**GLENN GROUNDWATER AUTHORITY (GGA)
GROUNDWATER SUSTAINABILITY AGENCY (GSA)
GSP IMPLEMENTATION FEE PROJECT**

The Glenn Groundwater Authority (GGA) will be administering the implementation of the Glenn Groundwater Authority fee project by and between the GGA and Luhdorff and Scalmanini Consulting Engineers (LSCE). Project expenses and progress will be tracked by task consistent with the LSCE scope of services listed below.

GLENN GROUNDWATER AUTHORITY Scope of Services

Task 1. Coordination and Communication

The LSCE Team will coordinate with the GGA as required throughout the project. The LSCE Team will provide a request for information at the start of Task 1 to ensure inclusion of all important information related to developing the draft Technical Memorandum (Task 3) and Engineer's Report deliverable (Task 4). The LSCE Team will share analyses and evaluation metrics and discuss relevance for developing recommended fees that meet future GSA revenue needs. An important step, the Outreach Plan elements specific to the Fee Study will be developed within the first 30-days from Notice to Proceed, in coordination with the GSA. Upon approval, the Fee Study elements of the Outreach Plan will be included in GSA stakeholder meeting processes to ensure transparency and opportunities for stakeholder review within the project schedule. The LSCE Team will conduct bi-weekly project calls to address issues and policy matters in a timely manner, provide regular progress reports, support the GSA in preparing key handouts and presentations as needed during the project, plan for legal counsel review of key fee assumptions and Engineer's Report review, communicate with the appropriate County Offices and other parties as needed, and coordinate with the GSA to respond to property owner inquiries concerning the proposed fees.

Task 1 Deliverables

- Conduct Bi-weekly team conference calls - prepare agendas/minutes.
- Provide periodic progress reports (monthly to be submitted with invoices).
- Prepare GSA meeting handouts and presentations as needed.
- Prepare fee study element of outreach plan (in coordination with GSAs).
- Review Task 3 and Task 4 deliverables with legal counsel (in a timely manner and as requested by the GSA).
- Communicate and coordinate with Glenn County Assessor's Office and other parties as needed.
- Respond to property owner inquiries regarding proposed fees in coordination with the GSA.
- Conduct Board Workshop (Board Meeting #1)- prepare agenda/high level meeting summary.
- Conduct Advisory/Ad-hoc Meeting #1 – Review Long Term GSA Funding Strategy- prepare agenda/high level meeting summary.

Task 2. Assessment and Parcel Evaluation

Evaluation of data received regarding the fee assessment and parcels included in the fee, which will be incorporated accordingly in Tasks 3 and 4. A draft parcel assessment list will be prepared for review. The goal is to ensure all parcels subject to the proposed GSP implementation fee are included in assessment rolls with the most updated and accurate information available. This includes, but is not limited to, parcel

data available from the GGA, parcel number and location in the Subbasin, land use designation, ownership type, parcel size, water source, and any other relevant parcel related data that would facilitate fair and equitable fees recommendations in Task 3 or 4. Identify other data sources to address data gaps and synchronize the final updated assessment and parcel data in a master file (excel and GIS) for use in Task 3. It is assumed that, based on available data, we can accurately identify parcels owned by Federal, State, and/or Tribal owners, which are not subject to fees.

Task 2 Deliverables

- Acquire and analyze current property data from the GGA, County Assessor’s Office or other appropriate County Offices, other real property information vendors and title companies, and perform Assessor data comparisons with other property data sources and validation services.
- Research parcel attributes & ownership information to appropriately calculate and assign the benefit assessments to each parcel for each year.
- Parcel Data Master File to include excel and GIS files at a minimum

Task 3. Preparation of Revenue Needs & Cost Allocation Technical Memorandum

Based on the evaluation of data from Tasks 1 and 2, the LSCE Team will review the GSP implementation costs and other documentation related to project actions and GSP implementation provided by the GSA and create a cash flow model that will summarize, and categorize GSA revenue needs (i.e., GSP administration and implementation costs) to be included in the fee study. The LSCE Team will concurrently develop up to three (3) options that are compliant with relevant laws and regulations, which could include SGMA and Propositions 26 and 218, for allocating costs to different lands/groundwater users within the GSA boundary.

The results of the analysis will be presented to the GSA and documented in a concise Technical Memorandum (TM). This analysis will be based on GSA direction and comments received at the Board Workshop (Board Meeting #1) and input from Advisory/Ad-hoc Meeting #2. To inform cost allocation options, the LSCE Team will consider work done on SGMA compliance funding strategies for other GSAs throughout California and will incorporate any insights into this project based on similar work with other GSAs with similar challenges and Subbasin conditions. For example, the LSCE Team understands that access to groundwater can vary across subbasins, and this may be a basis for adjusting how costs are allocated to specific parcels.

This task will involve analysis to support cost allocation and resulting fee option approaches for up to three (3) scenarios, based on the GSA’s five-year GSP implementation revenue needs, to be included in the TM deliverable. The analysis will be structured to address cost allocation issues considering the variety of property owners who would be subject to a fee. Cost allocation options will be compliant with relevant laws and regulations, which could include SGMA and Propositions 26 and 218, and may include different benefit- and cost-based methodologies. The LSCE Team will prepare recommended cost allocation approaches based on fee options that are feasible based on the availability of parcel level data and supporting information.

The TM will provide recommendations for cost allocation to be discussed with the GSA and stakeholder groups as identified in the Fee Study element of the Outreach Plan. A workshop for the GSAs may be included if needed to develop an understanding of the proposed fees that would support the operational and GSP implementation costs (not including projects and management actions) during the initial five-year SGMA compliance period (2023-2028). The TM will document the anticipated outcome of different cost allocation scenarios and illustrate the resulting range of fees to different classes of landowners in the GSA service area boundary. Final analysis results and recommendations will be included in the TM deliverable which will be shared with the Board for any final edits or direction. The TM and results of this task will inform and be included in the Engineer's Report developed under Task 4. Any fees developed under this task will be compliant with applicable laws and regulations, which could include Propositions 26, 218 and SGMA.

GSP Implementation Revenue Needs – Key Items to be Addressed

- Incorporate operational and GSP implementation revenue needs over the next five years (this information would be prepared by the LSCE Team in coordination with the GSA).
- Any other revenue needs identified by the GSA.

Cost Allocation – Key Items to be Addressed

- Allocate costs between landowners and/or groundwater users within the GSA service area boundary.
- Allocate costs by operational and GSP implementation categories.
- Allocate costs by land use/other land or resource-based parameters.

Cost Allocation For Up To Three (3) Fee/Allocation Scenarios

The three (3) scenarios will be developed following direction from the Board Workshop (Board Meeting #1) and input received from Advisory/Ad-hoc Meeting #2. An example of a set of scenarios is listed below for illustration purposes.

- Scenario 1: fee per acre (\$/acre) – total costs/total acres
- Scenario 2: Separate GSA Administrative and GSP Implementation Cost Fees
- Scenario 3: Separate irrigated vs. non-irrigated based fee cost allocation

Legal counsel review comments and recommendations will be reflected in TM task deliverables.

The TM will include cost allocation assumptions analyzed and corresponding fee results in easy-to-read data tables and graphical representations that will be presented for comparison by the GSA and stakeholders with recommendations for key items or approaches to be included in the Fee Study (Task 4).

Task 3 Deliverables

- Prepare Draft Technical Memorandum (TM) – for GSA and stakeholder review and comment.
- Board Meeting #2: GSA TM Fee Study Workshop – to discuss draft TM recommendations- prepare agenda/high level meeting summary.

- Conduct Advisory/Ad-hoc Meeting #2 relating to fee options- prepare agenda/high level meeting summary.
- Final TM – with cost allocation analyses results under proposed fee scenarios, incorporating Board workshop comments and recommendations, and GSA fee implementation processes.

Task 4. Preparation of Fee Study Engineer’s Report

Based on the evaluation of data from Tasks 1 and 2, and results and recommendations from Task 3, the draft Fee Study Engineer’s Report (Report) will be prepared in accordance with applicable laws and regulations, which could include SGMA and Propositions 26 and 218 requirements, and will consider long-term fee administrative costs as part of the fee option evaluation process. The draft Report will utilize the updated five-year GSA SGMA compliance revenue needs (based on initial five-year GSP implementation revenue needs’ projections prepared in Task 3), and address cost allocation issues for property owners, subject to the fee, that benefit from GSP implementation and SGMA compliance. The Report will include fee options evaluated and recommended fees to be discussed with the GSA and stakeholders as identified in the Fee Study element of the Outreach Plan. A workshop for the GSAs may be included if needed to develop an understanding of the proposed fees that support the operational and GSP implementation costs (not including projects and management actions) during the initial five-year period (2023-2028). Any fees developed under this task will be compliant with applicable laws and regulations, which could include Propositions 26 and 218 and SGMA.

GSP Implementation Revenue Needs – Key Items to be Addressed

- Incorporate operational and GSP implementation revenue needs over the next five years (this information will be prepared as part of Task 3).
- Any other revenue needs identified by the GSA as needed for SGMA compliance.

Cost Allocation – Key Items to be Addressed

- Allocate costs between landowners and/or groundwater users within the Subbasin.
- Allocating costs by operational and GSP implementation categories.
- Parcel size, type, land use and water source.
- Cost allocation scenario results presented in the Task 3 deliverable.

Develop Recommended Fees

- Consider fee options based on cost of service and equity perspectives.
- Consider GSP revenue projections over upcoming five-year fee period.
- Determine annual fee increases over five-year fee implementation period.
- Consider inflation adjustments over the period to any proposed fees.
- Prepare Notice and Protest Form or other necessary forms in compliance with applicable laws and regulations.
- Include legal counsel review comments and recommendations in Report Task deliverables.

The Board will have the opportunity to review the draft Report and provide any final comments that would be incorporated into the final Report for Board approval prior to distribution of the Proposition Notices to landowners subject to the recommended fees.

Task 4 Deliverables

- Prepare Draft Engineer’s Report – for GSA and stakeholder review and comment.
- Board Meeting #3: Conduct (1) GSA Fee Study Workshop – discuss draft Report recommendations- prepare agenda/high level meeting summary.
- Final Engineer’s Report – with final Notice, proposed fees, and GSA adoption process.
- Prepare required notices and forms for communications with landowners.

Task 5. Fee Approval

The LSCE Team will coordinate with the GSA to plan for Board Meeting #4 at which the Board would be conducting a public hearing and considering approval of the recommended fees included in the Fee Study Engineer’s Report prepared in Task 4 and approved by the Board. The LSCE Team will assist with writing the staff report, preparing meeting presentation materials, preparing any required legal notices, and being available at the public hearing to address any questions or concerns that may arise prior to fee approval by the Board. The LSCE Team will be prepared to count or tally any ballots or protests as required by the selected approach. The outreach plan will be designed to inform stakeholders and have easy access to key information and meeting dates, times and locations well in advance of any Board action to approve any new SGMA compliance fees. The LSCE Team will work with GSA staff to ensure that outreach materials are updated and available to all stakeholders in advance of any Board fee approval process regarding SGMA compliance. It is important that the sequence of events from the initial Board workshop through fee approval follow all applicable laws and regulation, which may include the Proposition 218 process public notification requirements. The LSCE Team has extensive experience with SGMA and fee implementation compliance requirements and will coordinate with the GSA early in the project schedule to ensure that the Fee Study can move forward in a timely manner. Based on the results of Tasks 3 and 4, The LSCE Team will prepare a draft final assessment levies master file for GSA review and approval at least 45 days prior to the County’s preparation of the data in Glenn County’s preferred format. The LSCE Team will coordinate with the GSA to make any final adjustments to the assessment roll with adequate notice to the Glenn County following the public hearing for fee adoption. The LSCE Team will brief the GSA in a timely manner regarding any data gaps or questionable records for parcels to be included in the final assessment roll. The LSCE Team will also coordinate with the GSA early in the process to determine if any special fee billing arrangements will be required to ensure adequate revenues are collected as part of the fee process.

Task 5 Deliverables

- Assist GSA to prepare Board Fee Approval agenda item and associated documentation including legal notices.
- Board Meeting #4: Conduct (1) GSA Fee Approval Meeting – make Board presentation, answer questions related to public hearing, and support Board fee approval processes.

- The LSCE Team to provide updated assessor’s data file to the appropriate County Office, properly formatted per Glenn County’s preferred formatting.
- Provide a test file to the appropriate County Office at least 30 days prior to the preparation of the data.

Task 6. Public Outreach

The LSCE Team will coordinate with the County and stakeholders throughout the Fee Study to ensure project deliverables meet County and stakeholder needs and are consistent with the approved Fee Study element of the Outreach Plan from Task 1. The LSCE Team will support the GSA as they will lead the public outreach efforts. The LSCE Team will coordinate with the GSA in the development of outreach materials, meeting presentations, and other documentation required to complete specified public outreach objectives. The work will be integrated with existing outreach efforts and coordinated through established GSA and stakeholder outreach processes. The LSCE Team will support the GSA for public outreach meetings and/or workshops. The LSCE Team will help address concerns related to GSP implementation revenue needs, cost of service or allocation questions or issues, Proposition 218 or other relevant laws and regulations requirements and compliance, and SGMA requirements. The LSCE Team will also coordinate with the GSA on property owner outreach and response to fee-related questions. This task may involve development of a fee fact sheet, FAQ document, and other related items as needed to complete the project on schedule and within budget while keeping stakeholders informed throughout the process.

Task 6 Deliverables

- Fee related documentation development: Fact Sheet, FAQs, Fee Study related documents.
- Prepare required notices and forms (example: Proposition 218 Notice and Protest Form).
- Presentation materials for public meetings and workshops.
- Provide progress reports on Fee Study element of Outreach Plan implementation efforts.
- Website updates and legal notification requirements.

Task 7. Final Assessment Levies And Mailing of Notices

Based on the results of Task 2, the LSCE Team will prepare a draft final assessment levies master file for GSA review and approval at least 45 days prior to the County’s preparation of the data in the Glenn County’s preferred format. LSCE will coordinate with the GSA to make any final adjustments to the assessment roll with adequate notice to the appropriate County Office following the public hearing for fee adoption. The LSCE Team will brief the GSA in a timely manner related to any data gaps or questionable records for parcels to be included in the final assessment roll. The LSCE Team will also coordinate with the GSA early in the process to determine if any special fee billing arrangements will be required to ensure adequate revenues are collected as part of the fee process.

LSCE will be responsible for preparation of any required Notice and mailing of the Notice directly to landowners subject to any SGMA compliance fees approved by the Board.

Task 7 Deliverables

Glenn Groundwater Authority-LSCE
 Scope of Services – GSA Fee Project
 For the Glenn Groundwater Authority Service Area

- Submit the final assessment roll as it may be revised following the public hearing to the appropriate County Office, properly formatted per the County’s preferred formatting.
- Provide a test file to the appropriate County Office at least 30 days prior to the preparation of the data.
- Preparation and mailing of any required Notice including coordination with any necessary entities.

GLENN GSA Project Budget

TASK #	TASK DESCRIPTION	TASK BUDGET	TASK BUDGET WITH COST SAVINGS
1.	Coordination and Communication	\$9,049	\$9,049
2.	Assessment and Parcel Information	\$4,550	\$4,550
3.	Options Evaluation Technical Memorandum	\$24,986	\$20,986
4.	Fee Report	\$24,030	\$24,030
5.	Fee Approval	\$4,939	\$4,939
6.	Public Outreach	\$9,924	\$7,435
7.	Final Assessment Levies And Mailing of Notices	\$11,771	\$11,771
TOTAL		\$89,249	\$82,760

Note: Task Budget Cost Savings if CGA/GGA collaborate on Task 3 and Task 6.

GLENN Groundwater Authority Project Schedule – Final Dates To Be Determined Upon Agreement Execution

Notice To Proceed: December 13, 2022
 Develop Outreach Plan: January 15, 2023
 Board Mtg. #1 - Workshop: January 2023
 Board Mtg. #2 – Options Review: March 2023
 Board Mtg. #3 - Fee Report Approval: April 2023

Glenn Groundwater Authority-LSCE
Scope of Services – GSA Fee Project
For the Glenn Groundwater Authority Service Area

Prop. 218 Notice Distribution: May 2023 (if Prop. 218 approach is approved)

Board Mtg. #4 - Fee Approval: July 2023

Final Tax Rolls To Appropriate County Office: August 2023

Notes:

Outreach implementation – January through July 2023.

Budget includes 4 GSA Board Meetings and 3 Advisory/Ad-hoc meetings during Project implementation.

LSCE will invoice the GSA by project task for easy tracking of project expenditures and document savings.

EXHIBIT B
Compensation/Budget

[See Attachment A]

EXHIBIT C
Extra Services

[N/A]

EXHIBIT D
Technical Specifications

[N/A]

7. UPDATE ON URBAN DROUGHT RELIEF FUNDING OPPORTUNITY

Ryan Fulton with Larry Walker Associates provided an overview of the DWR Urban Community Drought Relief Grant Program on November 14, 2022. The GGA gave direction to explore this opportunity further and bring an action item back to the board for consideration. Staff has communicated with Mr. Fulton and will provide an update on the potential grant opportunity.

More information about the program can be found at <https://water.ca.gov/Water-Basics/Drought/Urban-Drought-Grant>

8. MEMBER REPORTS AND COMMENTS

Members of the GGA Board are encouraged to share information, reports, comments, and suggest future agenda items. Action cannot be taken on items brought up under this item.

9. NEXT MEETING

The next regular meeting is scheduled for January 9, 2023 at 1:30 p.m.

10. ADJOURN

The meeting will be adjourned.

*Indicates Action Item