



CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

GWA RESOLUTION NO. 27-FY2023

**RELATIVE TO APPROVAL OF UGUM NO. 2 RESERVOIR CONSTRUCTION
MANAGEMENT CONTRACT**

WHEREAS, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities (“CCU”) has plenary authority over financial, contractual, and policy matters relative to the Guam Waterworks Authority (“GWA”); and

WHEREAS, the Guam Waterworks Authority is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA currently has a number of critical Court Order (“CO”) Projects, including the construction (i.e., repair, rehabilitate, replace or relocate) of the Ugum No. 2 Reservoir, as stated in Paragraph 29 (b) (4), (5), and (6) of the Court Order; and

WHEREAS, the Ugum No. 2 Reservoir construction bid proposals (IFB-06-ENG-2023) were received on April 14, 2023 and are currently under review; and

WHEREAS, GWA has advertised the Request for Proposal (RFP-04-ENG-2023) soliciting statement of qualifications from experienced and qualified engineering firms to provide construction management services for the Ugum No. 2 Reservoir construction project; and

WHEREAS, 19 interested parties registered for the RFP package, from which GWA received proposal submittals from 4 firms before the RFP submittal deadline; and

//

1 **WHEREAS**, the GWA Architectural-Engineering Selection committee reviewed and
2 evaluated the 4 proposals (Exhibit A – Score Summary) and generated a short list of the top 3
3 firms with a recommendation to award a contract to the firm GHD, Inc. (Exhibit B – GM’s
4 Determination); and

5
6 **WHEREAS**, GHD, Inc. and GWA negotiated the price for the construction management
7 services for the Base Bid Construction to be provided in the total amount of One Million Five
8 Hundred Fourteen Thousand Seven Hundred One Dollars (\$1,514,701.00) (Exhibit C – Scope of
9 Work and Fees); and

10
11 **WHEREAS**, GWA management seeks approval of the fee proposal amount of One Million
12 Five Hundred Fourteen Thousand Seven Hundred One Dollars (\$1,514,701.00), along with a ten
13 percent (10%) contingency of One Hundred Fifty-One Thousand Four Hundred Seventy Dollars
14 (\$151,470.00), to bring the total authorized funding amount to a maximum of One Million Six
15 Hundred Sixty-Six Thousand One Hundred Seventy-One Dollars (\$1,666,171.00); and

16
17 **WHEREAS**, the funding sources for the construction project will be from Bond funds;

18
19 **NOW BE IT THEREFORE RESOLVED**; the Consolidated Commission on Utilities
20 does hereby approve the following:

- 21
22 1. The recitals set forth above hereby constitute the findings of the CCU.
23 2. The CCU finds that the terms of the fee proposal submitted by GHD, Inc. are
24 fair and reasonable.
25 3. The CCU hereby authorizes management of GWA to accept the proposal from
26 GHD, Inc., which is also incorporated into this Resolution in its entirety.
27 4. The CCU hereby authorizes the management of GWA to enter into contract
28 with GHD, Inc., in the amount of One Million Five Hundred Fourteen Thousand
29 Seven Hundred One Dollars (\$1,514,701.00).
30 5. The CCU hereby approves the total funding amount for this project of One
31 Million Five Hundred Fourteen Thousand Seven Hundred One Dollars

(\$1,514,701.00), along with a ten percent (10%) contingency of One Hundred Fifty-One Thousand Four Hundred Seventy Dollar (\$151,470.00), to bring the total authorized funding amount to a maximum of One Million Six Hundred Sixty-Six Thousand One Hundred Seventy-One Dollars (\$1,666,171.00).

6. The CCU hereby approves the use of Bond funds.

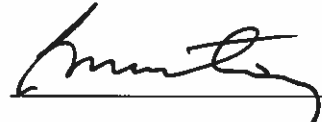
RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 30th day of May 2023.

Certified by:

Attested by:





JOSEPH T. DUENAS

PEDRO ROY MARTINEZ

Chairperson

Secretary

SECRETARY'S CERTIFICATE

I, Pedro Roy Martinez, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES:	<u>4</u>
NAYS:	<u>Ø</u>
ABSTAIN:	<u>Ø</u>
ABSENT:	<u>1</u>





GUAM WATERWORKS AUTHORITY

Gloria B. Nelson Public Service Building 688 Route 15 Mangilao, Guam 96913

March 15, 2023

To: Mauryn Q. McDonald, P.E.
Acting Assistant General Manager - Engineering

From: Josephine E. Smith, PMBA
Chairperson, Consultant Selection Board

Subject: RFP-04-ENG-2023
Construction Management Services for Ugum No. 2 Reservoir
GWA Project No. W22-09-BND

The following information is intended to document the evaluation process undertaken for the referenced solicitation:

EVALUATION COMMITTEE MEMBERS	
Name	Title
Garrett K.A. Yeoh	Senior Engineer
Cheuk Nam Yam	Senior Engineer
George J. Watson	Senior Engineer
Jessey A. Mendiola	Associate Engineer

Offerors	Evaluation Score				Total	Rank
1. GHD, Inc.	83	87	87	85	342	1
2. KHLG & Associates, Inc.	71	77	78	73	299	2
3. SSFM International, Inc.	73	75	80	70	298	3
4. EMPSCO Engineering Consultants	66	73	77	65	281	4

Scores were evaluated based on the sum of individual scores. The recommendation of the Evaluation Committee is shown in the ranking above.

For your review and approval. Notification letters will be issued thereafter.

Approved by:

**Mauryn
McDonald** Digitally signed by
Mauryn McDonald
Date: 2023.03.15
17:17:18 +10'00'

Mauryn Q. McDonald, P.E.



GUAM WATERWORKS AUTHORITY

Gloria B. Nelson Public Service Building 688 Route 15 Mangilao, Guam 96913

MEMORANDUM

To: Miguel C. Bordallo, P.E.
General Manager

From: Mauryn Q. McDonald, P.E.
Acting Assistant General Manager - Engineering

Subject: RFP-04-ENG-2023
Construction Management Services for Ugum No. 2 Reservoir
GWA Project No. W22-09-BND

Date: March 22, 2023

The Selection Committee has completed all necessary actions for selecting the most qualified consultants for the referenced solicitation. All proposals were reviewed and scored according to the conditions established in the solicitation. The Evaluation Summary is attached for your information.

The committee recommends the following top three (3) firms in order of preference for the project:

1. GHD, Inc.
2. KHLG & Associates, Inc.
3. SSFM International, Inc.

Concurred:

Vincent E. Guerrero
Supply Management Administrator

3-22-2023

Date

GENERAL MANAGER'S DETERMINATION

Consultant Firm Selected:

GHD, Inc.

Remarks:

Miguel C. Bordallo, P.E.
General Manager

2023.3.27

Date



865 South Marine Corps Drive, Suite 202B
Tamuning, Guam 96913
United States
www.ghd.com

Your ref: W22-09-BND
Our ref: 12603142

19 April 2023

Mauryn Q. McDonald, P.E.
Acting Assistant General Manager - Engineering
Guam Waterworks Authority
Gloria B. Nelson Public Service Building
688 Route 15
Mangilao, Guam 96913

RE: Scope of Work and Fee Proposal for RFP-04-2023, Construction Management Services for Ugum No. 2 Reservoir, GWA Project No. W22-09-BND

Dear Ms. McDonald:

Further to discussions with Mr. Garrett Yeoh regarding the scope of work, GHD has made some revisions to the scope of work document we included with our fee proposal on April 13, 2023. We are resubmitting our proposed scope of work and fee proposal for the above referenced project which incorporates several revisions reviewed with Mr. Yeoh. We look forward to working with GWA on this critical project for Guam. If you have any questions or need additional information, please do not hesitate to contact me directly by email or telephone.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Matthew G. Kennedy", is written over a horizontal line. The signature is fluid and cursive.

Matthew G. Kennedy, PE
Principal Engineer

+1 707-540-3376
matt.kennedy@ghd.com

Copy to: Andrew Kasunich, PE (GHD)
Garrett Yeoh (GWA)
Brett Railey, PE (GWA)

Attachments:

1. Revised Scope of Work (MS Word with Tracked Change Edits)
2. Revised Fee Proposal

SCOPE OF WORK

Construction Management Services for Ugum No. 2 Reservoir

A. CONSTRUCTION DESCRIPTION:

GHD Inc. (GHD) will provide construction management (CM) services on behalf of GWA for construction of Ugum No. 2 construction. The project is located in Inarajan at Ugum Water Treatment Plant and at the Inarajan Tank Site.

The following are the general description of water system improvements to be completed:

- Construction of a 2.0 MG concrete reservoir, including piping, vaults, pile foundation, electrical, instrumentation, SCADA, control building, treatment plant process instrumentation, and general site improvements.
- Rehabilitation of 1.0 MG Ugum No.1 steel reservoir.
- Demolition of 0.2 MG Inarajan steel reservoir.

The construction contract duration is 455 calendar days. A post-construction services duration of 60 calendar days is assumed.

B. GENERAL CONSTRUCTION MANAGEMENT (CM) SCOPE OF WORK

The CM will provide all services relating to the daily field observation, inspection, testing, management, coordination, and compliance monitoring for the construction project. The project generally consists of geotechnical ground improvements, construction of a pre-stressed concrete tank conforming to AWWA/ANSI D110 for Type I Wire- and Strand- Wound, Circular Prestressed Concrete Water Tanks (site adapted for the proposed location), installation of new water lines, construction of new vault structures, demolition of an existing steel tank at the Inarajan Tank Site, major structural repair and rehabilitation of the existing Ugum No. 1 steel reservoir, construction of new control buildings, construction and refurbishment of booster pump station, electrical, instrumentation and control, SCADA controls, plus all associated utilities for each site.

The rehabilitation of the Ugum No. 1 steel reservoir will be managed as a construction change order. The associated CM and inspection services are not included in this Scope of Work. The rehabilitation design is not part of the bid package, and the engineer preparing the rehabilitation design is expected perform the inspections and testing.

The construction management, testing, and field observation services for the tank replacement project will require general construction management and observation, as well as specialized inspection and testing. The construction management team members shall have demonstratable experience with pile driving, earthwork, pipe fitting work, concrete tank work, SCADA work, and all other aspects of this construction project.

In addition to general construction management duties, inspection and testing will include, but not limited to:

- Concrete placement
- Pile Foundation
- Concrete anchors/Adhesive anchoring systems/Expansion bolts
- Grading
- Excavation

- Compaction grouting
- Compaction testing
- Pre-stressing operations
- Concrete cylinder testing
- Shotcrete application
- High strength bolting
- Rebar
- Earthwork/Soil analysis
- Pipe fitting
- Electrical
- Instrumentation
- SCADA
- Hydrostatic testing
- Water treatment plant process instrumentation (TOC meter, chlorination analyzer)
- Disinfection
- System commissioning
- Structural repairs (per API-653)
- Steel reservoir coating
- Cathodic protection

In general, the CM will act as an independent contractor Owner's Representative of GWA whose primary function are to:

- Keep GWA advised and informed as to project progress, schedule, cost, work quality and conformance to project documents.
- Manage the change process.
- Disclose any information relevant to GWA's interest.
- Make proactive recommendations to GWA for action to maintain progress and achieve the project intent, schedule, and budget.
- Act in the best interest of GWA.

The CM shall administer the Contract, except that the CM is not authorized to make any decisions on the behalf of GWA that materially affect the intent of the design or financially obligate GWA in any manner.

Each project team member's resume shall be submitted to GWA for review and approval/rejection prior to start of the construction project. If any of the team member is not performing at GWA's expected professional and technical level, the project team member shall be replaced at GWA's discretion at any time.

The project team is expected to be experts in construction management, which includes project delivery, technical capabilities, problem solving, conflict resolution, and all other necessary factors needed to ensure that the project is completed as intended within schedule and budget.

The project team shall generally consist of the following members:

- a. Construction Manager/Resident Engineer
 1. This position shall be a registered Guam Professional Engineer
 2. 1 full time position
- b. Construction Inspector/Field Engineer

1. This position shall hold an Engineer in Training or Engineering Intern certificate.
 2. 1 full time position
- c. Administrative
1. 1 full time position
- d. Other staff and subconsultants
1. As needed
 2. Subconsultants may consist of geotechnical engineering, surveying, concrete testing, special inspections, soil testing, electrical, SCADA, and all other necessary disciplines.

C. PRE-CONSTRUCTION PHASE SERVICES

1. CM Quality Assurance

The Construction Management consultant and/or sub-consultants shall have experience in managing the construction of concrete water reservoirs conforming to AWWA design and construction guidelines or similar concrete construction, construction of water lines, booster pump stations, and all relevant water utility work. The CM team shall have qualified team members that are able to properly review all documentation and provide inspection in all relevant disciplines, which include civil, structural, mechanical, electrical, instrumentation, and SCADA.

The CM will review, record, and comment on submittals and Quality Control Plans submitted by the Construction Contractor. The CM will develop, implement, and maintain a Quality Assurance Plan for civil, structural, electrical, mechanical, and instrumentation elements including specialized work related to the construction of concrete water reservoirs conforming to AWWA/ANSI D110 Type I Wire- and Strand- Wound, Circular Prestressed Concrete Water Tanks.

The CM Quality Assurance shall incorporate all the required testing listed below.

The CM will file contractor certifications: review, file, and submit inspection test results; and assess substantial completion.

Quality assurance will include the following at the minimum:

- Documentation of site conditions prior to beginning construction
- Review of approved submittals from the Contractor prior to fabrication or installation of materials and equipment
- Daily inspection, observation, and documentation of field work
- Monitoring of the Contractor's Quality Control Plan
- In-plant fabrication and/or witness testing at place of manufacture (where applicable and locally accessible)
- Reports and record keeping
- Non-conforming and deficient work resolution process
- Complete list of specialized inspections for the tank structure and under tank improvements

The CM is responsible for monitoring the Contractor's compliance with the Contract Documents.

2. Construction Management Plan

The CM will develop and implement the Construction Management Plan (CM Plan) including guidelines for project organization and coordination in the field, standard daily operations, change order procedures, safety, quality, schedule, and cost control. The CM Plan sets forth the procedures and approach for the project construction management. The CM Plan will serve the CM, the Owner's Representatives, and Contractors by defining the project, project team members and their roles, coordination among team members, procedures, key milestones, and schedule constraints. By establishing these parameters early in the project, the CM Plan will help control resources and costs, and establish communication and coordination between the CM, Contractor, and GWA.

This task also includes time for the CM/RE and Construction Inspector/Field Engineer to review the plans, specifications and contract and become familiar with the design and requirements prior to the start of construction.

Deliverables (electronic pdf files and hardcopies):

- Construction Management Plan

3. Contract Bidding

Upon receipt of the construction bid results and related bid packages for each bidder, the CM will review the bid packages and provide GWA with a recommendation and/or concurrence of the proposed selected Contractor. Recommendation shall include document review to ensure compliance with all bid requirements and procurement regulations, bid analysis, and contractor selection. This task assumes GWA receives bids from up to three (3) contractors.

Deliverables (electronic pdf files and hardcopies):

- Technical Memorandum(s) – Document Review, Bid Analysis, and Contractor Selection

D. CONSTRUCTION PHASE SERVICES

The following sections describe the daily duties of the CM team.

1. Project Records and Document Control

These services and tools shall be provided by the CM to ensure that the project is efficiently managed and constructed according to the terms of the Contract and this Scope of Work. This task involves the proper collection and organization of construction documents, gathering data regarding project progress, producing progress reports, and monitoring time, cost, and quality.

The CM will use the Procore Construction Management software to manage construction documentation, track communication, design documents, construction documents, finances, and reporting. An allowance of \$X is included in the fee proposal for the Procore licenses. This amount is based on GHD's corporate Procore license and an estimated construction cost of \$15,000,000.

- Communication documents: Memos, daily inspector reports, meeting minutes and other relevant documentation for both Contractor and CM.
- Construction documents: Submittals, shop drawings, RFIs, testing results, photo logs, special inspection reports, change orders, corrective actions, punch lists, various construction logs, payment applications, wage rate reporting, and all other relevant documentation.
- Design documents: Specifications, drawings, permits, bid documents, contract documents, and all other relevant design documentation.

2. Daily Construction Reports

The onsite inspectors shall maintain a log of material deliveries, daily site production, site conditions, field orders/directives, progress photos, material testing, special inspections, documentation of delays, non-conformance, punch lists, and other material and work facts and issues regarding the prosecution of the work. The daily reports and logs shall be available to GWA project team for review at any time via the Procore Construction Management Software.

3. Progress Photo Log and Live Video Feed

The CM shall prepare and retain a construction progress photo log in an organized digital album with phases of the project clearly labeled and stored in the Procore Construction Management Software. The photo log shall capture all phases of the project – pre-construction, construction, and post-construction. The photo log shall be digital.

The CM shall provide a 24-hour monitoring camera to be installed at the Ugum Reservoir No. 2 project site to allow for continuous monitoring of the construction of the AWWA/ANSI D110 for Type I Wire- and Strand- Wound, Circular Prestressed Concrete Water Tank and related work. The camera system will be a GWA-owned camera reused from a previous GWA project. It will allow for remote view and playback functions. Monthly progress videos shall be available online and saved into the Procore Construction Management Software or other location accessible to GWA. The live video service is budgeted at an estimate rate of \$500 per month for a 12-month duration.

4. Submittals and Shop Drawings

The CM shall manage, review and act on all submittals required by the Contract documents. Submittals and shop drawings shall be managed in the Procore Construction Management Software. The CM shall review and provide comments regarding shop drawings, work drawings, material submittals, traffic control plan, safety plan, demolition plan, and all other submittals for conformance with the Contract documents. CM reviewers shall be competent personnel. Submittals and shop drawings requiring review by the Engineer of Record (EOR) will be sent to the EOR.

5. Contractor Project Schedules

The CM shall review the Contractor's work schedule for accuracy and for efficient sequencing of the work. The CM will direct the Contractor to make any changes deemed necessary and coordinate approval of the revised schedule with GWA. Any delays shall be documented and notified to GWA and the Contractor when actual progress is behind

schedule. The CM shall adhere to the requirements set forth in the Contract documents for contractor project schedule tracking and review.

6. Payment Request

The CM shall receive and process payment requests from the Contractor. Payment requests shall be reviewed for compliance with the Contract documents and with the actual work completed. Upon completion of the review, the CM shall work with the Contractor to make any necessary adjustments, certify, and forward the request to GWA for approval and processing of the payment. The CM shall submit their review, recommendation, acceptance, or rejection within 5 working days of receipt of a complete and accurate payment request from the Contractor.

7. Payroll Report

The CM shall review any payroll submittals required by the Contract documents including prevailing wage submissions. At the minimum, the Contractor and its subcontractors shall provide bi-weekly pay records for each of its employees on the project. The CM will conduct random employee interviews to verify the pay request information. Upon completion of the payroll review, the CM shall require the Contractor to make any necessary adjustments, certify, and forward the payroll report along with the pay request to GWA for processing.

8. Project Meetings

The CM shall schedule, arrange, and conduct conferences and meeting as required for clear communication of the Contract requirements and adherence to project schedules.

The CM shall arrange for a weekly progress meeting with the Contractor and GWA to discuss progress of work, Contract requirements, and other issues related to the administration and prosecution of work. The CM shall prepare meeting minutes for all progress meetings with contractors, sub-contractors, GWA, and all other parties. The meeting minutes shall include an action item list maintained from week to week until action items have been completed. Meeting information shall be maintained in the Procore Construction Management Software.

The CM shall arrange meetings between the Contractor and GWA, and other parties such as GEPA and DPW as necessary to address project issues that require decisions that cannot be made by the CM or to resolve regulatory concerns.

9. As-Built Drawing

Each month, the CM shall review the Contractor's As-Built drawings to ensure that they are current, accurate and capture any deviations from the original plan set.

The CM shall also maintain and update a separate set of red-line as-built drawing on site in the Procore Construction Management Software. Drawings shall be available for GWA at any time. Monthly as-builts documents shall be uploaded to the project management software system. The CM's red-line as-built drawings shall be used by the CM as a tool to review against the Contractor's as-built drawings.

10. Request for Information

Track all Request for Information and maintain an RFI log in the Procore Construction Management Software. Coordinate receipt of responses from other parties, as required. Provide RFI responses with GWA's input regarding any aspect of the Contract documents, which includes the plans and technical specifications.

11. Compliance Monitoring

The CM shall evaluate and ensure Contractor compliance with all local and federal labor laws applicable to the Project. Any violations shall be immediately reported to GWA.

Compliance monitoring shall include but not limited to the following:

- Regulations and Laws: Monitor compliance with Territorial and/or Federal laws, regulations, and rules.
- Labor laws: Monitor Contractor and subcontractor procedures to verify legal status of employees on site. Verify bi-weekly compliance with labor requirements for federally funded projects including posting of wage rate schedules at the job site and safety requirements.
- Licensure: Confirm that the Contractor and its subcontractor and their workers have all required licenses and ensure that said licenses are valid throughout the terms of the Contract.
- Permit Compliance: Monitor and track Contractor's compliance in obtaining required permit and approvals.
- Insurance: Review Contractor's insurance documents submitted to GWA for compliance with Contractor requirements. Track insurance documents, ensure insurance is valid throughout the term of Contract and maintain insurance certificate log.

12. Claims and Disputes

The CM shall promptly notify GWA regarding any issues that arise during construction of the Project that could result in claims and/or disputes. The CM shall provide the following services to assist GWA with the resolution of claims and disputes:

- Claim Records: Maintain copies of all verbal and written communications, submittals, testimony, photos, and meetings regarding a potential dispute and promptly submit all originals to the Chief Engineer and Attorney for GWA.
- Claims Reviews & Interpretation: Reviews claims submitted by the Contractor, provide GWA with interpretation of Contract drawings and specifications and provide written recommendations to GWA regarding the solution of the dispute. At the outset of the Contract, the CM shall work with the Contractor to provide pricing for equipment, material, personnel, and other relevant considerations as specified in the bid. Prices agreed upon shall be used in any subsequent Change Order. No amounts shall be paid except for actual losses incurred by the Contractor through no fault of their own or for risks not allocated to the Contractor under the bid.

13. Change Order Negotiations and Review

Prepare independent cost estimates and negotiate change orders with the Contractor subject to GWA approval (final approval of negotiated change orders can only be made by the GWA General Manager).

Track all change orders and maintain a change order log. Provide change order evaluations, negotiations, and recommendations for approval by GWA. Change orders shall not be made when the Contractor has proceeded with work at risk or assumed such risk in the bid. Change orders may include requests for additional payments for differing site conditions and the CM shall utilize the bid document to determine if a change order is warranted. CM shall submit change order requests and supporting documentation to GWA for approval within 5 working days of receipt of a potential change order notice from the Contractor wherever practical.

The CM shall maintain copies of all approved change orders (originals to be provided to GWA) and ensure that subsequent pay requests accurately represent these change orders. Approved change orders shall be administered by the CM along with other work elements according to the provisions of this scope of work.

14. Construction Monitoring, Special Inspection, and Quality Control Monitoring

The CM team shall provide full-time construction observation and special inspection services to ensure that the work is accomplished in accordance with the Contract documents.

The Construction Manager/Resident Engineer shall be at the site during normal working hours unless attending project related meetings or during holidays, vacation, or sick days. The Construction Manager/Resident Engineer shall be licensed professional engineer registered in Guam.

The CM team shall provide a full-time construction inspector/field engineer at the reservoir site to monitor the construction. The Construction Manager/Resident Engineer and onsite field staff shall have demonstrable experience (satisfactory to GWA) relative to the discipline and type of work being performed. Project field staff shall review project documents, conduct daily observations, perform or schedule special inspections, prepare and submit Daily Observation and Special Inspection Reports, communicate deficiency issues and resolve issues with the Contractor, and update the Non-Compliance log.

In addition to general compliance inspections, the CM shall provide Special Inspections services in accordance with IBC 2009, Chapter 17 (or latest version required by DPW) by a person with demonstrable experience (satisfactory to GWA) related to concrete placement, structural field welding, field welding of reinforcement, concrete anchoring, expansion bolts, shotcrete application, high strength bolting, reinforcing steel placement, pre-stressing operations, grading, excavation, backfilling, foundation probing and injection, and other operations that require special inspections. The Special Inspections staff shall be approved by GWA.

The CM team shall have adequate staff to review and inspect work in all disciplines involved in the construction project. The disciplines are the following: civil, structural, mechanical, electrical, instrumentation, and SCADA.

15. Geotechnical Observation and Materials Testing (Quality Assurance)

A part-time geotechnical field representative will be provided on-site for observation of observation of pile installation under the supervision of a Guam registered geotechnical engineer. The geotechnical field representative will be on site approximately 10 percent of the

contractor QC observation time, or 4 hours on-site time per week for a 40-hour workweek. We estimate the 147 proposed piles will be installed at a rate of approximately two piles per day, or 10 piles per week. Assuming a 40-hour work week, we estimate pile installation will occur over approximately 15 work weeks. The geotechnical engineer will perform periodic visits, as needed. Non-conformance, deficiencies, or other issues will be reviewed by the geotechnical engineer and communicated immediately with the CM and Contractor.

Contractor Testing: Schedule, observe, approve or reject, and document testing required under the Contract to be performed by the Contractor.

Construction Quality Assurance Testing: The CM shall provide, at the minimum, the following CQA testing to monitor the Contractor’s independent testing firm:

SPECIAL TESTING	STANDARD	FREQUENCY
Concrete Tests: <ul style="list-style-type: none"> • Pipe encasement: Inlet piping, outlet piping, overflow piping, drain line piping, wash down piping • Tank foundation • Tank wall • Tank roof slab • Tank column • Tank column footing • Shotcrete • Vaults • Detention basin: footing and walls • Electrical and communication encasement • Electrical and communication hand hole 	ASTM C-39	10% of Contractor’s Quality Control Tests. Includes field testing of concrete and collection of concrete cylinder sets of five, in accordance with ASTM C31, for compression testing in an AASHTO-accredited laboratory. Work performed by an ACI certified field representative.
Compaction grouting	ASTM C-1019	10% of Contractor’s Quality Control Tests
Compaction testing: <ul style="list-style-type: none"> • Over Excavation: Bottom of Over Excavation, Type G – Crushed Aggregate, Top of Type H – Drain Rock, Type E – Certification of Observation • Vaults: First lift, middle lift, and final lift. • Electrical Hand Holes: First lift, middle lift, and final lift • Communication Hand Holes: First lift, middle lift, and final lift • Detention Basin: Footing • Pavement: Ribbon gutter and pavement 	ASTM D-698 ASTM D-6938	10% of Contractor’s Quality Control Tests or 4 hours on-site time per week for a 40-hour workweek.
Soil and Aggregate Analysis	ASTM C-136	10% of Contractor’s Quality Control Tests

<ul style="list-style-type: none"> • Type G – Crushed Aggregate • Type H – Drain Rock • Type E – Pea Gravel • Type I – Backfill Material 	ASTM C-117 ASTM C-40 ASTM D-1140 ASTM D-1183 ASTM D-4318	
All other required testing for Contract conformance.		

16. Acceptance

The CM shall promptly reject, orally and in writing, any construction work that does not fully comply with Contract documents. Within 24 hours of notification to the Contractor that work elements have been rejected; the CM shall provide a written description of the deficiency to the GWA for concurrence. When concurrence has been obtained, the Contractor shall be directed to correct the work. The CM shall promptly advise the GWA Project Manager if the Contractor fails to correct or remove the defective work.

The CM shall issue written stop work orders to the Contractor and immediately provide GWA with a copy for a portion of or the entire Contract non-compliance issues as follows:

- If condition of work or Contractor actions threatens the health and safety of Contractor personnel, GWA representatives, or public in such cases, stop work orders may be oral depending on the circumstances with written stop work order to follow.
- With prior notification and approval of the GWA Chief Engineer or Project Manager in all other cases.

17. Construction Survey Services (Quality Assurance)

The CM shall conduct survey and field measurements as necessary to verify that the work is located according to the plans and specifications. Changes to the horizontal and vertical alignments and elevations shall be made only with the approval of the GWA Chief Engineer.

- Pipeline Alignments and Location of Structures: Spot check Contractor's construction staking to verify the pipeline alignments and structure locations are as called for on the plans and in the specifications and in order to ensure that the work is located within lawful and approved Rights-of-Way and easements.
- Elevations: Spot check with Contractor's elevations for foundations, pads, pipeline inverts, backfill thickness, manholes, and other structures for which vertical elevations is a critical design element.
- Construction Survey Quality Assurance: The CM shall provide, at the minimum, the following CQA survey to monitor the Contractor's independent survey firm:

Under Tank Piping

- a. Inlet piping & top of flange
- b. Outlet piping & top of flange
- c. Over flow piping & top of flange
- d. Drain line piping & top of flange
- e. Wash down piping & top of flange
- f. Ring drain, high points and outlets

Over Excavation

- a. Bottom of over excavation
- b. Top of fine aggregate
- c. Top of drain rock

Tank Foundation

- a. Top of formwork
- b. Top of concrete foundation

Vaults

- a. Top inlet vault footing formwork
- b. Top inlet vault roof slab formwork
- c. Top outlet vault footing formwork
- d. Top outlet vault roof slab formwork
- e. Top drain vault footing formwork
- f. Top drain vault roof slab formwork
- g. Top electrical hand hold
- h. Top communication hand hold

Pavement

- a. Ribbon gutter formwork
- b. Pavement formwork

Water Line

- a. Invert of newly installed pipe
- b. Location of fittings
- c. Utility nodes, such as vertical and horizontal bends in pipes
- d. Exposed utilities
- e. New chambers, manholes, vaults, or structures

Electrical

- a. Top of conduit
- b. Handholds and other electrical vaults

Bench Marks

- a. Establish benchmarks on the top of all vaults, top of footing at water height gauge, overflow, drain, and outlet.

18. Construction Electrical, Instrumentation and SCADA Services (Quality Assurance)

The CM shall perform field and building QA inspections of electrical, instrumentation and SCADA system installation as necessary to verify that the work is located according to the plans and specifications and installed in accordance with current building code requirements. An allowance of \$20,000 is included for QA electrical testing.

19. Project Closeout (Punch List and Project Closeout Inspections)

Throughout the construction of the project, prepare and maintain a list of defects and deficiencies in the work which must be corrected by the Contractor prior to final acceptance of work. The list shall be provided to all members of the pre-final and final inspection team. The list shall be revised after inspections to reflect additional items identified during the

inspection. Coordinate with the Contractor to ensure that all punch list items have been completed. When all items have been completed, inform GWA in writing recommending that the work be accepted.

Schedule, arrange, and conduct interim, pre-final, and final inspections of work with Contractor, GWA, GEPA, DPW, and other stakeholders in this project.

- Preliminary Inspection: Preliminary inspections shall be arranged as necessary for specific work elements that require the certification and approval of other agencies.
- Pre-final Inspection: A pre-final inspection shall be conducted after substantial completion of the work.
- Final Inspection: The final inspection shall be conducted after correction of pre-final inspection punch list items.

20. Train and Warranty Documentation

The CM shall maintain a copy of all startup training and standard maintenance procedures required by the Contract document.

The CM shall maintain a copy of the warranties and compile associated Manufacturer and Contractor warranty documents. Warranty information shall be included in the final project report. All original warranty documents shall be provided to GWA along with Lien Release Information from the Contractor.

E. POST-CONSTRUCTION PHASE SERVICES

1. Final Report

The CM shall prepare a Final Report after written acceptance of the work by GWA. The Final Report shall include documentation of all significant design and construction events and issues and shall become a historical record for the project. The Final Report shall include all the documentation stored in the Procore Construction Management Software during the project, including:

- All communication documentation
- All meeting notes and record
- All design documentation
- All construction documentation
- Warranty information
- Operation and maintenance information
- Training information
- All files stored in Procore Construction Management software

Deliverables (electronic files):

- CM Final Report and documents from Procore

2. Record Drawings

After the conclusion of the project, the CM shall review and approve the official record drawings prepared by the Contractor. Record drawings shall be marked and sealed by a professional engineer licensed on Guam in accordance with Guam PEALS regulations.

The CM shall also submit a separate set of red-line as-built drawings as required in Section D, 9.

Deliverables (electronic pdf files and 3 hard copies):

- Contractor's As-Built Record Drawings
- CM's As-Built Record Drawings

F. ASSUMPTIONS

- The use of the word “ensure” constitutes an expression of professional opinion regarding those facts or findings which are the subject of a certification and does not constitute a warranty or guarantee, either expressed or implied.
- The Construction Management Team does not supervise and direct the Work of the Contractor. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.
- The Contractor shall be solely responsible for site safety.
- The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Management Team in the Construction Management Team's administration of the Contract, or by tests, inspections, or approvals required or performed by persons other than the Contractor.
- The bid review task assumes GWA receives bids from up to three (3) contractors.
- Round-trip mileage from GHD's office in Tamuning to the Ugum Water Treatment Plant is 30 miles.
- The construction services duration is 455 calendar days from Notice to Proceed to Substantial Completion, which is 325 weekdays excluding GWA observed holidays.
- For budgeting purposes, a total of 60 calendar days or 43 weekdays is assumed for post-construction phase services at a half-time rate for the primary CM team.
- GWA observes 12 holidays each calendar year.
- All QA inspection and testing services are on a time-and-expense basis.
- An allowance of \$20,000 is included for Task 21 GWA equipment purchases.
- An allowance of \$20,000 is included in Task 18 for electrical QA testing.
- The rehabilitation of the Ugum No. 1 steel reservoir is not included in the construction contract and will be managed as a construction change order. The associated CM and inspection services are not included in this Scope of Work. The rehabilitation design is not part of the bid package, and the engineer preparing the rehabilitation design is expected perform the special inspections and testing.
- An allowance of \$18,513 is included in the fee proposal for the Procore Construction Management Software license. This amount is based on GHD's corporate Procore pricing agreement (\$1,020 per \$1M construction value), an estimated construction cost of \$15,000,000 and includes a 10% contingency.



Attachment 1

GHD - PROJECT FEE ESTIMATING SHEET

Project Name: CM Services for Ugum No. 2 Reservoir
 Prepared by: Matt Kennedy
 Reviewed by: Andrew Kasunich
 Job Number: 12603142.PP

Client: Guam Waterworks Authority
 Date: April 19, 2023

TASK	LABOR CATEGORY > RATE >	LABOR COSTS										FEE COMPUTATION						
		Principal \$310.00 /Hr	CM/RE \$195.00 /Hr	Field Engr/ Inspector \$140.00 /Hr	Civil Engineer \$170.00 /Hr	Elec/SCAD Engr \$215.00 /Hr	Mech Engr \$215.00 /Hr	Structural Engr \$205.00 /Hr	CAD Tech \$120.00 /Hr	Project Admin \$85.00 /Hr	TOTAL HOURS	OTHER DIRECT COSTS (1)	GHD FULLY BURDENED LABOR COSTS	SUB QA Geotech/Testing ENGEO	SUB QA Elec/SCADA SET Electric	SUB QA Survey DCA	TOTAL SUB FEES	TOTAL SUB FEES W/MARKUP 10%
Task 1 Pre-Construction Phase Services																		
1.1 CM Quality Assurance (Task 1)	2	8	8						4	22	\$0.00	\$3,640.00				\$0.00	\$0.00	\$3,640.00
1.2 CM Plan (Task 2)	2	16	16						16	50	\$0.00	\$7,340.00				\$0.00	\$0.00	\$7,340.00
1.3 Contract Bidding (Task 3)	2	32	32						24	90	\$0.00	\$13,380.00				\$0.00	\$0.00	\$13,380.00
Subtotal Task 1	6	56	56	0	0	0	0	0	44	162	\$0.00	\$24,360.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24,360.00
Task 2 Construction Phase Services																		
2.1 Construction Phase Services (Tasks 1-13, 16, 19, 20)		2504	2504					40	2544	7592	\$68,864.23	\$1,059,880.00				\$0.00	\$0.00	\$1,128,744.23
2.2 Special Inspection and QC Monitoring (Task 14)				40	80	80	80			280	\$0.00	\$57,600.00				\$0.00	\$0.00	\$57,600.00
2.3 QA Materials Testing & Geotech (Task 15)										0	\$0.00	\$0.00	\$90,100.25	\$0.00	\$0.00	\$90,100.25	\$99,110.28	\$99,110.28
2.4 Constructon QA Survey (Task 17)										0	\$0.00	\$0.00		\$37,500.00	\$37,500.00	\$41,250.00	\$41,250.00	
2.5 QA Electrical Inspection & Testing (Task 18)										0	\$0.00	\$0.00	\$48,400.00	\$0.00	\$48,400.00	\$53,240.00	\$53,240.00	
2.6 Equipment Purchase (Task 21)										0	\$0.00	\$0.00			\$0.00	\$0.00	\$0.00	
Subtotal Task 2	0	2504	2504	40	80	80	80	40	2544	7872	\$68,864.23	\$1,117,480.00	\$90,100.25	\$48,400.00	\$37,500.00	\$176,000.25	\$193,600.28	\$1,379,944.50
Task 3 Post-Construction Phase Services																		
3.1 Final Report (Task 1)	2	40	40						40	122	\$0.00	\$17,420.00				\$0.00	\$0.00	\$17,420.00
3.2 Record Drawings (Task 2)	2	40	40						40	122	\$0.00	\$17,420.00				\$0.00	\$0.00	\$17,420.00
Subtotal Task 3	4	80	80	0	0	0	0	0	80	244	\$0.00	\$34,840.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34,840.00
PROJECT TASK SUBTOTALS	10	2,640	2,640	40	80	80	80	40	2,668	8,278	\$68,865.00	\$1,176,680.00	\$90,100.25	\$48,400.00	\$37,500.00	\$176,000.25	\$193,600.28	\$1,439,145.00
GRT(5.25%)																		\$75,556.00
PROJECT TOTAL																		\$1,514,701.00

(1) OTHER DIRECT COSTS include telephone, vehicle mileage, CM software, video, printing, reproduction, equipment purchases, and other miscellaneous direct expenses.

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services
GHD Project Number: 12603142.PP
Description: Ugum Reservoir No. 2
Prepared by: Matt Kennedy

Attachment: 2
of: 3
Checked By:
Date: 4/19/2023

QA SURVEY ESTIMATE

<u>Under Tank Piping:</u>	<u>Quantity</u>
Inlet Piping & Top of Flange	\$1,000
Outlet Piping & Top of Flange	\$1,000
Over-Flow Piping & Top of Flange	\$1,000
Drain Line Piping & Top of Flange	\$1,000
Wash Down Piping	\$1,000
Ring Drain, High Points and Outlets	\$1,000
 <u>Over Excavation:</u>	
Bottom of Over Excavation	\$1,000
Top of Fine Aggregate	\$1,000
Top of Drain Rock	\$1,000
 <u>Tank Foundation:</u>	
Top of Formwork	\$1,000
Top of Concrete Foundation	\$1,000
 <u>Vaults:</u>	
Top inlet vault footing formwork	\$1,000
Top inlet vault roof slab formwork	\$1,000
Top outlet vault footing formwork	\$1,000
Top outlet vault roof slab formwork	\$1,000
Top drain vault footing formwork	\$1,000
Top drain vault roof slab formwork	\$1,000
Top electrical hand hold	\$1,000
Top communication hand hold	\$1,000

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services
GHD Project Number: 12603142.PP
Description: Ugum Reservoir No. 2
Prepared by: Matt Kennedy

Attachment: 2
of: 3
Checked By:
Date: 4/19/2023

Pavement:

Ribbon gutter formwork	\$1,000
Pavement formwork	\$1,000

Water Line:

Invert of newly installed pipe	\$1,000
Location of fittings	\$1,000
Utility nodes, such as vertical and horizontal bends in pi	\$1,000
Exposed utilities	\$1,000
New chambers, manholes, vaults, or structures	\$1,000

Electrical:

Top of conduit	\$2,000
Handholds and other electrical vaults	\$1,000

Benchmarks:

Establish bench marks on the top of all vaults, top of footing at water height gauge, overflow, drain, and outlet.	\$1,000
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Contingency **25%** **\$7,500**

TOTAL QA SURVEY ESTIMATED BUDGET \$37,500

	<u>Rate</u>	
PLS Rate:	\$126	/hr
3-Man Crew Rate:	\$200	/hr
Drafting Rate:	\$74	/hr

Assumptions: Each survey site visit requires 4 hours for crew,
 1 hour for drafting, and 1 hour for PLS (budgeting purposes).
Site Visit Rate = \$1,000

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services
 GHD Project Number: 12603142.PP
 Description: Ugum Reservoir No. 2
 Prepared by: Matt Kennedy

Attachment: 2
 of: 3
 Checked By:
 Date: 4/19/2023

QA MATERIAL TESTING ESTIMATE

Material Laboratory Testing:

<u>Procotor & Sieve Analysis:</u>	<u>Unit Cost</u>	<u>Quantity</u>	<u>Cost</u>
Subgrade	\$565.00	1	\$565.00
Limestone	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00
		Contingency 25%	\$423.75
TOTAL ESTIMATED BUDGET:			\$2,118.75

Compaction Testing:

<u>Over-Excavation:</u>			
Base course	\$565.00	1	\$565.00
Limestone	\$565.00	1	\$565.00
<u>Control Room</u>			
Subgrade	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00
Limestone	\$565.00	1	\$565.00
<u>Ponding Basin Access Road</u>			
Subgrade	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00
<u>Off-Site Gravel Road</u>			
Subgrade	\$565.00	1	\$565.00
General Fill	\$565.00	1	\$565.00
<u>AC Pavement</u>			
Subgrade	\$565.00	1	\$565.00
Limestone	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00
<u>Concrete Sidewalk</u>			
Subgrade	\$565.00	1	\$565.00
Structural Fill	\$565.00	1	\$565.00
Limestone	\$565.00	1	\$565.00
<u>Inlet/Outlet Vault</u>			
Subgrade	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00
<u>Inlet Meter Vault</u>			
Subgrade	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services
GHD Project Number: 12603142.PP
Description: Ugum Reservoir No. 2
Prepared by: Matt Kennedy

Attachment: 2
of: 3
Checked By:
Date: 4/19/2023

Drain/Overflow Manhole:

Subgrade	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00

Retaining Wall

Limestone	\$565.00	2	\$1,130.00
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Manhole

Subgrade	\$565.00	1	\$565.00
Base course	\$565.00	1	\$565.00

Electrical Handhole (estimated)

Below Foundation	\$565.00	1	\$565.00
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Contingency 25% \$3,672.50

TOTAL ESTIMATED QA COMPACTION TESTING BUDGET: \$18,362.50

Concrete & Pavement Testing:

Inlet/Outlet Vault:

<u>Unit Cost</u>	<u>Quantity</u>	<u>Cost</u>
Footing	1	\$480.00
Walls	1	\$480.00
Roof Slab	1	\$480.00

Inlet Meter Vault:

Footing	1	\$480.00
Walls	1	\$480.00
Roof Slab	1	\$480.00

Drain/Overflow Manhole:

Footing	1	\$480.00
Walls	1	\$480.00
Roof Slab	1	\$480.00

Outlet Check Valve Vault

Footing	1	\$480.00
Walls	1	\$480.00
Roof Slab	1	\$480.00

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services	Attachment: 2
GHD Project Number: 12603142.PP	of: 3
Description: Ugum Reservoir No. 2	Checked By:
Prepared by: Matt Kennedy	Date: 4/19/2023

Control Room

Footing	\$480.00	1	\$480.00
Walls	\$480.00	1	\$480.00
Roof Slab	\$480.00	1	\$480.00

Encasement:

Inlet Piping	\$480.00	1	\$480.00
Outlet Piping	\$480.00	1	\$480.00
Over-Flow Piping	\$480.00	1	\$480.00
Drain Line Piping	\$480.00	1	\$480.00
Wash Down Piping	\$480.00	1	\$480.00
Electrical & Communications Ducts	\$480.00	1	\$480.00
Electrical & Communications Hand hole			

Pavement:

Pavement	\$480.00	1	\$480.00
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Retaining Wall

Footing	\$480.00	2	\$960.00
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Fencing

Posts	\$480.00	1	\$480.00
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Water Tank:

Foundation	\$480.00	1	\$480.00
Core Walls	\$480.00	2	\$960.00
Columns	\$480.00	2	\$960.00
Column Footings	\$480.00	2	\$960.00
Roof Slab	\$480.00	2	\$960.00
Shotcrete	\$720.00	2	\$1,440.00

79

Contingency 10% \$1,776.00

TOTAL CONCRETE & PAVEMENT ESTIMATED BUDGET: \$19,536.00

DESCRIPTION OF TESTS:

Compressive Strength of Cylindrical Concrete Specimens (5 at \$60.00 ea.):	\$300.00
Air Content of Freshly Mixed Concrete by the Pressure/Volumetric Method, per test:	\$60.00
Unit Weight and Yield of Fresh Concrete, each:	\$60.00
Slump Test & Making Concrete Specimens in the field (2.5 Hours of Labor):	\$60.00

SUBTOTAL: **\$480.00**

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services
GHD Project Number: 12603142.PP
Description: Ugum Reservoir No. 2
Prepared by: Matt Kennedy

Attachment: 2
of: 3
Checked By:
Date: 4/19/2023

QA GEOTECHNICAL SPECIAL INSPECTIONS

Special Inspections:

<u>Site Geotechnical QA</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Pile Installation (Staff Engineer)	hours	90	\$205	\$18,450
Periodic Site Visits (Sr. Geotch Engineer)	hours	54	\$265	\$14,310
		144		\$32,760

<u>Outlet Meter Vault:</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Footing	hours	2	\$205	\$410
Walls	hours	2	\$205	\$410
Roof Slab	hours	2	\$205	\$410

<u>Inlet Meter Vault:</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Footing	hours	2	\$205	\$410
Walls	hours	2	\$205	\$410
Roof Slab	hours	2	\$205	\$410

<u>Drain/Overflow Manhole:</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Footing	hours	2	\$205	\$410
Walls	hours	2	\$205	\$410
Roof Slab	hours	2	\$205	\$410

<u>Encasement:</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Inlet Piping	hours	2	\$205	\$210
Outlet Piping	hours	2	\$205	\$210
Over-Flow Piping	hours	2	\$205	\$210
Drain Line Piping	hours	2	\$205	\$210
Wash Down Piping	hours	2	\$205	\$210
Electrical & Communications Ducts	hours	2	\$205	\$210

<u>Control Room</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Footing	hours	2	\$205	\$210
Walls	hours	2	\$205	\$210

<u>Pavement:</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Pavement	hours	2	\$205	\$420

<u>Retaining Wall</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Footing	hours	2	\$205	\$210
Walls	hours	2	\$205	\$210

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services	Attachment: 2
GHD Project Number: 12603142.PP	of: 3
Description: Ugum Reservoir No. 2	Checked By:
Prepared by: Matt Kennedy	Date: 4/19/2023

Water Tank:

Foundation	hours	4	\$205		\$820
Corewalls	hours	4	\$205		\$820
Columns	hours	4	\$205		\$820
Column Footings	hours	4	\$205		\$820
Roof Slab	hours	4	\$205		\$820
Shotcrete	hours	4	\$205		\$820
Vertical Post-tensioning	hours	4	\$205		\$820
Circumferential Pre-stressing	hours	4	\$205		\$820
		<u>72</u>			\$12,770

SUBTOTAL: \$45,530.00

Contingency 10% \$4,553.00

TOTAL ESTIMATED QA GEOTECH SPECIAL INSPECTIONS BUDGET: \$50,083.00

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Ugum Reservoir No. 2 CM Services	Attachment: 2
GHD Project Number: 12603142.PP	of: 3
Description: Ugum Reservoir No. 2	Checked By:
Prepared by: Matt Kennedy	Date: 4/19/2023

QA ELECTRICAL SPECIAL INSPECTIONS & TESTING

<u>Electrical QA Inspections</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
Site	hours	80	\$150	\$12,000
Buildings	hours	80	\$150	\$12,000
		160		\$24,000

<u>Electrical QA Testing Allowance</u>	<u>Units</u>	<u>Quantity</u>	<u>Rate</u>	<u>Total</u>
General Allowance	T/M	1	\$20,000	\$20,000
		1		\$20,000

SUBTOTAL: \$44,000.00

Contingency 10% \$4,400.00

TOTAL ESTIMATED QA ELECTRICAL SPECIAL INSPECTIONS & TESTING BUDGET: \$48,400.00

TOTAL QA INSPECTION AND TESTING BUDGET: \$176,000.25



Project Name: CM Services for Ugum No. 2 Reservoir
 Prepared by: Matt Kennedy
 Reviewed by: Andrew Kasunich
 Job Number: 12603142.PP

Task/Item	USB	Mylar 24x36	11x17	8.5x11	Quantity	Vehicle	Video	Procure	PPE	Potholing	Other	Equipment	Total
1.1 CM Quality Assurance (Task 1)													\$0.00
1.2 CM Plan (Task 2)													\$0.00
1.3 Contract Bidding (Task 3)													\$0.00
2.1 Construction Phase Services (Tasks 1-13, 16, 19, 20)						\$30,444.73	\$9,900.00	\$27,769.50	\$750.00				\$68,864.23
2.2 Special Inspection and QC Monitoring (Task 14)													\$0.00
2.3 QA Materials Testing & Geotech (Task 15)													\$0.00
2.4 Construcion QA Survey (Task 17)													\$0.00
2.5 QA Electrical Inspection & Testing (Task 18)													\$0.00
2.6 Equipment Purchase (Task 21)													\$0.00
3.1 Final Report (Task 1)													\$0.00
3.2 Record Drawings (Task 2)													\$0.00
TOTAL OTHER DIRECT COSTS													\$68,864.23



Notes

Full Size Plans	\$30.00 each	Mylar
Copies	\$0.10 each	GHD standard rate for 8.5x11 and 11x17
USB Thumb Drive	\$5.00 each	
Vehicle	\$0.655 mile	Passenger
Lodging	\$159.00 day	Local Ukiah Hotel
Per Diem	\$96.00 day	Misc. / Meals