MEMORANDUM

TO: SLDMWA Board of Directors, Alternates
SLDMWA Finance & Administration Committee Members, Alternates

FROM: Pablo Arroyave, Chief Operating Officer
Jaime McNeil, Engineering Manager

DATE: December 4, 2023

RE: Adoption of Resolution Authorizing Execution of Agreement with U.S. Bureau of Reclamation Technical Service Center for Final Design and Specifications for the Upper DMC, DMC Subsidence Correction Project, and Related Expenditure of up to $5,700,000 from FY24 EO&M Budget and DWR Conveyance Subsidence Program Grant Funds

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BACKGROUND

Ground subsidence has impacted the structural integrity of the Delta-Mendota Canal (DMC) and has resulted in lost conveyance capacity. The San Luis & Delta-Mendota Water Authority (Water Authority) and the U.S. Bureau of Reclamation (Reclamation) have been working together closely to develop the DMC Subsidence Correction Project (Project) to restore the original design capacity of the DMC. In February 2022, the Water Authority entered into a Professional Services Agreement with CDM Smith to complete a Feasibility Study for the Project, which is in the final approval stage. As such, the Water Authority is ready to begin the final design of the Project.

Due to the size and complexity of the overall project, final design has been split into the following seven construction packages:

1. Upper DMC Rehabilitation
2. Lower DMC Rehabilitation
3. High Priority Bridges (located within Upper DMC)
4. Modifications of Check Structures
5. Pipeline Crossing Replacement
6. Medium Priority Bridges
7. Low Priority Bridges

ISSUE FOR DECISION

Whether the Finance & Administration Committee should recommend, and the Board of Directors should adopt the proposed Resolution Authorizing Execution of Agreement with U.S. Bureau of Reclamation Technical Service Center for Final Design and Specifications for the Upper

DMC, DMC Subsidence Correction Project, and Related Expenditure of up to $5,700,000 from FY24 EO&M Budget and DWR Conveyance Subsidence Program Grant funds.

RECOMMENDATION

Water Authority staff recommends adoption of the proposed Resolution.

ANALYSIS

One finding of the Design, Estimating, and Construction (DEC) review of the Delta-Mendota Canal Subsidence Correction Project was to reevaluate the proposed construction to determine a more reasonable schedule for the various features of the project. This resulted in the project being split into seven different construction packages. Through discussions with the Reclamation Project Manager, the Reclamation Design Team lead, and Water Authority staff, it was determined that the construction packages that focus on restoring the original capacity of the Upper DMC, are of the highest priority. Relative to Construction Package 1, Reclamation's Technical Services Center (TSC) has prepared a Project Management Plan (PMP) and a draft agreement titled "AGREEMENT BETWEEN THE SAN LUIS & DELTA MENDOTA WATER AUTHORITY AND THE UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION TECHNICAL SERVICE CENTER FOR ENGINEERING AND TECHNICAL SERVICES UPPER DELTA MENDOTA CANAL (DMC) SUBSIDENCE CORRECTION PROJECT - FINAL DESIGN & SPECIFICATIONS" (both attached) for preparation of the final design and specification for the Upper DMC rehabilitation, with a proposed cost of $5.7 million.[1]

During the Appraisal and Feasibility level studies, and the Pre-Design Data Gathering activities, staff at TSC have become intimately familiar with the DMC Subsidence Correction Project. Given the federal government's ownership of the DMC, TSC staffs' detailed knowledge of the project, and their technical expertise, staff recommends hiring TSC to complete the design of the Upper DMC rehabilitation. Water Authority staff is prepared to work closely with TSC to ensure that TSC meets the agreed upon milestones and commitments described in the PMP.

The terms of the agreement would make the Water Authority a direct client to TSC, however the Reclamation Project Manager (PM) from the Willows Construction Office (WCO) would remain in place. The PM has been assigned to the Project from the start, and plays a critical role in keeping the Project on schedule and within budget. Funding for the PM is outside the scope of this agreement.

Water Authority staff has discussed providing funds for the agreement in two installments. The initial installment of $2 million will be required to be advanced to TSC within one month of execution of the agreement to complete up to 30% design. The final installment of $3.7 million will be required to be advanced within one month of the completion of the 30% design milestone,

[1] The Water Authority is prepared to separately hire a private consultant to complete final design for Construction Package 3. Staff anticipates bringing this proposed Professional Services Agreement to the Finance & Administration Committee and Board of Directors early in FY25.

which is scheduled to occur in July 2024. $2 million of FY24 EO&M Fund 25 funds will be utilized for the first installment.

In addition to FY24 EO&M funds, grant funds are also available. The California Department of Water Resources (DWR), Floodplain Management Branch, has awarded an initial grant allocation of $3.3 million to the Delta-Mendota Canal Subsidence Correction Project, out of a possible amount of $23.8 million. This non-reimbursable grant will be utilized to cover the cost of the TSC Agreement.

Authorizing execution of this Agreement is not a project pursuant to the California Environmental Quality Act (CEQA) because the proposed technical/design activities have no possibility to result in a physical change in the existing environment (CEQA Guidelines Section 15378(a).) In addition, because it can be seen with certainty that there is no possibility that the proposed actions in question may have a significant effect on the environment, the proposed action is not subject to CEQA (CEQA Guidelines Section 15061(b)(3)). Further, future CEQA review will be completed prior to approval or any construction of the extraordinary maintenance in question. The Water Authority retains the full scope of its discretion to evaluate the environmental impacts of the project and to consider mitigation measures and alternatives, including the "no project" alternative.

BUDGET IMPLICATIONS

Initially, up to $2 million from FY24 EO&M budget funds dedicated to the Project will be utilized to fund the first installment of the Project. Subsequently, the proposed expenditure will utilize up to $3.7 million of the DWR non-reimbursable grant allocated to the Project. Because DWR grants are paid in arrears, existing EO&M funds must first be utilized. Once DWR has been invoiced, the EO&M funds will be reimbursed.

ATTACHMENTS

1. Resolution Authorizing Execution of Agreement with USBR Technical Service Center for Final Design & Specifications for the Upper DMC, DMC Subsidence Correction Project, and Related Expenditure of up to $5,700,000 from FY24 EO&M Budget and DWR Conveyance Subsidence Program Grant Funds; CEQA Exemption
2. Draft Agreement between the San Luis & Delta-Mendota Water Authority and the U.S. Department of the Interior Bureau of Reclamation Technical Service Center for Engineering and Technical Services, Upper Delta Mendota Canal (DMC) Subsidence Correction Project – Final Design & Specifications
3. Draft Project Management Plan

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY

RESOLUTION NO. 2023-xxx

RESOLUTION AUTHORIZING EXECUTION OF AGREEMENT WITH U.S. BUREAU OF RECLAMATION TECHNICAL SERVICE CENTER FOR FINAL DESIGN AND SPECIFICATIONS FOR THE UPPER DMC, DMC SUBSIDENCE CORRECTION PROJECT, AND RELATED EXPENDITURE OF UP TO $5,700,000 FROM FY24 EO&M BUDGET AND DWR CONVEYANCE SUBSIDENCE PROGRAM GRANT FUNDS

WHEREAS, the San Luis & Delta-Mendota Water Authority ("**Water Authority**") is a transferred works operator responsible for the operation, maintenance, and replacement ("**OM&R**") of certain Central Valley Project ("**CVP**") facilities, including the Delta-Mendota Canal ("**DMC**"), a 116.5-mile-long canal that carries water from the Delta near Tracy to the Mendota Pool, about 30 miles west of Fresno; and

WHEREAS, the DMC has experienced significant land subsidence that has resulted in a reduced conveyance capacity and the Water Authority and the United States Bureau of Reclamation ("**Reclamation**") are working closely to develop and further the DMC Subsidence Correction Project, and the feasibility level construction cost estimate is $830 million; and

WHEREAS, the Water Authority and Reclamation are working together to complete a Feasibility Study where the final administrative draft is currently under Reclamation policy review; and

WHEREAS, the Water Authority has executed a funding agreement for $3.3 million with the Department of Water Resources ("**DWR**") funded by the DWR Conveyance Subsidence Program, out of a possible amount of $23.8 million; and

WHEREAS, Reclamation's Technical Services Center has completed a Feasibility Study of Alternatives, and has completed design data gathering to support final design; and

WHEREAS, in response to a finding of the Design, Estimating, and Construction review of the Delta-Mendota Canal Subsidence Correction Project, the DMC Subsidence Correction Project was split into seven different construction packages; and

WHEREAS, Reclamation and Water Authority staff determined that the construction packages that focus on restoring the original capacity of the Upper DMC are of the highest priority; and

WHEREAS, staff at Reclamation's Technical Services Center ("**TSC**") has become intimately familiar with the DMC Subsidence Correction Project, and is qualified and prepared to complete the design of the Upper DMC rehabilitation; and

WHEREAS, TSC staff has prepared and provided a Project Management Plan to complete the Upper DMC Final Design & Specifications for the DMC Subsidence Correction Project; and

WHEREAS, authorizing execution of the proposed Agreement does not constitute a project under the California Environmental Quality Act ("**CEQA**") because the proposed technical/design activities have no possibility to result in a physical change in the existing environment (CEQA Guidelines Section 15378(a)); further, because it can be seen with certainty that there is no possibility that the proposed actions in question may have a significant effect on the environment, the proposed action is not subject to CEQA (CEQA Guidelines section 15061(b)(3)); further, future CEQA review will be completed prior to approval or any construction of the extraordinary maintenance in question. The Water Authority retains the full scope of its discretion to evaluate the environmental impacts of the project and to consider mitigation measures and alternatives, including the "no project" alternative.

NOW, THEREFORE, BE IT RESOLVED, AS FOLLOWS, THAT:

Section 1. The facts stated in the recitals above are true and correct, and the Board so finds and determines.

Section 2. The Board hereby authorizes the Executive Director to execute an Agreement with U.S. Bureau of Reclamation Technical Service Center for Final Design and Specifications for the Upper DMC, DMC Subsidence Correction Project, and Related Expenditure of up to $5,700,000 from FY24 EO&M Budget and DWR Conveyance Subsidence Program Grant Funds.

Section 3. The Executive Director and Chief Operating Officer, and such Water Authority employee or consultant as either of such officers may designate, are further authorized and directed to take such additional steps, and to execute such additional documents, as may be required or reasonably necessary to the completion of the activities authorized by this Resolution.

PASSED, APPROVED AND ADOPTED this 7th day of December, 2023, by the Board of Directors of the San Luis & Delta-Mendota Water Authority.

_____

Cannon Michael, Chairman
San Luis & Delta-Mendota Water Authority

Attest:

_____

Federico Barajas, Secretary

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I hereby certify that the foregoing Resolution No. 2023-___ was duly and regularly adopted by the Board of Directors of the San Luis & Delta-Mendota Water Authority at the meeting thereof held on the 7th day of December, 2023.

Federico Barajas, Secretary

Contract No. RR85814000-2024-001

AGREEMENT BETWEEN THE

SAN LUIS & DELTA MENDOTA WATER AUTHORITY

AND THE UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION TECHNICAL SERVICE CENTER

FOR ENGINEERING AND TECHNICAL SERVICES

UPPER DELTA MENDOTA CANAL (DMC) SUBSIDENCE

CORRECTION PROJECT - FINAL DESIGN & SPECIFICATIONS

This Agreement is entered into as of the INSERT day of INSERT 2023, pursuant to the Reclamation Act of June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplementary thereto, particularly the Contributed Funds Act of May 4, 1921 (43 U.S.C. § 395), by and between the UNITED STATES, DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION, TECHNICAL SERVICE CENTER (TSC-Reclamation or United States), and the SAN LUIS & DELTA MENDOTA WATER AUTHORITY (SLDMWA or Water Authority), a joint powers authority duly organized, existing, and governed by all applicable state, local and Federal laws.

RECITALS

[1st] WHEREAS, the Water Authority is a transferred works operator responsible for the operation, maintenance, and replacement of certain Central Valley Project (CVP) facilities, including the Delta-Mendota Canal (DMC), a 116.5-mile-long canal that carries water from the Delta near Tracy to the Mendota Pool, about 30 miles west of Fresno; and

[2nd] WHEREAS, the DMC has experienced significant land subsidence that has resulted in a reduced conveyance capacity and the Water Authority and TSC-Reclamation are working closely

on the DMC Subsidence Correction Project.

[3rd] WHEREAS, due to TSC-Reclamation's engineering, and technical expertise, there are certain functions that the Water Authority may wish Reclamation to perform with funds advanced by the Water Authority to TSC-Reclamation under the authority granted by Federal Reclamation Laws, particularly the Contributed Funds Act of March 4, 1921 (43 U.S.C. §395), rather than performing those responsibilities itself; and

[4th] WHEREAS, the parties are willing to perform their respective duties in a timely and cost-effective manner. The parties are authorized to enter into this Agreement consistent with Federal Reclamation Law as specified above. Engineering and technical services will be performed in accordance with the project management plan shown in Exhibit A as part of this Agreement.

NOW THEREFORE, in consideration of the above it is mutually agreed by the parties as follows:

AGREEMENT

1. Scope of Services.

(a) Generally. At the Water Authority's request, TSC-Reclamation shall provide professional engineering and technical services that will include preparing final design for the rehabilitation of upper DMC from Mile Post (MP) 3.5 to MP 70.0 (Check Structure 13 at O'Neil Pumping Station) as described in the attached Project Management Plan referenced in this contract as Exhibit A. The design work included in this agreement provides construction drawings and specifications to correct the embankment and liner elevation deficiencies, including various localized liner repairs and minor structures modifications (turnouts and drain inlets) within the Upper DMC (MP 3.5 – MP 70.0). The design work excludes designs associated with replacement and modifications of large structures such as vehicle bridges, pipe crossings, overchutes, check structures and wasteways. The particulars of tasks, personnel, cost, and schedule in which the

parties to this Agreement engage are contained in Exhibit A. Changes to scope or schedule shown in Exhibit A will be done through change orders that will be signed by TSC-Reclamation and Water Authority. Each change order shall be attached to and made part of this Agreement. No change order shall become a part of this Agreement until it has been signed by Water Authority and TSC-Reclamation.

(b) Key Personnel. TSC-Reclamation will:

(1) Make technical experts in each design group available to perform the work described in a timely manner. Such availability will be agreed upon in advance as part of the agreed work schedule and staff day estimate included in Exhibit A.

(c) Modification. This Agreement may be modified through mutual agreement among the parties. Any modification made to the Agreement shall be confirmed in writing prior to performance of the change.

(d) Limitation. This agreement covers design work for the upper DMC in accordance with Reclamation Manual FAC 03-03, which requires the involvement of other regional and area offices of Reclamation; however, this agreement covers only the roles and responsibilities of the Technical Service Center. The Water Authority is expected to develop separate agreements with other Reclamation partners, including the Willow Construction Office (WCO) of the California Great Basin (CGB) Reclamation Region to perform their associated roles in accordance with Reclamation Design Procedures. TSC-Reclamation expects to develop deliverables outlined in Exhibit A, will be contracted by WCO/CGB through federal contracting process. The Water Authority is to facilitate the involvement of WCO/CGB in the project to take the roles and responsibilities defined in FAC 03-03. Other limitations to the scope of this agreement are stated and discussed in Exhibit A.

2. Compensation.

(a) Generally. The Water Authority shall advance to Reclamation the estimated total cost of actual services to be performed and anticipated out-of-pocket expenses shown in Exhibit A. Reclamation will establish a unique cost account to track and account for the costs of services provided in this project.

(b) Advancement of Funds.

(1) The Water Authority agrees to provide funds in accordance with the respective percentage of project completion as outlined in Exhibit A. These funds will be advanced within one month from the date of signature of this agreement. Additionally, the Water Authority will provide advance funds for subsequent design milestone within one month of the completion of the previous design milestone for this project and shall repeat until project completion. All payments will reference Contract No. RR85814000-2024-001 and will be remitted to: DOI-BOR-Region: Denver, PO Box 6200-21, Portland, OR 97228-6200.

(2) Use of Funds Advanced. Immediately upon receiving funds advanced from the Water Authority, TSC-Reclamation shall credit the funds into Reclamation's designated cost structure. Thereafter, TSC-Reclamation may charge to that cost structure to finance the work described in Exhibit A.

(3) Approved Change Orders Requiring Additional Funds. The Water Authority shall advance the funds requested through approved change orders within one month of the approval dates for these change orders.

(4) Accounting of Services and Expenses. TSC-Reclamation shall submit to the Water Authority on a monthly basis, a status report of work and expenses incurred for the previous month, in an acceptable format to the Water Authority. This reporting shall continue throughout the project schedule shown in Exhibit A.

3. Independent Agency. TSC-Reclamation is part of a Federal agency and nothing in the Agreement shall be construed as creating a principal/agent or employee/employer relationship

between TSC-Reclamation and Water Authority.

4. Non-discrimination and Other Applicable Laws. In performing its obligations under this Agreement, TSC-Reclamation shall comply with all applicable Federal and State laws regarding non-discrimination and other employment and workplace requirements.

5. Term.

(a) Initial Term. This Agreement shall be effective as of the date of execution and shall remain in effect through 10/30/2026 in accordance with the schedule shown in Exhibit A.

(b) Additional Terms. The parties acknowledge that the services to be provided may extend beyond 10/30/2026; therefore, the parties may extend this Agreement for additional periods by mutual written consent as an amendment to this Agreement.

6. Termination. Any party may terminate this Agreement upon 30-days written notice to the other party. If terminated, TSC-Reclamation shall refund to the Water Authority all funds which are unexpended as of the effective date of the termination. TSC-Reclamation will be reimbursed for all expenses incurred up to the point of termination. All work draft and final work product up to the date of termination shall be turned over to the Water Authority.

7. Access to Reclamation's Accounting Records. TSC-Reclamation shall maintain accounting records to substantiate all amounts spent in accordance with Exhibit A. TSC-Reclamation shall make such records available to the Water Authority for its examination during TSC-Reclamation's normal business hours for three (3) years after TSC-Reclamation submits its last invoice to the Water Authority. The provisions of this paragraph shall apply, subject only to applicable law regarding maintenance of and access to public records.

8. Indemnification. The Water Authority agrees to indemnify the TSC-Reclamation for, and hold the TSC-Reclamation and all of its representatives harmless from, all damages resulting from suits, actions, or claims of any character brought on account of any injury to any person or property arising out of any act, omission, neglect, or misconduct in the manner or method of

performing any construction, care, operation, maintenance, supervision, examination, inspection, or other duties required under this contract, regardless of who performs those duties. Nothing in this provision is intended to limit any claim the Water Authority may have under the Federal Tort Claims Act (28 U.S.C. 29 § 1346(b), 2671, et seq.).

9. Authorized Representative and Notice.

(a) Generally. The parties respectively designate the following persons to act as their authorized representatives in matters and decisions pertaining to the timely performance of this Agreement:

For: San Luis & Delta Mendota Water Authority
Federico Barajas, Executive Director
15990 Kelso Road
Byron, CA 94514-1916

For: Reclamation, Technical Service Center – Financial POC
Deborah Nicholson, Senior Program Analyst
PO Box 25007, Attn: 86-68010
Denver, CO 80225-0007

For: Reclamation, Technical Service Center – Technical POC
Numan Mizyed, Civil Engineer, Design Team Lead
PO Box 25007, Attn: 86-68140
Denver, CO 80225-0007

Each party may designate a successor authorized representative upon written notice to the other party, or as designated in Exhibit A.

(b) Notice. All written notices required to be given for this Agreement shall be hand delivered, or sent via e-mail, facsimile or United States mail, postage prepaid, to the parties'

respective authorized representatives identified in subparagraph 9 (a) above. Notice shall be deemed to be received upon actual receipt or three (3) days after mailing, whichever occurs first.

10. Miscellaneous Provisions.

(a) Assignment. This Agreement shall not be assignable by any party without the prior written consent of the other parties. Subject to this limitation on assignment, this Agreement shall be binding upon and shall persist to the benefit of the parties' respective successors, agents, and assignees.

(b) Severability. The provisions of this Agreement are severable, and the invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of the remaining provisions.

(c) Authority. Each party warrants that the person signing below on its behalf has been duly authorized to execute this Agreement on its behalf.

11. Contingent on Appropriation or Allotment of Funds. The expenditure or advance of any money or the performance of any obligation of the United States under this contract shall be contingent upon appropriation or allotment of funds. Absence of appropriation or allotment of funds shall not relieve the Water Authority from any obligations under this contract. No liability shall accrue to the United States in case funds are not appropriated or allotted.

12. Third-Party Beneficiaries. The parties do not intend to create in any other individual or entity the status of third-party beneficiary, and this Agreement shall not be construed so as to create such status. The rights, duties, and obligations contained in this Agreement shall operate only between the parties to this Agreement and shall inure solely to the benefit of the parties of this Agreement. The provisions of this Agreement are intended only to assist the parties in determining and performing their obligations under this Agreement.

IN WITNESS WHEREOF, the parties execute this Agreement as of the date first written above.

SAN LUIS & DELTA MENDOTA WATER

AUTHORITY

_____

Federico Barajas
Executive Director, SLDMWA

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION TECHNICAL SERVICE CENTER

_____

Richard LaFond
Director, Technical Service Center
Bureau of Reclamation

BUREAU OF RECLAMATION

U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado

Attachment A1: Project Management Plan (PMP)

Job Name Upper DMC Final Design & Specifications - DMC Subsidence Correction Project	**Date** 10-20-2023
Accounting String (Fund & WBS) Non-Federal Partner Agreement - TBD	**WOID** TBD
TSC Team Lead Numan Mizyed, 86-68140 / nmizyed@usbr.gov / (303)445-3101 **TSC Assistant Team Lead** Douglas Richard. 86-68140 / darichards@usbr.gov / 303-445-2202	**Asset Class** Water Conveyance
Group Manager Michelle. Norris, 86-68140/ MLNorris@usbr.gov / 303-445-3510	**Reclamation Client Group and Region** California-Great Basin Region (CGB) **Reclamation Client Office** Willows Construction Office (WCO) **Non-Federal Partner Client Organization** San Luis & Delta Mendota Water Authority (SLDMWA)
Client Liaison Michelle Norris, 303-445-3510 **Program Assistant** Deb Nicholson, 303-242-4358	**Client Contact** Jacob Bejarano, 209-832-6216 (O), 209-915-3086 (cell) Jacob.bejarano@sldwma.org 842 6th Street, Los Banos, CA 93635 P.O. Box 2157, Los Banos, CA 93635

1. Project Vision

This project will utilize information developed during Reclamation's Feasibility Level Study of the Delta-Mendota Canal (DMC) and the data collection process conducted in FY2022 to scope, analyze, and prepare for construction a specification package for construction, including design, drawings, cost estimate, specifications, and construction schedule for the rehabilitation of upper DMC segment Mile Post 3.5 to Mile Post 70 in accordance with Reclamation's Final Design Process guidelines without including modifications of major structures along the canal (bridges, overchutes, pipe crossings and check structures) in this design work.

2. Client's Critical Success Factors & Performance Objectives

	Critical Success Factors [a]	Performance Objectives [b]
1	Design objectives	Clearly develop, have all parties agree upon, and utilize a comprehensive set of design criteria for the project, consistent with current Reclamation standards.
2	Staff availability	Complete the required studies, analyses, and design work in a timeframe useful for the project, consistent with TSC, SLDMWA and CGB Region staff capabilities.
3	Design support & studies	TSC to coordinate with the WCO and SLDMWA to perform necessary design support activities (real estate/ROW, permitting, investigations, clearances, etc.) and studies (hydraulic models, surveys, additional supporting studies, etc.) as required to fully support the final design work in accordance with current Reclamation D&S's.
4	Communication	Maintain effective and clear communication with all owners, stakeholders, and interested parties throughout the design work to conduct an effective project.
5	Coordination	Coordinate, as necessary, with all interested parties to ensure information, decisions, data, and all other necessary steps are met to support the studies and design work to conduct an effective project.
6	Deliverables	Provide technically sound product within available budget and defined schedule

a- Critical Success Factors: What success factors are most critical for you to consider this a success?
b- Performance Objectives: What specific metric can we achieve for you to consider the project a significant success?

3. Scope of Work

Background

Project: Central Valley Project, Delta Division
Feature: Delta-Mendota Canal

The project goals are to develop a specification package with improvements to completely restore the previously lost and anticipated future loss of capacity within the upper DMC reach due to ground subsidence to satisfy Reclamation freeboard and operational safety requirements. The provided cost estimate and schedule for the design work are based on the assumption that there will be one specification package covering the work proposed in this design work. However, if the assessment during the design finds that it will be more effective and practical to divide the design in several specification packages, a change order to cost and schedule will be negotiated with the WCO and SLDMWA.

Reclamation's Feasibility Level Study of DMC recommended raising the concrete lining and the embankment along the concrete lined segment at deficient segments of the canal. It also recommended replacement of deficient bridges and pipe crossings as well as modifications of check structures to accommodate for the projected changes in water surface elevations along the canal as a result of past and projected subsidence. Considering the scale of construction work and the long duration required to complete the required modifications as well as the high costs associated with the work required to correct for subsidence, it was recommended to divide the correction work into several construction packages of similar works. Thus, replacing impacted bridges and impacted pipe crossings are expected to be designed and constructed in several other construction packages. Fixing deficient check structures and raising the gates of check structures and wasteways are also expected to be included in a different construction package due to the specialty construction work required and the restrictions of canal operations on the seasonal timing of construction works for these structures. Thus, design works for the large structures (bridges, pipe crossings and check structures) will not be included in this work plan. **The design in this work plan will be limited to designs for the rehabilitation of the canal lining and embankment including modifications of small structures within the right of way of the canal such as turnouts and headwalls of drain inlets for the canal segment under consideration.** The design work on these small structures is an integral part to the embankment modifications of the canal as the heights of these small structures will require modifications to accommodate for the increase in embankment and lining elevations adjacent to them.

DMC is nearly 113 miles long and it is not possible to shut down the canal due to the year-round water deliveries required from the canal. Thus, rehabilitation activities will be designed to allow the continuous operation of the canal and all construction work will be done above the operational levels of canal water surface elevations or using underwater operations. The repair work will be scheduled in accordance with the operational practices along the canal. In accordance with operational practices, canal operation is divided into upper DMC and lower DMC. Upper DMC is operated to deliver water (mostly for domestic and industrial use) to San Luis Reservoir through the O'Neil pumping plant (located at MP 70). Maximum deliveries in upper DMC usually occur in spring months. Lower DMC is operated to satisfy seasonal irrigation demands at Delta Mendota Pool of exchange contractors as well as maintaining a minimum water surface elevation in Delta Mendota Pool. Maximum deliveries in lower DMC usually occur in summer months. Thus, the feasibility study recommended dividing the canal construction work into at least two separate packages: upper DMC rehabilitation and lower DMC rehabilitation to plan construction works considering the seasonal variations in water deliveries between upper and lower DMC. Therefore, this design work will cover rehabilitation work to upper DMC only, while rehabilitation of lower DMC is expected to be covered in another design project.

The segment under consideration in this design effort extends from MP 3.5 at the start of the canal downstream of John Pumping Plant to MP 70 (O'Neil Pumping Plant, check structure 13). This work plan included designs for the following construction activities:

- Repairs of damaged concrete lining: Location and extent of concrete lining damages were identified through field inspection, field surveys and sonar underwater surveys. The previous investigations showed that concrete lining repairs will be needed at nearly 25 locations along upper DMC segment. The damages extended up to three rows horizontally and nearly half of these damages extended nearly to the invert of the canal. These damages were attributed to surface and subsurface drainage issues as well as slope stability issues. The designs for the removal and replacement of damaged and stressed concrete lining will assume under water construction work (while the canal is running). However, the timing for these repairs is expected to be accomplished during the low flow periods when the velocities of water in the canal will allow such work. It is assumed that repairs will be using similar methods at the different locations, however the sizes are different. The repair method will be described in the technical specifications and typical drawings

details will be included in the design. Construction scheduling for these repairs will consider the seasonal variations for flow along this segment and plan these repairs to occur in months with flows below average. The scheduling will be developed in coordination with SLDMWA. The repair methods will include replacing damaged lining with articulate concrete bloc mattresses (ACBM) or grouted concrete mattresses. The designers will consider the technical feasibility of these methods as well as the costs to select the most feasible repair method. Land stability in these areas with damaged concrete lining will be analyzed as needed to design mattresses that could be stabilized by appropriate anchoring methods. SPECB will include design drawing and technical specifications on how the damaged concrete lining areas will be repaired. The cost estimates and construction schedules will also include these repairs. Multi beam bathymetry will be used to confirm the extents and locations of repairs. Ground Penetrating Radar (GPR) survey will also be used to investigate the extent of voids in the embankment at some of the damaged locations. The bathymetry and the GPR surveys will be performed through the on-going data collection process in coordination with TSC, SLDMWA and CGB. If the bathymetric or the GPR surveys show abnormalities in the damages that could limit the use of the proposed methods of repairs (ACBM or grouted mattress) and additional design for repair works are required, change order will be discussed with the client to adjust for the additional work needed.

- Raising the deficient lining segments to elevations in accordance with Reclamation lining free board requirements: the hydraulic modeling will be updated and refined to consider data collected from the field. The maximum water surface elevations will be determined along the DMC segment for the design flows. Projected subsidence values up to 2070 (assuming the full implementation of Sustainable Groundwater Management Act (SGMA) by 2040) will be added to the values of maximum water surface elevations determined in hydraulic modeling. TSC will use the projected subsidence values that will be provided by CGB. Reclamation free board criteria will be added to projected maximum water surface elevation in 2070 to determine the required top elevation of concrete lining. The raise of concrete lining will be the existing top elevation of concrete elevation subtracted from the required top lining elevation. The minimum raise will be 6 inches for all deficient segments (no raise will be done for the non-deficient segments). The raises are assumed to follow the same method, however the height of raise will change according the hydraulic modeling and subsidence projections. Plans and profiles along the alignment will show the extent and construction details for these raises. Technical specifications will include the materials and methods that will be utilized in these modifications. Construction schedule and cost estimates will include these raises.

- Raising the embankment at the locations where the embankment does not have sufficient embankment freeboard: Reclamation free board requirement for canal embankment will be added to project maximum water surface elevation (with projected 2070 subsidence) to determine the required embankment elevation. Deficient embankments will be identified and designed to have the embankment raised to the required elevations. The embankment cross sections will be modified to have benches on the sides of the canal in accordance with Reclamation canal design criteria. The outer sides of the canal embankments will also be modified to have stable side slopes in accordance with Reclamation design criteria and slope stability as per geotechnical recommendations. The design will identify locations of stock piles within Reclamation ROW that could be utilized as borrow material for the fill needed to raise lining and embankment. The O&M roads on the two sides of the canal will be included in the rehabilitation and will be identified in construction drawings and specifications showing the grades, side slopes and dimensions for the embankment and O&M roads. The designs assume that the borrow sites investigated in the geotechnical investigation will have sufficient fill materials for the fills and embankment raises required. It is also assumed that static & seismic stability analyses will be performed for up to 10 embankment raise sections based on screening of critical sections using geometry, geotechnical conditions, & raise height criteria. If the data collected required more stability analysis or there is a need to investigate more borrow sites, a change order will be negotiated with the client. The extent of work on the embankment will be shown through plan and profile drawings as well as embankment construction detail drawings. The technical specifications will cover the materials and methods in performing these modifications as well as quality controls and testing methods that will be required from the contractor.

- Raising turnout walls to satisfy the water surface elevation requirements considering future subsidence: Considering projected maximum water surface elevations, the top elevations of turnouts will be determined to identify the raises required for the turnout side walls. Typical design details and construction drawings for turnouts modifications will be developed including details for the raises in the concrete wall of these turnouts as well as the metal work. Metal work for guard rails and stairs for the raised turnouts will be designed. Modifications will be shown in the technical specifications and drawings developed in SPECB.

- Modifying and/or replacing headwalls of drainage structures along the canal considering the embankment raises: Considering the new elevations of the embankment, headwalls of turnouts, culverts and overchutes

will be modified (raised) to prevent erosion of embankment material into the drainage structures. The embankment slopes could be adjusted where possible at drainage structures, otherwise the headwalls of these structures will be raised to exceed the elevation of the embankment at these structures. The performance of flap valves on the drain inlets will be evaluated and flap valves requiring replacement will be identified. Typical designs and specifications for replaced valves will be included. Modifications to the inlets of drain inlets will also be included as an option to stop backflow from the canal through the drain inlets. The most feasible modifications will be adopted in coordination with SLDMWA and considering feedback from the Value Engineering Study. SPECB will include typical construction details and specifications for the most feasible option in drain inlet modifications and/or flap valves replacement option.

The design to be based on the original design flows (4,600 CFS at MP3.5 dropping to: 3,501 CFS at MP 70.0 and 3,211 CFS at MP 116.48) for the canal and considering the subsidence estimates provided by CGB for 2070. Considering uncertainty in the models available to project subsidence, TSC will request a decision from the client and CGB on the values of the subsidence that will be used in the design. It is expected that the design values of projected subsidence will be finalized by CGB and SLDMWA by the 30% milestone.

Constructability review will be conducted with the involvement of staff from TSC, WCO, CGB and SLDMWA by the 30% design milestone. The construability review findings will be presented during the Value Engineering study and recommendations of the VE regarding constructability will be addressed in the 60% design.

This work plan does not include design work for: replacing deficient bridges, replacing deficient pipe crossings and modifying check structures. Such modifications will be included in other design plans. However, the embankment and service road modifications will consider the elevations and locations of these structures to have continuous, uniform and stable embankments and roads along the whole length of the canal segment under consideration.

This work plan will scope out, analyze, and prepare for construction a Specification package (design, drawings, cost estimate, specifications, and construction schedule) in accordance with Reclamation's Final Design Process guidelines (Reclamation Directives and Standards FAC 03-03) to restore the original capacity of the canal for the upper portion of the canal up to MP 70 through the designs mentioned above.

A Project Management Team (PMT) will be Discuss how you are going to track design data and design decisions?

Tasks

The tasks to accomplish the performance objectives include:

- *Task 1: Refine the Feasibility hydraulic model, calculations, and designs as required to support Final Design once 2070 subsidence study is delivered to TSC.*

- *Task 2: Update and develop recommendations for repair methods/designs for canal lining repairs, canal lining raises and embankment raises.*

- *Task 3: Conduct structural analysis and structural designs for the structures included in this work plan.*

- *Task 4: Conduct geotechnical analysis and slope stability analysis at representative locations of embankment raises and damaged lining segments utilizing geotechnical data and information collected during previous data collection stages.*

- *Task 5: Identify additional surveys and field investigations required to complete this design, all additional surveys and field investigations to be completed by SLDMWA and CGB by the 30% milestone.*

- *Task 6: Develop:*
  30%: design, drawings, cost estimate, constructability review and construction schedule.
  60%: update design, drawings and develop a table of contents for specifications.
  90%: Update design, drawings, cost estimate, construction schedule, specifications in accordance with Reclamation's Final Design Process.
  100%: Update design, cost estimate, drawings, construction schedule, specifications in accordance with Reclamation's Final Design Process.
  Develop IGCE cost estimate review.

- *Task 7: TSC will participate with CGB, WCO and SLDMWA in a construability review for the proposed designs. The results of the construability review will be presented in the Value Engineering study (VE).*

- *Task 8: Participate in Value Engineering (VE) study for the designs (at 30% level) of this work plan and address the findings of the Value Engineering study.*

- *Task 9: Develop Technical Memorandums, Reports, Basis of Design report or other documents as needed to support the Final Design Process.*

- *Task 10: Communication & Project Management: Standard communication and project management tasks including TSC coordination, client coordination, meetings, budget tracking, progress reporting, change orders, and project closeout.*

- *Task 11: Site visits to support the design process.*

Client Responsibilities

- Participate in the Constructability review and VE study and coordinate VE study with WCO and CGB.
- Continue to collect all necessary DDR and Geotechnical investigation data (currently done by SLDMWA contractor) to support Final Design. Geotechnical investigation will include all geotechnical data needed for final design as well as a geotechnical report that will be incorporated in the specifications package.
- Coordinate all other service providers (e.g. Real Estate, Permitting, Contracting, etc.) to support Final Design work.
- Coordinate with all utility owners to relocate utilities lines/services which might require removal or relocation during construction. These utilities include gas and oil lines, power and phone lines, municipal water and wastewater lines.
- Manage all communications between project parties and stakeholders.
- Make critical project decisions as necessary to support Final Design.
- Continue to coordinate with WCO and CGB for project authorization and construction.

Deliverables

- Design Drawings at the 30%, 60%, 90%, and 100% levels.
- Project Specifications at the 60%, 90%, and 100% levels.
- Construction schedule at the 60%, 90%, and 100% levels.
- Project cost estimates at the 30%, 90%, 100% and IGCE levels.
- Reports, TMs, and other documents necessary to support the Final Design project.
- TSC standard project management documents and items (agendas, meeting notes, etc.).

Exclusions from Scope of Work

- Contracting and construction support work.
- Subsidence analysis and determination.
- Design Summary (completed after construction).

Assumptions

- Labor and nonlabor expenses incurred by CGB, WCO, VE, or other Reclamation Offices is not included in this budget estimate. Separate agreements will need to be made with those offices as necessary.
- Feasibility Level Study findings will be used to support subsequent studies.
- The upper DMC reach of the canal up to MP 70, as determined, is included in the scope of this repair work.
- Repair work will address past and future subsidence issues, as well as other deficiencies.
- Data collected in the data collection process is sufficient for final design, additional data will be collected by SLDMWA and WCO
- Design assumes that all major deficient structures along the canal such as bridges, check structures, overchutes and pipe crossings as well as the lower portion of DMC (downstream MP 70) will be designed and rehabilitated in other construction packages.
- The bidding process and contracting for the construction work in this work plan will be done by CGB/WCO.
- SLDWMA and WCO/CGB will continue to work on project authorization and funding agreements to initiate construction work.
- Design work for other construction activities (rehabilitation of lower DMC, replacement of deficient bridges and pipe crossings and fixing of check structures) will be completed through other agreements.

4. Schedule

Milestone	Dates	Notes
Start:	11/2/2023	
	1/4/2024	Update design concepts for selected alternative considering data collected
	1/31/2024	Finalize additional DDR and FER required to complete the design
	1/4/2024	Identify acquisition type
	4/15/2024	Develop 30% cost quantity sheets
	7/1/2024	Develop 30% cost estimates
	7/1/2024	CONCEPTC: Submit 30% drawings and cost estimates.
	7/1/2024 to 7/15/2024	Review of CONCEPTC by VE team
VE	7/15/2024 to 7/19/2024	Value Engineering Study – VE team
	7/15/2024	Finalize design values for 2070 subsidence projections by CGB and SLDMWA
	7/22/2024 to 7/27/2024	Constructability Review
30% milestone	7/29/2024	Complete 30% design
60% milestone:	12/30/2024	DESIGNC: Drawings and specifications
REVIEW Design C	1/15/2025	REVIEW Design C
	6/15/2025	Compete draft specifications
TASPEC Review	6/30/2025	
90% milestone:	Signed Qtys: 05/14/25 8/16/2025	SPECD: Submit 90% package
Review C	9/1/2025	
100% milestone	12/15/2025	SPECB: 100% design package
	Signed Qtys: 12/15/25 3/15/2026	100% Cost estimate
	5/15/2026	ISSUE (Discuss with WA)
	8/15/2026	Review WA Cost estimate (IGCE)
Complete:	10/30/2026	

5. Budget Estimate

The budget is summarized as follows:

Code	Group	Cost in $	Roles and Responsibilities
8120	Plant Structures	$76,758	Design, drawings, quantities and specifications for miscellaneous metals including guard rails and ladders for turnouts and ladders extension of canal
8140/1	Water Conveyance	$3,186,362	Design. quantities and specifications for lining and embankment raises, canal repairs, modifications of drain inlets and turnouts.
8150	Civil Structures	$584,358	Design, quantities, drawing details and specifications for reinforced concrete of headwalls and wingwalls
8160	Specifications and Construction	$295,409	Develop general sections of specifications, lead and coordinate technical specifications sections with other design groups. Develop construction schedule and conduct constructability review
8170	Estimating Services	$389,680	Develop cost estimates at 30%, 90%, preval and IGCE levels
8260	Geographical Applications	$27,120	Develop maps and provide GIS support to all groups
8311	Geotechnical Engineering	$716,714	Perform geotechnical review of geotechnical data collected, utilize data collected in performing static

			and seismic stability analysis, develop division 31 of technical specifications. Perform earth work designs needed along the embankment.
8320	Engineering Geology	$150,732	Develop specifications section 5100 from geotechnical reports and data collected
8410	Mechanical Piping & Systems	$107,753	Develop design, quantities and specifications for flap valves and piping
8530	Concrete and Structural Lab	$53,616	Develop specifications for concrete work and support designs for concrete repairs
8540	Materials and Corrosion Lab	$115,032	Develop specifications for disposal of concrete and metals, coating, seals and water stops
	TOTAL:	**$5,703,534**	

NOTE: Further budget breakdown within the group can be identified within the service agreement; skill level breakdown, non-labor, etc…

Earned Value: Not included in the current budget but could be added at a later date per Client request through a change order.

6. Roles and Responsibilities

Client Project Manager: Jacob Bejarano (SLDMWA)
CGB project manager and representative: Aniruddha (Babi) Bhattacharya
TSC Team Lead: Numan Mizyed
TSC Groups and Disciplines:

Org Code	Group	Group Lead	Disciplines
86-68120	Plant Structures	Sara Putnam	Misc. Metals, Life Safety features
86-68140	Water Conveyance	Numan Mizyed Doug Richard	Design Team Lead, Hydraulics, Canal & auxiliary features design Assistant team lead and drawings coordinator
86-68150	Civil Structures	Clark Larsen	Structural design
86-68160	Specification & Construction Management	Robert Carlson Stefano Trushke	Specifications, Construction Schedule, Constructability Review
86-68170	Estimating	Tom Hanke Anthony Galardi	Construction Cost Estimates
86-68260	GIS	Patrick Wright	GIS support, Figures, and information sharing
86-68311	Geotechnical	David Agan	Geotechnical support, Embankment design, foundations
86-68320	Geology	York Lewis	Geology Specifications and design
86-68410	Mechanical Equipment	Brantly Baca	Piping and valves
86-68530	Concrete & Structural Lab	Scott Keim	Concrete and Structural materials engineering
86-68540	Materials & Coatings Lab	TBD Lise Pederson	Coatings Specifications Hazardous material disposal and testing
86-68550	Geotechnical Lab	Blake Armstrong	Soils testing

7. Quality Assurance / Quality Control

Quality Assurance and Quality Control is performed in accordance with the “TSC Operating Guidelines”, Directives and Standards FAC 03-03, and the “TSC Project Management Guidelines”.

8. Change Management

- Changes in scope, intermediate schedule, or task budgets will be tracked in a “Change Log”.
- Changes to the Service Agreement will be documented through a Change Order Form or Revised PMP.
- Significant changes in scope, exceedance of overall budget, or delay in Complete Date requires a Change Order.
- Minor changes in scope, interim milestones, or task budgets will be updated in a change order at the discretion of the TSC Team Lead or client.

This service agreement is an estimate of budget and TSC resource availability, which are subject to change.

9. Communication

Communication Element	Participants	Frequency Budgeted	Frequency Anticipated	Media/Setting
Internal kickoff meeting	TSC members	Once	Once	Web meeting
Client kickoff meeting	TSC group leads Client	Once	Once	Web meeting
Internal TSC meetings	TSC Group representatives, or as needed for scope	Monthly	Monthly	Web meeting, maybe face-to-face later
Client meetings	As needed	Bi-weekly	Bi-weekly	Web meeting
Status reports	Sent by TSC Lead (see Document Distribution)	Monthly	Monthly	Email or at web meeting
Change log	TSC Team Lead & Client	Monthly	Monthly	Attached to Status Report
Risk register	Maintained by TSC Team Lead	Monthly	Monthly	Attached to Status Report

Communication Expectations
TSC: Via MS Teams, or phone call, as required.
Client: Via MS Teams, or phone call, as required.

10. Risk Management

The TSC Team Lead and team members will manage risks assigned to the TSC through monitoring of work progress and budget expenditures and frequent communication and coordination activities. Team members are required to report to the team lead when:

- There is a potential or imminent delay of scheduled work or a deliverable product.
- It is determined that a change in scope of work is required.
- It is determined that the approved budget is not adequate to complete the scope of work.
- Information required for task completion is difficult to obtain or not received on time.

Construction funding for the entire project has not been identified including funding for the construction work included in this work plan. Project authorization and funding agreements for the construction have not been finalized for this work. This poses the risk of required phasing of the complete project or delaying project implementation or even canceling this work. SLDMWA will continue to coordinate with CGB-WCO to confirm this current contract to minimize impacts of funding changes.

Risk Register

	Risk	Risk Description & Potential Impacts	Severity (H, M, L)	Probability (H, M, L)	Risk Mitigation
1	Design Criteria	Various design needed to be determined to support final design (e.g. lining raise methodology, geotechnical data reports, geotechnical characterization report, subsidence assumptions).	M	H	Early coordination & communication with all parties through Project Manager to reach early concurrence on designs. Design schedule will be delayed if there are delays in design data beyond 30% final design to reduce re-work. Design schedule delays due to design data delays will not necessarily be time-for-time slips, e.g. a 1 month delay in design data does not automatically imply a 1 month delay in design schedule.
2	Design data	Data was collected in both the Appraisal, Feasibility Studies and Data Collection process, but additional data requirements may be determined through the final design process. Utility data will also be needed. A complete list of data required to support design, and collection of ~100 miles of canal data is time-consuming and requires significant effort.	H	H	The ongoing FER and DDR processes will continue be used per standard TSC practices for additional data needed. TL will continue working with PM to ensure that all additional design and utility data required will be collected and incorporated in the final design.
3	TSC staffing availability	Work required to design ~100 miles of canal raise, ~100+ structures, and other modifications is substantial and should be considered in TSC Workload Management.	H	H	Team Lead to work with Group Managers and others at TSC to identify and secure necessary staffing, once the specific design team member needs are known. Region and PM should identify the priority of this project in relation to other on-going jobs (e.g. B.F. Sisk, Shasta, SJRRP, FKC, etc.).
4	Funding	Funding is subject to re-payment agreements between Reclamation and Water Authority	M	M	PM to secure necessary funding, as identified by Team Lead and other service providers, to maintain project schedule.

11. Project Closeout

Per TSC project closeout procedures detailed in the “TSC Project Management Guidelines” and lessons learned detailed in the “TSC Lessons Learned” document.

12. Signatures

See TSC ESASP site for signatures.