

**MONTEREY COUNTY WATER RESOURCES AGENCY
AGREEMENT FOR PROFESSIONAL SERVICES
WITH SURVEYORS, ARCHITECTS, ENGINEERS AND/OR DESIGN
PROFESSIONALS**

This is an agreement (“Agreement”) between the Monterey County Water Resources Agency, hereinafter called "Agency," and E2 Consulting Engineers, Inc., a California Corp., 2100 Powell Street, Suite 850, Emeryville, CA 94608 hereinafter called "CONTRACTOR".

In consideration of the mutual covenants and conditions set forth in this Agreement, the parties agree as follows:

1. Employment of CONTRACTOR. Agency hereby engages CONTRACTOR and CONTRACTOR hereby agrees to perform the services set forth in Exhibit A, in conformity with the terms of this Agreement. CONTRACTOR will complete all work in accordance with the **Scope of Work/Work Schedule set forth in Exhibit A:**

(a) The scope of work is briefly described and outlined as follows:

The Contractor will supply hydraulic modeling and engineering services to to provide analysis, recommendations, and technical reports per scope of work and work schedule in Exhibit A.

(b) The CONTRACTOR shall perform its services under this agreement in accordance with usual and customary care and with generally accepted practices in effect at the time the services are rendered. The CONTRACTOR and its agents and employees performing work hereunder are specially trained, experienced, competent, and appropriately licensed to perform the work and deliver the services required by this Agreement.

(c) CONTRACTOR, its agents and employees shall perform all work in a safe and skillful manner and in compliance with all applicable laws and regulations. All work performed under this Agreement that is required by law to be performed or supervised by licensed personnel shall be performed in accordance with such licensing requirements.

(d) CONTRACTOR shall furnish, at its own expense, all materials and equipment necessary to carry out the terms of this Agreement, except as otherwise provided herein. CONTRACTOR shall not use Agency premises, property (including equipment, instruments, or supplies) or personnel for any purpose other than in the performance of its obligations hereunder.

2. Term of Agreement. The term of this Agreement shall begin on October 17, 2022 by CONTRACTOR and Agency, and will terminate on June 30, 2025, unless earlier terminated as provided herein.

3. Payments to CONTRACTOR; maximum liability. Subject to the limitations set forth herein, Agency shall pay to CONTRACTOR in accordance with the fee schedule set forth in Exhibit B. The maximum amount payable to CONTRACTOR under this contract is Four Hundred Seventy Three Thousand, Five Hundred and Twenty dollars

(\$ 473,520.00).

4. Monthly Invoices by CONTRACTOR; Payment.

- (a) CONTRACTOR shall submit to Agency an invoice, in a format approved by Agency, setting forth the amounts claimed by CONTRACTOR, together with an itemized basis for such amounts, and setting forth such other pertinent information Agency may require. CONTRACTOR shall submit such invoice monthly or as agreed by Agency, but in no event shall such invoice be submitted later than 30 days after completion of CONTRACTOR's work hereunder. Agency shall certify the claim if it complies with this contract and shall promptly submit such claim to the Monterey County Auditor-Controller, who shall pay the certified amount within 30 days after receiving the invoice certified by Agency. It is understood and agreed that CONTRACTOR shall complete all work described in Exhibit A for an amount not exceeding that set forth above, notwithstanding CONTRACTOR's submission of periodic invoices.
- (b) CONTRACTOR agrees that Agency may withhold five percent (5%) of the amount requested by CONTRACTOR from any progress payment, until such time as all goods and services are received in a manner and form acceptable to Agency.
- (c) If, as of the date of execution of this Agreement, CONTRACTOR has already received payment from Agency for work which is the subject of this Agreement, such amounts shall be deemed to have been paid under this Agreement and shall be counted toward Agency's maximum liability set forth above.
- (d) CONTRACTOR shall not be reimbursed for travel expenses unless expressly approved in writing in accordance with this Agreement.

5. Indemnification

- 5.1 For purposes of the following indemnification provisions ("Indemnification Agreement"), "design professional" has the same meaning as set forth in California Civil Code section 2782.8. If any term, provision or application of this Indemnification Agreement is found to be invalid, in violation of public policy or unenforceable to any extent, such finding shall not invalidate any other term or provision of this Indemnification Agreement and such other terms and provisions shall continue in full

force and effect. If there is any conflict between the terms, provisions or application of this Indemnification Agreement and the provisions of California Civil Code Sections 2782 or 2782.8, the broadest indemnity protection for the COUNTY under this Indemnity Agreement that is permitted by law shall be provided by CONTRACTOR.

5.2 Indemnification for Design Professional Services Claims: CONTRACTOR shall indemnify, defend and hold harmless COUNTY, its governing board, directors, officers, employees, and agents against any claims that arise out of, or pertain to, or relate to the negligence, recklessness, or willful misconduct of the CONTRACTOR, its employees, subCONTRACTORS, and agents in the performance of design professional services under this Agreement, excepting only liability arising from the sole negligence, active negligence or willful misconduct of COUNTY, or defect in a design furnished by COUNTY, but in no event shall the amount of such CONTRACTOR's liability exceed such CONTRACTOR's proportionate percentage of fault as determined by a court, arbitrator or mediator, or as set out in a settlement agreement. In the event one or more defendants to any action involving such claim or claims against COUNTY is unable to pay its share of defense costs due to bankruptcy or dissolution of the business, such CONTRACTOR shall meet and confer with the other parties to such action regarding unpaid defense costs.

5.3 Indemnification for All Other Claims or Loss:
For any claim, loss, injury, damage, expense or liability other than claims arising out of the CONTRACTOR's performance of design professional services under this Agreement, CONTRACTOR shall indemnify, defend and hold harmless COUNTY, its governing board, directors, officers, employees, and agents against any claim for loss, injury, damage, expense or liability resulting from or alleging injury to or death of any person or loss of use of or damage to property, arising from or related to the performance of services under this Agreement by CONTRACTOR, its employees, subCONTRACTORS or agents, excepting only liability arising from the sole negligence, active negligence or willful misconduct of the COUNTY, or defect in a design furnished by the COUNTY.

6. Insurance.

6.1 Evidence of Coverage:
Prior to commencement of this Agreement, the CONTRACTOR shall provide a "Certificate of Insurance" certifying that coverage as required herein has been obtained. Individual endorsements executed by the insurance carrier shall accompany the certificate. In addition the CONTRACTOR upon request shall provide a certified copy of the policy or policies.

This verification of coverage shall be sent to the Agency's Contact, unless otherwise directed. The CONTRACTOR shall not receive a "Notice to Proceed" with the work under this Agreement until it has obtained all insurance required and such, insurance has been approved by the Agency. This approval of insurance shall

neither relieve nor decrease the liability of the CONTRACTOR.

6.2 Qualifying Insurers:

All coverage's, except surety, shall be issued by companies which hold a current policy holder's alphabetic and financial size category rating of not less than A-VII, according to the current Best's Key Rating Guide or a company of equal financial stability that is approved by the County's Purchasing Manager.

6.3 Insurance Coverage Requirements:

Without limiting CONTRACTOR's duty to indemnify, CONTRACTOR shall maintain in effect throughout the term of this Agreement a policy or policies of insurance with the following minimum limits of liability:

Commercial general liability insurance, including but not limited to premises and operations, including coverage for Bodily Injury and Property Damage, Personal Injury, Contractual Liability, Broad form Property Damage, Independent CONTRACTORS, Products and Completed Operations, with a combined single limit for Bodily Injury and Property Damage of not less than \$1,000,000 per occurrence.

Exemption/Modification (Justification attached; subject to approval).

Business automobile liability insurance, covering all motor vehicles, including owned, leased, non-owned, and hired vehicles, used in providing services under this Agreement, with a combined single limit for Bodily Injury and Property Damage of not less than \$1,000,000 per occurrence.

Exemption/Modification (Justification attached; subject to approval).

Workers' Compensation Insurance, if CONTRACTOR employs others in the performance of this Agreement, in accordance with California Labor Code section 3700 and with Employer's Liability limits not less than \$1,000,000 each person, \$1,000,000 each accident and \$1,000,000 each disease.

Exemption/Modification (Justification attached; subject to approval).

Professional liability insurance, if required for the professional services being provided, (e.g., those persons authorized by a license to engage in a business or profession regulated by the California Business and Professions Code), in the amount of not less than \$1,000,000 per claim and \$2,000,000 in the aggregate, to cover liability for malpractice or errors or omissions made in the course of rendering professional services. If professional liability insurance is written on a "claims-made" basis rather than an occurrence basis, the CONTRACTOR shall, upon the expiration or earlier termination of this Agreement, obtain extended reporting coverage ("tail coverage") with the same liability limits. Any such tail coverage shall continue for at least three years following the expiration or earlier termination of this Agreement.

Exemption/Modification (Justification attached; subject to approval).

6.4 Other Insurance Requirements.

All insurance required by this Agreement shall be with a company acceptable to the Agency and issued and executed by an admitted insurer authorized to transact Insurance business in the State of California. Unless otherwise specified by this Agreement, all such insurance shall be written on an occurrence basis, or, if the policy is not written on an occurrence basis, such policy with the coverage required herein shall continue in effect for a period of three years following the date CONTRACTOR completes its performance of services under this Agreement.

Each liability policy shall provide that the Agency shall be given notice in writing at least thirty days in advance of any endorsed reduction in coverage or limit, cancellation, or intended non-renewal thereof. Each policy shall provide coverage for CONTRACTOR and additional insureds with respect to claims arising from each subCONTRACTOR, if any, performing work under this Agreement, or be accompanied by a certificate of insurance from each subCONTRACTOR showing each subCONTRACTOR has identical insurance coverage to the above requirements.

Commercial general liability and automobile liability policies shall provide an endorsement naming the Monterey County Water Resources Agency and the County of Monterey, their officers, agents, and employees as Additional Insureds with respect to liability arising out of the CONTRACTOR'S work, including ongoing and completed operations, and shall further provide that such insurance is primary insurance to any insurance or self-insurance maintained by the County and that the insurance of the Additional Insureds shall not be called upon to contribute to a loss covered by the CONTRACTOR'S insurance. The required endorsement form for Commercial General Liability Additional Insured is **ISO Form CG 20 10 11-85 or CG 20 10 10 01 in tandem with CG 20 37 10 01 (2000)**. The required endorsement form for Automobile Additional Insured endorsement is **ISO Form CA 20 48 02 99**.

Prior to the execution of this Agreement by the Agency, CONTRACTOR shall file certificates of insurance with the Agency's contract administrator, showing that the CONTRACTOR has in effect the insurance required by this Agreement. The CONTRACTOR shall file a new or amended certificate of insurance within five calendar days after any change is made in any insurance policy, which would alter the information on the certificate then on file. Acceptance or approval of insurance shall in no way modify or change the indemnification clause in this Agreement, which shall continue in full force and effect.

CONTRACTOR shall at all times during the term of this Agreement maintain in force the insurance coverage required under this Agreement and shall send, without demand by Agency, annual certificates to Agency's Contract Administrator. If the certificate is not received by the expiration date, Agency shall notify CONTRACTOR and CONTRACTOR shall have five calendar days to send in

the certificate, evidencing no lapse in coverage during the interim. Failure by CONTRACTOR to maintain such insurance is a default of this Agreement, which entitles Agency, at its sole discretion, to terminate this Agreement immediately.

7. Maintenance of Records. CONTRACTOR shall prepare, maintain and preserve all reports and records that may be required by federal, State, and local rules and regulations relating to services performed under this Agreement. CONTRACTOR shall retain all such records for at least five years from the date of final payment, or until any litigation relating to this Agreement is concluded, whichever is later.
8. Right to Audit at Any Time. Agency officials shall have the right, at any time during regular working hours and on reasonable advance notice, to examine, monitor and audit all work performed and all records, documents, conditions, activities and procedures of CONTRACTOR or its subCONTRACTORS relating to this Agreement. Government Code Section 8546.7 provides that an audit by the State Auditor General may be performed up to three years after the final payment under any contract involving the expenditure of public funds in excess of \$10,000.
9. Confidentiality; Return of Records. CONTRACTOR and its officers, employees, agents, and subCONTRACTORS shall comply with all federal, State and local laws providing for the confidentiality of records and other information. To the extent permitted by applicable law and regulations, CONTRACTOR shall maintain confidentiality with respect to Agency's well database and other water use data.

CONTRACTOR shall not disclose any confidential information received from Agency or prepared in connection with the performance of this Agreement without the express permission of Agency. CONTRACTOR shall promptly transmit to Agency all requests for disclosure of any such confidential information. CONTRACTOR shall not use any confidential information gained through the performance of this Agreement except for the purpose of carrying out CONTRACTOR's obligations hereunder. When this Agreement expires or terminates, CONTRACTOR shall return to Agency all records, which CONTRACTOR utilized or received, from Agency to perform services under this Agreement.

10. Termination. Either party may terminate this Agreement by giving written notice of termination to the other party at least thirty (30) days prior to the effective date of termination, which date shall be specified in any such notice. In the event of such termination, the amount payable hereunder shall be reduced in proportion to the services provided prior to the effective date of termination. Agency may terminate this Agreement at any time for good cause effective immediately upon written notice to CONTRACTOR. "Good cause" includes, without limitation, the failure of CONTRACTOR to perform the required services at the time and in the manner provided herein. If Agency terminates this Agreement for good cause, Agency may be relieved of the payment of any consideration to CONTRACTOR, and Agency may proceed with the work in any manner, which it deems proper. Costs incurred by Agency thereby shall be

deducted from any sum due CONTRACTOR.

11. Amendments and Modifications. No modification or amendment of this agreement shall be valid unless it is set forth in writing and executed by the parties.
12. Non-Discrimination. Throughout the performance of this Agreement, CONTRACTOR will not unlawfully discriminate against any person because of race, color, religion, gender, national origin, ancestry, physical disability, medical condition, marital status, age older than 40, or sexual orientation, gender identity or any other status protected under federal, state or local law, either in CONTRACTOR's employment practices or in the furnishing of services to recipients. CONTRACTOR shall ensure that the evaluation and treatment of its employees and applicants for employment and all persons receiving and requesting services are free of such discrimination. CONTRACTOR shall comply fully with all federal, State and local laws and regulations which prohibit discrimination. The provision of services primarily or exclusively to any target population designated herein shall not be deemed prohibited discrimination.
13. Independent Contractor. In its performance under this Agreement, CONTRACTOR is at all times acting and performing as an independent CONTRACTOR and not an employee of Agency. No offer or obligation of employment with Agency is intended in any manner, and CONTRACTOR shall not become entitled by virtue of this Agreement to receive from Agency any form of benefits accorded to employees including without limitation leave time, health insurance, workers compensation coverage, disability benefits, and retirement contributions. CONTRACTOR shall be solely liable for and obligated to pay directly all applicable taxes, including without limitation federal and State income taxes and social security arising out of CONTRACTOR's performance of this Agreement. In connection therewith, CONTRACTOR shall defend, indemnify, and hold harmless Agency from any and all liability, which Agency may incur because of CONTRACTOR's failure to make such payments.
14. Delegation of Duties; Subcontracting. CONTRACTOR is engaged by Agency for its unique qualifications and abilities. CONTRACTOR may not, therefore, delegate any of its basic duties under this Agreement, except to the extent that delegation to CONTRACTOR's employees is contemplated herein. No work shall be subcontracted without the written consent of Agency, except as provided in this Agreement or its attachments. Notwithstanding any subcontract, CONTRACTOR shall continue to be liable to Agency for the performance of all work hereunder. CONTRACTOR shall not assign, sell, mortgage or otherwise transfer its interest or obligations in this Agreement without Agency's prior written consent.
15. Agency's Rights in Work Product. All original materials prepared by CONTRACTOR in connection with its work hereunder -- including but not limited to computer codes, customized computer routines developed using proprietary or commercial software packages, reports, documents, maps, graphs, charts, photographs and photographic negatives -- shall be the property of Agency and shall be delivered to Agency prior to final payment. CONTRACTOR may utilize any existing materials developed by

CONTRACTOR prior to commencement of work under this Agreement, which materials shall remain the property of CONTRACTOR.

16. Compliance with Terms of Federal or State Grant. If any part of this Agreement has been or will be funded pursuant to a grant from the federal or State government in which Agency is the grantee, CONTRACTOR shall comply with all provisions of such grant applicable to CONTRACTOR's work hereunder, and said provisions shall be deemed a part of this Agreement as though fully set forth herein.
17. Conflict of Interest. CONTRACTOR warrants that it presently has no interest and shall not acquire any interest during the term of this Agreement, which would directly or indirectly conflict in any manner or to any degree with its full and complete performance of all services under this Agreement.
18. Governing Laws. This Agreement is entered into in the County of Monterey, State of California, and shall be construed and enforced in accordance with the laws of the State of California. The parties hereby agree that the County of Monterey shall be the proper venue for any dispute arising hereunder.
19. Compliance with Applicable Law. The parties shall comply with all applicable federal, state, and local laws and regulations in performing this Agreement.
20. Construction of Agreement. The parties agree that each party has fully participated in the review and revision of this Agreement and that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in the interpretation of this Agreement or any exhibit or amendment. To that end, it is understood and agreed that this Agreement has been arrived at through negotiation, and that neither party is to be deemed the party which prepared this Agreement within the meaning of Civil Code Section 1654. Section and paragraph headings appearing herein are for convenience only and shall not be used to interpret the terms of this Agreement.
21. Waiver. Any waiver of any term or condition hereof must be in writing. No such waiver shall be construed as a waiver of any other term or condition herein.
22. Successors and Assigns. This Agreement and all rights, privileges, duties and obligations hereunder, to the extent assignable or delegable, shall be binding upon and inure to the benefit of the parties and their respective successors, permitted assigns and heirs.
23. Contractor. The term "CONTRACTOR" as used in this Agreement includes CONTRACTOR's officers, agents, and employees acting on Contractor's behalf in the performance of this Agreement.
24. Interpretation of Conflicting Provisions. In the event of any conflict or inconsistency between the provisions of this Agreement and the Provisions of any exhibit or other attachment to this Agreement, the provisions of this Agreement shall prevail and control.

25. Time is of the Essence. The parties mutually acknowledge and agree that time is of the essence with respect to every provision hereof in which time is an element. No extension of time for performance of any obligation or act shall be deemed an extension of time for performance of any other obligation or act, nor shall any such extension create a precedent for any further or future extension.

26. Contract Administrators.

CONTRACTOR's designated principal responsible for administering CONTRACTOR's work under this Agreement shall be

Vinod M. Badani, P.E.- Vice President

Agency's designated administrator of this Agreement shall be

Mark Foxworthy- Associate Water Resources Engineer

27. Notices. Notices required under this Agreement shall be delivered personally or by electronic facsimile, or by first class or certified mail with postage prepaid. Notice shall be deemed effective upon personal delivery or facsimile transmission, or on the third day after deposit with the U.S. Postal Service. CONTRACTOR shall give Agency prompt notice of any change of address. Unless otherwise changed according to these notice provisions, notices shall be addressed as follows:

TO AGENCY

TO CONTRACTOR

Name: Mark Foxworthy

Name: Vinod M. Badani

Address:

Address:

1441 Schilling Place, Salinas CA 93901

2100 Powell Street, Suite 850, Emeryville, CA 94608

Telephone: 831-755-8984

Telephone: 510-652-1164

Fax: 831-424-7935

Fax: 510-355-3611

E-Mail: foxworthyme1@co.monterey.ca.us

E-Mail: vinod.badani@e2.com

28. Electronic Deliverables. Where feasible, all reports, documents and other printed information provided to the Agency pursuant to this Agreement shall be submitted in both written and Electronic formats in accordance with the specifications listed in Exhibit C.

29. Non-exclusive Agreement. This Agreement is non-exclusive and both parties reserve the right to contract with other entities for the same or similar services.

30. Execution of Agreement. Any individual executing this Agreement on behalf of an entity represents and warrants that he or she has the requisite authority to enter into this Agreement on behalf of such entity and to bind the entity to the terms and conditions hereof. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement.

31. Exhibits. The following Exhibits are attached hereto and incorporated by reference:

Exhibit A - Scope of Work/ Work Schedule, Deliverables

Exhibit B - Fee Schedule

Exhibit C -

Exhibit D -

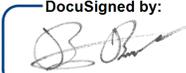
32. Entire Agreement --As of the effective date of this Agreement, this document, including all exhibits hereto, constitutes the entire agreement between the parties, and supersedes any and all prior written or oral negotiations and representations between the parties concerning all matters relating to the subject of this Agreement.

**MONTEREY COUNTY WATER RESOURCES AGENCY
AGREEMENT FOR PROFESSIONAL SERVICES
WITH SURVEYORS, ARCHITECTS, ENGINEERS AND/OR DESIGN
PROFESSIONALS**

IN WITNESS WHEREOF, AGENCY and CONTRACTOR execute this agreement as follows:

**MONTEREY COUNTY WATER
RESOURCES AGENCY:**

CONTRACTOR:

BY: 
DocuSigned by:
2B64A6A1043A441...

BY: *Vinod Badani*

Brent Buche
General Manager

Type Name: Vinod M. Badani

Title: Vice President

Date: 9/26/2022 | 11:05 AM PDT

Date: 9-2-2022

BY:



Type Name: Hersh Saluja

Title: Chief Executive Officer (CEO)

Date: 9-6-2022

* INSTRUCTIONS: If CONTRACTOR is a corporation (including limited liability and nonprofit corporations), the full legal name of the corporation shall be set forth together with the signatures of two specified officers. If CONTRACTOR is a partnership, the name of the partnership shall be set forth together with the signature of a partner with authority to execute this Agreement on behalf of the partnership. If CONTRACTOR is contracting in an individual capacity, the individual shall set forth the name of his or her business, if any, and shall personally sign the Agreement.

(E2 Consulting Engineers, Inc.)
Agreement

Approved as to form ¹:

Approved as to fiscal provisions:

DocuSigned by:
Kelly L. Doulon
22D690CA05A940B...
Assistant County Counsel

DocuSigned by:
[Signature]
A59152E49ADC476...
Administrative Analyst

Dated: 9/23/2022 | 1:26 PM PDT

Dated: 9/26/2022 | 8:24 AM PDT

County Counsel – Risk Manager:

DocuSigned by:
Jennifer Forsyth
4E7E657875454AE...
Auditor-Controller ²:

Dated: _____

Dated: 9/23/2022 | 1:38 PM PDT

¹ Approval by County Counsel is required, and/or when legal services are rendered

² Approval by Auditor-Controller is required

Exhibit A

Scope of Work and Work Schedule

CASTROVILLE SEAWATER INTRUSION PROJECT DYNAMIC HYDRAULIC MODELING AND ANALYSIS

for the
Monterey County Water Resources Agency
1441 Schilling Place – North Building
Salinas, California 93901

Scope of Work

Scope of Work to perform Dynamic Hydraulic Modeling and Analysis of the Existing Castroville Seawater Intrusion Project (CSIP) irrigation water distribution system to optimize system operations includes following activities:

Dynamic Hydraulic Modeling

- Develop and Calibrate a Hydraulic Model of the CSIP irrigation Water Distribution System
- Identify any hydraulic deficiencies in the existing distribution system
- Recommend upgrades to enhance the delivery system that reduces supplemental well pumping and eliminates occurrences of low system pressure

Additional Water Storage facilities to improve system deliveries and provide additional water storage that would provide benefits to CSIP Distribution System during peak demand period.

Development of an **Irrigation/Scheduling System** to provide sustainable system demand flow rate and optimize distribution to active turnouts in the current system configuration. The results will assist in support of the water order scheduling system currently being developed by Monterey One Water (M1W).

TASKS

TASK 1 – REVIEW BACKGROUND DOCUMENTS AND DATA

Review existing documents and historical operation data related to CSIP, Salinas Valley Reclamation Project (SVRP) and Salinas River Diversion Facility (SRDF). All documents will be provided by MCWRA which will include:

- As-Built Drawings
- CSIP Model Analysis (Schaaf and Wheeler 2015)
- Hydraulic Analysis of Existing CSIP System Operation (Boyle Engineering 2006)
- CSIP Hydraulic Constraints (RMC TM 2001)
- CSIP Design Criteria Report (Montgomery-Watson 1993)
- Historical CSIP, SVRP and SRDF operation data
- MCWRA's CSIP System Model in Bentley's WaterCAD v6.5.

TASK 2 – FIELD SURVEY AND FLOW/PRESSURE VERIFICATION

Subtask 2.1 - Field Survey

Conduct field survey of the existing facilities as needed to verify accuracy of information provided by MCWRA.

Subtask 2.2 – Flow/Pressure Tests

In conjunction with operating staff, identify best locations for observing field flow and/or pressure tests as required to develop and validate the hydraulic model.

Task 3 – Develop Dynamic Hydraulic Model

Subtask 3.1 - Verification/Validate Previous Models

Verify validity of previous model runs by other consultants to identify the potential or reasonable range of operation, i.e., the system's upper and lower bounds in terms of capacity, compare results to operational experience. and discuss any modifications with MCWRA to achieve better agreement with current operating experience.

Subtask 3.2 – CSIP Dynamic Hydraulic Model

After verification/validation of the Model provided by MCWRA, convert/generate CSIP Dynamic Hydraulic Model.

Subtask 3.3 – Develop System Scenarios

Develop system scenarios to model in coordination with MCWRA. This will include following elements:

Subtask 3.3.1 Meetings – Attend up to two meetings with MCWRA staff to review and identify system operational concerns, set criteria to be used during model analyses (e.g., scenarios, flow conditions and pressure/velocity constraints)

Subtask 3.3.2 Potential Scenarios – Potential system scenarios include:

A. Current System Configuration

- a. Determine Maximum Flow with all supplemental wells OFF
- b. Determine Maximum Flow with all supplemental wells ON

B. Evaluation of A1 Monitoring Station: Current System with Implementation of the 3 Model ID components listed in Table 6 of the CSIP Hydraulic Constraint– Technical Memorandum (2001) prepared by RMC upgrade. These three components are:

Model ID #1 (Pipe Size-51-inch) – recommended 48-inch Control Valve and 48-inch Meter Size

Model ID #2 (Pipe Size 45-inch) – recommended 45-inch Control Valve and 42-inch Meter Size

Model ID #4 (Pipe Size 36 – inch) – recommended 36-inch Control Valve

- a. Determine Maximum Flow with all supplemental wells OFF
- b. Determine Maximum Flow with all supplemental wells ON

C. Current System with Implementation of all 6 Model ID components upgraded as listed in Table 6 of the of CSIP Hydraulic Constraint – Technical Memorandum (2001) prepared by RMC upgrade. Three Model ID Components are listed under subtask 3.3.2.B above and remaining 3 Model ID Components are:

Model ID #9 (Pipe Size-36-inch) – recommended 36-inch Control Valve

Model ID #18 (Pipe Size 33-inch) – recommended 33-inch Control Valve and 30-inch Meter Size

Model ID #20 (Pipe Size 36 – inch) – recommended 36-inch Control Valve

- a. Determine Maximum Flow all supplemental wells OFF
- b. Determine Maximum Flow with all supplemental wells ON

D. Constant Head System

- a. Run with Current System Configuration (Subtask 3.3.2.A) and determine maximum flow and desired head. (Ensure maximum pressure does not exceed existing pipe design criteria at any location).
- b. Run with Current System and implementation of 3 Model ID components listed in Table 6 of the CSIP Hydraulic Constraint – Technical Memorandum (2001) prepared by RMC upgrade. (Subtask 3.3.2.B) and determine maximum flow and desired head. (Ensure maximum pressure does not exceed existing pipe design criteria at any location).

E. Additional Model Run

Options for three (3) additional model runs based on the findings of the preliminary Model Runs (Subtasks 3.3.2.A through 3.3.2.D listed above). Model Run Criteria will be determined between E2 and MCWRA.

Task 4 - Deliverables

1. Prepare and submit Draft (Pre-Model) Technical Memorandum summarizing Model Scenario parameters, and assumptions established under Subtask 3.1. Include in the TM descriptions of System scenarios, (flows, wells, booster pumping stations, turnouts etc.) developed in subtask 3.3.
2. Respond to MCWRA review comments.
3. Incorporate response to MCWRA comments and prepare final Technical Memorandum.

Task 5 – Perform Dynamic Modeling

Upon authorization from MCWRA:

1. Develop and run the Dynamic Hydraulic Model scenarios prepared under Task 3.
 - 1.1 Summarize results of all 5-scenarios. Up to six model runs per scenario may be performed based on criteria developed in meetings with MCWRA staff under subtask 3.3.1.
 - 1.2 Identify if “As-Desired” operational criteria are met. If not met, provide brief explanation of factor(s) preventing meeting criteria.

“As Desired-Operations” to minimize supplemental well (ground water) use and meet demand going forward for the CSIP system are as follows:

- As a constant head gravity regime system
 - Increase storage at RTP
- 10 psi minimum operating pressure at each turnout
- Decrease instantaneous or short-term peak system demand flows
 - Scheduled water deliveries

- Increase peak flow delivery (without use of supplemental wells)
 - Increased water storage using existing water sources, including:
 - inline system storage
 - booster pump station operation
- Integration of SCADA control system with real-time monitoring at all operational turnouts to allow system operators to take action as needed on unscheduled use.

Current optimization efforts of the CSIP system include the installation of remote monitoring units (RMU's) at each operational turnout. These RMU's will provide real-time monitoring of system flow and pressure throughout the distribution system. This monitoring will allow water order scheduling and assigned flow rate compliance at each turnout.

1.3 Summarize pros and cons of each scenario.

1.4 Identify any deficiencies in each scenario.

1.5 Attend a meeting to discuss preliminary findings of model runs A through E under Subtask 3.3.2

1.5.1 If needed, generate additional scenario(s) and criteria E under task 3.3.2

1.6 Identify physical system improvements/modifications required for each scenario.

1.7 Provide budget-level construction cost estimate for improvements/modifications recommended for each scenario.

Task 6 - Deliverables

1. Prepare and submit Draft (Post-Modeling) Technical Memorandum Summarizing Results of Task 5.
2. Prepare and submit a Draft "Basis of Design" Memorandum for rehabilitation/redesign of Monitoring Station A-1 based on results of Task 5.
3. Respond to MCWRA review comments.
4. Incorporate response to MCWRA comments and prepare final Technical Memorandum.

Task 7 - Project Management, Quality Assurance/Quality Control (Qa/Qc), And Meetings

Project Management - E2 plans to provide effective management throughout the duration of the project to ensure a finished project of the highest quality that is constructed within the budget and the time limits that have been established for this project. Collaboration and effective communication between the MCWRA and E2 will be crucial in meeting these goals.

Quality Assurance/Quality Control – Our Project Manager (PM) and Technical Director (TD) will review all deliverables to ensure all technical deliverable are of the highest quality for the entire duration of this project. Our Technical Director will be involved throughout the project to provide input on model scenarios, interpretation of model results, and options for system optimization.

Meetings - This will be facilitated through bi- monthly coordination meetings over the duration of the project, beginning with a project commencement and user group meeting with MCWRA/M1W Operations Staff. Key issues arising between bi-monthly coordination meetings can be addressed by periodic conference calls. Minutes from bi-monthly coordination meetings and documentation of consensus established for key issues will be provided by E2 on a timely basis.

Review Meetings - In addition to bi-monthly meetings, additional review meetings with MCWRA staff will be conducted after each Draft and Final Draft Technical Memoranda.

Work Schedule

September, 2022	Commence work
December, 2022	Submit Draft Pre-model Technical Memorandum (Task 4) to MCWRA
March, 2023	Submit Draft Post-modeling Technical Memorandum (Task 6) to MCWRA
April, 2023	Submit Draft Post-modeling “Basis of Design” Memorandum (Task 6) to MCWRA
By May, 2023	Submit Final Technical Memoranda to MCWRA (Task 7)

Exhibit B

Payment Provisions

E2 Consulting Engineers, Inc. (E2) will perform work described in Exhibit A and will be paid on a time and expense basis up to the not-to-exceed total amount of \$473,520. Total cost will not exceed this amount so long as the Scope of Work is not changed. If E2's time and expense costs necessary to complete the Scope of Work defined in Exhibit A are less than \$473,520, the Agency enjoys the savings. If E2 requires time and expense to complete the Scope of Work defined in Exhibit A, excepting Task 3.3.2.E (Additional model Run), are over and above \$473,520, the maximum amount payable to Contractor remains \$473,520. The Additional Model Run listed in Task 3.3.2.E is optional and will only be run if doing so will not cause E2's cost to exceed \$473,520.

Hourly billing rates will be paid per the Fee Schedule below and expenses will be paid as described below.

FEE SCHEDULE

Classification	Hourly Billing Rate
Principal-In-Charge	\$ 240.00
Technical Specialist	\$ 200.00
Supervising Engineer	\$ 185.00
Project Engineer	\$ 145.00
Specialist III	\$ 135.00
Specialist II	\$ 85.00

Above rates are billed for both regular and overtime hours in all categories. The Fee Schedule herein shall be valid for a twelve-month period, beginning September 1, 2022. Hourly billing rates and other direct costs chargeable to the project may be modified as agreed by Agency and E2 after said period of time. The parties shall agree to any modification in writing as an Amendment to the Agreement. Rates will be adjusted no more than four percent (4%), with approval from MCWRA, from July 1, 2023, to June 30, 2024.

EXPENSES

Expenses are identifiable costs necessarily incurred by E2 to complete the Scope of Work. Expenses include, but are not limited to, travel and subsistence expenses, document reproduction costs, and postal costs. Expenses shall be accounted for in each invoice by submittal of receipts for such costs and a description of their necessity. Monterey County Travel Policy requires hotel, meals, and incidentals be billed at U.S. General Services Administration (GSA) rates, no mark-up; mileage is billable at IRS allowable rate at time of travel, no mark-up. Sub-consultant, postal and materials costs may be marked up 10%.

MONTEREY COUNTY WATER RESOURCES AGENCY														
DYNAMIC HYDRAULIC MODELING AND ANALYSIS OF EXISTING CSIP IRRIGATION WATER DISTRIBUTION SYSTEM														
ESTIMATE OF ENGINEERING SERVICES FEES														
Task	Task Descriptions	Principal in Charge & PM - Vinod Badani	Technical Director- Joe Reichenberger	Project Engineer- Loren Weinbrenner	Project Engineer- Pavitra Prakash	CAD Operator - Bill Harris Mark Davis	Specialist II- Office Administrative Staff	Total Labor Hours	Total Labor Cost - E2	Other Direct Costs	Sub-Consultant's Cost- Larry Crossley	Sub-Consultant's Cost- Scott Foster	Total Cost ⁽¹⁾	
		Hourly Rates \$ 240	\$ 200	\$ 185	\$ 145	\$ 135	\$ 85							
1 REVIEW BACKGROUND DOCUMENTS AND DATA														
	As-Build Drawings	8		16	16			40	\$ 7,200				\$ 7,200	
	CSIP Model Analysis-Schaaf & Wheeler	4	4		16			24	\$ 4,080			\$ 1,000	\$ 5,180	
	Hydraulic Analysis of Existing CSIP System Operation (Boyle Engineering 2006)	4	4		16			24	\$ 4,080			\$ 1,000	\$ 5,180	
	CSIP Hydraulic Constraints (RMC TM 2001)	4	4		8			16	\$ 2,920			\$ 1,000	\$ 4,020	
	Historical CSIP, SVRP and SRDF Operation Data	4	6	8	8			26	\$ 4,800			\$ 1,000	\$ 5,900	
	MCWRA's CSIP System Model in Bentley's WaterCAD v6.5	4	4		8			16	\$ 2,920	\$ 5,000		\$ 1,000	\$ 9,020	
	Total Task 1	28	22	24	72	0	0	146	\$ 26,000	\$ 5,000	\$ -	\$ 5,000	\$ 36,500	
2 FIELD SURVEY AND FLOW/PRESSURE VERIFICATION														
	2.1 - Field Survey	4		16	16			36	\$ 6,240	\$ 1,000			\$ 7,240	
	2.2 Flow/Pressure Tests		8	24	24			56	\$ 9,520	\$ 1,000			\$ 10,520	
	Total Task 2	4	8	40	40	0	0	92	\$ 15,760	\$ 2,000	\$ -	\$ -	\$ 17,760	
3 DEVELOP DYNAMIC HYDRAULIC MODEL														
	3.1 Verification/Validate Previous Models	8	8		80			96	\$ 15,120				\$ 15,120	
	3.2 CSIP Dynamic Hydraulic Model	8	16		120			144	\$ 22,520				\$ 22,520	
	3.3 Develop System Scenarios	8	10	8	8			34	\$ 6,560			\$ 10,000	\$ 17,560	
	3.3.1 Meetings (2 Meetings 4hrs. Each are Budgeted)	8	8	8	8			32	\$ 6,160				\$ 6,160	
	3.3.2 Potential Scenarios													
	A. Current System Configuration	8	8		40			56	\$ 9,320				\$ 9,320	
	B. Current System with Implementation of 3 Model ID Components listed in Table 6 of RMC TM 2001	8	8		40			56	\$ 9,320				\$ 9,320	
	C. Current System with Implementation of all 6 Model ID Components listed in Table 6 of RMC TM 2001	8	8		40			56	\$ 9,320				\$ 9,320	
	D. Constant Head System	8	8		40			56	\$ 9,320				\$ 9,320	
	E. Additional Model Run	8	8		40			56	\$ 9,320				\$ 9,320	
	Total Task 3	72	82	16	416	0	0	586	\$ 96,960	\$ -	\$ -	\$ 10,000	\$ 107,960	
4 DELIVERABLES (TASK 3)														
	1. Draft (Pre-Model) TM	8	8	40	120	40		216	\$ 33,720				\$ 33,720	
	2. Respond to MCWRA Review Comments	8	8	16	16			48	\$ 8,800				\$ 8,800	
	3. Incorporate responses to MCWRA Comments and Final TM	4		8	24			36	\$ 5,920				\$ 5,920	
	Total Task 4	20	16	64	160	40	0	300	\$ 48,440	\$ -	\$ -	\$ -	\$ 48,440	
5 PERFORM HYDRAULIC MODELING														
	1. Develop and Run Dynamic Hydraulic Model scenarios prepared under Task 3	16	40		160				\$ 35,040				\$ 35,040	
	1.1 Summarize Results of all 5-Scenarios. Up to 6 Model Runs/Scenario	8	8	40	80			136	\$ 22,520				\$ 22,520	
	1.2 Identify if, As-Desired Operational Criteria are met, if not Provide explanation of Factors Preventing meeting criteria	8	8	16	40			72	\$ 12,280				\$ 12,280	
	1.3 Summarize Pros and Cons of each Scenario	8	8	16	40			72	\$ 12,280				\$ 12,280	
	1.4 Identify Deficiencies in each Scenario	8	8	16	40			72	\$ 12,280				\$ 12,280	
	1.5 Attend Meetings with MCWRA Staff Discuss Preliminary Findings of Model Runs A through E Under Subtask 3.3.2	8	8	8	8			32	\$ 6,160				\$ 6,160	
	1.5.1 -If Needed, Generate additional scenarios and Criteria developed by MCWRA and E2 Additional 3-Model runs are estimated	8	8	16	40			72	\$ 12,280				\$ 12,280	
	1.6 Identify Physical System Improvements/Modifications required for each scenarios	16	12	80	8	120		236	\$ 38,400	\$ 15,000			\$ 54,900	
	1.7 Prepare Budget-Level Construction Cost Estimate for recommended Improvements/Modifications for each scenario	40	4	80				124	\$ 25,200				\$ 25,200	
	Total Task 5	104	64	272	256	120	0	816	\$ 141,400	\$ -	\$ 15,000	\$ -	\$ 157,900	
6 DELIVERABLES (TASK 5)														
	1. Draft (Pre-Model) TM	8	8	40	120	40		216	\$ 33,720				\$ 33,720	
	2. Respond to MCWRA Review Comments	8	8	16	16			48	\$ 8,800				\$ 8,800	
	3. Incorporate responses to MCWRA Comments and Final TM	4		8	24			36	\$ 5,920				\$ 5,920	
	Total Task 6	20	16	64	160	40	0	300	\$ 48,440	\$ -	\$ -	\$ -	\$ 48,440	
7 PROJECT MANAGEMENT, QA/QC, AND MEETINGS														
	1. Project Management	40					16	56	\$ 10,960				\$ 10,960	
	2. Quality Assurance/Quality Control	8	40	24				72	\$ 14,360				\$ 14,360	
	3. Meetings - Every 2-week (Via Zoom/MS Team) 1-Kick off and 16 Bi-Weekly Meetings	40	20	40	40			140	\$ 21,000	\$ 1,200			\$ 22,200	
	4. Review Meeting with MCWRA - 2-Review Meetings are budgeted	16	8	16	8			48	\$ 8,400	\$ 600			\$ 9,000	
	Total Task 7	104	68	80	88	0	16	316	\$ 54,720	\$ 1,800	\$ -	\$ -	\$ 56,520	
	Total Tasks 1 through 7	352	276	560	1104	200	16	2556	\$ 431,720	\$ 8,800	\$ 15,000	\$ 15,000	\$ 473,520	

Note
¹ Total Cost includes 10% Mark-ups on Subconsultant's costs