



PROPOSAL

GSP Implementation Tasks – Menu-style Work Plan and Fee Estimate

To: Willy Cunha, President, Board of Directors, Shandon-San Juan Water District

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This letter proposal presents a menu-style work plan and fee estimate for various tasks related to implementation of the Paso Robles Groundwater Basin (Basin) groundwater sustainability plan (GSP). Typically, each task includes options and/or modular subtasks that provide flexibility in terms of level of service and costs. Each task and subtask are numbered for the sake of organization. Each are described in detail below.

Task 1 – Instrument Monitoring Wells with Pressure Transducers

This task includes a scoping phase, consisting of field investigations of each well to identify total well depth and perforated interval(s), if possible, and to determine the optimal instrumentation setup for each well in coordination with Shandon-San Juan Water District (SSJWD). The scope of work also includes a year of maintenance at each well installation, which will include quarterly field visits to download water level data and verify proper operation and calibration of the instruments, as well as data management and reporting. We are presenting a range of costs associated with instrumentation options ranging from entry level/bare minimum to telemetry-ready setups. The variability in cost for the telemetry-ready setups are designed to accommodate a range of potential down-hole cable lengths. The actual required cable lengths will be determined during the scoping phase of the project. The costs presented are based on the assumption that ten wells will be instrumented with Van Essen® pressure transducer equipment.

Task 1.1 – Scoping

The purpose of this task is to perform a field investigation of each well intended for transducer installations and determine total well depth, perforated interval(s) (if possible), well head setup (i.e. assess available access ports, locking caps, etc.), and evaluate range of historical water levels (if available). The information gathered during this task will determine the precise instrumentation specifications required and will refine project costs. The costs associated with this task include GSI field staff hours and charges for field equipment. GSI assumes that coordination with the landowner for site access will be facilitated by SSJWD.

Deliverable: Email report of investigation findings including a recommended instrumentation setup for each well and a subsequent meeting to discuss instrumentation options and make a selection.

Task 1.2 – Installation

This task will include ordering the selected transducer instrumentation equipment and performing field work to install and calibrate each device. The costs associated with this task include cost of the transducers, GSI field staff hours, and charges for field equipment. GSI assumes that coordination with the landowner for site access will be facilitated by SSJWD.

Deliverable: Brief technical memo report of installations, including map(s) and photos.

Task 1.3 – One-Year of Maintenance

This task includes four quarterly visits to the instrumented wells to download water level data and verify proper operation and calibration of each instrument. The field work may include recalibration, if needed. This task also includes water level data management on GSI's server and reporting to SSJWD in a Power BI, or similar, dashboard-style format¹. The reporting interval will be quarterly, following each field event. The costs associated with this task include GSI field staff hours and charges for field equipment. GSI assumes that site access will be un-impeded.

Deliverable: Quarterly email updates and delivery of updated Power BI, or similar, dashboard.

Task 1 – Budget

Our fee estimate for each subtask and the various instrumentation options is presented in Table 1. The following is a brief summary of the pros and cons for each instrumentation option. We are happy to discuss these at greater length once the project is underway.

Option 1: The entry level/bare minimum instrumentation option includes just the ten downhole transducers and a separate barometric pressure logger (Baro-logger) for use in reducing atmospheric pressure interference from the water level data. In this case, the transducers will be suspended downhole with fishing line, or similar inexpensive material. The benefit of option 1 is the upfront cost savings. However, over time the initial cost savings will erode due to the additional field time required to completely remove the transducers from the wells each quarter to download data and potentially recalibrate.

Option 2: The telemetry ready instrumentation options include the option 1 equipment list, plus ‘smart’ downhole DXT cables (option 2a and 2b only differ in cable length). The benefit of option 2 is less handling of the devices. Once the transducers are installed, they can remain in the well because access to data downloading and potential recalibration is at the well head via the ‘smart’ DXT downhole cables. Another benefit of option 2 is that the wells would be telemetry ready, meaning that remote data acquisition capability could be added at the well head without disturbing the transducer installation. Option 2 has more upfront cost, but the added efficiencies and potential for telemetry upgrade would significantly reduce field work costs over time. GSI will make an instrumentation setup recommendation following the scoping phase of the project.

Option 3: The addition of telemetry (requires Option 2 as a prerequisite). This option allows remote data acquisition, real-time monitoring of groundwater levels, and greatly reduces the need for regular visits to the well head. However, periodic manual field measurements are required to maintain confidence in instrument calibration.

Regardless of the instrumentation option selected we will not exceed the estimated budget for each authorized task without first receiving approval from District representatives. We expect that we can initiate this work within one month of receiving notice to proceed. We propose to complete this work in accordance with the existing contracts we have with District.

¹ This proposal does not include costs for implementing a public facing data dashboard.

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Table 1. Task 1 Budget

Labor and Direct Expenses				
Description	Labor Hours	Labor Cost	Expenses	Total
Task 1 – Scoping	19	\$2,843	\$88	\$2,931
Task 2 – Installation	63	\$8,693	\$148	\$8,841
Task 3 – One-Year of Maintenance¹	67	\$9,600	\$350	\$9,950
Labor and Direct Expenses Totals	150	\$21,135	\$587	\$21,722

Instrumentation Options		
Option	Description	Total
1) Entry Level/Bare Minimum	Transducers and Baro-logger only	\$6,119
2a) Telemetry Ready [short cables]	Transducers and Baro-logger with DXT ‘smart’ cables [assume 110-meter cable lengths]	\$10,585
2b) Telemetry Ready [long cables]	Transducers and Baro-logger with DXT ‘smart’ cables [assume 250-meter cable lengths]	\$14,000
3) Telemetry Setup	Optional Telemetry Setup Add-on	\$11,374

Project Totals	with Option 1 (Entry Level)	\$27,841
	with Option 2 (Telemetry Ready)	\$32,307 to \$35,722 (depending on cable length)
	with Option 3 (Full Telemetry Setup)	\$43,681 to \$47,096 (depending on cable length)

1 – Note that the Maintenance task will be biased high for Equipment Option 1 and biased low for Equipment Options 2 and may be especially reduced for Option 3. This is due to the necessity to remove the instrument from the well to access data download and potential recalibration (if needed) for Option 1 vs access to data download and potential recalibration (if needed) at the well head via the ‘smart’ DXT cables for Options 2. The ability to remotely access data with Option 3 should significantly reduce maintenance costs involving field visits.

Task 2 – Additional Geophysics

Task 2.1 – WalkTEM2 Survey

GSI has secured a planning-level cost estimate from NorCal Geophysical Consultants (NorCal) to perform up to 5 days of ground-based geophysical surveying using the time-domain electromagnetic (TEM) method. This work would be performed with a WalkTEM2® or similar instrument capable of collecting data to depths of approximately 800 feet below ground surface. The purpose of this survey would be to infill data gaps in the existing SkyTEM dataset, primarily in the areas surrounding the Paso Robles Municipal Airport and in the El Pomar Junction area, thereby improving the hydrogeologic understanding of the Basincale.

Included in the fee estimate for Task 2.1 are hours for GSI to assess and select survey sites, coordinate with landowners, review geophysics sub-consultant work product, and add the generated dataset to the existing Leapfrog model. It is assumed that survey site selection and landowner coordination will be done in collaboration with and facilitated by the District.

Deliverable: Updated Leapfrog model based on WalkTEM2 survey acquired data, meeting(s) to discuss results and next steps.

Task 2.2 – Near-Surface Geophysics

As a follow-on to the WalkTEM2 survey, a more focused, near-surface geophysical survey may be utilized to refine the hydrogeologic understanding of particular area(s) in the Basin that may be suitable for potential groundwater recharge project(s). The near-surface geophysics survey would provide a higher level of detail of materials near the ground surface. These data could be utilized to refine project design(s) as well as identify potential fatal flaws, such as the presence of an impermeable layer that escaped detection during the WalkTEM2 survey. It is anticipated that these near-surface geophysics data would be used in conjunction with subsurface data collected from test pits and shallow boreholes (not included in this fee estimate). Approximate costs for two days of near surface geophysics are provided for planning purposes (based on a recent project using tTEM²).

Included in the fee estimate for Task 2.2 are hours for GSI to assess and select survey site(s), coordinate with landowner(s), review geophysics sub-consultant work product, and add the generated dataset to the existing Leapfrog model. It is assumed that survey site selection and landowner coordination will be done in collaboration with and facilitated by the District.

Deliverable: Updated Leapfrog model based on near-surface survey acquired data, meeting(s) to discuss results and next steps.

Task 2 – Budget

Our fee estimate for each subtask is presented in Table 2. We will not exceed the estimated budget for each authorized task without first receiving approval from District representatives.

Table 2. Task 2 - Budget

Description	Labor Hours	Labor Cost	Sub-consultant	Total
Task 2.1 – WalkTEM2 Survey	89	\$14,730	\$52,143	\$66,873
Task 2.2 – Near-Surface Geophysics	69	\$11,990	\$40,729	\$52,719
Project Totals	158	\$26,720	\$92,872	\$119,592

Task 3 – Borehole Analysis in Data Gap Areas

GSI has prepared a fee estimate to perform a borehole lithology analysis of available data within the data gap areas of the Basin. The purpose of this task is to utilize existing data to improve understanding of the Basin hydrogeology within the data gaps areas. This task includes making a data request for well completion reports (WCRs) from the County of San Luis Obispo Environmental Health Services (EHS), review of available WCRs, compilation of usable lithology data, and determination and documentation of the arrangement of water bearing and confining layers.

Deliverable: Documentation may include preparation of three-dimensional geologic model (optional) in addition to a brief technical memo report.

² The tTEM-system is a towed, ground-based, transient electromagnetic system, designed for detailed 3D geophysical and geological mapping of the shallow subsurface (0-80 m) in a fast and cost efficient way (<https://hgg.au.dk/instruments/ttem>).

Task 3 – Budget

Our fee estimate for task 3 is presented in Table 3. We will not exceed the estimated budget for each authorized task without first receiving approval from District representatives.

Table 3. Task 3 - Budget

Description	Labor Hours	Labor Cost	Total
Task 3 – Borehole Analysis in Data Gap Areas	100	\$13,795	\$13,795
Task 3 – Geologic Modeling (optional)	32	\$4,600	\$4,600
Project Totals	132	\$18,395	\$18,395

Task 4 – Groundwater Quality Analysis

GSI has prepared a fee estimate to perform an analysis of available groundwater quality data for the purpose of identifying potential water quality type groupings, which if present may lend support to the current hydrogeologic conceptual model of Basin compartmentalization. This task will rely on existing Basin groundwater quality datasets, such as the Irrigated Lands Regulatory Program (ILRP).

Deliverable: Brief technical memo report.

Task 4 – Budget

Our fee estimate for task 3 is presented in Table 4. We will not exceed the estimated budget for the authorized task without first receiving approval from District representatives.

Table 4. Task 4 - Budget

Description	Labor Hours	Labor Cost	Total
Task 4 – Groundwater Quality Analysis	60	\$8,210	\$8,210

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We value this opportunity to provide you with this proposal, and we look forward to continuing to serve you on this interesting project. Please contact us if you have any questions regarding our proposal.

Sincerely,
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