

GHD Project No: 12700342

June 26, 2026

Stephen McCormack
Caspar South Water District (CSWD)
srmccormack@yahoo.com
408-887-4708

Proposal for Caspar South Water District Sewer Plant Project

Dear Mr. McCormack,

GHD Inc. (GHD) is pleased to provide Caspar South Water District (CSWD) with this proposal for professional engineering services for the CSWD sewer plant project.

The project will be led locally by our proposed Project Manager, Jack Sutton of GHD's San Francisco office, and Project Director, Matt Kennedy, P.E., based in GHD's Santa Rosa office. Jack has over ten (10) years of experience with wastewater treatment plant planning, design, and operations, and is an experienced project manager and wastewater planner. Jack will serve as the primary point of contact for CSWD and will manage the GHD team to meet CSWD's expectations on quality, budget, and schedule.

The following sections summarize the previous work completed, project understanding, proposed scope of work, fee, and schedule.

Background & Project Understanding

CSWD's wastewater plant and related system has been in operation since 1982, currently serving 76 residential parcels within the Caspar South subdivision of Mendocino County. CSWD requires GHD to take a specific look at the overall condition of the system to identify existing issues and potential future projects. Major components of the sewer system include two pump stations, storage tanks, interim storage tanks, a leach field, and the collection and distribution pipe networks. The collection system is composed of approximately 6600 ft of pipe throughout the community. It is estimated that 2/3 of the collection system piping was replaced in 2015 with PVC, while the remaining third of the system is original concrete-asbestos.

Specific work related to the CSWD Request for Proposal (RFP) includes the following Tasks:

1. Project coordination
2. Current operational evaluation
3. Optional: visual condition assessment and/or CCTV
4. System improvement recommendations

Scope of Work

Based on GHD's project understanding, the scope of design services is summarized below. Additional scope can be provided at a negotiated fee.

Task 1: Project Coordination

This task is for overall project management, team coordination, progress meetings, project administration, health and safety, and related managerial items. It also includes quality assurance and quality control (QA/QC), and project invoicing during the duration of the Project.

1.1 Project Management: GHD will coordinate with team members and stakeholders during planning, including CSWD staff. Discussions and meetings will be documented with meeting notes or via email. GHD will also maintain regular contact with CSWD staff via phone calls and email to maintain open and consistent communication during the Project. GHD will submit monthly invoices and progress reports to the CSWD for our efforts on the Project.

1.2 Quality Management and Meetings: GHD will prepare a Project Quality Plan (PQP) for the Project. The PQP communicates the QA/QC procedures and identifies the documentation required at each internal and external submittal. The PQP will serve as a living document to guide quality management throughout the Project.

GHD will develop and submit a request for information (RFI) to the CSWD to obtain all available flow, load and operational data for the sewage plant. This may include the following:

- Connected population to the plant and any existing trade waste discharger/hauler agreements and future population projections over the next 30 years (if applicable/available)
- Flow information and sewage characteristics, including the last three years of totalized influent flow data to the plant

GHD's scope and budget include the following meetings:

- Kick-off meeting with CSWD to summarize scope of services, schedule, and project approach.
- Bi-weekly meetings between GHD's Project Manager and CSWD's Project Manager.
- Other workshops mentioned in other tasks (budget for these workshops is included in the other relevant Tasks).

Deliverables:

- Meeting agendas and minutes (electronic PDF)

Assumptions:

- The project will be completed within 22 weeks of notice to proceed (NTP).
- Monthly invoices will be provided with a progress report summary.
- GHD has budgeted for two (2) staff to attend the kick-off meeting (1-hour meeting).

Task 2: Current Operational Evaluation

GHD will complete a desktop electrical, structural, and mechanical evaluation of the major components of the sewer plant, which will build upon the CSWD's existing drawings/plans and documents. Our evaluation will be limited to equipment/components where desktop inspection is possible.

Prior to the condition assessment, a workshop will be held with the CSWD's engineering, operations and maintenance staff to understand which of the assets are critical to CSWD and should be included in the condition evaluation. Furthermore, this workshop allows operators to raise other condition issues that they may consider high priority for operational reasons.

GHD will be providing estimates on remaining useful life of CSWD wastewater assets. Where desktop assessment of the condition of undocumented components is not possible, GHD will use any available maintenance records, feedback from operators on any equipment replacements and utilize typical renewal periods to inform the proposed date of replacement.

We will also assess the level of service of the assets in terms of regulatory treatment requirements (current/future) and reliability and redundancy. Each process unit will also be assessed for capacity/efficiency to understand if any improvements can be made to optimize the respective system (e.g., an oversized pump that produces more flow than is required and must be throttled or recirculated due to inadequate turndown). Energy efficiency assessments will be undertaken by a desktop analysis utilizing the equipment, operational and energy data provided. Capacity of the septic system, including the leach field, will be assessed, leveraging the team's prior related experience.

In addition to evaluating the system's major components, GHD will:

- Estimate remaining service life, based on original design life (provided by CSWD or supplemented by GHD's library of resources)
- Determine where redundancy in processes should be included

Following condition assessment and desktop analysis GHD will undertake a second workshop to review the ratings of the various assets with the CSWD operators and engineers to receive their feedback on the condition and criticality ratings designated during the evaluation. GHD will summarize the selected equipment for assessment, rating system, evaluation and findings in the "Evaluation" chapter of the CSWD System Condition Report.

Deliverables

- Condition evaluation criteria, workshop agenda and minutes (electronic PDF)
- Draft evaluation chapter in the *CSWD System Evaluation Report* (electronic PDF)
- Condition evaluation review workshop agenda and minutes (electronic PDF)
- Final evaluation chapter in the *CSWD System Evaluation Report* (electronic PDF)

Assumptions:

- As-built plans will be provided by the CSWD.
- An up-to-date asset register will be provided by CSWD.
- Installation dates of equipment will be provided. If not available, and operators are unable to confidently estimate with alternate evidence as proof, GHD will not be able to assign a condition rating for that asset unless a visual condition assessment is undertaken as described in optional task 3.1 and 3.2.
- A desktop condition assessment is described above. If CSWD would prefer a greater level of detail in the assessment, then a visual condition assessment involving CCTV is proposed in the Optional Task 3.

Task 3.1 (Optional): Visual Condition Assessment

GHD will prepare a digital tool for use on a smart tablet, built from the asset register, for use in field condition assessments. The tool captures asset data in a structured format, including condition rating criteria and photographic documentation, and compiles the information into a centralized database to support future asset replacement planning and cost analysis. The digital tool will allow for compilation and formatting of readily available data provided by CSWD and update CSWD's asset inventory with findings of record review, field observations, and remaining useful life estimates. Additional assets may need to be added to the asset inventory as field assessments are completed. The tool will also allow for pre-population of fields for current performance levels and provides a framework to systematically evaluate the likelihood of failures and consequences of failures of the above assets.

Once the tool has been validated, GHD's mechanical, structural and electrical engineers will visit the Caspar South Wastewater System to visually inspect the selected equipment. The engineers will identify ratings for structural, mechanical, electrical, and instrumentation assets. An example asset evaluation form is shown in Figure 1 below, including validation of data.

Desalination Plant Asset Evaluation

GHD Asset Software Solution Internet Secure Technology GHD

Facility
Charles E. Meyer Desalination Plant

Building
HV/AC

Asset Name

Asset ID

Install Date
Tap to set

Manufacturer

Model Number

Classification (MSG)

Physical Condition Score

5 - Excellent	4 - Good	3 - Fair	2 - Poor	1 - Very Poor
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Performance Condition Score

5 - Excellent	4 - Good	3 - Fair	2 - Poor	1 - Very Poor
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Figure 1 Typical Data Collection Asset Evaluation Form

An example of rating strategy and criteria used by GHD for visual condition evaluation is included in Table 1.

Table 1 *Condition evaluation criteria*

Rating	Condition	Description	Strategy guide
0	Not rated	Asset not assessed	N/A
1	Excellent	The asset has most of its useful life remaining Reasonably near new condition	Assets were installed recently. No condition improvement work required.
2	Good	The asset has superficial wear and tear Minor defects and minor signs of deterioration to surface finishes	No major defects exist, and there is no backlog of maintenance work. Does not require any major maintenance. Normal routine maintenance to continue.
3	Fair	The asset is in average condition Deteriorated surfaces require attention Services are functional, but require attention	A backlog of maintenance work exists, which may be addressed through scheduled maintenance activities. Additional maintenance is to be investigated further.
4	Poor	The asset exhibits serious deterioration Critical structural problems The general appearance is poor, with eroded protective coating elements Elements are defective Services frequently failing, A significant number of major defects existing, and/ or safety. Minor non-compliance with regulatory requirements	Immediate maintenance is required. A renewal or replacement option should be considered.
5	Very poor	The asset has or will fail soon The asset is not operational and/or is unfit for use, and safety is compromised. Major non-compliance with regulatory requirements is being caused.	Immediate replacement or renewal is required.

Following operational evaluation and rating of each process area, GHD will conduct a workshop with the CSWD to discuss the visual condition findings. During this meeting, GHD will solicit operational input on any key concerns the operators have regarding plant operability and redundancy as well as initial feedback from CSWD on findings.

Assumptions:

- GHD structural and mechanical engineers will be on site for the following durations to perform visual condition assessments:
- Mechanical Engineer: Two (2) days for one project engineer and one project manager (2 people)
- Electrical Engineer: Two (2) days (focused on power and controls)
- Structural Engineer: Two (2) days (focused on structures critical to the plant)
- GHD will have access to all electrical rooms/boxes containing major electrical equipment.
- CSWD operators will be available to raise submerged equipment, where feasible, for visual inspection.
- CSWD operators will be available to operate and exercise valves, where needed, to support condition assessments
- GHD will not undertake any confined space entry for inspections.

Task 3.2 (Optional): CCTV Conditional Assessment

The CCTV scope for this optional task includes the provision by a vendor of a CCTV Truck and Jetter Trailer with a 2-man crew to clean and/or televise approximately 6,600 linear ft of existing sewer mains as directed. The fee for this optional task also includes GHD coordinating and supervising these efforts.

The optional CCTV scope included herein is based on a proposal from a specific vendor. CSWD may, at its discretion, elect to procure these services via direct contracting with an alternative provider. GHD remains available to support coordination as needed.

Task 4: System Improvement Recommendations

GHD will work with CSWD to identify key future drivers that may impact the project. Based on our experience on similar projects, these drivers may include:

- Potential expansion of plant inflows at the Otter Point Station due to additional residents in Caspar
- Aging critical equipment, associated risk of failure, and limited system redundancy (e.g., the ability to take assets offline for maintenance)
- Potential changes to leach fields and septic systems in a coastal setting

Data availability will be discussed at the kick-off meeting. Where data gaps exist, GHD will work with CSWD to identify a cost-effective and practical approach to obtaining the information needed to support the scope of work.

Based on the outcomes of Task 2: Current Operational Evaluation and, if selected, Task 3.1 (Optional): Visual Condition Assessment and/or Task 3.2 (Optional): CCTV Conditional Assessment, GHD will develop a list of recommended projects. Recommendations will consider asset capacity, condition, as well as feasible improvement approaches. Each recommendation will include a scope summary and a conceptual planning-level (Class V) cost estimate, along with guidance on potential funding mechanisms (e.g., grant funding and alternative delivery approaches).

GHD will then work collaboratively with CSWD to develop a 30-year improvement recommendation tailored to CSWD's operational and financial objectives. This will include a prioritized near-term program (0–5 years) based on asset risk, condition, and available funding. Near-term recommendations will focus on assets nearing the end of their useful life, regulatory compliance needs, and capacity or redundancy constraints. Prioritization criteria will be developed in collaboration with CSWD.

The 30-year recommended program will consider long-term trends in flows, potential service changes, evolving regulatory requirements and asset life-cycle planning. This approach will support proactive management of deferred maintenance, long-term capital planning, and evaluation of future system improvements.

GHD will provide a comprehensive implementation schedule identifying recommended projects, including descriptions, timing, and planning-level cost estimates over the 30-year planning horizon. Recommendations will consider existing infrastructure, site constraints, and projected system needs. An example of a similar 30-year cost plan is provided in Figure 2.

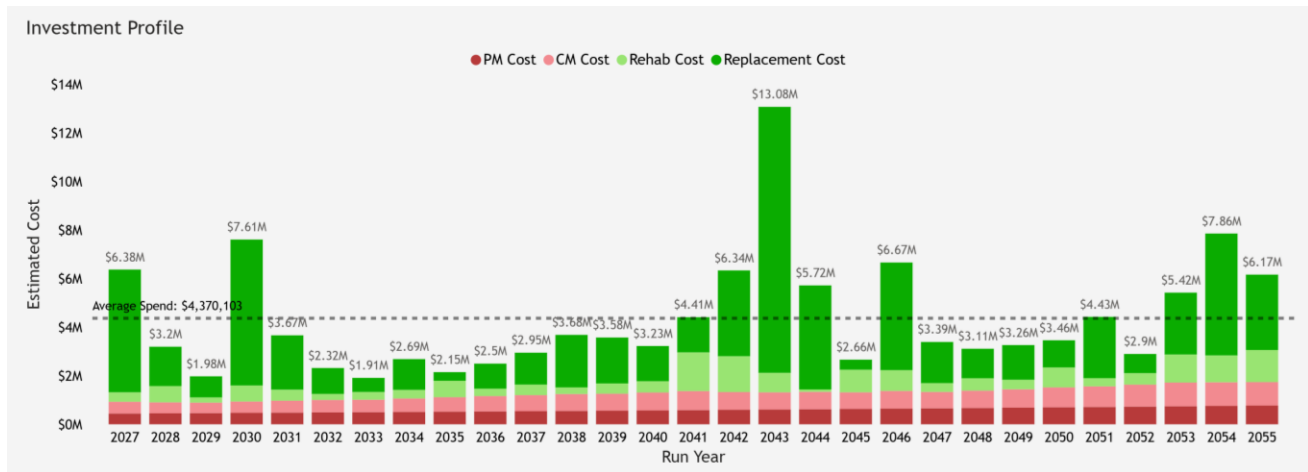


Figure 2 Example 30-Year Planning Deliverable

Deliverables:

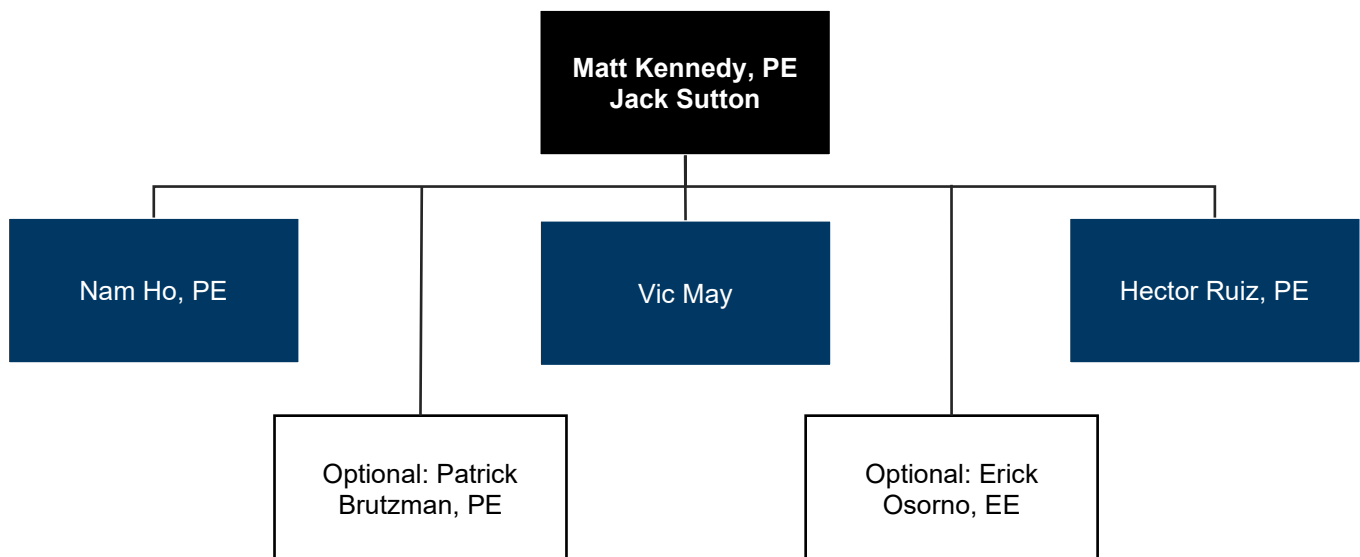
- Draft CSWD System Evaluation Report (electronic PDF)
- Improvement recommendations and plan review meeting agenda and minutes (electronic PDF)
- Final CSWD System Evaluation Report (electronic PDF)

Assumptions:

- Project estimates will be planning-level cost opinion for asset replacement and rehabilitation costs. Replacement and rehabilitation costs are opinions based on various factors, assumptions, definition of work for asset removal and replacement, and the replacement cost accuracy can range from +50% to -30% AACE Level V OOPC cost guidelines will be utilized.
- GHD assumes CSWD will provide data in a digitized format (e.g. in excel or Word format).
- GHD will identify any additional sampling that CSWD should consider before commencing the projects identified in the system improvement recommendations. GHD has not allowed any costs or labor effort associated with additional sampling that may be required as it is assumed Caspar South WD would contract directly with companies/services identified by GHD.
- Where the data listed above cannot be provided, GHD will assume typical default values from literature sources. GHD will not be at fault for any of the accepted values being incorrect. GHD
- GHD assumes CSWD will provide population data. If required, GHD can undertake an analysis of the currently connected population using sewer network plans and census data for a negotiated fee.
- If CSWD does not have future population projections available, CSWD shall provide GHD with an annual growth rate to be assumed.
- CSWD will provide one set of consolidated comments for the technical memorandum. GHD will review and incorporate these comments in the draft report.
- Project stakeholders, including CSWD staff, will be available to attend the workshop.
- A list of agreed-upon Project drivers will be documented in the meeting minutes.
- CSWD can provide asset list with years of installation for each asset.

GHD Project Personnel

Resumes of key project personnel are provided in Attachment 2.



Matt Kennedy, P.E. will support **Jack Sutton**; bringing over twenty-three (23) years of experience in civil infrastructure projects. Matt will provide quality management and project management support. Jack and Matt's history of collaborative project delivery has been highlighted in their work as the key engineers for the Mendocino WWTP Recycled Water Upgrades Project.

The team will also include the following engineers from various disciplines to undertake the project:

- **Vic May (San Francisco):** Will undertake the mechanical condition evaluation, leveraging their knowledge of legacy wastewater infrastructure from their work on the condition assessments for the City of Millbrae Water Pollution Control Plant (WPCP) and the Gaviota Oil Heating Facility Wastewater Treatment Plant (WTP).
- **Hector Ruiz, P.E. (Irvine):** Will serve as senior advisor for the methodologies of condition evaluation and improvements planning. Hector has over thirty-four (34) years of experience in utility engineering management and planning, design and construction of improvements to wastewater systems. His experience includes work with engineering, planning, maintenance and operations personnel on processes, condition assessment protocols and asset management.
- **Nam Ho, P.E.:** Will provide technical advising for septic treatment systems. Nam held roles as inspector, permit reviewer, and engineer gaining knowledge in water infrastructure, treatment design, and compliance during his time in regulation. He transitioned to engineering consulting and worked on delivering projects for wastewater linear infrastructure, pump stations, lift stations, storage tanks, water treatment plants, septic systems and wastewater reclamation plants.

The following personnel will be included on the project team if Optional Task 3 is selected.

- **Patrick Brutzman, P.E. (San Francisco):** If selected, will undertake the structural condition assessment of assets as a part of Optional Task 3. Patrick has strong structural design and analysis experience from preliminary evaluation to design and construction.
- **Erick Osorno, E.E. (Santa Rosa):** If selected, will undertake the electrical condition assessment of assets as a part of Optional Task 3. Erick has experience with planning and designing rehabilitation and improvement of electrical systems at wastewater treatment plants, including assessments to evaluate the condition and performance of existing electrical systems.

Past Related Projects

GHD has worked on several projects with condition evaluation and improvement recommendations including:



City of Millbrae WPCP Masterplan, including condition and future options assessments. Jack Sutton led this project and was supported by Hector Ruiz, PE, Patrick Brutzman, PE and Vic May to develop a masterplan for the WPCP with the City of Millbrae. The WPCP is experiencing ageing equipment and lack of site footprint for additional upgrades. The project is undertaking a condition assessment to establish a baseline level of upgrade costs for the existing plant. The project will then assess options to handle the future nutrient discharge requirements including intensified biological nutrient removal, membrane bioreactors and recycled water. A 30-year Capital Improvement Plan will be developed for the City.



The County of Santa Barbara General Services Department (CGS) is evaluating the reuse of the Gaviota Mariposa Reina Site, including a seawater reverse osmosis (SWRO) plant and a small package wastewater treatment plant (WWTP). The condition assessment and overall delivery of this project was supported by Hector Ruiz, PE and Vic May. CGS contracted with GHD to assess the SWRO and WWTP to understand the estimated remaining life of key equipment, components and infrastructure. Planning level budgetary costs for needed rehabilitation, replacement, and operation & maintenance (O&M) expenditures of the existing and upgraded infrastructure were also determined.



Jack Sutton and Matt Kennedy, PE, have served as Process Engineer/Design Manager for upgrades at the **Mendocino WWTP**, with electrical engineering management provided by Erick Osorno, EE. The upgrades involve an expansion to the Title 22 recycled water system including a new chlorine contact basin, recycled water transfer pumps and distribution mains and 250,000-gallon recycled water storage tank. The upgrades also include new process equipment to maintain Title 22 compliance including enhancing nutrient removal through replacement of the aeration system, installing a mixed liquor recycle and a coagulation system. Jack has led the design including developing process models, P&IDs, mechanical drawings, technical specifications and coordinating structural/electrical disciplines. Mendocino is in the process of retaining GHD to undertake a masterplan for their facility.

Fee

GHD proposes a time-and-materials **base fee** of **\$42,197** (inclusive of **Task 1: Project Coordination**, **Task 2: Current Operational Evaluation** and **Task 4: System Improvement Recommendations** in this proposal) not to proceed without written authorization to complete this scope of services.

Optional tasks can be exercised at the CSWD's discretion;

we offer **Task 3.1 (Optional): Visual Condition Assessment** for a fee of **\$26,722**,

and **Task 3.2 (Optional): CCTV Conditional Assessment** for a fee of **\$22,122**.

A detailed breakdown of the fee is included as Attachment 1. Services not included in this proposal can be provided by a negotiated fee, negotiated rates will be subject to annual escalations in July each calendar year.

Assumptions and Clarifications

- Project representative and/or CSWD shall provide requested information, if available.
- CSWD will provide written review comments on the draft as one consolidated set, and GHD will update for the final.
- This document is and shall remain the property of GHD. The document may only be used for the purpose of assessing our offer of services and for inclusion in documentation for the engagement of GHD. Unauthorized use of this document in any form whatsoever is prohibited.
- Upgrade recommendations when a deficiency is identified and an associated Class V cost for it will be sufficient for the extent of this work, and an options assessment will not be undertaken by GHD.

The following services have been excluded from GHD's scope/fee. GHD remains open to direct contracting or coordination support as these items are defined below. We will identify any additional services that could be useful for Caspar South WD to undertake to inform a complete evaluation of their system.

- Diagnostic condition assessments are excluded, e.g., material testing. Condition assessment will be based on visual observations by engineers if selected and/or the age of the assets.
- GHD has not scoped or budgeted to provide permitting support.
- Assessment of interior components of electrical equipment.
- Assessment of concealed raceways, cables, and interior valve components.
- Entry into and assessment of confined spaces.
- Visual evaluation of submerged or underground assets (unless lifted by operations staff or recorded by CCTV task).
- Diagnostic testing of concrete (e.g., core sampling or non-destructive testing).
- Electrical system analysis, including, but not limited to: hazard analysis, failure analysis, short circuit studies, arc flash analysis, and coordination studies.
- Condition assessment of operator alerting equipment (assumed to be covered under a separate SCADA/communications master plan).
- Assessment of site telecommunications systems.
- Assessment of fire alarm systems.
- Assessment of administrative and maintenance buildings.
- Assessment of all ancillary valves and small fittings (only critical equipment/valves will be reviewed).
- Intrusive inspections, advanced diagnostics, or material testing of any assets.
- Development and implementation of in-depth or intrusive condition assessments unless added as an optional task with a separate fee.

- GHD assumes no hydrogeologic modelling of leachate impacts is required.
- Flow gauging has not been included in our fee. GHD will identify the need for this work if necessary.
- Additional wastewater sewage sampling to determine BOD, TSS, VSS, COD, TKN, NH3-N, TP, alkalinity concentrations is not included in our base fee. We will identify the need for any additional sampling.

Schedule

GHD will comment on the project schedule following receipt of NTP. GHD anticipates that this project will take 22 weeks to complete the deliverables following the kick-off meeting. A summary of anticipated milestone dates from NTP is provided in Table 2. The final schedule will be confirmed with CSWD during the Kick-Off Meeting. This schedule includes a two-week holiday shutdown period observed by GHD offices in the last week of December and First week of January.

Table 2 *Project Timeline with Task Basis*

Task	Timeline
1 Project Coordination	~22 Weeks Total
1.1 Contract Award	1 Day
1.2 Kick Off-Meeting	1 Day
1.3 Request for Information	2 Weeks
2.1 Current Operations Evaluation	3 Weeks
2.1.1 Evaluation Criteria Meeting	1 Day (overlaps with 2.1)
3 Optional Visual Condition Assessment and CCTV	4 Weeks (adds additional time to Task 2 delivery)
2.2 Current Operations Evaluation Review Meeting	1 Day
2.3 Current Operations Evaluation Feedback and Update	2 Weeks
4.1 System Improvement Recommendations	6 Weeks
4.2 Submit Draft Report	1 Day
4.3 CSWD Review Draft	2 Weeks
4.4 Draft Report Review Meeting	1 Day
4.5 Final Report Delivery	2 Weeks

GHD's standard terms and conditions apply until the CSWD's agreement terms are provided. GHD standard terms and conditions are included in Attachment 3.

Regards



Jack Sutton
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Matt Kennedy
Project Director
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matt.kennedy@ghd.com

Attachment 1

Fee Breakdown



Caspar South Water District Sewer Project
12700342

Description		Project Director	Project Manager	Project Engineer	Project Engineer	Senior Advisor	Advisor	Project Engineer	Project Services	Total Hours	Labor Total	Subcontractor	Subs Markup	Total Subcontractors	Disbursement	Disb. Markup	Disb. Fee	Total Disbursements	Estimated Project Total	
		Matt Kennedy	Jack Sutton	Patrick Brutzman	Enick Osorno	Hector Ruiz	Nam Ho	Vic May	Diana Nakamura											
		\$299	\$221	\$221	\$238	\$280	\$238	\$140	\$137											
Task1		4	12	0	0	0	0	8	6	30	\$5,790	\$0	\$0	\$0	\$0	\$0	\$0	\$347	\$347	\$6,137
Subtask 1.1	Project Management and Meetings	4	8	0	0	0	0	0	6	18	\$3,786	\$0	\$0	\$0	\$0	\$0	\$0	\$227	\$227	\$4,013
Subtask 1.2	Kick-off Meeting	0	2	0	0	0	0	2	0	4	\$722	\$0	\$0	\$0	\$0	\$0	\$0	\$43	\$43	\$765
Subtask 1.3	Request for Information	0	2	0	0	0	0	0	6	8	\$1,282	\$0	\$0	\$0	\$0	\$0	\$0	\$77	\$77	\$1,359
Task2		0	26	4	4	4	4	76	0	118	\$20,294	\$0	\$0	\$0	\$0	\$0	\$0	\$1,218	\$1,218	\$21,512
Subtask 2.1	Current Operations Evaluation	0	20	4	4	4	4	60	0	96	\$16,728	\$0	\$0	\$0	\$0	\$0	\$1,004	\$1,004	\$17,732	
Subtask 2.2	Evaluation Criteria Meeting	0	2	0	0	0	0	2	0	4	\$722	\$0	\$0	\$0	\$0	\$0	\$0	\$43	\$43	\$765
Subtask 2.3	Current Operations Evaluation Review Meeting	0	2	0	0	0	0	0	2	4	\$722	\$0	\$0	\$0	\$0	\$0	\$0	\$43	\$43	\$765
Subtask 2.4	Current Operations Feedback and Update	0	2	0	0	0	0	12	0	14	\$2,122	\$0	\$0	\$0	\$0	\$0	\$0	\$127	\$127	\$2,249
Task3		0	40	24	24	4	0	40	2	134	\$26,850	\$15,000	\$2,250	\$17,250	\$2,725	\$409	\$1,611	\$4,745	\$48,845	
Subtask 3.1	Optional Visual Condition Assessment	0	24	24	24	4	0	40	0	116	\$23,040	\$0	\$0	\$0	\$2,000	\$300	\$1,382	\$3,682	\$26,722	
Subtask 3.2	CCTV	0	16	0	0	0	0	0	2	18	\$3,810	\$15,000	\$2,250	\$17,250	\$725	\$109	\$229	\$1,062	\$22,122	
Task4		6	18	0	0	4	4	42	0	74	\$13,724	\$0	\$0	\$0	\$0	\$0	\$0	\$823	\$823	\$14,547
Subtask 4.1	System Improvement Recommendations	0	8	0	0	0	0	20	0	28	\$4,568	\$0	\$0	\$0	\$0	\$0	\$0	\$274	\$274	\$4,842
Subtask 4.2	Submit Draft Report	4	4	0	0	4	4	4	0	20	\$4,712	\$0	\$0	\$0	\$0	\$0	\$0	\$283	\$283	\$4,995
Subtask 4.3	Draft Report Review Meeting	0	2	0	0	0	0	2	0	4	\$722	\$0	\$0	\$0	\$0	\$0	\$0	\$43	\$43	\$765
Subtask 4.4	Final Report Delivery	2	4	0	0	0	0	16	0	22	\$3,722	\$0	\$0	\$0	\$0	\$0	\$0	\$223	\$223	\$3,945
Total Labor Hours		10	96	28	28	12	8	166	8											
Estimated Project Total		\$2,990	\$21,216	\$6,188	\$6,664	\$3,360	\$1,904	\$23,240	\$1,096	356	\$66,658	\$15,000	\$2,250	\$17,250	\$2,725	\$409	\$3,999	\$7,133	\$91,041	

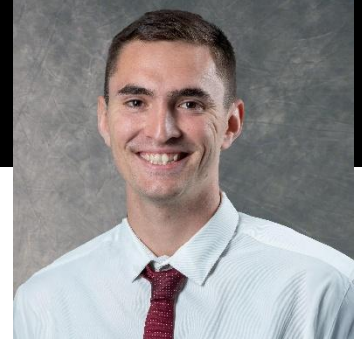
Attachment 2

Project Personnel



Jack Sutton

Process Engineer and Service Line Coordinator,
Americas Wastewater Treatment



Location

San Francisco, CA

Experience

10 years

Qualifications/Accreditations

- BE, Chemical Engineering (Industrial Chemistry) (First Class Honors and University Medal), University of New South Wales, Sydney, Australia

Key technical skills

- Project/Design Management
- Infrastructure Planning and Strategy
- Wastewater Treatment Plant (WWTP) Design and Operation
- Biosolids and Sludge Treatment
- Biological Process Modelling
- Disinfection/Recycled Water

Memberships

- California Water and Environment Association
- Water Environment Federation - Contributor to *Anaerobic Co-digestion: Principles and Guidelines Toward More Efficient Systems*

Relevant experience summary

Jack Sutton has nine years of experience within the municipal water and wastewater industry, including consulting experience relating to project management, treatment plant capacity assessments, upgrade strategies, and concept and detailed design projects. Jack's experience at Sydney Water grounded him with a background in operations. This has provided him with a solid understanding of the challenges faced by water authorities. Jack serves as the service line coordinator for wastewater treatment and recycling at GHD, a role that sees him interfacing with all wastewater treatment professionals at GHD to standardize design approaches, facilitate knowledge, sharing, and investigate emerging technologies within the market.

Municipal WWTP Co-Digestion Alternatives

Project Manager and Process Engineer
ENGIE U.S. Services | Confidential Location |
12/2022 - Ongoing | \$176,000 (Design)

GHD undertook an alternatives analysis and preliminary design of solids train treatment plant upgrades to accept and co-digest organic waste from various industrial contributors including food manufacturing waste, chocolate waste, winery waste and brewery waste at a 2.5 mgd municipal WWTP. Upgrades include an industrial waste tanker receival facility, anaerobic digestion, thickening, cogeneration, dewatering and side stream treatment. BioWin™ and GPS-X process models were prepared, and results were compared to a specialist Anaerobic Digestion Model (ADSM1) by the University of Queensland to verify results. A sampling and analysis plan for the organic waste was prepared.

Redway Community Services District ***Wastewater Treatment Facilities Upgrades***

Process Engineer
Redway Community Services District | Redway, CA |
3/2022 - Ongoing | \$20 million (Capital)

The wastewater treatment facility was identified to have several assets nearing end of life. GHD is designing a new mechanical inlet works with screening and grit removal, upgrading the oxidation ditch aeration, replacing miscellaneous clarifier mechanical equipment, sludge pumping upgrades, effluent pumping upgrades, a rotary screw press for biosolids dewatering and a greenhouse cover for the sludge beds for drying. Jack is leading the process design. A BioWin™ model was calibrated using influent, effluent nitrogen/ammonia and operational data. This calibrated model was then used for the basis the treatment upgrades to service the permit flow capacity.

Selfs Point Sewage Treatment Plant (STP) Concept Design

Process Engineer

TasWater Capital Delivery Office | Hobart, Tasmania, Australia | 6/2021 - 3/2022 | \$500,000 (Design)

TasWater is seeking to expand the existing Selfs Point STP to accommodate predicted flow from the existing Selfs Point and accommodate flow from the decommissioned Macquarie Point STP. This translated to a major process augmentation at Selfs Point STP (8 ML/d -->24.9 ML/d). Involved in the process engineering design development comprising:

- Dynamic BioWin™ modelling and bioreactor/Membrane Bioreactor (MBR) configuration selection and sizing. Originally TasWater wanted to incorporate biological phosphorus removal in a five stage Bardenpho process with an MBR. However, the modelling showed that the phosphorus was being released during anaerobic digestion and recycled through recuperative thickening and dewatering side streams back to the mainstream process. Therefore, alum dosing and a four stage Bardenpho process with a MBR was recommended to limit the release of phosphorus.
- Modelling impact of tankered high strength industrial waste to the process.
- Secondary treatment and aeration system sizing
- Sludge thickening, tanker receipt, digestion, biogas, sludge heating and dewatering sizing
- Investigating primary thickening alternatives incl. conventional sedimentation, lamella clarification and mechanical primary treatment.
- Development of mass/energy balances and Piping and Instrumentation Diagrams (P&IDs).

Mendocino City Community Services District Recycled Water Upgrades

Process Engineer/Design Manager

Mendocino City Community Services District | Mendocino, CA | 3/2025 - Ongoing | \$2.3 million (Design)

Serving as Process Engineer/Design Manager for upgrades at the Mendocino WWTP. The upgrades involve an expansion to the Title 22 recycled water system including a new chlorine contact basin, new recycled water transfer pumps and distribution mains, 250,000-gallon recycled water storage tank. The upgrades also include new process equipment to maintain Title 22 compliance including enhancing nutrient removal through replacement of the aeration system piping and diffusers, installing a mixed liquor recycle pump to enhance denitrification and a coagulation system to handle clarifier solids carry-over. Jack is leading the design including developing the process models, P&IDs, mechanical drawings, technical

specifications and coordinating structural/electrical disciplines.

Central Contra Costa Sanitation District Wet Scrubber and Multiple Hearth Furnace Design Review

Project Engineer

Central Contra Costa Sanitation District | Martinez, CA | 2/2022 - Ongoing | \$150 million (Capital)

After the rejection of the Solids Handling Facility Improvements, District Project 7348 (Solids Project) bids by the Board of Directors on September 2, 2021, Central Contra Costa Sanitation District is reviewing and re-packaging the project for bidding a reduced scope, focused on implementing those scope items for reliability and regulatory expectations for the next decade. GHD was engaged to undertake the design of two new wet scrubbers, three booster pumps, caustic supply, and other ancillaries. GHD was also engaged to design improvements to the multiple hearth furnaces including new auxiliary blowers, shaft cooling fans, center shaft drives, combustion air blowers, afterburners, gas/air piping/valves and controls/instrumentation.

Kurri Kurri Wastewater Treatment Works (WWTW) Upgrade Detailed Design and Construction

Process Engineer

Hunter Water | Newcastle, NSW, Australia | 7/2019 - 2/2020 | \$1.2 million

Served as Process Engineer for the detailed design of upgrades at Kurri Kurri WWTP. These upgrades included provision of a third clarifier, new return activated sludge pumps, two bioreactor aeration blowers/associated pipework, a wet weather return pump station and interfacing infrastructure. Specific tasks completed include:

- Developed the basis of design
- Process flow diagram, P&IDs and mass balance
- Detailed design of clarifier, secondary aeration, and bypass/wet weather control
- Design Basis, Hazard and Operability, Control Hazard and Operability Study workshop facilitation
- Automatic Control and Monitoring Manual
- Various design checks and Biowin™ modelling of the Modified Ludzack-Ettinger (MLE) process including various aeration scenarios to assess the suitability of operating two pairs of blowers of different sizes.

Central Buckeye WWTP Upgrades Project

Process Modelling

City of Buckeye | Buckeye, AZ | 7/2025 - Ongoing | \$2.8 million (Design)

The City of Buckeye is experiencing significant growth. This has necessitated them to upgrade their treatment plant from a 3 MGD average flow conventional activated sludge to an intensified process with 6 MGD average flow capacity. GHD considered various intensification options and selected an MBR retrofit of one of the trains to accommodate the increased flows. GHD is also undertaking upgrades of the headworks, solids handling process and disinfection system. Served predominantly as a process modelling subject matter expert and provided ongoing support to the design teams. The process modelling included some nuisances such as investigating low DO operation versus external carbon dosing, removal of one existing aerobic zone due to secondary MBR aeration, considering options to maximize redundancy so one train can remain online e.g. removeable diffuser grids and Invent mixing systems, process modelling also involved calibrating the existing site airflow data to determine a historical alpha factor and then modify this alpha factor to account for the higher mixed liquor suspended solids of the MBR process.

Millbrae Water Pollution Control Plant (WPCP) Masterplan

Project Manager

City of Millbrae | Millbrae, CA | 10/2025 - ongoing

Serving as Project Manager to develop a masterplan of the WPCP with the City of Millbrae. The WPCP is experiencing ageing equipment, lack of site footprint for additional upgrades and the imminent San Francisco Bay Watershed Nutrient Permit, which by 2034 will require the plant to significantly reduce the Total Inorganic Nitrogen discharged to the Bay in the Summer Months. The project is undertaking a condition assessment to establish a baseline level of upgrade costs for the existing plant. The project will also assess the hydraulic capacity of the plant which is currently constrained at the influent and the discharge. The project will then assess options to handle the future nutrient discharge requirements including intensified biological nutrient removal, membrane bioreactors and recycled water. A 30-year Capital Improvement Plan will be developed for the City.

Monterey Microgrid and Renewable Energy

Process Engineer

Monterey One Water (M1W), ReGen | Monterey, CA | 2022-2024

Undertook feasibility analysis, including organics-to-energy study (food waste co-digestion, landfill gas utilization) and microgrid pre-design for M1W and ReGen (formerly Monterey Regional Waste Management District). Served as Process Engineer who assessed the impacts of the co-digestion scheme on the regional treatment plant and identified the upgrades

required for the rest of the plant to accommodate the increased biogas, solids and Sidestream nutrient production from co-digestion.

Millbrae Sludge Thickener and Digester No. 2 Upgrades

Project Manager

City of Millbrae | Millbrae, CA | 6/2023 - 4/2023

Served as Project Manager for upgrades to the sludge thickener including new mechanical equipment for the thickener, new pipe penetrations, structural repairs of the tank, new variable frequency drive and electrical interconnections. The project also involved the rehabilitation of concrete and steel within an existing anaerobic digester. Project was delivered under the design budget and within timeframe.

Elk River WWTP Hydraulic Upgrades Preliminary Design

Project Manager

City of Eureka | Eureka, CA | 2/2023 - 9/2023

The City of Eureka was experiencing secondary treatment wet weather bypasses at the Elk River WWTP. Consequently, the City was looking to alter their National Pollutant Discharge Elimination System (NPDES) license to enable secondary treatment of a Peak Wet Weather Flow (PWWF) of 24 MGD. This translates to doubling the current hydraulic capacity of the plant (12 MGD). GHD assessed alternatives to accommodate the increase in PWWF including implementation of Chemically Enhanced Primary Treatment (CEPT) and expansion of the trickling filter solids contact process.

Investigated the capacity of the trickling filter solids contact and secondary clarifier processes, as well as investigating the requirements of implementing CEPT. This involved undertaking jar tests for CEPT and preparing a concept process/mechanical design. To assess the solid contact trickling filter process settleability testing was undertaken at the site. It was found that the WWTP could accommodate the hydraulic flow increase by upgrading the trickling filter feed pumps and return suspended solids pumps. If a traditional textbook approach was taken in lieu of the settleability testing then the City would have been required to install an additional clarifier, this approach saved the City an estimated \$2+ million in capital expenditure.

Unregulated Organic Chemicals in Biosolids Research Project

Project Manager

Confidential Client | San Francisco Bay Area, CA | 11/2022 - 10/2024 | \$1 million (Design)

GHD is supporting an Environmental Protection Agency National Priorities grant-funded research program, led

by the University of Purdue studying the fate of unregulated organic chemicals, including Per- and Polyfluoroalkyl Substances (PFAS) during biosolids application. The research is being undertaken at three San Francisco Bay Area Municipal Agencies. GHD is developing the sampling and analysis plans, characterization workplans, undertaking soil, ground water, biosolids, surface water and plant tissue sampling. GHD is working with Purdue University (undertaking the analysis) to report the results of the research.

The research findings will have immediate and broad implications for the scientific community, water sector, and the broader community in ensuring the safe reuse of biosolids through land application. GHD was responsible for undertaking the sampling and managing the analysis aspects of the project in collaboration with local laboratories as well as Purdue University. Serving as Project Manager coordinating the GHD sampling teams, laboratory liaison budget, and schedule

Central Coast Council Asset Revaluation, Asset Management Plans and Strategy

Project Engineer

Central Coast Council | Wyong, NSW, Australia | 7/2020 - 11/2021 | \$370,000 (Design)

GHD was engaged to work collaboratively with Council to prepare an asset management strategy, asset management plans and a revaluation of Council's Water and Sewer Assets to support their pricing submission to the financial regulator (IPART). Served as Project Engineer for the revaluation, and has been responsible for reviewing asset documentation, creating a financial register, developing asset management plans for wastewater treatment, water treatment and recycled water infrastructure, undertaking fair value and depreciation calculations.

Hunter Water Centralized Biosolids Strategy Cost Benefit Analysis

Project Manager, Process Engineer

Hunter Water | Newcastle, NSW, Australia | 3/2020 - 3/2021 | \$450,000

Served as Project Manager for an interdisciplinary centralized sludge management strategy for Hunter Water. The strategy assessed replacing business-as-usual sludge management of decentralized aerobic digestion at 10 WWTW with a centralized anaerobic/gasification facility (26 dry solid tonnes of Waste Activated Sludge [WAS] per day) to reduce lifecycle costs and achieve carbon neutrality targets. The project involved:

- Technology shortlisting of biosolids processes
- Site identification and shortlisting

- Development of novel mass and energy balance models for unconventional technologies.
- Adaptive planning framework to develop options resilient to future uncertainties (i.e., market volatility, load changes and regulatory changes)
- Cost-benefit analysis of a number of options compared to the base case of decentralized aerobic digestion

Stuarts Point Sewage Treatment Options Study, Concept, and Reference Design

Process Engineer/Project Manager

Kempsey Shire Council | Kempsey, NSW | 7/2019 - 11/2021 | \$350,000

Worked with Kempsey Shire Council to prepare options, concept, and a reference design for a Greenfield STP at Stuarts Point, involving:

- Determination of current and future population projections in the catchment, including holiday and off-peak periods
- Development of options including Biowin™ modelling of IDEA, Sequencing Batch Reactors (SBR), MBR, and MLE processes, as well as multiple sludge management options
- Concept and reference design and design coordination of electrical, civil, process, surveying, and geotechnical disciplines
- Developed P&IDs, process flow diagrams, Biowin model for the STP and mass balances

Edgeworth WWTW Upgrade Strategy

Process Engineer

Hunter Water | Edgeworth, NSW, Australia | \$47,000 | 8/2018 - 1/2019

Worked with Hunter Water's Wastewater Planning Team to prepare the Edgeworth WWTW (projected 87,000 EP) Upgrade Strategy, including:

- Preparing existing major infrastructure details and revised process/hydraulic capacity assessment
- Investigating optimization opportunities
- Developing flow projections
- Facilitating a value management workshop to shortlist a long-proposed list of options
- Options development of MLE, Moving Bed Biofilm Reactor (MBBR), primary clarifier/anaerobic digestion and MBR process configurations incl. development of BioWin™ models for each option
- Process modelling, operational philosophies, infrastructure requirements and cost estimation (Operating Expenses (OPEX), Capital Expenditures (CAPEX), and Net Present Value (NPV))
- Facilitating an options comparison workshop to guide stakeholders in selecting a preferred option

- Staging plans for the process units to delay capital expenditure where appropriate

Wickenburg Ultraviolet (UV) Disinfection

Project Engineer

Town of Wickenburg | Wickenburg, AZ | 1/2022 - Ongoing | \$105,000

Based on population growth projections and demand, the UV system at Wickenburg treatment plant will need to be upsized from 0.8 mgd to 1.3 mgd. Additionally, the plant is experiencing operational issues and would like to replace the UV equipment and configuration based with newer UV technology available on the market. GHD is conducting the design of the new UV disinfection system. Responsible for the process design, designing the effluent pump station, liaising with Trojan to develop the UV disinfection design, and supporting the hydraulic profile development.

Sonoma Tanks Replacement Project

Project Engineer

County of Sonoma Department of Transportation and Public Works | Sonoma County, CA | 11/2021 - Ongoing | \$625,000

This engagement is divided into two aspects. The provision of 200,000-gallon leachate storage tanks at the Guerneville, Roblar, and Sonoma sites, as well as the design of additional three 100,000-gallon water storage tanks for firefighting purposes in the Fitch Mountain Water System. GHD was engaged to undertake the civil, structural, electrical, and mechanical design of these tanks. Supporting the civil design, as well as general discipline coordination across the project.

Gwandalan STP Capacity and Condition Assessment

Project Manager

Central Coast Council | Wyong, NSW, Australia | 8/2020 - 12/2020 | \$74,000

Managed a team of consultants to provide CCC with a plant capacity/condition assessment. The project involved:

- Site audit and condition assessment
- Flow and load estimation
- Hydraulic assessment
- Process capacity assessment
- Working with CCC to identify a preferred staged capital works plan for the plant
- Option development and cost estimation

Upgrading of Naboro WWTP

Process Engineer

Water Authority of Fiji | Viti Levu, Fiji | \$70,000

Worked with the Water Authority of Fiji to:

- Process capacity assessment of existing oxidation ditch plant
- Prepare an upgrade strategy for the oxidation ditch plant to service future growth of the Naboro Prison Complex
- Maximize use of existing infrastructure by considering brownfield upgrades, including Intermittent Decanted Extended Aeration (IDEA) with existing ditch for storm retention, conversion of existing ditch to anoxic tank for Modified Ludzack-Ettinger (MLE) process, primary clarification to reduce loads on the ditch

Review of Recycled Water and Stormwater Harvesting Systems

Process Engineer/Project Manager

Central Coast Council | Wyong, NSW, Australia | 10/2019 - 1/2020 | \$55,000

Managed a team of consultants to provide CCC with a comprehensive strategy to prioritize investment for their various recycled water and stormwater harvesting systems. This project received high praise from the client (5/5 survey feedback) The project involved:

- Site audits to investigate condition of assets and operational efficiencies
- Process capacity assessments and data analysis to assess historical quality compliance
- Status of the schemes and cost estimates to maintain s292 approval
- Investigation of future demand through a Geographic Information System (GIS) study and liaising with nearby industrial and commercial entities
- different size blowers to meet the full range of aeration demands

Upgrading of Natabua WWTP

Process Engineer

Water Authority of Fiji | Viti Levu, Fiji | 3/2019 - 11/2019 | \$170,000

Worked with the Water Authority of Fiji to:

- Prepare flow and load projections to the plant
- Conduct a site operational and safety audit of the plant.
- Assess the capacity of the ponds at the plant, determining the year each process unit will exceed capacity in the future
- Develop a range of treatment alternatives to replace the existing ponds treatment plant to service population growth >150,000 EP
- Prepared BioWin™ models for the treatment alternatives
- Preferred upgrade option involved new IDEA reactors, UV disinfection, trade waste treatment system and

aerobic digestion/dewatering for biosolids management

Shortland WWTW Upgrade Strategy

Project Manager

Hunter Water | Shortland, NSW, Australia | 5/2019 - 10/2019 | \$52,000

Worked with the team and the client to develop a number of options in order to maintain plant compliance at Shortland WWTW to 2028 and take advantage of operational optimization opportunities. Shortland WWTW is an Intermittently Decanted Aerated Lagoon (IDAL) plant required to service a projected population of 62,000 EP. The preferred upgrade strategy involved implementation of caustic dosing, sugar dosing and optimization of IDAL process control.

Coraki and Casino STP Long Term Upgrade Strategies

Process Engineer

Richmond Valley Council | Richmond Valley, NSW, Australia | 7/2018 - 11/2018 | \$190,000

Worked with Richmond Valley Council to prepare long-term upgrade strategies for two of their treatment plants:

- Assessed historical plant performance against the environmental protection license, Australian Recycled Water Guidelines, and aspirational effluent quality targets
- Development of flow and load projections
- Options development and BioWin™ modelling of trickling filter, ponds, MLE, and IDAL processes
- Lifecycle cost comparison (OPEX, CAPEX and NPV)
- Providing solutions for algae separation and mitigation so Council could reliably meet their environmental protection license in future

Networks Water Quality Programs

Operations Engineer

Sydney Water | Sydney, NSW, Australia | 1/2017 - 7/2018

As an engineer in the Networks Water Quality Programs, led and supported improvement projects for Sydney's potable water network:

- Responsible for monitoring, reporting and project management of a prototype chemical dosing system and the strategic planning for the roll out of this system
- Trouble shooting issues with the dosing system via root cause analysis, chemical testing, and benchmarking
- Preparing business case for a new prototype
- Refining the minimum night flow leak detection program by improving water balance algorithms

- Project managing the implementation of reservoir overflow screens:

- Developed safe methods of installation in live reservoirs
- Managed the installation of screens
- Prioritized reservoir installations
- Prepared business case for the rollout of the screens

Cronulla WWTP Operations

Operations Engineer

Sydney Water | Cronulla, NSW, Australia | 1/2016 - 1/2017

As a member of the Cronulla WWTP operations team, was involved in the following projects and day-to-day tasks:

- Conducting operational checks and fieldwork
- Process troubleshooting during wet weather, SCADA upgrades, routine maintenance, or unexpected shutdowns
- Optimizing centrifuge dewatering cake TS% and Centrate TSS by modifying torque, bowl speed and feed rates.
- Using statistical methods to assess the relationship of a range of operational parameters to digester foaming and gas production
- Supported commissioning of food waste co-digestion project, responsible for assessing quality of loads received
- Supported process modification of anaerobic digesters from parallel operation to in-series operation
- Undertook tracer study with Li⁺ to analyze digester mixing effectiveness
- Developing a profiling method to evaluate digester mixing effectiveness that was later recommended by consultants
- Implementing new experiments to improve monitoring of critical process parameters and inform plant performance/stability
- Thesis Assessment of Anaerobic Digestion at Cronulla WWTP received the prize for best Thesis submission in 2016 cohort

Career history

2018 - present	GHD, Process Engineer
2016 - 2018	Sydney Water, Operations Engineer - Cronulla WWTP, and Water Quality Programs



Matt Kennedy, PE, TE, ENV SP

Business Group Leader - EDO Pacific



Location

Santa Rosa

Experience

21 years

Qualifications/Accreditations

- MS, Environmental Engineering, University of Massachusetts, Amherst, MA, 2003
- BS, Environmental Resources Engineering, Humboldt State University, Arcata, CA, 2001
- Civil Engineer, CA #68304, OR #83450, NM #23032, HI #18171, GU #1337, CNMI #528
- Traffic Engineer, CA #2385
- Envision Sustainability Professional (ENV SP)

Key technical skills

- Design Engineering
- Permitting and Construction
- Environmental Compliance

Memberships

- American Society of Civil Engineers (ASCE)
- American Water Works Association (AWWA)
- Society of American Military Engineers

Relevant experience summary

Matt Kennedy is a principal engineer with 21 years of experience in delivering a wide variety of civil infrastructure projects. Project types include water and recycled water, sewer, drainage, traffic/transportation, buildings, and sustainable site development. He is adept in the management and design of multi-discipline projects with medium to large teams and numerous stakeholders and including construction management. Projects involve planning, environmental compliance, design, permitting and construction. Project elements include water tanks, wells, water transmission/distribution, sewer collection, pump stations, stormwater conveyance, Low Impact Development (LID), grading and drainage, civil site design, traffic signals, roadways, retaining walls, pedestrian and bicycle facilities, and traffic control. His experience also includes a broad range of planning, modeling and analysis capabilities, including utility master planning, hydrologic and hydraulic modeling, water and wastewater process design, traffic and parking studies, and circulation studies. He is also experienced in land surveying and construction management.

Project experience

Laguna Water Reclamation Plant, Combined Heat and Power

Civil Engineer of Record | City of Santa Rosa | Santa Rosa, CA

The Combined Heat and Power project involves the design and construction of a new replacement cogeneration facility at the City's Laguna Water Reclamation Plant. The purpose of this planned improvement project is to address reliable operations at the treatment facility, including aging cogeneration internal combustion engines, inadequate cogeneration engine exhaust and heat recovery systems, inadequate building cooling and ventilation, electrical code deficiencies, poorly operating digester gas blending system, inadequate digester gas treatment,

leaky digester gas piping, and an inadequate building to accommodate the engines (the existing building was not designed for engines). The proposed project redevelops a site within the existing plant footprint and includes a new cogeneration building, engine generators, a shop, laboratory, and ancillary facilities. The project also includes major plant process utility removal, abandonment and relocation, new permeable surface treatment, paving and grading, drainage facilities, and new building utilities. The project achieved LEED Silver certification.

Mule Creek Wastewater Treatment Plant Upgrade

Project Engineer | California Department of Corrections and Rehabilitation (CDCR) | Lone, CA

Served as Project Engineer for the design development phase for improvements and additional processes at an existing secondary wastewater treatment facility for CDCR. The improvements are mandated by the RWQCB for wastewater treatment and effluent disposal compliance. Improvements and new processes include a new secondary clarifier, sludge pumping facilities, chlorine contact basin, recycled water pumping station, site grading and civil improvements, plant-wide automation, and LEED Silver accreditation for the operations building.

Laguna Sewer Main Relocation Project

Project Engineer | City of Cotati | Cotati, CA

Served as Project Engineer for the design of approximately 3,200 feet of 24-inch trunk sewer main and a 4.5 mgd sewer lift station and forcemain. This project abandons the existing trunk sewer main from an environmentally sensitive creek and installs a new trunk main with increased capacity in the City's right of way. Responsibilities included pipeline alignment and profile design, sewer lift station design, specifications, and bid period services.

North Trunk Sewer Project

Project Engineer | City of Santa Rosa | Santa Rosa, CA

Served as Project Engineer for this project that involves the abandonment of existing 50+-year-old 12-inch and 15-inch diameter sanitary sewer trunk pipelines along Paulin Creek and beneath Lomitas Avenue and Mendocino Avenue. The project replaces these trunk lines with a new 15-inch diameter sanitary sewer trunk pipeline that will be installed in a new alignment within City streets where it is accessible to City maintenance staff. Key issues for this project included confirming new main alignments and profiles, abandonment of existing mains, and reconnecting laterals. The project was designed to minimize construction impacts to traffic, existing utilities, and the environment. Portions of the pipeline will be in excess of 30 feet deep including three creek crossings. Trenchless construction methods including front steer guided boring and bore and jack will be used for deep portions of the pipeline installation.

City of Crescent City Urban Water Management Plan

Project Engineer | City of Crescent City | Crescent City, CA

Prepared the 2005 update to the Urban Water Management Plan for the City of Crescent City as required by the California Department of Water Resources. Efforts included documenting the City's water sources, reliability planning, water use

provisions, supply and demand comparisons, water demand management measures, a water shortage contingency plan, water recycling, and public participation. A presentation was made to the City Council at the conclusion of the update.

City of Santa Rosa Urban Reuse Pilot Project Pipeline

Civil Engineer of Record | City of Santa Rosa | Santa Rosa, CA

Served as Project Engineer for the design of the City of Santa Rosa's Urban Reuse Pilot Project, which is the first urban reuse project in the City that will bring tertiary treated effluent into urban areas for turf and landscape irrigation. It was a high-profile and significant project for the City Utilities Department and Board of Public Utilities, delivering recycled water to the first urban customers in the City's history. This 100% grant-funded project consists of the installation of approximately 3,000 feet of 18-inch recycled water transmission mains and 3,000 feet of four-inch distribution mains, along with 20 new services for landscape irrigation and related appurtenances. The project also includes a 150-foot above-grade bridge crossing over the Santa Rosa Creek with the first installation of Force Balanced FLEXTEND fittings (EBAA Iron, Incorporated) for seismic and thrust restraint in Sonoma County. Construction of this project was completed in 2010.

City of Rio Dell Water System Infrastructure Improvement

Project Engineer | City of Rio Dell | Rio Dell, CA

Served as Project Engineer and Construction Inspector for the design and construction of water system infrastructure improvements for the City of Rio Dell. Efforts include design of water main alignments and profiles, two epoxy coated bolted steel water storage tanks, tank site grading and improvements, a recirculation pump station, and project specifications. The \$5 million project was 100% grant funded, replaced aging and degraded asbestos-cement and steel mains, non-functional fire hydrants and leaking water services. Project components included over five miles of new water mains, 22 fire hydrants, and 230 water services. The project was completed under budget allowing for the installation of an additional 1,000 feet of water mains. The new system also reduced water losses by over 10%. Construction of this project was completed in 2007.

City of Healdsburg Recycled Water Project

Civil Engineer | City of Healdsburg | Healdsburg, CA

Currently serving as Civil Engineer for the preparation of construction documents for a new recycled water system for the City of Healdsburg. The new system was required by the City's National Pollutant Discharge Elimination System (NPDES) permit and part of their overall wastewater treatment and effluent management system. The recycled water system brings tertiary treated effluent from the City's new membrane filtration WWTP to urban areas of the City for turf and park irrigation, as well as outlying agricultural areas for vineyard irrigation. The system design consists of a new vertical turbine effluent pump station at the WWTP with a filtration system to polish the effluent before it enters the transmission/distribution system. Approximately 34,500 feet of new four-inch to 16-inch pipe is installed to convey recycled water to irrigation locations. The conveyance system includes two locations where the pipeline crosses existing concrete box girder bridges over creeks using a system of pipe hangers and flexible connections, a 500-foot welded steel aerial suspension pipe bridge over Dry Creek with FLEX-TEND® Force Balanced flexible expansion joint fittings, and a bore and jack crossing under US 101 at Healdsburg Avenue. The project also includes the demolition and backfill of two decommissioned below grade concrete water storage reservoirs and construction of a new above grade 750,000-gallon glass fused to steel recycled water storage tank including provisions to supply the system with raw water in the event of a loss of recycled water delivery. Urban service locations include turf areas at three city schools, two City parks and the city municipal golf course. Other services on this project include utility potholing for pipeline profile design, geotechnical borings and recommendations for horizontal directional drilling, bore and jack construction, and storage reservoir design, all California Department of Fish and Game, US Fish and Wildlife Service, USACE County of Sonoma, and Caltrans permitting, assistance with an environmental document for the aerial suspension pipe bridge and storage reservoir, incidental run-off control, bid phase services, and construction engineering support.

Urban Reuse Pilot Project Pump Station

Civil Engineer of Record | City of Santa Rosa | Santa Rosa, CA

As part of Phase 2 of the West College Utilities Field Office project for the City of Santa Rosa, the existing recycled water pump station was demolished and replaced with a new pump station with greater capacity. This pump station is a critical component of the City's Urban Reuse Pilot project, which is the initial phase of the City's Urban Reuse project. The goal of the Urban Reuse Project is to increase the supply and distribution of recycled water throughout the City for use in landscape irrigation, toilet flushing, and other

non-potable water uses. With the existing pump station capacity of 600 gpm the City was barely able to meet the peak irrigation demand of the existing recycled water customers with all pumps in operation. The new Urban Reuse Pilot Pump Station is capable of supplying up to 1,000 gpm (1.44 mgd) to existing and near-term future customers with two vertical turbine pumps (one duty and one stand-by), and over 3,000 gpm (4.32 mgd) with the addition of future pumps. The pump station includes a new motor control center, variable frequency drives, a hydropneumatic tank, screening and filtration systems, space for future pumps, and a chlorine injection system. The new pump station greatly improves the City's ability to supply recycled water, adds needed redundancy for improved system reliability, and will easily integrate with future recycled water storage tanks and an expanded urban reuse system. Construction of the pump station was completed in April 2010.

City of Fortuna Water System Master Plan

Project Engineer | City of Fortuna | Fortuna, CA

GHD prepared the current Water System Master Plan for the City of Fortuna in Humboldt County, CA in 2005. For this project, a WaterCAD hydraulic model of the City's entire water system was developed, calibrated, and validated. The system includes five tanks and reservoirs, seven booster pump stations and a well field in eight separate pressure zones. Estimated demands at various critical nodes were calculated using customer use records and projected for the General Plan build-out level. A demand analysis was also completed comparing estimated demands with water production to assess system-wide water losses. The adequacy of the existing water transmission, distribution, storage, and pumping systems was assessed using the calibrated and validated model, including fire flow analysis. The results of the analysis were used to develop capital improvement projects to improve system supply and efficiency. Improvements included construction of new and parallel mains, and installation and replacement of storage facilities. Recommended improvements were prioritized into a Capital Improvement Program. A planning level cost estimate for the improvements was completed to bring the existing water system up to recommended standards as development in the City occurs. GHD completed this Water System Master Plan on schedule and 15% under budget. This project was completed in 2005.

US Coast Guard Training Center (TRACEN) WWTP Upgrades

Project Engineer | US Coast Guard | Petaluma, CA |

Assisted with project design, design quality assurance reviews and construction engineering support for this upgrade of an existing wastewater treatment facility.

Commerce Boulevard Recycled Water Main Project

Civil Engineer of Record | City of American Canyon | American Canyon, CA |

The Commerce Boulevard Recycled Water Main project extended the existing recycled water main on Commerce Boulevard to the intersection with Green Island Road. The project installed approximately 1,000 linear feet of new 12-inch main, allowing for a future recycled water main on Hanna Drive. It also replaced four potable water irrigation services with recycled water services helping the City meet its goal of lowering the overall potable water demand in the area by increasing the use of recycled water. Construction of this project was completed in 2007.

City of Fort Bragg Sewer Rehabilitation Project

Project Engineer | City of Fort Bragg | Fort Bragg, CA |

Served as Project Engineer for the rehabilitation design of a portion of City's sanitary sewer collection system, which was experiencing high rates of Infiltration and Inflow (I/I) during the rainy season. The project included the rehabilitation of approximately 10,000 feet of six-inch, eight-inch, and 10-inch sewer mains using Cured-in-Place Pipe (CIPP), reconnection of over 200 laterals, the rehabilitation of 11 sewer manholes using a spray-on structural waterproof coating, and the installation of six new manholes to provide access to portions of the collection system previously inaccessible to maintenance crews. Project tasks included coordination and review of Closed-Circuit Television (CCTV) video inspection and smoke testing of the sewer system to determine locations where repairs were needed, analysis of alternative rehabilitation methods, project prioritization, preparation of plans, specifications, and opinion of probable cost for bid, preparation of addenda, and construction-related support. Construction of this grant funded project was completed in 2007, and the City has documented a reduction in I/I as a result of the project.

Baza Gardens Wastewater Facilities Plan

Project Engineer | Guam Waterworks Authority | Guam |

Served as Project Engineer for the development of a comprehensive Facilities Plan for a wastewater treatment facility in Guam. This plan will serve as the master plan document over the next 25 years for the

future upgrade and replacement of the existing treatment facility, and the rehabilitation and expansion of the wastewater collection and pumping system. The Facilities Plan addresses permitting and regulatory compliance, existing collection system condition and recommended improvements, future wastewater flows including I/I, alternatives for the upgrade or replacement of the existing treatment facility, disposal and reuse options, and project funding and financing. This Facilities Plan was completed in February 2008.

City of Fort Bragg Storm Drainage Master Plan

Project Engineer | City of Fort Bragg | Fort Bragg, CA

GHD completed an update to the City's of Fort Bragg's Storm Drainage Master Plan. The original plan, which served the City well for over 20 years, was also prepared by GHD. For the plan update, we revised and updated individual drainage basin boundaries within the 1,800-acre drainage area through a review of topographic mapping and field reconnaissance, conducted a field investigation to confirm existing storm drainage facilities and previously completed improvements, evaluated the adequacy of the existing storm drainage system, and calculated storm run-off at various critical nodes in the system. We used hydraulic analysis and input from the City's maintenance department to identify areas of the system that are undersized for the design storm event and identify areas with existing flooding problems. Efforts include development of a hydrology model and hydraulic models of existing and proposed drainage facilities using HEC-RAS and Haestad Method's StormCAD, a capital improvement program, project financing, and NPDES Phase II permitting. Capital improvement projects were developed and prioritized to address system deficiencies and known existing problems. Planning level cost estimates were also developed for the various capital projects. Projects were designed in consultation with the City to be functional, address the issues, and be aesthetically pleasing and environmentally beneficial to the extent practical. During the project we also examined a variety of national and local funding sources for the City, which could be used to help complete projects.

City of Fortuna Storm Drainage Master Plan

Project Engineer | City of Fortuna | Fortuna, CA

GHD prepared the current Storm Drainage Master Plan for the City of Fortuna. Individual drainage basins were identified, and a field investigation of existing storm drainage facilities was conducted to assess their condition and capacity. Estimated storm run-off at various critical nodes was calculated for the 10-year, 25-year, and 100-year precipitation events at the General Plan build-out level. The adequacy of the

existing storm drainage system was assessed using the 25-year event as the design year for hydraulic sizing. Using the capacity analysis and projected build-out flow requirements capital improvement projects to the storm drainage system were developed. Improvements included construction of detention facilities, installation and replacement of new storm drain conduits and inlets, and replacement of undersized culverts. A preliminary cost estimate for the improvements was completed to bring the existing storm drainage system up to recommended standards. Various funding sources and their merits were examined. The original Storm Drain Master Plan was developed by GHD and had served the City well for almost 20 years. Our knowledge of the City's facilities enabled us to develop and complete the updated plan in an efficient and cost-effective manner. This project was completed in 2005.

City of Rio Dell Scotia Annexation Study

Project Engineer | City of Rio Dell | Rio Dell, CA

GHD completed detailed and comprehensive evaluation and condition assessment of the City of Rio Dell and Town of Scotia's infrastructure systems as part of a municipal service review for the proposed annexation of Scotia by the City of Rio Dell. The infrastructure systems analyzed in this study were the potable and fire water distribution system, water intake, treatment facility and storage, water rights, wastewater collection system, wastewater treatment facility, storm drainage system, streets, alleys, roadways, and sidewalks. Tasks included mapping and analyzing all of the existing infrastructure facilities, documenting condition issues, confirming demands and capacities, identifying deficiencies of the existing infrastructure, developing water distribution and wastewater disposal alternatives, recommending infrastructure improvements required for annexation, reviewing the proposed subdivisions for compliance with the subdivision map act requirements, and representing the City of Rio Dell at several meetings with the land owners and regulatory agencies. The study considered alternatives to connect the infrastructure systems of the City and Town, address facility siting and flood zone issues relative to the Eel River and evaluated a range of technologies and alternatives to improve infrastructure systems based on capital and long-term operation/maintenance costs, ease of operation, regulatory compliance, and other factors. The study developed costs associated with additional infrastructure ownership and operations and maintenance, as well as the cost of improvements needed to bring systems into compliance with state and federal water quality and accessibility regulations. This project was completed in April 2007.

City of Fort Bragg Municipal Service Review

Project Engineer | City of Fort Bragg | Fort Bragg, CA

In 2006, the City of Fort Bragg retained LSA Associates, Incorporated, Economic & Planning Systems Inc. and GHD to develop a Municipal Service Review. Based on City documents and communication with departmental staff, the consultant team prepared provider profiles and wrote the nine determinations required by law as part of the Municipal Service Review. The completed City profile and determinations were submitted to the City for its review. The City's comments were then incorporated into the report. GHD was tasked with analyzing the City's water, wastewater, storm drainage and roads. The water system analysis included an extensive evaluation of the City's and Georgia-Pacific's water rights, water supply, drought analysis, and treatment and distribution capacity. Each system analysis included a detailed discussion of governance and operations, infrastructure facilities and services, demands and capacities, and a summary of existing system deficiencies and recommended improvements.

City of Santa Rosa Catastrophic Reserve Study Update

Project Manager | City of Santa Rosa | Santa Rosa, CA

In 2012, the City reviewed and updated of their financial reserves, two components of which are the catastrophic reserve funds that are allocated for the water distribution system and the wastewater collection system. The reserve funds would be used to repair portions of the water and wastewater systems in an effort to restore basic services following a catastrophic event. In general, the cost of restoring basic utility services following a natural catastrophe will depend on the type and magnitude of event, and the level of repairs required to restore basic service. For purposes of this study, the planning scenario considers the damage caused by the maximum probable earthquake along the Rodgers Creek Fault. This seismic fault passes directly through the City of Santa Rosa, and according to a special study conducted by the US Geological Survey in 2008, has a 31% probability of causing an earthquake with a magnitude greater than 6.7 on the Richter scale within the next 30 years. This study estimates the cost of making only those emergency repairs that would be necessary to provide basic service allowing life and commerce to continue unhindered by water and sewer service interruptions. Pipeline damage resulting from wave propagation damage and from permanent ground deformation were estimated using information from US Geological Survey and Association of Bay Area Governments studies, empirical relationships developed from

historical seismic events, as well as GIS utility mapping. Unit repair costs are applied to develop estimates of catastrophic reserves for budgeting purposes. The study was completed in November 2012, and the recommendations presented to the Board of Public Utilities for approval, as well as the City Council. The study will be presented at the 2013 AWWA California-Nevada Spring Conference.

LBNL Utility Infrastructure Fitness-for-Service Evaluation

Project Manager | LBNL | Berkeley, CA | |

GHD prepared a Utility Infrastructure Fitness-for-Service Evaluation at the LBNL in Berkeley, California. Utilities included in the scope of the survey were buried natural gas, compressed air and water pipelines. The evaluation provided information to aid LBNL staff in determining where utility infrastructure improvements are needed most, and where buried metallic pipelines are not receiving adequate cathodic protection. The evaluation is based primarily upon consideration of the following factors: 1) the measured pipe-to-soil potentials and levels of cathodic protection where applicable; 2) the results of close interval potential surveys conducted; 3) review of leak history and leak concerns of LBNL staff; 4) review of soil corrosivity data; 5) visual observation of excavated piping; and 6) review of pipeline wall thickness measurements. The results of the study determined that pipelines are generally in serviceable condition, but some are not receiving cathodic protection in accordance with accepted industry standards. Recommendations were made to provide retrofit design, including installation of impressed current or galvanic cathodic protection systems, installation of additional anodes, rectifiers, test stations, and associated appurtenances. A prioritization of recommended retrofit repairs and remediation measures for each utility system was provided, and an engineer's opinion of probable design and construction costs were provided.

Guam Waterworks Authority WWTP Comprehensive Performance Evaluations

Project Engineer | Guam Waterworks Authority | Guam

Served as Project Engineer for the US Environmental Protection Agency Comprehensive Performance Evaluation of the Agat, Baza Gardens, and Umatac-Merizo WWTP's. The evaluations provided a thorough review and analysis of each plant's unit processes, administrative, operation, and maintenance practices, and identified the factors that are adversely impacting each plant's ability to achieve permit compliance.

Career history

2003 – present	GHD (formerly Winzler & Kelly), Principal Engineer
2007 – 2011	Winzler & Kelly, Project Manager
2003 – 2007	Winzler & Kelly, Project Engineer
2001 – 2003	University of Massachusetts, Graduate Research Assistant
Summer 2000	County of Humboldt, Survey Assistant
Summer 1998	Pacific Northwest National Laboratory, Research Fellow



Vic May

Graduate Engineer, North America West Water – Water & Wastewater Treatment



Location

San Francisco, CA

Experience

2 years

Qualifications/Accreditations

- BS, Mechanical Engineering (Certificate: Design Innovation), University of California, Berkeley, CA, 2025

Key technical skills

- Mechanical and Engineering Design
- Infrastructure Planning and Strategy
- Mechanical Systems Modelling

Memberships

- California Water Environment Association (CWEA)
- Out in Science, Technology, Engineering, and Mathematics (OSTEM)

Relevant experience summary

Vic May has four collegiate years of experience with Mechanical Engineering, including intern and research experience relating to designing mechanical systems, volatile organic compounds, biofuel generation, and concept and detailed design projects. Vic's experience at University of California - Berkeley grounded them with a background in facility operations and critical systems. This has provided them with a solid understanding of the challenges faced by water authorities. Vic serves as a graduate engineer for water and wastewater treatment and recycling at GHD, a role that sees them interfacing with wastewater treatment professionals at GHD to apply standardized design approaches, gather knowledge, and investigate emerging technologies within the market.

Millbrae Water Pollution Control Plant Masterplan

Project Engineer

City of Millbrae | Millbrae, CA | 10/2025 - Ongoing

Serving as Graduate Engineer to assist in developing a master plan of the Water Pollution Control Plant with the City of Millbrae. The water pollution control plant is experiencing ageing equipment, lack of site footprint for additional upgrades and the imminent San Francisco Bay Watershed Nutrient Permit, which by 2034 will require the plant to significantly reduce the Total Inorganic Nitrogen discharged to the Bay in the summer months. The project is undertaking a condition assessment to establish a baseline level of upgrade costs for the existing plant. The project will also assess the hydraulic capacity of the plant which is currently constrained at the influent and the discharge. The project will then assess options to handle the future nutrient discharge requirements including intensified biological nutrient removal, membrane bioreactors and recycled water. A 30-year Capital Improvement Plan will be developed for the City.

Gaviota Mariposa Reina Site SWRO and WWTP Condition Assessment

Project Engineer

**County of Santa Barbara General Services
Department | Gaviota, CA | 03/2026 - Ongoing**

Serving as Graduate Engineer to perform condition assessments for both the sea water reverse osmosis (SWRO) plant and wastewater treatment plant (WWTP) on site. The County of Santa Barbara General Services Department (CGS) is evaluating the reuse of the Gaviota Mariposa Reina Site, including a SWRO plant and a small package WWTP. CGS contracted with GHD to assess the SWRO and WWTP to understand the estimated remaining life of key equipment, components and infrastructure. Planning level budgetary costs for needed rehabilitation, replacement, and operation & maintenance (O&M) expenditures of the existing and upgraded infrastructure were also determined.

Publications

- Wang, S., Wang, T., May, V.B., Cui, W., Oakes, J.M., Bellini, C., and Gollner, M.J.
“Impact of fuel moisture on chaparral emissions under flaming and smoldering conditions.” *Fire Safety Journal*, Special Edition (FISJ_IAFSS 2026), 2026.

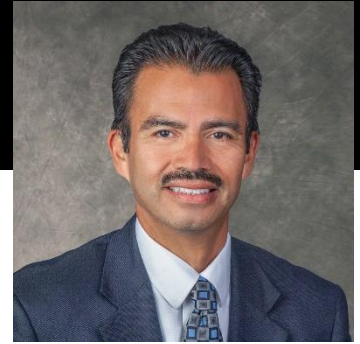
Career history

2026 - present	GHD, Graduate Engineer
2025	University of California – Berkeley PREP, Engineering Design Instructor
2024 - 2025	University of California - Berkeley Fire Research Lab, Researcher
2024	TAKACHAR, Engineering R&D Intern
2021 - 2024	University of California - Berkeley College of Environmental Design, Lead Facilities and Operations Assistant



Hector Ruiz ^{PE}

Executive Advisor – Asset Management



Location

Irvine, CA

Experience

34 years

Qualifications/Accreditations

- MS, Civil and Environmental Engineering and Science, Stanford University, Stanford, CA, 1992
- BS, Civil Engineering, California State Polytechnic University, Pomona, CA, 1990
- Civil Engineer, CA #55245

Key technical skills

- Utility Management, Administration, and Governance
- Utility and Treatment Plant Operations and Maintenance (O&M)
- Asset Management, Risk Management, and Strategic Planning

Memberships

- Institute of Asset Management
- American Water Works Association, California-Nevada Section, Engineering Division Chair (2020/2021, Vice Chair 2018/2019)
- Association of California Water Agencies, Leadership Essentials for the Water Industry, Alumni

Relevant experience summary

Hector has more than 34 years of experience utility management, water and wastewater engineering, and operations, including design, construction, and operation of improvements and upgrades to water/wastewater/recycled water treatment plants, booster pump stations, lift stations, pressure reducing stations, water distribution and transmission mains, gravity sewer mains, and sewage force mains.

Hector's experience with utility management includes working side-by-side with engineering, planning, legal counsel, finance, maintenance, and operations personnel on business workflows, processes, implementing Computerized Maintenance Management Systems (CMMS), developing condition assessment protocols, developing Asset Management (AM) Plans, conducting business case evaluations, and developing short-term and long-term investment profiles.

Hector's experience in the public sector includes the oversight and management of water and wastewater treatment personnel and facilities for a public agency in Orange County, California where he served as District Engineer and General Manager (2005-2018). Hector brings his experience from the public sector of having worked for many years with regulators, engineers, operators, and maintenance technicians in effectively managing an agency's operation, finances, security, and infrastructure and as such, understands the value of utility management from an owner's perspective.

Desalination Facilities Evaluation and Exit Test

Project Manager

City of Santa Barbara | Santa Barbara, CA

Served as Project Manager for the asset evaluation and exit test of the City's 3 MGD Charles D. Meyer Seawater Desalination Plant in accordance with their agreement with the Design-Build-Operate Contract with Integrated Development Environment. Working collaboratively with the City's staff, GHD conducted a comprehensive condition and performance assessment of the City's desalination facility's 1,6775 equipment assets and over

50 structures. Assets were assessed for remaining useful life, replacement cost, and recommendations for remediation or replacement.

Audit of the plant's CMMS was audited for use in determining asset condition in addition to the visual inspections. GHD prepared a commercially available digital data collector tool to collect field data and to assist with performing the asset evaluation. The tool was programmed for use on a project specific basis with an application (app) loaded on a smart tablet (iPad).

Strategic Asset Management and Planning, Pipeline Risk Management Model

Project Manager Metropolitan Water District of Southern California | Los Angeles, CA

Serving as Project Manager since 2019 and providing as-needed AM planning services to the Metropolitan Water District of Southern California. Metropolitan Water District is the largest water wholesaler in California, comprised of 26 member agencies (cities and public water agencies) serving six counties and 19 million people. GHD has been working with Metropolitan as an advisor with a focus on facilitating workshops, developing strategies, and performing reviews for the continued development of Metropolitan's AM program.

GHD worked closely with Metropolitan's engineering, operations, maintenance, and AM staff in facilitating workshops, providing content, and assisting with development of an action plan for a pipeline risk model, a Strategic AM Plan, and work on various asset management tasks. AM tasks included topics on adaptive AM strategy development, data management, information technology, maintenance management, assessing gaps, asset lifecycle planning, condition data, asset register hierarchy in Maximo CMMS, and asset criticality.

Asset Management Gap Analysis

Project Manager Jurupa Community Service District (JCSD) | Jurupa Valley, CA

JCSD provides Domestic Water, Wastewater, Parks and Recreation services to a population of about 141,600. The JCSD identified the need to continue improving its AM practices for its water, wastewater, fleet, parks and recreation assets based on implementing industry leading best practices including workflows, asset definition, maintenance management, and development of asset registers for use with its computerized maintenance management system (CMMS). Following the completion of an Asset Management gap analysis, GHD identified several initiatives that are currently being implemented including asset definition, asset register and hierarchy development for AM and CMMS, and development of workflows for use with Cityworks CMMS.

Level of Service, Asset and Maintenance Management, Condition and Risk/Resiliency Assessments

Task Manager, Development of Level of Service City of Spokane | Spokane, WA

Served as Task Manager for the City of Spokane's Links Strategy for Water focusing on development and application of Level of Service. Level of Service workshops were facilitated with group activities,

development of metrics, and key performance indicators and their application in meeting City objectives and alignment with the City's strategic priorities.

GHD worked closely with the City, including the review and application of metrics, goals, objectives, and key performance indicators found in the City's Master Plans, Comprehensive Plans, Integrated Water Plan, Link Utilities Strategy, Sustainability Action Plan, State Administrative Codes, Municipal Code, and Interagency Agreements, amongst other documents. GHD developed strategy and facilitated workshops on Level of Service from which tactical and detail Level of Service metrics were to be further developed by City staff.

AM, Risk & Resiliency Assessment and CMMS

Project Manager Water Facilities Authority | Upland, CA

GHD developed an asset register and condition assessment protocol for O&M staff's assessment of assets for the 80-mgd capacity Agua de Lejos Treatment Plant and transmission main system. The asset register is based on a hierarchy and will be used with the "To-Be" workflows developed in a new CMMS. GHD has been working closely with the Authority to develop condition assessment protocols and maintenance management strategy groups for use in the development of a Tactical AM Plan. The Tactical AM Plan will provide the Authority with long-term investment profiles for asset renewal and replacement and establishing reserves and a Capital Improvement Program that relies less on age and more on true asset condition and risk. In addition, the Asset Register is serving a dual purpose for use in procuring a new CMMS. GHD identified improvements and recommendations to upgrade and replace a legacy CMMS. GHD conducted several on-site and online AM training sessions and workshops, including developing an asset register, condition assessment protocol, and Consequence of Failure and Probability of Failure criteria for preparation of representative capital replacement budgets. GHD also updated the Authority's Risk & Resiliency Assessment Plan in compliance with America's Water Infrastructure Act of 2018.

Collection System Condition Assessment & Maintenance Optimization

Project Manager/Owners Engineer Inland Empire Utilities Agency (IEUA) | Chino, CA

Served as an Owner's Engineer and advisor for the development of the IEUA Collection System Condition Assessment and Maintenance Optimization Project. As the Owner's Engineer GHD worked with Engineering and Operations in reviewing its existing sewer condition assessment program and led the development of a scope of services, specifications, and preparation of the technical content of a Request for Proposal for conducting a condition assessment of IEUA's sewer

system, optimizing its sewer cleaning and inspection program, and evaluating software needs for asset management. Work included scoping of sewer lift station and force mains for condition assessment, siphon condition assessments, and condition assessment of gravity mains ranging from 6 to 54 inches in diameter.

Carlsbad Desalination Plant - Desalination Facilities Maintenance Audit

Project Manager

Poseidon Resources, Channelside | Carlsbad, CA

Served as Project Manager for conducting a maintenance audit of the Carlsbad Desalination Plant, a 50 MGD capacity facility. Scope of services included assessment of maintenance practices, processes, and use of CMMS for issuing and management of work orders. GHD worked with the client to identify and audit critical assets, review preventive maintenance and corrective maintenance records and validate work orders and compare with leading industry best practices.

AM Program Development, Asset Criticality, and Condition Assessment Planning

Project Manager

IEUA | Chino, CA

Served as Project Manager for the development of the IEUA's Asset Management Program and Wastewater Collection System Condition Assessment Projects. GHD provided AM advisory services for various strategic and tactical initiatives related to the development of IEUA's AM Program including, an Enterprise AM Strategy developed from a Gap Assessment conducted in following with ISO 55001 guidelines. Work included facilitating workshops and working closely with IEUA's engineering, O&M, business services, and CMMS staff. As the Project Manager, Hector worked with Asset Management, Engineering and Operations staff to update its CMMS Asset Register at RP-4 and to implement asset criticality and risk assessments for the 14 MGD wastewater recycling facility.

Berkeley Sanitary Sewer Master Plan

QA/QC

City of Berkeley | Berkeley, CA

Serving in a QA/QC role, advised the project manager and technical lead on application of risk and asset management and review of select work products. The City of Berkeley owns and operates a wastewater collection system. Over the past 30 years, the City has proactively replaced its aging infrastructure replacing 90 percent of the sanitary sewer mains. In 2014 the City and other local sewer agencies entered into a Consent Decree with the US Environmental Protection Agency and the State Water Board to reduce excess wet

weather flows and eliminate discharges to the San Francisco Bay.

To comply with the Consent Decree, the City implemented a program to reduce Inflow and Infiltration (I&I), reduce sanitary sewer overflows, and continue repair and replacement of aging sewer mains. The City hired GHD to update its Sanitary Sewer Master Plan. GHD and the City worked together to develop a strategy to identify Capital Improvement Program and repair-and-remodel projects. GHD successfully delivered the following tasks:

- Master planning sanitary sewer modeling using the City's Infoworks ICM.
- Scenario development and evaluation of sewer main capacity constraints and deficiencies.
- Perform I&I and flow tests to inform the hydraulic model update and calibration.
- Analysis of Closed-Circuit Television (CCTV) data, including condition assessment reports for identifying sewer main improvements, including scenario development for determining potential I&I from service laterals.
- Capital improvement rehabilitation and replacement needs.
- Development of a 5- and 15-year Capital Improvement Program.

AM System Evaluation and Implementation Plan

Project Manager

South Coast Water District (SCWD) | Dana Point, CA

Served as Project Manager for SCWD's AM System Evaluation and Implementation Plan (AM Roadmap) and new strategy for replacing its CMMS. SCWD provides full retail services in water, wastewater, and recycled water to approximately 35,000 residents, 1,000 business, and draws over two million visitors annually to the coastal and inland communities it serves. GHD worked with SCWD to document workflows and develop business process maps, evaluate, and assess CMMS software solutions, and identify leading best practices and initiatives in AM for the District. The AM Roadmap is intended to identify and guide the district's future investments in technology, asset data collection, system integration needs, and the development of risk-based project planning and prioritization. The AM Roadmap is also intended to identify initiatives that increase and retain institutional knowledge through asset management, training, and capabilities development of staff and processes across SCWD's various departments and services.

Enterprise AM Strategy

AM Advisor

IEUA | Chino, CA

Served as AM Advisor for the development of the IEUA Enterprise AM Strategy. A Gap Assessment was conducted by GHD in following with ISO 55001 guidelines that included facilitating workshops and working closely with IEUA's engineering, O&M, business services, and CMMS staff in development of an overall AM strategy. In conducting the Gap Assessment, GHD facilitated several workshops on various topics and areas of practice in AM including data management, information technology, maintenance management, condition assessments, AM policy, and AM governance. IEUA has begun implementing various initiatives identified in the AM strategy, including an AM policy, AM governance, spare parts strategy, AM ready specifications, and the maintenance optimization of its collection system.

Specific Tasks for Development of a Comprehensive AM Plan

Project Manager

Elsinore Valley Municipal Water District (EVMWD) | Elsinore, CA

Served as Project Manager for the EVMWD Development of a Comprehensive AM Plan. GHD worked closely with the EVMWD to implement leading best practices in AM, specifically preparing risk prioritization plans and asset categorization registers for linear and representative vertical assets. Utilizing data from Geographic Information System (GIS), CMMS software, and the collection system program, Granite, GHD worked with EVMWD to develop risk-based investment profiles for its water distribution system, gravity sewer system, and a representative lift station and water booster pump station. GHD worked with EVMWD to develop risk profiles that applied a rating system using Consequence of Failure and Probability of Failure for use in preparation of capital replacement budgets (short-term and long-term investment profiles). GHD performed an assessment of EVMWD's CMMS system and developed a set of functional requirements for use in procurement of an upgraded or new CMMS system. Over the course of the project, GHD facilitated approximately twenty technical sessions or workshops with staff from planning, engineering, and O&M. From these sessions, valuable insight, and direction from EVMWD staff was obtained and used to prepare a Roadmap that identified key AM initiatives and leading best practices for further development of EVMWD's AM Program.

Groundwater AM Plan

Task Lead/AM Advisor

San Jose Water Company (SJWC) | San Jose, CA

SJWC is an investor-owned public utility and is one of the largest and most technically sophisticated urban water systems in the United States. SJWC has a service

area with over one million people in the greater San Jose metropolitan area. SJWC has been developing an AM program with an initial focus on critical assets, including their wells, reservoirs, and pump stations. SJWC engaged GHD to provide AM advisory services in support of their developing AM Program and produce a Groundwater AM Plan for use with over 90 wells and 17 well stations within their service area. As an advisor, worked with GHD's lead technical AM leadership in preparing the Groundwater AM Plan with specific focus on preparing a business case evaluation for wellhead treatment and developing level of service scoring criteria for water quality parameters. A scoring system that included regulated and non-regulated parameters was developed and used in assessing the wells along with other failure categories that included mortality, capacity, lost production, health and safety, and aesthetics. The Groundwater AM Plan included core risk and business risk exposure analysis that will be used in determining well operation, well performance monitoring and inspection, well rehab, or removing a well from service.

Trunk Sewer Condition Assessment

**CCTV Contractor Oversight (Owners Representative)
County Sanitation Districts of Los Angeles | Los Angeles County, CA**

Served as owner's representative, providing daily oversight of CCTV contractor during inspection and condition assessment of major trunk sewers of various diameters and lengths within the County Sanitation Districts of Los Angeles' services area. Findings of condition assessment were used to prepare bid documents for the rehabilitation and repair of select gravity main segments and manholes.

Trunk Sewer Rehabilitation

Lead Design Engineer

Irvine Ranch Water District | Irvine, CA

Served as Lead Design Engineer for the preparation of bid documents including, traffic control, sewer bypass plans and specifications, and methods for rehabilitation including spiral wound technology, cured-in-place lining, and High-Density Polyethylene (HDPE) pipe. Trunk line sizes ranged from 16-inch to 27-inch diameter. Design constraints included bridge crossing and creek crossings requiring significant permitting and approval by various local, state, and federal agencies.

Citywide Storm Drain Fee Feasibility Study

Technical Lead

City of Anaheim Public Works Department | Anaheim, CA

Served as Technical Lead for the City of Anaheim's Citywide Storm Drain Fee Feasibility Study. The purpose of the study was to evaluate rules, regulations, policies,

issues, costs, and methodologies to support the City of Anaheim in its development of revised utility service fees, for its storm drain system. The study included the evaluation of pervious and impervious percentages of land uses utilizing the City of Anaheim's GIS. The Study developed the framework for a citywide Storm Drain fee and fee structure; capital project prioritization, and the application of Senate Bill 231 and Proposition (Prop) 218 to the proposed fee structure.

Treatment Facilities – Planning, Design, and Construction (General)

Over the course of more than 30 years, has managed several types of water, recycled water, and wastewater projects with various capacities and complexities. Specifically, these projects include one or more of the following components: predesign, design, design-build, engineering alternatives analysis, or construction management.

Wastewater Treatment Projects: Responsible for project management and engineering for the design, and construction of wastewater treatment, including construction management services for upgrades, expansions, and rehabilitation projects to wastewater facilities in Southern California and Arizona. Projects included rehabilitation and expansion of unit treatment facilities and pump stations.

Utility Management - Public System

Managed the Trabuco Canyon Water District, a California public water utility with a five-member Board of Directors providing retail water, wastewater, and recycled water services. Responsible for the management of assets for the agency's water/wastewater/recycled water facilities and infrastructure including a wastewater treatment and recycling plant, a surface water treatment plant, a groundwater treatment plant, several miles of water transmission and distribution mains, several miles of gravity and force mains, water and sewerage pump stations, water storage reservoirs, and various pressure reducing stations and two open reservoirs with earthen dams.

Annually and as required throughout the fiscal year, worked with staff and consultants in the preparation of the agency's budget, Capital Improvement Program, rates, and reserves. Worked closely with engineering, and O&M departments in effectively troubleshooting various issues, problems, and inefficiencies related to:

- Wastewater collection, pumping, and treatment; including redesigns to address pump station failures and force main breaks.
- Improvements to the wastewater treatment plant to address sludge settlement and control, disinfection of tertiary treated wastewater, odor control, aeration

system improvements and control, and solids dewatering.

- Management of a legacy Supervisory Control and Data Acquisition (SCADA) system that interfaced with multiple communication technologies (internet, low frequency radio, and broadband radio).
- Worked with operations in the management of recycled water production and distribution, including supplementing with urban runoff from the design and construction of urban runoff capture and reuse systems.

Treatment and Conveyance Consulting, Project Management, and Engineering Experience (Detail)

Water Transmission and Distribution System – Operations Experience

Experience with operation of water and recycled water pipeline systems includes the oversight and management of above grade reservoirs, water booster pump stations and multiple pressure zones serving elevations from 1,000 to 1,600 feet, including several miles of:

- Asbestos cement pipe ranging from 4 to 16 inches
- Ductile iron pipe ranging from 8 to 24 inches
- Polyvinyl Chloride (PVC) pipe from 8 to 12 inches
- Cement Mortar Lines and Cement Mortar Coated Steel Pipe (CML&C) steel pipe from 12 to 16 inches
- HDPE pipe ranging from 6 to 14 inches
- Operation pipeline pressures of up to 220 psi

Sewer System Projects

Provided project management and engineering for the design and rehabilitation of major sewer gravity trunk lines and force mains, including use of HDPE pipe. Trunk line sizes ranged from 16-inch to 27-inch diameter. Rehabilitation projects for gravity sewer mains ranging from 14-inch through 22-inches and force mains of up to 12-inches. Rehabilitation technology included HDPE force main designs, bridge crossings, and creek crossings requiring significant permitting and approval by various local, state, and federal agencies.

Distinguished Publications

- Selecting Membranes for Removing Natural Organic Matter and Disinfection By-Product Precursors. Journal AWWA, Dec. 1994.
- Evaluation of Pilot Scale Enhanced Coagulation and Membrane Processes for the Removal of DBP Precursors from an Organic Laden Aquifer. Proceedings of AWWA Water Quality Technology Conference. Nov. 1994.

- Complying with Water Quality Based Limits for Metal Source Control and Treatment Options – Water Reclamation Plants. Proceedings of WEF Annual Conference. Oct. 1993.

Career history

8/2018 - present	GHD, Executive Advisor, Asset Management
2/2005 - 4/2018	Trabuco Canyon Water District, General Manager/District Engineer
6/1988 - 2/2005	CH2M Hill (Currently Jacobs), Project Manager/Water Business Group Leader



Nam Ho PE

Senior Project Manager - Water/Wastewater Treatment



Location

Phoenix, AZ

Experience

13 years

Qualifications/Accreditations

- BS, Chemical Engineering, University of Arizona, Tucson, AZ, 2010
- MS, Environmental Engineering, University of Arizona, Tucson, AZ, 2013
- Professional Environmental Engineer, AZ #67128

Key technical skills

- Project/Construction/Program Management
- Water and Wastewater Treatment
- Pump Stations and Wastewater Lift Stations
- Regulatory Compliance and Permitting

Memberships

- AZ Water

Relevant experience summary

Nam Ho spent the first 10 years of his career as an environmental engineer working as a regulator in Arizona primarily in the drinking water field. Nam experienced many roles such as inspector, permit reviewer, and engineer while he was with the state gaining knowledge in drinking water infrastructure, treatment design, and compliance and permitting requirements. He transitioned to engineering consulting as a project manager and worked on delivering projects both in the design and construction phase consisting of water and wastewater linear infrastructure, pump stations, lift stations, storage tanks, water treatment plants, and wastewater reclamation plants.

Type of Project Experience

Water Treatment, Wastewater Treatment, Construction Management

ADEQ OWTF Rule update

Role: Project Manager

ADEQ | Phoenix, AZ | 3/2026 - 6/2026 | \$84,000

Evaluate current Arizona status for Onsite wastewater design requirement and provide a report containing rule update and recommendations to current standards.

Desert Star ARS Improvement

Role: Project Manager

ADEQ | Phoenix, AZ | 5/2026 - Current | \$44,000

Provide evaluation, design, and permitting support for Desert Star Community school to address solid precipitation in the storage tank after installation of an arsenic treatment plant.

EPCOR NWVWRF Blower Upgrade

Role: Project Manager

Epcor Water | Surprise, AZ | 5/2026 - Current | \$116,000

Provide evaluation study of current blower and diffuser capacity for EPCOR's NWVWRF bioreactor and digester. Provide construction management support for 4 blower rehabilitation.

Morristown Arsenic Treatment

Role: Project Manager

ADEQ | Morristown, AZ | 9/2025 - Current | \$150,000

Develop design plans and report for Arsenic treatment plant for Morristown PWS for permitting and construction. Assist with construction management with field inspection and RFI reviews during construction phase. Develop as-builts and Approval of Construction permitting.

Career history

2026 - present	GHD, Senior Project Manager - Water/Wastewater Treatment
2024 - 2026	Garver, Senior Project Manager
2014 - 2024	Arizona Department of Environmental Quality, Environmental Engineering Specialist



Patrick Brutzman PE

Staff Engineer



Location

San Francisco, CA

Experience

7 years

Qualifications/Accreditations

- MS, Architecture (Focus: Structural Engineering/BS, Architectural Engineering)
California Polytechnic State University, San Luis Obispo, CA, 2017
- Civil Engineer, CA #92050

Key technical skills

- Structural Analysis Software (RISA, Enercalc, SAFE, RetainPro)
- Finite Element Analysis (SAP2000)

Memberships

- N/A

Relevant experience summary

Patrick Brutzman has strong fundamental and technical skills in structural design and analysis. He draws from over seven years of experience in light-frame commercial, residential, and waterfront construction. His professional experience ranges from preliminary estimation of engineering work to design and construction administration. Patrick promptly and clearly communicates within a design team regarding project goals and structural requirements to facilitate informed and productive decision-making. He leverages his experience in mechanics of materials and retrofit/remodel work to adapt to unconventional design and detailing constraints within projects.

Public Projects

Middle Fork American River Project (MFP) Powerhouse Pedestrian Bypass

Project Engineer

Placer County Water Agency | Placer County, CA | 2021

This project supports the future design of a pedestrian bypass around a powerhouse and over the tailrace of a hydroelectric facility. Responsibilities include collecting data on existing conditions and preliminary design for the structural elements of GHD's Alternatives Analysis Memorandum, including cost estimates of four proposed alternatives.

Spring Valley Flume Alternatives Analysis

Project Engineer

Placer County Water Agency | Colfax, CA | 2021

This project supports the future design of a water conveyance structure to replace Placer County Water Agency's Spring Valley Flume, an aging 37-foot-long wooden flume. Following a review of existing

documentation, Responsibilities included preliminary design of elements for GHD's Alternatives Analysis Memorandum that includes cost estimates of the alternatives.

Tonalea Day School Replacement and Quarters (Design-Build)

Project Engineer

Sealaska Constructors, LLC | Tonalea, AZ | 2024

This project with the Bureau of Indian Affairs involves the replacement of a school and construction of new residences and maintenance buildings to support it. Responsibilities included design of foundations for pre-engineered metal building maintenance building and structural detailing for light frame, structural steel, and concrete masonry building systems.

Municipal Pier Repairs

Project Engineer

City of Pacifica | Pacifica, CA | 2021

This project supports the replacement of a portion of concrete guard rail that collapsed during high wave action in the winter of 2020-2021, located at the existing

municipal fishing pier. Responsibilities included field observations, developing a summary report, and structural design for proposed repair alternatives. Construction documents for the selected cast-in-place concrete design alternative are currently in development.

Napa County Bridge Repairs

Project Engineer

County of Napa Public Works | Napa, CA | 2022

Served as Staff Engineer supporting repair work for multiple bridges in Napa County. Responsibilities included field observations to verify Caltrans routine bridge inspection findings and to locate any additional damage. Design work included spill repair and reinforcement corrosion repair at concrete bridge beams and historic masonry bridge piers and abutments.

Public Projects - Military

Naval Air Station Oceana Hangar 122

Project Engineer

NAVFAC | Virginia Beach, VA | 2023

Served as Project Engineer for the retrofit of a large hangar structure for modern wind loads and increased risk category classification. Responsibilities include composite steel design of added interior mezzanines, evaluation of existing cladding assemblies, and design of cladding repair and retrofit.

P519 X-RAY Wharf Extension

Project Engineer

Naval Facilities Engineering Systems Command (NAVFAC) | Naval Base, Guam | 2022

Served as Staff Engineer for a design-build phase of construction to support an additional berth at the X-ray Wharf of Naval Base Guam. Responsibilities include concrete analysis and design for a pile-supported substation building and various freestanding equipment enclosures on shallow foundations.

P1910 Military Construction (MILCON) Magazine Storage

Project Engineer

NAVFAC | Naval Base Guam | 2022

Served as Staff Engineer for a project consisting of crane replacement and foundation replacement at a concrete ammunition storage bunker. Design responsibilities include analysis for crane loading and serviceability requirements, steel shop drawing coordination, and coordination with concurrent exploratory demolition.

FY11 Satellite Earth Terminal Station

Staff Engineer, Quality Control (QC) Field Observer

Contrack-Watts | Camp Roberts, CA | 2018-2020

Served as Staff Engineer for new masonry and steel structure for telecommunication and support facilities. Responsibilities included field observation of work carried out, analysis and detailing to support structural Requests for Information, and review of structural submittals for compliance with project specifications.

Private Projects

College of the Redwoods – Physical Education and Fieldhouse

Staff Engineer

College of the Redwoods | Eureka, CA | 2021-2022

Served as Staff Engineer for new indoor basketball gymnasium and attached physical education complex, as well as an indoor practice football field with adjacent locker rooms and classrooms. Structural systems consisted of cold-formed-steel light framed walls for vertical and lateral support, with supplementary structural steel systems at long spans and plan irregularities.

Structural On-Call Residential Projects

Project Engineer of Record

Clay Johnson | Eureka, CA | 2022-2023

Served as Project Engineer for remodel and new light framed residences and Accessory Dwelling Units (ADUs), amounting to roughly 3-5 projects each year. Responsibilities include feasibility review, structural design, and developing markups for drafting by the client.

Skyway Office Building

Staff Engineer

Private Client | Santa Maria, CA | 2018

Project was for new light-frame two-story commercial structure with various plan irregularities. Responsibilities included design and coordination of construction documents through permitting.

Interior Theater Remodel

Staff Engineer

Mission College Preparatory | San Luis Obispo, CA | 2018

Existing Unreinforced Masonry (URM) gymnasium/theater building remodeled at interiors with new light-frame mezzanine for classrooms, modular stage systems, and suspended theater lighting. Responsibilities included analysis to justify additional structure at URM building, and foundation retrofits to support new lateral loads.

Career history

2021 - present	GHD Group Project Engineer - Structures
2017 - 2021	SSG Structural Engineers Staff Engineer
2015	Nucor Building Systems, Intern



Erick Osorno ^{EE}

Electrical Engineer



Location

Santa Rosa, CA

Experience

6 years

Qualifications/Accreditations

- BS, Electrical Engineering, California State University, Fresno, CA, 2019
- Electrical Engineer, CA #23831, AZ #80897

Key technical skills

- Auto CAD, Revit, AGI 32, Energy Pro, Excel, Word, MicroStation

Memberships

- N/A

Relevant experience summary

Erick Osorno is an electrical engineer with experience in electrical system design. His design experience includes medium and low voltage design for industrial educational and commercial power, power generation, lighting and lighting controls design, lighting analysis and modelling, telecommunications, motor controls, pump controls, Supervisory Control and Data Acquisition (SCADA) systems, construction cost estimates, load calculations, and drafting of construction documents. Erick is an excellent communicator with good team management skills. His background includes clients in municipal, private industrial, and federal.

Peartree Site Lighting

Electrical Designer

Sares Regis Management | Sunnyvale, CA

Served as Electrical Designer for the design of lighting for new outdoor signage at the Peartree Apartments. Design included site investigation, providing power to new lights, updating analog switching timers with digital astronomic timeclock control. Drafted design drawings using AutoCAD, which included site plans and a lighting fixture schedule.

Old Orchard Site and Pathway Lighting

Electrical Designer

Sares Regis Management | Sunnyvale, CA

Served as Electrical Designer for the design of lighting for new pathway and area lighting at the Old Orchard Apartments. Design included site planning, providing power to new lights, replacing existing lighting in-place, and updating analog switching timers with digital astronomic timeclock controls. Provided lighting modeling and analysis using AGI32 software, and drafted design drawings using AutoCAD, including site plans and schedules.

Seminary Pump Station-Level Control Repair

Electrical Designer

Marin County Flood Control and Water Conservation District | Mill Valley, CA | 4/2019 - 5/2019 | \$128,000

Served as Electrical Designer for the design of upgraded pump controls for a stormwater pumping system. Design included replacing and relocating backup level control floats, providing new ultrasonic transducer and Hydromaster 200, and overall modification of the pumping control scheme to avoid nuisance alarms and lockout of pumps. The function of remaining floats was redesigned to be used as a backup system. Developed site plan, wet well details, and modified existing control diagram to incorporate changes.

New Domestic Water System and Well Improvements

Electrical Designer

San Pablo Bay National Wildlife Refuge | Sears Point, CA | 4/2019 - 7/2019 | \$169,000

Served as Electrical Designer for the design of a new domestic water system and well improvements. Design included providing power to new well pump, general power to a new building that housed new filter system, addition of new panel, feeder sizing, breaker sizes and

grounding requirements to meet local and state electrical codes. Drafted Auto CAD drawings of electrical plans and panel schedule.

San Quentin Pump Station Motor Control Center and Control Panel Upgrade

Electrical Designer

Central Marin Sanitation Agency | San Quentin, CA | 4/2019 - 5/2023 | \$300,000

Served as Electrical Designer for the upgrades to existing pump station. Improvements included replacing existing motor control center and Programmable Logic Controller (PLC) control panel, as well as installing new variable frequency drives to motor pumps. Drafted AutoCAD drawings to include site plan, equipment elevation, demo plans and single-line diagrams.

Veterans Memorial Circle Parking Lot

Electrical Designer

County of Sutter | Yuba City, CA | 1/2020 - 2/2020 | \$50,000

Served as Electrical Designer for the design of street lighting around a new corner parking lot. Updated AutoCAD drawings for light pole and pull box location, as well as details of the pole light and foundation installation.

County of Sonoma Chillers and Climate Control Upgrade

Electrical Designer

County of Sonoma | Santa Rosa, CA | 4/2019 - 5/2019 | \$50,000

Served as Electrical Designer for project to replace administration building boilers, chillers, and climate controls. Climate control upgrade consisted of replacing a Siemens energy management system with multiple Siemens S7-1500 PLCs and remote input/output. Decoded existing Powers Process Control Language programming language to develop the control logic to be programmed into the PLCs for control of the chiller and boiler systems.

County of Marin Old Ranch Road Tank No. 2

Electrical Designer

County of Marin | Novato, CA | 12/2021 - 6/2022 | \$110,000

Served as Electrical Designer for the design of a new water tank installation. Design included providing solar power for tank instrumentation. Provide calculations for solar array and batteries. Drafted design drawings using AutoCAD, which included site plans details and schedules.

College of the Redwoods Creative Arts Building

Electrical Designer

County of Humboldt | Eureka, CA | 6/2019 - 6/2023 | \$500,000

Electrical designer for the design of new power, data, lighting, and lighting controls to new buildings in college campus including offices, classrooms, theatres, auditoriums, and shops. Addition of new controls, panel, feeder sizing, breaker sizes and grounding requirements to meet local and state electrical codes. Designed exterior site lighting switching timers with digital astronomic timeclock controls. Provided lighting modelling and analysis using Elumtools software, and drafted design.

Pump Station Emergency Power Transfer and Generator Connection Improvements

Electrical Designer

County of Solano | Vallejo, CA | 3/2020 - 11/2022 | \$90,000

Served as Electrical Designer for the design of emergency power to 13 different pump stations throughout the City of Vallejo. Design included sizing transfer switches, generator connection boxes, distribution panels, feeders, and new utility service. Drafted design drawings using AutoCAD to include site plan, single-line diagrams, and details for each site.

Concow Elementary School Water Treatment System

Electrical Designer

County of Butte | Paradise, CA | 6/2019 - 8/2019 | \$62,000

Served as Electrical Designer for the design of a new water treatment system and well improvements. Design included providing power to new well pump, general power to a new building that housed new filter system, chemical metering instrumentation, addition of new controls, panel, feeder sizing, breaker sizes and grounding requirements to meet local and state electrical codes. Developed control diagrams and drafted AutoCAD drawings of electrical plans and panel schedule.

Willow Creek Wastewater Collection and Treatment System

Electrical Designer

County of Humboldt | Willow Creek, CA | 8/2019 - 6/2023 | \$450,000

Served as Electrical Designer for a water treatment plant with two local lift stations and two remote lift stations. Electrical design included sizing of feeders, panels, and breakers for new pumps, sizing of backup generator and design of automatic switching and controls at two

locations. Electrical design of power distribution in control building to include general power, data, lighting and controls, sizing of feeders for new Heating, Ventilation, and Air Conditioning (HVAC) equipment and process equipment. Design of communication system instrumentation/PLC controls at each lift station. Development of electrical plans, single line diagrams, network and process diagrams, schedules, and details in AutoCAD software.

University of California Santa Cruz Antenna Site Generator Project

Electrical Engineer County of Santa Cruz | Santa Cruz, CA

Served as Electrical Engineer of record for the installation of a 150-kW emergency generator for cellular providers antenna located at University of California Santa Cruz campus. Design included basis of design memorandum for the project, load calculations to size and select new generator, feeders, circuit breakers, automatic transfer switch, disconnect switches, and designed modifications to existing power infrastructure. Generator sizing and selection to meet Monterey Bay Air Resource District approval and to meet emission guidelines per best available control technology. Preparation of construction cost estimate and construction documents with site plan, single line diagram, schedules, details, and technical specifications.

Redway Community Services District Wastewater Treatment improvement Project

Electrical Engineer County of Humboldt | Redway, CA

Served as Electrical Engineer of record for the improvements at Redway Community Services District's collection system and wastewater treatment plant. Design included load calculation to evaluate electrical capacity at site for new processing equipment, coordination with local utility company for electrical service upgrades, sizing of new service equipment and motor control center. Addition of new panel, feeder sizing, breaker sizes and grounding requirements to meet local and state electrical codes.

Mendocino Unified School District-Recycled Water System Project

Electrical Designer County of Mendocino | Mendocino, CA

Served as Electrical Designer for a new 250,000-gallon stainless steel water tank and control building. Design included providing power to various wells, instrumentation to new tank, power and lighting for new control building, power to HVAC, mechanical processing equipment, addition of new controls, panel, feeder sizing, breaker sizes and grounding requirements to

meet local and state electrical codes, and the design of a new backup generator system. Provided load calculation for a new utility power service and sizing of new generator. Drafted design drawings using AutoCAD, which included site plans, details, schedules, and diagrams.

Leachate and Potable Water Storage Tank Replacement Project

Electrical Engineer of Record County of Sonoma | Sonoma County, CA

Served as Electrical Engineer of Record for the design of six 200,000-gallon stainless steel landfill leachate storage tanks at three different landfill sites, as well as the design of three 200,000-gallon stainless steel potable water storage tanks at three different sites in Healdsburg. The project includes site grading, demolition of the existing tanks, site restoration and instrumentation and electrical design. The project will allow for additional storage of landfill leachate which will reduce hauling costs, as well as the replacement of three deficient redwood water tanks. The project will be publicly bid on in 2022.

Foothill Water Treatment Plant Grit Structure Screen Replacement

Electrical Engineer of Record County of Placer | New Castle, CA

Served as Electrical Engineer of Record for the replacement of two grit screens at the foothill water treatment plant. Project consisted of control panel upgrades, electrical upgrades to accommodate new screens, design of process instrumentation and integration into existing PLC controls.

Corte Madera Creek Flood Risk Management-Granton Park Pump Station

Electrical Designer County of Marin | Kentfield, CA

Served as Electrical Designer for a new pump station. Design included sizing of new motor control center to power and control three 60 hp pumps, load calculation to size and select a 175Kw generator, sizing of transfer switch, electrical equipment, feeders, instrumentation/PLC controls, and service equipment for a new utility power service. Preparation of construction documents with site plan, diagrams, schedules, details, and technical specifications.

Great Artesia Boulevard

Electrical Engineer City of Long Beach | Long Beach, CA

Served as Electrical Engineer for the design of new street lighting along a 3.0-mile section of Artesia

Boulevard. design included photometric modelling/analysis, lighting, lighting controls, voltage drop calculations, circuiting, development of construction documents, construction cost estimate, and coordination with utility power company for new services to traffic and lighting pedestals.

Shoreline Drive Realignment

Electrical Engineer

City of Long Beach | Long Beach, CA

Served as Electrical Engineer for the design of new street and pedestrian/bike lane lighting along Shoreline Boulevard. Design included photometric modeling/analysis, lighting, lighting controls, voltage drop calculations, circuiting, development of construction documents, construction cost estimate, and coordination with utility power company for new services to traffic and lighting pedestals.

Foothill Data Center Floor T.I.

Electrical Designer

County of Placer | New Castle, CA

Served as Electrical Designer for the expansion of the electrical and server room design. Design included design of new lighting and controls, transformer, disconnect and branch panel upgrades branch panel to accommodate new server racks and additional loads. Drafted design drawings using AutoCAD to include power/lighting plans, single line diagrams and details.

Redwood Coast Transit Authority Williams Drive Electric Bus Charging Infrastructure Study

Electrical Engineer

Del Norte County | Crescent, CA

Served as Electrical Engineer performing existing power system evaluation to determine needs for new Electric Vehicle (EV) charging infrastructure at cities bus yard. Developed site plan and single-line diagram with major equipment, coordinated with client preferred EV bus fleet and EV charging connections manufacturers to size electrical power system. Coordinated with utility power company for new utility power service. Developed Basis of Design Report.

Tonalea Day school

Electrical Designer

County of Humboldt | Eureka, CA | 6/2019 - 6/2023 | \$500,000

Served as Electrical Engineer for the design of new power, data, lighting, and lighting controls to a new K-6 school campus including offices, classrooms, auditoriums, and shops. Addition of new controls, panel, feeder sizing, breaker sizes and grounding requirements

to meet local and state electrical codes. Designed exterior site lighting switching timers with digital astronomic timeclock controls. Developed lighting modelling and analysis using Elumtools software, specifications and construction documents.

Career history

2019 - present	GHD, Electrical Engineer
2016 (2 mos)	US Department of Agriculture, Engineering Intern
2008 - 2012	United States Army Corp of Engineers, Heavy Equipment Operator

Attachment 3

GHD Standard Terms and Conditions



Professional Services Agreement (US)

Reference no: [Enter reference number]

This Professional Services Agreement (hereinafter "Agreement") is effective this [Enter day] day of [Enter month] [Enter year], ("Effective Date") between [Select item] (hereinafter "GHD") and [Enter client name] (hereinafter "Client") (which are collectively referred to as the "Parties" or individually as a "Party"). In consideration of the mutual promises set forth herein, the Parties agree as follows:

1. Scope of work.

GHD shall perform the services set forth in the Scope of Work which is attached hereto as Exhibit "A". It is understood that the Scope of Work will be based on facts known and laws in place at the time of execution of this Agreement. Each Party will promptly inform the other in writing if facts are discovered that indicate that this Agreement or Scope of Work may need to be modified. If there is a change in law or project assumptions which materially affect either Party's obligations hereunder, upon receiving or providing the notice described above, the Parties shall execute an amendment which will include, at a minimum, a description of the proposed modifications and their effect on the scope, fees, and timelines specified in the Scope of Work (an "Amendment").

2. Changes in the services.

- a. Except for additional services required due to the fault of GHD, any change to the scope, schedule, extent, or character of the services shall be set forth in a written Amendment which is agreed upon and signed by GHD and Client.
- b. Unless otherwise provided herein, GHD shall not be required to perform any additional services unless the Amendment sets forth the scope of the additional services and any adjustment in compensation for, and/or the time to perform, such additional services.
- c. GHD shall also be entitled to an Amendment setting forth an equitable adjustment to its compensation, based on standard rates for professional services and expenses, if any information provided by, or on behalf of, Client is not complete and/or accurate or, as a result of the services performed hereunder, GHD or any GHD employees are required to give evidence before, or provide any information to, a court or other competent authority.
- d. GHD shall have no liability for any delay, and the services completion date shall be extended by the equivalent time, associated with Client's delay in executing an Amendment.

3. Payment for services.

- a. For services rendered on a time plus expense basis:
 - i. The fees will be in accordance with the fee schedule set forth in the Scope of Work. GHD's rates stated in the fee schedule are subject to revision on a periodic basis, following notice to Client. Personnel rates are all-inclusive, including overhead and profit.
 - ii. GHD shall be reimbursed for all reasonable expenses actually incurred in connection with the services, plus reasonable markup as specified in the Scope of Work, plus reasonable travel and living expenses of GHD staff; communication and technology charges; printing and reproduction costs; photographic expenses; advertising for bids; special delivery and express charges; and costs of providing and maintaining site offices, supplies, and equipment.
 - iii. For services performed or goods supplied by GHD's subcontractors, Client shall pay GHD for the cost of such services or goods plus markup, as specified in the Scope of Work.
- b. For services rendered on a lump sum, unit price, or fixed fee basis, Client shall pay GHD for services that are rendered on a percentage complete or task complete basis as specified in the Scope of Work. The fees are all-inclusive, including overhead and profit, and apply to all labor.

- c. Unless otherwise agreed, GHD will invoice Client monthly for services completed. Payment of GHD invoices shall be due upon receipt by Client. Invoices not paid within thirty (30) calendar days shall be subject to an assessed interest charge of eighteen percent (18%) per annum or the highest amount allowed by law, whichever is less. If Client disputes an invoice, Client shall notify GHD in writing within thirty (30) calendar days of the invoice date identifying the cause of the dispute and paying that portion of the invoice not in dispute. Failure of Client to notify GHD of any disputed amounts within the specified time shall deem the invoice accepted by Client. Interest shall not accrue on any disputed amount.
- d. GHD reserves the right without penalty to suspend performance of services in the event Client fails to pay all amounts which are not subject to a bona fide dispute within forty-five (45) calendar days from the invoice date. All suspensions shall extend the completion date of any affected project commensurately unless otherwise agreed to by the Parties.

4. Insurance.

GHD agrees to carry throughout the term of this Agreement insurance policies of the following types and with the following limits, unless otherwise agreed in writing, and will provide certificates of insurance upon request to evidence such insurance:

- a. Workers' compensation – statutory;
- b. Employers' liability - \$1,000,000 per accident/disease/employee (US);
- c. Automobile liability – \$1,000,000 combined single limit;
- d. Commercial general liability – \$1,000,000 per occurrence and \$2,000,000 in aggregate; and
- e. Professional liability – \$1,000,000 per claim and \$2,000,000 in aggregate.

5. Documents and data.

- a. Client shall be responsible for, and GHD may rely upon, the accuracy and completeness of all requirements, instructions, reports, data, documents, site information, and other information furnished by Client to GHD pursuant to this Agreement ("Client Data"). Client warrants that it owns all rights to, or otherwise has rights to use and disclose, Client Data required to meet Client obligations set forth herein. Client agrees to grant and hereby grants to GHD a non-exclusive, royalty-free license to use Client Data and perform all acts with respect to Client Data as necessary to perform the Scope of Work. GHD shall have no obligation to validate the content of Client Data for content, accuracy, usability or for any other purpose.
- b. Client acknowledges that project or site information previously provided by Client (or by a third party on Client's behalf) to GHD personnel not engaged in the provision of the services hereunder shall not be deemed to have been provided to or known by GHD personnel that are engaged in the provision of the services hereunder.
- c. Client shall review any reports, plans, designs, drawings, specifications, bids, proposals, and any other work prepared or furnished by GHD under this Agreement (the "Work Product") before it is finalized. Client shall make decisions within a reasonable time and carry out its other responsibilities in a timely manner so as not to delay the services. Client shall give prompt written notice to GHD whenever Client observes or otherwise becomes aware of any failure by GHD to provide services that meet the standard of care established in this Agreement.
- d. At the request of GHD, Client shall provide GHD with the following information (which shall also be considered "Client Data") to the extent such information is in Client's possession and is pertinent to the Scope of Work, as determined by GHD:
 - i. all criteria and full information as to Client's requirements; copies of all design and construction standards which Client will require to be included in GHD's work; copies of Client's standard terms, conditions, and related documents for GHD to include in bidding documents, when applicable; and
 - ii. any other available information pertinent to the project, including, without limitation, reports and data relative to previous designs or investigations; environmental, geological, and geotechnical conditions of the project site and all surrounding area at or adjacent to the project site; and insofar as such information is not available, Client agrees to pay GHD for the reasonable cost of obtaining the same such information.
- e. If applicable to the Scope of Work, Client shall be responsible for providing information, to the extent such information is within Client's possession, (which shall also be considered "Client Data") regarding the location of all known subsurface structures at the project site including but not limited to pipes, tanks, sewer, and utilities (power, phone, cable, gas, water, etc.).

- f. If the Scope of Work includes subsurface digging, drilling, or other invasive work, upon GHD's review of Client Data, if any, and compliance with any notice requirements to all utilities concerning the possible location of underground utilities, and following any on-site marking or notification in writing to GHD from such utilities, in addition to other indemnity provisions in this Agreement, to the extent not prohibited by law, Client shall release GHD from and defend, indemnify, and hold GHD harmless from and against all costs, liability, loss, and expense whatsoever (including, without limitation, consequential or indirect damages, attorneys' fees, court costs, and expenses) arising out of the subsurface work, to the extent such work causes or contributes to: (i) any disruption of service to users or damage for business interruption, production losses, or loss of revenues, profits, data or use; (ii) any damage to or destruction of any subsurface structure; (iii) any injury or damage to property or injury to or the death of any persons; (iv) any other damage, loss, or liability whatsoever; or (v) the assertion or filing of any claim, cause of action, or judgment whatsoever relating to such matters, unless such damage results from GHD's negligence, recklessness, or willful misconduct.
- g. Client agrees that GHD may use Client Data to add insight, analytics, and data science to the services and/or to provide or suggest additional solutions or services to Client. Client acknowledges and agrees GHD may store Client Data on a cloud computing service (e.g., Microsoft Azure, Amazon Web Services, etc.) and which may be transmitted to or stored outside the County or origin, subject to applicable laws.
- h. Client acknowledges and agrees that GHD may obtain and aggregate technical and other data related to the services that is: (i) is anonymized and presented in a way which does not reveal Client's identity; and (ii) may be combined with historical or recent data and information of other clients or additional data sources ("Aggregated Data"). Client agrees that all right, title, and interest in Aggregated Data, including all intellectual property rights, are hereby assigned to and owned solely by GHD. GHD may reproduce, distribute, display, make publicly available, and otherwise use the Aggregated Data for any business purpose, during and after the term of this Agreement.

6. Confidentiality.

During the term of this Agreement and for a period of two (2) years thereafter (and in the case of trade secrets, until such time as the trade secret no longer qualifies for protection as such under applicable law). GHD shall not disclose any Confidential Information relating to Client to any third parties other than employees, subcontractors, or agents of GHD without the prior written consent of Client, except as required by applicable law, regulation, or legal process, or as may be required by emergency situations. "Confidential Information" includes, without limitation, whether received from or on behalf of the Client, whether marked or not; (i) any information constituting a trade secret under applicable law, (ii) non-technical information relating to the past, present or future business affairs of the Client such as pricing, margins, marketing plans and strategies, finances, financial and accounting data and information, suppliers, customers, customer lists, purchasing data, future business plans, (iii) technical information including patent, copyright, trade secret, and other proprietary information. In the event GHD is requested pursuant to, or required by applicable law, regulation, or legal process to disclose any Confidential Information, GHD will notify Client of the circumstances requiring such disclosure and will refrain from such disclosure for the maximum period of time allowed by law so that Client may seek a protective order or other appropriate remedy to protect the Confidential Information. This provision shall not apply to data or information which (i) is or becomes part of the public domain other than as a result of disclosure by GHD; (ii) was acquired by GHD independently from third parties not under any obligation to Client to keep such data and information confidential; (iii) was in GHD's possession prior to disclosure of the same by Client; or (iv) has been independently developed by GHD, or its employees, subcontractors, or agents.

7. Independent contractor and subcontracting.

The Parties acknowledge and agree that GHD shall be an independent contractor and shall have responsibility for and control over the means of providing the services. GHD shall have the right to use subcontractors as GHD deems necessary to assist in the performance of the services. GHD shall not be required to employ any subcontractor that is unacceptable to GHD.

8. Site access and safety.

Client shall provide right of entry and safe access and necessary permissions for GHD, its representatives, and its subcontractors to perform the services. GHD shall only be responsible for the activities of its own employees and agents on a project site with respect to safety. GHD, its representatives, and its subcontractors will comply with all reasonable known security, health, and safety requirements of the project site owner, as well as those of Client with respect to Client's facilities, which may be imposed upon GHD as a condition of its right of entry. If access to the project site is required to perform the services and such access does not comply with applicable Client approved safety plans, regulations, and/or laws, GHD may, at its sole discretion, suspend services until such violations are remedied.

9. Hazards, materials, and samples.

- a. Unless otherwise stated in the Scope of Work, GHD shall have the primary responsibility of determining if known or potential health or safety hazards exist on or near the project site upon which the services are to be performed by GHD or its subcontractors. Client warrants that it will make full and accurate written disclosure as to any hazardous, radioactive, or toxic substance, or any irritant, contaminant, pollutant, or otherwise dangerous substance or condition ("Hazardous Conditions") which Client knows or has reason to believe exist at the project site prior to the commencement of the services.
- b. If Hazardous Conditions are discovered by GHD during the performance of the services which it could not have reasonably discovered prior to the commencement of the services and if the existence of such Hazardous Conditions materially changes the nature or performance of the services or responsibilities at the project site, Client and GHD shall execute an Amendment to address such changes. If the Parties are unable to agree on an Amendment within thirty (30) calendar days, the Agreement may be terminated by GHD in accordance with the termination provisions of this Agreement. The Parties expressly agree that, unless otherwise specified in the Scope of Work, the discovery of the presence of mold, asbestos, or lead-based paint will constitute a changed condition enabling GHD in its sole discretion to terminate its provision of services if GHD and Client are unable to renegotiate the Scope of Work in a timely manner. GHD will notify Client as soon as practicable should GHD encounter unanticipated hazardous or suspected hazardous materials or conditions.
- c. GHD and Client recognize and agree that GHD has neither created nor contributed to the existence of any Hazardous Conditions at the project site, and as such, GHD has no responsibility in relation to the presence of any such Hazardous Conditions. Accordingly, in the event of any claim against GHD arising out of any actual or alleged Hazardous Conditions on a project site, Client agrees to defend, indemnify, and hold GHD harmless from such claim(s) against GHD or its employees, agents, directors, officers, or subcontractors, unless such claims arise out of the gross negligence or willful misconduct of GHD. This indemnity obligation shall cover, without limitation, any claims against or liability of GHD in relation to preexisting conditions on the project site, any statutory liability, and/or any strict liability under any federal, state, provincial, and/or local environmental laws alleging or asserting, without limitation, that GHD, by virtue of status as an owner, operator, handler, generator, arranger, transporter, treater, storer, or disposer, is liable for any Hazardous Conditions.
- d. In the event GHD performs sampling on behalf of Client, GHD shall preserve such samples obtained from the project site as it deems necessary for the project, but not longer than 45 calendar days after the issuance of any document that includes data obtained from such samples. GHD shall arrange for the disposal of samples containing hazardous materials on behalf of Client, which may consist of returning the samples to the project site, and Client agrees to pay GHD for the cost of returning or disposing of such samples. Samples shall remain the property of Client, and ultimate responsibility for their disposal shall remain with Client. Unless otherwise stated in the Scope of Work, GHD shall not assume title to any samples taken on behalf of Client.

10. Standard of care.

GHD represents that the services shall be performed in a manner consistent with the level of care and skill ordinarily exercised by members of GHD's profession practicing under similar circumstances at the same time and in the same locality. No warranties, guaranties, or representations of any kind, either express or implied, are included or intended by this Agreement or in any proposal, contract, report, opinion, or other document in connection with this project. Upon receipt of notice from Client, GHD shall promptly correct, without additional compensation, any services which fail to conform to the standard of care established in this Section.

11. Indemnity and liability.

- a. Subject to the limitations of Section 11(d) and Section 11(e) below, GHD agrees to indemnify and hold harmless Client (including its officers, directors and employees) from and against losses, damages, liabilities, and expenses (including reasonable legal fees, court costs, and costs of investigation) to the proportionate extent caused by: (i) the failure of GHD to comply in material respects with federal, state, provincial and/or local laws and regulations applicable to the services; (ii) a breach by GHD of this Agreement; or (iii) the negligence or willful misconduct on the part of GHD in performing the services.

- b. Subject to the limitations of Section 11(d) and Section 11(e) below, Client agrees to indemnify and hold harmless GHD (including its parents, subsidiaries, affiliates, and the officers, directors, employees, agents, subcontractors, and any successors or assigns) from and against losses, damages, liabilities, and expenses (including reasonable legal fees, court costs, and costs of investigation) to the proportionate extent caused by: (i) a breach by Client of this Agreement; (ii) the negligence or willful misconduct of Client; or (iii) any condition existing at the project site prior to the arrival of GHD of which GHD had no actual knowledge and over which GHD had no control.
- c. The indemnification commitments in this Agreement do not include a defense obligation by the indemnitor unless such obligation is expressly stated.
- d. TO THE MAXIMUM EXTENT PERMITTED BY LAW, FOR ANY DAMAGE CAUSED BY NEGLIGENCE, INCLUDING ERRORS, OMISSIONS, OR OTHER ACTS; OR FOR ANY DAMAGES BASED IN CONTRACT; OR FOR ANY OTHER CAUSE OF ACTION; GHD'S LIABILITY, INCLUDING THAT OF ITS EMPLOYEES, AGENTS, DIRECTORS, OFFICERS, AND SUBCONTRACTORS, SHALL BE STRICTLY LIMITED TO THE LESSER OF THE AGREEMENT VALUE OR \$1,000,000. NOTWITHSTANDING THE PRECEDING SENTENCE, IF THE AGREEMENT VALUE IS LESS THAN \$50,000, GHD'S LIABILITY SHALL BE LIMITED TO \$50,000.

CLIENT'S LIABILITY TO GHD (NOT INCLUDING PAYMENT OBLIGATIONS), INCLUDING THAT OF ITS EMPLOYEES, AGENTS, DIRECTORS, OFFICERS, AND CONTRACTORS, WILL BE LIMITED TO \$1,000,000.

THE LIMITATIONS IN THIS PARAGRAPH SHALL NOT APPLY TO DAMAGE RESULTING FROM THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THE PARTY CAUSING SUCH DAMAGE.
- e. IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER UNDER THIS AGREEMENT OR OTHERWISE FOR ANY CONSEQUENTIAL, SPECIAL, INDIRECT, INCIDENTAL, OR PUNITIVE DAMAGES, AND/OR DAMAGES RESULTING FROM BUSINESS INTERRUPTION OR THE LOSS OF PROFITS, REVENUE, OPPORTUNITY, ANTICIPATED SAVINGS, USE, DATA AND/OR GOODWILL. THIS MUTUAL WAIVER IS APPLICABLE, WITHOUT LIMITATION, TO ALL DAMAGES CONTEMPLATED IN THIS SECTION 11(E) THAT MIGHT OTHERWISE BE INCLUDED WITHIN A PARTY'S INDEMNIFICATION OBLIGATIONS.

12. Intellectual property.

- a. GHD's Work Product is deemed to be instruments of service and GHD shall retain ownership and property interests therein, however, GHD hereby grants Client, upon Client's payment to GHD of amounts properly due under this Agreement, a non-exclusive, non-transferable, non-sublicensable, license to use the Work Product or make and retain copies for information and reference, to effectuate to the purpose contemplated by the Scope of Work. Any reuse or modification of the Work Product without written verification or adaptation by GHD for the specific purpose intended will be at Client's sole risk and without liability to GHD and Client agrees to defend, indemnify, and hold harmless GHD from all claims, damages, losses, and expenses including attorneys' fees or other costs arising out of or resulting from Client's such unauthorized use.
- b. Client acknowledges that inventions, works, products, software, copyrights, patents, derivative works, trade secrets, trademarks and service marks (including all goodwill), domain names, social media sites, moral rights, publicity rights, and privacy rights and any other materials which were created, conceived, or reduced to practice prior to or independently of this Agreement by GHD, and trade secrets, know how, methodology, and processes of GHD whether or not related to the Scope of Work (hereinafter the "Background IP") shall remain the property of GHD. To the extent that any Background IP is incorporated into the Work Product and on the condition that Client has fully paid GHD for the Work Product, GHD hereby grants Client a limited, nonexclusive, nontransferable, perpetual, irrevocable, royalty-free, paid-up, license to utilize the Background IP solely with respect to the purpose contemplated by the Scope of Work.

13. Termination.

- a. Client will have the right to terminate this Agreement at any time with or without cause, based solely on Client's convenience, provided that GHD is provided thirty (30) calendar days advance written notice of the termination. Client shall pay GHD for all services performed and expenses incurred prior to the effective date of termination, including but not limited to costs to cancel or suspend subcontracts, and other related close-out costs.

- b. GHD may terminate its obligations pursuant to this Agreement under the following circumstances:
 - i. In the event of a breach or default of any obligation by Client, except non-payment of disputed amounts, or as otherwise provided for in this Agreement;
 - ii. If GHD is unable, for any reason beyond its control, including, without limitation, a Force Majeure event, to perform its obligations pursuant to this Agreement in a safe, lawful, or professional manner; or
 - iii. In the event Client (i) ceases to do business in the normal course, (ii) becomes or is declared insolvent or bankrupt, (iii) is the subject of any proceeding related to its liquidation or insolvency or (iv) makes an assignment for the benefit of creditors.
- c. If either circumstance described in Section 13(b)(i) or 13(b)(ii) above occurs, GHD shall notify Client of pertinent conditions and recommend appropriate action. If within thirty (30) calendar days of such notice the circumstances described in Section 13(b)(i) or 13(b)(ii) above have not been remedied or cured, GHD may terminate this Agreement hereunder. In the event of termination, GHD shall be paid for services performed prior to the effective date of termination plus reasonable termination expenses.

14. Dispute resolution.

Both Parties agree in good faith to attempt to resolve amicably, without litigation, any dispute arising out of or relating to this Agreement or the work to be performed hereunder. Following notification of a dispute, the Parties shall have five (5) business days from the date of notification to begin negotiations and fifteen (15) business days from the notification date to complete negotiations, unless otherwise agreed in writing. If any dispute cannot be resolved through direct discussions, the Parties agree to endeavor to settle the dispute by mediation. The Parties shall have forty-five (45) business days within which to commence the first mediation session following the conclusion of their good faith negotiations or expiration of the time within which to negotiate. Either Party may make a written demand for mediation, which demand shall specify the facts of the dispute. The matter shall be submitted to a mediator mutually selected by the Parties. The mediator shall hear the matter and provide an informal nonbinding opinion and advice in order to help resolve the dispute. The mediator's fee shall be shared equally by the Parties. If the dispute is not resolved through mediation, the matter may be submitted to the judicial system in the courts of general jurisdiction where the project site is located. IN ANY ACTION, SUIT, OR PROCEEDING BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVES FOREVER TRIAL BY JURY. For the avoidance of doubt, GHD's statutory or other right, if any, to file a lien for Client's nonpayment will not be conditioned upon or subject to the dispute resolution rules contained in this Section.

15. Records and audit.

Client shall have the right, upon reasonable advance notice, to audit records associated with the services performed and the charges invoiced to Client pursuant to this Agreement. Client's right to audit shall not extend to proprietary information or the profit margin and composition of GHD's fees, except for that portion of the services priced on a cost reimbursable basis. Such records shall be open to inspection and audit by authorized representatives of Client during normal business hours at the place where such records are kept until the completion or termination of this Agreement and for a minimum of 3 years thereafter. GHD shall require its subcontractors to similarly maintain records and to permit the inspection and audit of such records by Client upon similar conditions and time periods.

16. Force majeure.

If either Party is rendered unable, wholly or in part, by Force Majeure (as defined below) to carry out its obligations under this Agreement, other than the obligation to pay funds due, that Party shall give the other Party prompt written notice of the Force Majeure with reasonably full particulars thereof. Thereupon, the obligations of the Party giving notice, so far as they are affected by the Force Majeure, shall be suspended during, but not longer than, the continuance of the Force Majeure. The affected Party shall use all reasonable diligence to remove or remedy the Force Majeure as quickly as possible, except that this requirement shall not require the settlement of strikes, lockouts, or other labor difficulty. The term "Force Majeure" as used in this Agreement shall mean an Act of God, natural events, labor, civil or industrial disturbance, pandemic, governmental or legislative actions, or orders of any court or agency having jurisdiction of the Party's actions, unavailability of equipment, personnel, or information, and any other cause which is not reasonably within the control of the Party claiming suspension.

17. Notice.

Notices pertaining to this Agreement shall be in writing and deemed to have been duly given if delivered in person, by prepaid overnight express delivery service, or by registered or certified mail with postage prepaid and return receipt requested, or when sent by email and upon the receipt by the sending party of written confirmation by the receiving party, provided, however, that an automated email confirmation of delivery or read receipt shall not constitute such confirmation, to the respective Party's authorized representative identified below, or at such other address as may be changed by either Party by giving written notice thereof to the other:

	GHD	Client
Attention:	[Enter name]	[Enter name]
Address:	[Enter address]	[Enter address]
Email:	[Enter email address]	[Enter email address]
Telephone:	[Enter telephone number]	[Enter telephone number]

18. Miscellaneous.

a. Third party beneficiaries.

This Agreement does not and is not intended to confer any rights or remedies upon any person other than the Parties.

b. Municipal advisor rule.

GHD's services do not include serving as a "municipal advisor" or advising Client or any other entity in any manner regarding municipal financial products or municipal securities.

c. Reliance.

GHD's Work Product shall not be relied upon, and Client shall not allow GHD's Work Product to be relied upon, by any third party entity or person without GHD's prior written consent, which shall be granted only if such third party requests and is granted the right to rely prior to the commencement of the services and such third party has (i) executed GHD's standard form reliance agreement and (ii) paid any fees specified in the Scope of Work. Client will indemnify and hold harmless GHD against any claim by, or liability to, a third party arising from reliance on the Work Product in violation of this Section.

d. Waiver.

No failure or delay by either Party in exercising any right, power, or privilege hereunder will operate as a waiver thereof, nor will any single or partial exercise of any such right, power, or privilege preclude any other or further exercise thereof.

e. Successors and assignment.

Neither Party may assign, sublet, or transfer any rights under or interest (including, but without limitation, monies that are due or may become due) in this Agreement without the written consent of the other Party. The obligations of the Parties under this Agreement will not terminate upon any attempted assignment that violates this Agreement. Any assignment or attempted assignment violating this Agreement is void. Notwithstanding the preceding provisions of this Section, Client hereby agrees that this Agreement may be assigned to another entity within the GHD group of companies that will be directly or indirectly wholly owned by GHD Group Limited (a "Related Entity"). Any such Related Entity shall assume all GHD's liabilities, duties, and obligations in, to, and under this Agreement, which assignment may be effected without any prior notice or action on the part of GHD provided that GHD shall give notice of such assignment to Client as soon as reasonably practicable. Client agrees to execute and deliver any documents as may be reasonably requested to evidence consent to such assignment.

f. Conflict of Interest.

GHD and its Related Entities are engaged by a wide variety of clients, some of whom may be competitors, suppliers, or customers of Client, or other parties with conflicting legal and/or business interests to Client, including, without limitation, in relation to the services provided to Client by GHD. In accordance with applicable professional standards, and except as set out below, GHD will not use any confidential information regarding Client in connection with its engagements with other clients and will establish safeguards to manage conflicts, which may include, in GHD's reasonable discretion, the use of separate personnel and data access controls. Client further agrees that GHD may, in its sole discretion, disclose the fact or general nature of its engagement for Client to (i) internally to Related Entities in order to check against potential conflicts of interest, and (ii) to the extent reasonably required in order to obtain the consent of another entity or individual for GHD to act for such entity or individual, or for Client, in connection with this Agreement or any future engagement.

g. Severability and survival.

The Parties agree that, in the event one or more of the provisions or a portion thereof of this Agreement should be declared void or unenforceable, the remaining provisions shall not be affected and shall continue in full force and effect. The Parties also agree that the obligations and representations which by their nature are intended to survive the termination of this Agreement, including but not limited to those pertaining to indemnification, limitations of liability, and intellectual property, shall survive the termination of this Agreement.

h. Governing law.

This Agreement shall be governed by the laws of the State in which the project site is located.

i. No Construction or adverse inference.

The Parties have been provided an opportunity to negotiate the terms of this Agreement. The terms and conditions contained therein shall not be construed in favor of or against any Party.

j. Language preference.

It is the express wish of the Parties that this Agreement and all related documents, including notices and other communications, be drawn up in the English language only. Il est la volonté expresse des parties que cette Entente et tous les documents s'y rattachant, incluant les avis et les autres communications, soient rédigés et signés en anglais seulement.

k. Authority to sign.

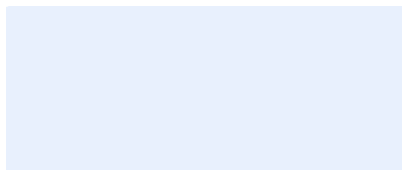
Each of the persons signing below on behalf of any Party hereby represents and warrants that they are signing with full and complete authority to bind the Party on whose behalf they are signing to every term of this Agreement. This Agreement may be executed in counterparts, each of which will be deemed an original and which together will constitute one and the same instrument.

l. Entire agreement.

This Agreement, including all attached Exhibits and documents referenced in those Exhibits, constitute the complete and final agreement between GHD and Client regarding the subject matter hereof. This Agreement supersedes all prior or contemporaneous communications, representations, undertakings, or understandings of the Parties, whether oral or written, relating to the services and subject matter of this Agreement, except to the extent that such prior communications have explicitly been incorporated into the Agreement or one of the attached Exhibits. Modifications of this Agreement shall not be binding unless made in writing and signed by an authorized representative of each Party.

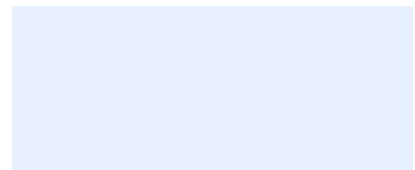
In witness whereof, GHD and Client have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

GHD
[Select item]



Print name
Print title

Client



Print name
Print title