El Dorado Irrigation District

AGENDA
REGULAR MEETING OF THE BOARD OF DIRECTORS

District Board Room, 2890 Mosquito Road, Placerville, California
August 22, 2022 — 9:00 A.M.

Board of Directors

Lori Anzini—Division 4
President

Brian K. Veerkamp—Division 3
Vice President

George Osborne—Division 1
Director

Pat Dwyer—Division 2
Director

Alan Day—Division 5
Director

Executive Staff

Jim Abercrombie
General Manager

Brian D. Poulsen, Jr.
General Counsel

Jennifer Sullivan
Clerk to the Board

Jesse Saich
Communications

Brian Mueller
Engineering

Jamie Bandy
Finance

Jose Perez
Human Resources

Tim Ranstrom
Information Technology

Dan Corcoran
Operations

PUBLIC COMMENT: Anyone wishing to comment about items not on the Agenda may do so during the public comment period. Those wishing to comment about items on the Agenda may do so when that item is heard and when the Board calls for public comment. Public comments are limited to five minutes per person.

PUBLIC RECORDS DISTRIBUTED LESS THAN 72 HOURS BEFORE A MEETING: Any writing that is a public record and is distributed to all or a majority of the Board of Directors less than 72 hours before a meeting shall be available for immediate public inspection in the office of the Clerk to the Board at the address shown above. Public records distributed during the meeting shall be made available at the meeting.

AMERICANS WITH DISABILITIES ACT: In accordance with the Americans with Disabilities Act (ADA) and California law, it is the policy of El Dorado Irrigation District to offer its public programs, services, and meetings in a manner that is readily accessible to everyone, including individuals with disabilities. If you are a person with a disability and require information or materials in an appropriate alternative format; or if you require any other accommodation for this meeting, please contact the EID ADA coordinator at 530-642-4045 or email at adacoordinator@eid.org at least 72 hours prior to the meeting. Advance notification within this guideline will enable the District to make reasonable accommodations to ensure accessibility.

District Board Meetings are open to in-person attendance by the public and conducted virtually. For in-person participation, individuals must comply with all current Centers for Disease Control COVID-19 prevention guidelines and state and local guidelines that are in place at the time of the meeting. The public may participate in the District's Board meeting by teleconference or web conference via the instructions provided below. Members of the public who participate in the meeting via teleconference or web conference will be given the opportunity to speak and address the Board, and their comments will be included in the recording of the meeting.

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PUBLIC PARTICIPATION INSTRUCTIONS

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Dial ***1.669.900.6833*** and enter Meeting ID ***945 6360 8941*** when prompted.

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CALL TO ORDER

Roll Call
Pledge of Allegiance
Moment of Silence

ADOPT AGENDA

COMMUNICATIONS

General Manager's Employee Recognition

PUBLIC COMMENT

COMMUNICATIONS

General Manager

Brief reports on District activities or items of interest to the public, including activities or developments that occur after the agenda is posted.

Clerk to the Board

Board of Directors

Brief reports on community activities, meetings, conferences and seminars attended by the Directors of interest to the District and the public.

APPROVE CONSENT CALENDAR

Action on items pulled from the Consent Calendar

CONSENT CALENDAR

1. **Clerk to the Board (Sullivan)**
   Consider approving the minutes of the August 8, 2022 regular meeting of the Board of Directors.

   Option 1: Approve as submitted.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

2. **Office of the General Manager (Abercrombie)**
   Consider ratifying Resolution No. 2022-001 to maintain an ongoing emergency declaration related to the Caldor Fire.

   Option 1: Ratify Resolution No. 2022-001 to maintain an ongoing emergency declaration related to the Caldor Fire.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

3. **Engineering/Information Technology (Dawson/Ranstrom)**
   Consider awarding a contract to Esri in the not-to-exceed amount of $165,000 to renew a Small Utility Enterprise Agreement for Geographic Information System software for a term of three years.

   Option 1: Award a contract to Esri in the not-to-exceed amount of $165,000 to renew a Small Utility Enterprise Agreement for Geographic Information System software for a term of three years.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

4. **Engineering (Brink)**
   Consider adopting a resolution documenting annexation of assessor parcel number 092-060-055 into the El Dorado Irrigation District.

   Option 1: Adopt a resolution documenting annexation of assessor parcel number 092-060-055 into the El Dorado Irrigation District.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

5. **Operations (Crane)**
   Consider authorizing funding in the not-to-exceed amount of $1,139,726 for the purchase of two Vactor 2100i combination sewer cleaner/vacuum trucks for the 2022 Vehicle Replacement Program Project, Project No. 22003.

   Option 1: Authorize funding in the not-to-exceed amount of $1,139,726 for the purchase of two Vactor 2100i combination sewer cleaner/vacuum trucks for the 2022 Vehicle Replacement Program Project, Project No. 22003.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

END OF CONSENT CALENDAR

ACTION ITEMS

6. **Finance (Pasquarello)**
   Consider ratifying EID General Warrant Registers for the periods ending August 2 and August 9, 2022, and Employee Expense Reimbursements for these periods.

   Option 1: Ratify the EID General Warrant Registers and Employee Expense Reimbursements as submitted.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

7. **Operations (Wilson)**
   Consider ratifying Resolution No. 2022-019 to maintain the drought emergency and the Stage 1 Water Alert requesting up to 15 percent voluntary conservation, and authorize the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers if and when necessary.

   Option 1: Ratify Resolution No. 2022-019 to maintain the drought emergency and the Stage 1 Water Alert requesting up to 15 percent voluntary conservation, and authorize the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers if and when necessary.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

8. **Engineering (Mutschler)**
   Consider awarding a contract to GHD Inc. in the not-to-exceed amount of $421,523 for design of the Flume 45 Section 3 replacement and authorize additional funding of $155,000 for capitalized labor and $100,000 for environmental support services for a total funding request of $676,523 for the Flume 45 Section 3 Replacement Project, Project No.22014.01.

   Option 1: Award a contract to GHD Inc. in the not-to-exceed amount of $421,523 for design of the Flume 45 Section 3 replacement and authorize additional funding of $155,000 for capitalized labor, and $100,000 for environmental support services for a total funding request of $676,523 for the Flume 45 Section 3 Replacement Project, Project No.22014.01.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

9. **Engineering (Carrington)**
   Consider approving a contract change order to Domenichelli and Associates, Inc. in the not-to-exceed amount of $22,010 for design of the Motherlode Force Main Phase 3 and authorize additional funding of $22,010 for the Motherlode Force Main Phase 3 Project, Project No. 21081.01.

   Option 1: Approve a contract change order to Domenichelli and Associates, Inc. in the not-to-exceed amount of $22,010 for design of the Motherlode Force Main Phase 3 and authorize additional funding of $22,010, for the Motherlode Force Main Phase 3 Project, Project No. 21081.01.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

10. **Office of the General Counsel / Engineering (Leeper/Deason)**
    Consider approving a contract change order to Zanjero, Inc. in the not-to-exceed amount of $174,100 for hydrologic modeling services and authorize additional funding of $30,000 for capitalized labor for a total funding request of $204,100 for the Permit 21112 Change in Point of Diversion, Project No. 16003.

    Option 1: Approve a contract change order to Zanjero, Inc. in the not-to-exceed amount of $174,100 for hydrologic modeling services and authorize additional funding of $30,000 for capitalized labor for a total funding request of $204,100 for the Permit 21112 Change in Point of Diversion Project, Project No. 16003.
    Option 2: Take other action as directed by the Board.
    Option 3: Take no action.

    Recommended Action: Option 1.

CLOSED SESSION

A. **Conference with General Counsel –Anticipated Litigation (Poulsen)**
   Government Code Section 54956.9(d)(4) (one potential case)

B. **Conference with General Counsel –Anticipated Litigation (Poulsen)**
   Government Code Section 54956.9(d)(4)
   (one potential case against the California State Water Resources Control Board regarding the Sacramento/San Joaquin River Bay Delta Water Quality Control Plan Update)

C. **Public Conference with General Counsel –Anticipated Litigation (Poulsen)**
   Government Code Section 54956.9(d)(4) (one potential case against)

REVIEW OF ASSIGNMENTS

ADJOURNMENT

TENTATIVELY SCHEDULED ITEMS FOR FUTURE MEETINGS

Engineering

- Capital Improvement Plan project completion summary, Information, September 26 (Dawson)
- Sly Park Day Use Stabilization Project construction contract, Action, September 26 (Mutschler)
- El Dorado Canal Fire Burned Slope Stabilization construction contract, Action, September 26 (Kessler)
- Silver Lake Dam engineering and subsurface exploration contracts, Action, September 26 (Kessler)
- Limited Assignment Agreement related to Project 184 power purchase agreement, Consent, September 26 (Mueller)
- Folsom Heights water and wastewater service update, Information, September 26 (Brink)
- Pleasant Oak Main Pressure Reducing Station #2 material purchase, Consent, September 26
- Cost share agreement amendment with El Dorado County for preparation of an Environmental Impact Report for the Texas Hill Reservoir Parcel Rezones and General Plan Amendment, Consent, September 26 (Deason/Mueller)

Finance

- Receive and file 2021 Single Audit Report, Consent, September 26 (Pasquarello)

Information Technology

- Network perimeter security upgrades Capital Improvement Plan funding, Consent, September26

Office of the General Counsel/Finance

- Contracts for on-call services (2023-2025), Action, September26 (Leeper/Deakyne)

Operations

- Water supply update, Information, September 26 (Baxter)

Operations/Engineering

- Sly Park Pinecone Campground Paving, Consent, September 26 (Certiberi/Delongchamp)

EL DORADO IRRIGATION DISTRICT
August 22, 2022

General Manager Communications

Awards and Recognitions

a) The District received an email from District customer Laurel Brent-Bumb in appreciation of Bill Cassady, Senior Water Use Efficiency Technician. Ms. Brent-Bumb stated "Bill is by far the MOST customer service oriented individual I have ever encountered. He showed real concern for our issues and spent as much time as I needed to answer questions and even brainstorm solutions." This is a great example of Bill's commitment to the District guiding principle *Excellent Customer Service*.

Staff Reports and Updates

None

El Dorado Irrigation District

MINUTES
REGULAR MEETING OF THE BOARD OF DIRECTORS

District Board Room, 2890 Mosquito Road, Placerville, California
August 8, 2022 — 9:00 A.M.

Board of Directors

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President

Brian K. Veerkamp—Division 3
Vice President

George Osborne—Division 1
Director

Pat Dwyer—Division 2
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Alan Day—Division 5
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CALL TO ORDER

President Anzini called the meeting to order at 9:00 A.M.

Roll Call
Board

Present: Directors Osborne, Dwyer, Veerkamp, Anzini and Day

Staff

Present: General Manager Abercrombie, General Counsel Poulsen and Board Clerk Sullivan

Pledge of Allegiance and Moment of Silence

Director Anzini led the Pledge of Allegiance.

ADOPT AGENDA

ACTION: Agenda was adopted.

MOTION PASSED

Ayes: Directors Day, Dwyer, Osborne, Veerkamp and Anzini

COMMUNICATIONS

Awards and Recognitions

General Manager recognized District staff for over 365 days with no lost time injuries.

PUBLIC COMMENT

None

COMMUNICATIONS

General Manager

None

Clerk to the Board

None

Board of Directors

Director Dwyer thanked staff for recent tours of District facilities.

Director Veerkamp reported on his partipcation in the El Dorado Local Agency Formation Commission (LAFCO) meeting. He also reported on his partipcation during the LAFCO ad hoc committee meeting.

APPROVE CONSENT CALENDAR

ACTION: Consent Calendar was approved.

MOTION PASSED

Ayes: Directors Dwyer, Veerkamp, Osborne, Anzini and Day

CONSENT CALENDAR

1. **Clerk to the Board (Sullivan)**
   Consider approving the minutes of the June 27 and July 25, 2022 regular meetings of the Board of Directors.

   ACTION: Option 1: Approved as submitted.

   MOTION PASSED
   Ayes: Directors Dwyer, Veerkamp, Osborne, Anzini and Day

2. **Office of the General Manager (Abercrombie)**
   Consider ratifying Resolution No. 2022-001 to maintain an ongoing emergency declaration related to the Caldor Fire.

   ACTION: Option 1: Ratified Resolution No. 2022-001 to maintain an ongoing emergency declaration related to the Caldor Fire.

   MOTION PASSED
   Ayes: Directors Dwyer, Veerkamp, Osborne, Anzini and Day

3. **Office of the General Manager (Abercrombie)**
   Consider ratifying Resolution No. 2022-019 to maintain the drought emergency and the Stage 1 Water Alert requesting up to 15 percent voluntary conservation.

   ACTION: Option 1: Ratified Resolution No. 2022-019 to maintain the drought emergency and the Stage 1 Water Alert requesting up to 15 percent voluntary conservation.

   MOTION PASSED
   Ayes: Directors Dwyer, Veerkamp, Osborne, Anzini and Day

4. **Finance / Engineering / Operations (Downey/Mueller/Wilson)**
   Consider approving payments to Regional Water Authority in the not-to-exceed amounts of $81,536 for general membership and $39,370 for water efficiency program membership dues for total payment of $120,906 for Regional Water Authority membership dues for fiscal year 2022-2023.

   ACTION: Option 1: Approved payments to Regional Water Authority in the not-to-exceed amounts of $81,536 for general membership and $39,370 for water efficiency program membership dues for total payment of $120,906 for Regional Water Authority membership dues for fiscal year 2022-2023.

   MOTION PASSED
   Ayes: Directors Dwyer, Veerkamp, Osborne, Anzini and Day

5. **Information Technology (Proctor)**
   Consider awarding a contract to CDW-G in the not-to-exceed amount of $337,000 for purchase of data storage equipment and implementation services; authorize funding of $317,000 for equipment purchases and $20,000 for implementation services for a total funding request of $337,000 for the Datacenter Storage Replacement, Project No. 22020.01; and approve an extended service contract with CDW-G through September 1, 2025 in the not-to-exceed amount of $185,069.

   ACTION: Option 1: Awarded a contract to CDW-G in the not-to-exceed amount of $337,000 for purchase of data storage equipment and implementation services; authorized funding of $317,000 for equipment purchases and $20,000 for implementation services for a total funding request of $337,000 for the Datacenter Storage Replacement, Project No. 22020.01; and approved an extended service contract with CDW-G through September 1, 2025 in the not-to-exceed amount of $185,069.

   MOTION PASSED
   Ayes: Directors Dwyer, Veerkamp, Osborne, Anzini and Day

END OF CONSENT CALENDAR

INFORMATION ITEMS

6. **Operations (Corcoran)**
   Status update on 2022 water supplies.

   ACTION: None – Information only.

7. **Office of the General Manager / Office of General Counsel (Abercrombie/Poulsen)**
   Key Performance Indicators and Goals update.

   ACTION: None – Information only.

ACTION ITEMS

8. **Finance (Pasquarello)**
   Consider ratifying EID General Warrant Registers for the periods ending July 12, July 19 and July 26, and Board and Employee Expense Reimbursements for these periods.

   ACTION: Option 1: Ratified the EID General Warrant Registers, and Board and Employee Expense Reimbursements as submitted.

   MOTION PASSED
   Ayes: Directors Osborne, Dwyer, Veerkamp, Anzini and Day

9. **Operations (Leanos)**
   Consider awarding a contract to Rexel in the not-to-exceed amount of $469,227 for electrical preventative maintenance and service of the Folsom Lake Intake electrical equipment for a period of six years.

   ACTION: Option 1: Awarded a contract to Rexel in the not-to-exceed amount of $469,227 for electrical preventative maintenance and service of the Folsom Lake Intake electrical equipment for a period of six years.

   MOTION PASSED
   Ayes: Directors Veerkamp, Day, Osborne, Dwyer and Anzini

CLOSED SESSION

A. **Conference with General Counsel –Anticipated Litigation (Poulsen)**
   Government Code Section 54956.9(d)(2) (numerous potential cases)

   ACTION: Board met and provided policy direction but took no reportable action.

B. **Public Employee Employment/Performance Evaluation (Abercrombie)**
   Government Code Section 54957(b)(1)
   Position Title: General Manager. Annual performance review.

   ACTION: Board conducted annual performance review but took no reportable action.

C. **Public Employee Employment/Performance Evaluation (Poulsen)**
   Government Code Section 54957(b)(1)
   Position Title: General Counsel. Annual performance review.

   ACTION: Board conducted annual performance review but took no reportable action.

REVIEW OF ASSIGNMENTS

None

ADJOURNMENT

President Anzini adjourned the meeting at 11:49 A.M.

Lori Anzini
Board President
EL DORADO IRRIGATION DISTRICT

ATTEST

Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

Approved: _____

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider ratifying Resolution No. 2022-001 to maintain an ongoing emergency declaration related to the Caldor Fire.

PREVIOUS BOARD ACTION

August 23, 2021 – Board adopted Resolution No. 2021-012 ratifying the General Manager's declaration of an emergency for the Caldor Fire.

September 13, October 12, October 25, November 8, and December 13, 2021 – Board ratified Resolution No. 2021-012 to maintain an emergency declaration regarding the Caldor Fire.

January 10, 2022 – Board adopted Resolution No. 2022-001 declaring an ongoing emergency related to the Caldor Fire.

At every regular Board meeting since its adoption the Board has ratified Resolution No. 2022-001.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

BP 2050 Administrative Leeway in the Absence of Policy
BP 3060 Contracts and Procurement
Public Resources Code section 21080(b) and California Environmental Quality Act ("CEQA") Guidelines section 15269

SUMMARY OF ISSUE

The Caldor Fire caused significant damage to District facilities and surrounding lands and impacted the District's water conveyance system. While the District recently replaced the damaged flumes and is now conveying water through the new facilities, recovery efforts are ongoing. The ongoing emergency declaration related to the Caldor Fire reflects the continued emergency, and will facilitate emergency recovery efforts such as hazard tree removal. The General Manager will provide periodic updates to the Board on the District's response to the Caldor Fire damages.

BACKGROUND/DISCUSSION

The Caldor Fire erupted near the town of Grizzly Flats on August 14, 2021. Shortly thereafter, both the El Dorado County Board of Supervisors and Governor Gavin Newsom proclaimed a state of emergency for El Dorado County. On August 23, 2021, the District adopted Resolution No. 2021-012, ratifying the General Manager's emergency declaration and directing the General Manager to take all necessary and appropriate actions in response. On September 1, 2021, President Biden declared a federal state of emergency as a result of the Caldor Fire and on September 12, upgraded that designation to a federal disaster status.

The Caldor Fire caused extensive damage to District facilities and surrounding lands, including damage to District flumes that convey water supplies. In response, the District took immediate and numerous actions to mitigate and address the damage to District facilities. Those emergency actions continued into 2022, and on January 10, 2022, the Board adopted Resolution No. 2022-001, declaring an ongoing emergency related to the Caldor Fire.

Emergency recovery efforts are ongoing, including time-sensitive hazard tree removal. In light of the continued emergency response and recovery efforts, ratification of Resolution No. 2022-001 to maintain the ongoing emergency related to the Caldor Fire is appropriate.

BOARD OPTIONS

Option 1: Ratify Resolution No. 2022-001 to maintain an ongoing emergency declaration related to the Caldor Fire.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1.

ATTACHMENTS

Attachment A: Resolution No. 2022-001

Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

Resolution No. 2022-001

RESOLUTION OF THE BOARD OF DIRECTORS OF EL DORADO IRRIGATION DISTRICT DECLARING AN ONGOING STATE OF EMERGENCY AS A RESULT OF THE CALDOR FIRE

WHEREAS, El Dorado Irrigation District (District) provides critical water services and wastewater services to the residents of El Dorado County; and

WHEREAS, on August 14, 2021, the Caldor Fire started burning in the Middle Fork Cosumnes River Canyon in El Dorado County; and

WHEREAS, on August 17, 2021, Governor Newsom proclaimed a state of emergency to exist in El Dorado County due to the Caldor Fire; and

WHEREAS, on August 23, 2021, the District's Board of Directors adopted Resolution No. 2021-012 declaring a state of emergency due to the Caldor Fire and directed the District General Manager to take all actions reasonable deemed necessary to respond to the emergency conditions; and

WHEREAS, on September 1, 2021, President Biden declared a federal state of emergency as a result of the Caldor Fire; and

WHEREAS, on September 12, 2021 President Biden declared the Caldor Fire to be a federal disaster; and

WHEREAS, the District has taken, and continues to take, numerous actions in response to the damage caused by the Caldor Fire, in an effort to ensure safe and continuous services to the public; and

WHEREAS, the Caldor Fire caused extensive damage to the District's Project 184 system, including the loss of wooden Flumes 4, 5, 6, and 30 along the El Dorado Canal, resulting in ongoing efforts to rebuild and replace damaged flume sections and remove fire-damaged hazard trees; and

WHEREAS, the damage caused by the Caldor Fire to District facilities and surrounding lands requires ongoing and immediate action to prevent or mitigate loss of, or damage to life, property, and the essential District public services; and

WHEREAS, Public Resources Code section 21080(b)(4) and CEQA Guidelines section 15269(c) exempt from CEQA any actions that are necessary to prevent or mitigate an emergency; and

WHEREAS, CEQA Guidelines section 15359 defines "emergency" as "a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to life, health, property, or essential public services;" and

WHEREAS, Public Contract Code section 20567 authorizes irrigation districts to let contracts without notice for bids in case of an emergency; and

WHEREAS, Public Contract Code section 22050(a)(2) requires that before action is taken to procure equipment, services, and supplies without giving notice for bids, the governing body must first make a finding, based on substantial evidence set forth in the minutes of its meeting, that the emergency will not permit a delay resulting from a competitive solicitation for bids, and that the action is necessary to respond to the emergency; and

WHEREAS, Public Contract Code section 11102 defines "emergency" as "a sudden, unexpected occurrence that poses a clear and imminent danger, requiring immediate action to prevent or mitigate the loss or impairment of life, health, property, or essential public services;" and

WHEREAS, District Board Policy 2050 authorizes the District's General Manager to act "in emergency situations where no Board Policies or Administrative Regulations exist;" and

WHEREAS, District Board Policy 3060 authorizes the District's General Manager to approve all contracts or procurements or change orders with values of up to and including $100,000; and

WHEREAS, in the event of an emergency requiring immediate contract or procurement action, District Board Policy 3060 authorizes the District's General Manager to "approve any and all contracts necessary to abate the emergency after first informing the President of the Board of Directors and scheduling an emergency meeting of the Board of Directors at the earliest possible opportunity;" and

WHEREAS, District Board Policy 3060 requires the District's General Manager to bring any and all contracts or procurements with values exceeding $100,000, approved during an emergency, to the Board of Directors for ratification at the first meeting of the Board immediately following the emergency; and

WHEREAS, District Administrative Regulation 3061.05, subdivision E, provides for single source procurement for good cause, which may include when "emergency or extraordinary circumstances require immediate action that cannot be delayed for obtaining bids or proposals;" and

NOW, THEREFORE, BE IT AND IT IS HEREBY RESOLVED by the Board of Directors of the El Dorado Irrigation District as follows:

1. The Board finds and declares that the Caldor Fire damage continues to constitute an emergency within the meaning of Public Resources Code section 21080(b)(4), CEQA Guidelines section 15359, Public Contracts Code section 11102, District Board Policy 2050 and 3060, and District Administrative Regulation 3061.05, subdivision E.
2. The Board finds and declares that the adoption of this Resolution and all of the delegations, authorizations, and directions to the General Manager and District staff specified in paragraph 4, below, satisfy the requirements and criteria of Public Resources Code section 21080(b)(4), CEQA Guidelines section 15269(c), and Public Contract Code sections 22050(a)(2) and 20567.
3. The foregoing findings and declarations are based upon all written, oral, and visual evidence, including both facts and professional opinions, presented to the Board at the adoption of this Resolution.
4. The Board hereby delegates, authorizes, and directs the District General Manager and his designees to take all actions reasonably deemed necessary to respond to the emergency conditions declared herein, including but not limited to the following specific actions:
   a. Enter into professional services and construction contracts as reasonably deemed necessary to respond to the Caldor Fire damage.
   b. Report to and seek ratification of the Board for any actions taken in excess of normal authority or authority expressly granted by this Resolution, at the first regular Board meeting held after each such action.
5. This Resolution shall take effect immediately upon adoption. Subject to the ratification required by Public Contract Code sections 22050(b)(3), (c)(1), and (c)(2), and by District Board Policy 3060, this Resolution shall remain in full force and effect until rescinded by a subsequent Resolution of the Board of Directors.

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The foregoing Resolution was introduced at a regular meeting of the Board of Directors of the EL DORADO IRRIGATION DISTRICT, held on the 10th day of January 2022, by Director Dwyer who moved its adoption. The motion was seconded by Director Veerkamp and a poll vote taken which stood as follows:

AYES: Directors Dwyer, Veerkamp, Anzini and Day

NOES:

ABSENT: Director Osborne

ABSTAIN:

The motion having a majority of votes "Aye", the resolution was declared to have been adopted, and it was so ordered.

Lori Anzini, President
Board of Directors
EL DORADO IRRIGATION DISTRICT

ATTEST:

Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

(SEAL)

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I, the undersigned, Clerk to the Board of the EL DORADO IRRIGATION DISTRICT hereby certify that the foregoing resolution is a full, true and correct copy of a Resolution of the Board of Directors of the EL DORADO IRRIGATION DISTRICT entered into and adopted at a regular meeting of the Board of Directors held on the 10th day of January 2022.

Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

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EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider awarding a contract to Esri in the not-to-exceed amount of $165,000 to renew a Small Utility Enterprise Agreement for Geographic Information System software for a term of three years.

PREVIOUS BOARD ACTION

August 12, 2019 – Board awarded a three-year contract to Esri in the not-to-exceed amount of $150,000 to renew an Enterprise Agreement for Geographic Information System software.

December 13, 2021 – Board adopted the 2021-2022 Mid-Cycle Operating Budget and 2022-2026 Financial Plan.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

BP 3060 Contracts and Procurement
AR 3061.05e Solicitation of Bids and Proposals – Authorization for the Procurement of Goods or Services from a Single Source

SUMMARY OF ISSUE

The current Esri Small Utility Enterprise Agreement (SUEA) provides a suite of essential Geographic Information System (GIS) software products that enable the development and use of the District's GIS platform. The existing agreement expires on September 28, 2022, and requires renewal. The suite of services provided in the SUEA are substantially less cost than if purchased individually.

BACKGROUND/DISCUSSION

The District has utilized Esri's Geographic Information System (GIS) software for many years. Initially, GIS was utilized to provide a visual representation of data through mapping. The District's GIS now is a connected geospatial enterprise where we leverage the locational and attribute aspect of data to integrate information to achieve business value across every department. GIS is widely used by staff in the office and in the field to support many essential business operations. GIS is considered a core application for the District and enables efficient and accurate location and analysis of assets, services, consumption, leaks, repairs, maintenance, and was used extensively during the Caldor Fire and reconstruction effort. The District's engineering and GIS staff continue to expand the data and application of GIS to improve information access and workflows.

Esri is a leading GIS software provider utilized by more than 350,000 organizations and businesses worldwide. As use of Esri software increased, the District made the strategic decision in 2016 to enter into a SUEA with Esri versus continuing to purchase individual licenses and services. The SUEA grants the District uncapped access to a large number of products and creates significant potential to apply GIS in many additional areas. Benefits the SUEA offers in exchange for a firm multi-year commitment include:

- A lower cost per unit for licensed software
- Substantially reduced administrative and procurement expenses
- Maintenance on all Esri software identified in the attached proposal and deployed within the organization
- Complete flexibility to deploy software products when and where needed

The District has chosen and standardized a number of leading software solutions, including Esri that have a broad base of support and robust technical certification and user training programs in place. This reduces risk and provides greater opportunities for competition in sourcing of solutions and finding qualified users, administrators, and consultants to operate and maintain the District's information systems. Continued enrollment in the EA helps ensure that the District remains properly licensed with Esri for the products used, and avoids the cost to acquire additional licenses across multiple years.

All technology has a lifespan and requires ongoing maintenance to provide maximum usefulness and reliability. If not renewed, the GIS software essential to efficient and effective District operations will not receive further enhancements. Forgoing maintenance and purchasing the enhanced versions generally costs significantly more than continued maintenance, and may also delay implementation of required or beneficial functionality.

Lack of timely access to competent technical support undermines the reliability, performance, and security of the software and associated data. In time, these issues directly affect the reliability and quality of the District's services, and greatly increase the risk of service interruptions and resulting damages.

FUNDING
Staff is proposing the District enter into another contract with Esri for their SUEA in the total amount of $165,000, payable in annual increments of $55,000 for the three-year term of the contract. The proposed contract is a 10% increase from the past two contract terms ($5,000 per year), and term length is the same as the existing contract. Funding for the proposed contract is contained in the District's approved operating budget and allocated to the purpose of software maintenance.

District Administrative Regulation 3061.05e allows procurement of goods or services from a single source with good cause. Many technology vendors, including Esri, are the sole providers of the support for their products (e.g. software and professional services), so maintenance payments are negotiated or purchased as part of the initial software or service purchase. The Information Technology Department provides centralized management of software maintenance and licensing as a service to other departments to ensure the District is getting the appropriate and best levels of support for the software license and maintenance dollars spent.

BOARD OPTIONS

Option 1: Award a contract to Esri in the not-to-exceed amount of $165,000 to renew a Small Utility Enterprise Agreement for Geographic Information System software for a term of three years.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION
Option 1

ATTACHMENTS
Attachment A: Esri SUEA

Srinivasan Sundaram
Sr. Information Technology Analyst

Elizabeth Dawson
Engineering Manager

Tim Ranstrom
Information Technology Director

Jamie Bandy
Finance Director

Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

June 29, 2022

Mr. Timothy Ranstrom
El Dorado Irrigation District
2890 Mosquito Rd
Placerville, CA 95667-4761

Dear Timothy,

The Esri Small Utility Enterprise Agreement (SUEA) is a three-year agreement that will grant your organization access to Esri term license software. The EA will be effective on the date executed and will require a firm, three-year commitment.

Based on Esri's work with several organizations similar to yours, we know there is significant potential to apply Geographic Information System (GIS) technology in many operational and technical areas within your organization. For this reason, we believe that your organization will greatly benefit from an Enterprise Agreement (EA).

An EA will provide your organization with numerous benefits including:

- A lower cost per unit for licensed software
- Substantially reduced administrative and procurement expenses
- Complete flexibility to deploy software products when and where needed

The following business terms and conditions will apply:

- All current departments, employees, and in-house contractors of the organization will be eligible to use the software and services included in the EA.
- If your organization wishes to acquire and/or maintain any Esri software during the term of the agreement that is not included in the EA, it may do so separately at the Esri pricing that is generally available for your organization for software and maintenance.
- The organization will establish a single point of contact for orders and deliveries and will be responsible for redistribution to eligible users.
- The organization will establish a Tier 1 support center to field calls from internal users of Esri software. The organization may designate individuals as specified in the EA who may directly contact Esri for Tier 2 technical support.
- The organization will provide an annual report of installed Esri software to Esri.
- Esri software and updates that the organization is licensed to use will be automatically available for downloading.
- The fee and benefits offered in this EA proposal are contingent upon your acceptance of Esri's Small Utility EA terms and conditions.

- Licenses are valid for the term of the EA.

The terms and conditions in this Small Utility EA offer are for utilities with a total meter count which falls under the applicable tier in the Esri EA Small Utility Program. By accepting this offer, you confirm that your organization's meter count falls within this range on the date of signature and that you are therefore eligible for this pricing. If your organization's meter count does not fall within this range, please confirm your current meter count, and Esri will provide a revised quotation.

This program offer is valid for 90 days. To complete the agreement within this time frame, please contact me within the next seven days to work through any questions or concerns you may have.

To expedite your acceptance of this EA offer:

1. Sign and return the EA contract with a Purchase Order or issue a Purchase Order that references this EA Quotation and includes the following statement on the face of the Purchase Order:

   "THIS PURCHASE ORDER IS GOVERNED BY THE TERMS AND CONDITIONS OF THE ESRI SMALL UTILITY EA, AND ADDITIONAL TERMS AND CONDITIONS IN THIS PURCHASE ORDER WILL NOT APPLY."

   Have it signed by an authorized representative of the organization.

2. On the first page of the EA, identify the central point of contact/agreement administrator. The agreement administrator is the party that will be the contact for management of the software, administration issues, and general operations. Information should include name, title (if applicable), address, phone number, and e-mail address.

3. In the purchase order, identify the "Ship to" and "Bill to" information for your organization.

4. Send the purchase order and agreement to the address, email or fax noted below:

   Esri
   Attn: Customer Service SU-EA
   380 New York Street
   Redlands, CA 92373-8100

   e-mail: service@esri.com
   fax documents to: 909-307-3083

I appreciate the opportunity to present you with this proposal, and I believe it will bring great benefits to your organization.

Thank you very much for your consideration.

Best Regards,

Jay Hoffman

Quotation # Q-455248

Date: June 29, 2022

Environmental Systems Research Institute, Inc.
380 New York St
Redlands, CA 92373-8100
Phone: (909) 793-2853 Fax: (909) 307-3049
DUNS Number: 06-313-4175 CAGE Code: 0AMS3

Customer # 122855 Contract # ENTERPRISE AGREEMENT

El Dorado Irrigation District
2890 Mosquito Rd
Placerville, CA 95667-4761

ATTENTION: Timothy Ranstrom
PHONE: (530) 642-4175
EMAIL: transtrom@eid.org

To expedite your order, please attach a copy of this quotation to your purchase order.
Quote is valid from: 6/29/2022 To: 9/27/2022

Material	Qty	Term	Unit Price	Total
168090	1	Year 1	$55,000.00	$55,000.00
Meter Counts 50,001 to 100,000 Small Utility Term Enterprise License Agreement				
168090	1	Year 2	$55,000.00	$55,000.00
Meter Counts 50,001 to 100,000 Small Utility Term Enterprise License Agreement				
168090	1	Year 3	$55,000.00	$55,000.00
Meter Counts 50,001 to 100,000 Small Utility Term Enterprise License Agreement				

Subtotal:	$165,000.00
Sales Tax:	$0.00
Estimated Shipping and Handling (2 Day Delivery):	$0.00
Contract Price Adjust:	$0.00
Total:	$165,000.00

Effective March 1, 2022, the Small Utility Enterprise Agreement will see a 10% price increase on the annual fee of each tier.

Esri may charge a fee to cover expenses related to any customer requirement to use a proprietary vendor management, procurement, or invoice program.

For questions contact:	Email:	Phone:
Jay Hoffman	jhoffman@esri.com	1-800-447-9778 x5675

HOFFMANJ **This offer is limited to the terms and conditions incorporated and attached herein.**

Quotation # Q-455248

Date: June 29, 2022

Environmental Systems Research Institute, Inc.
380 New York St
Redlands, CA 92373-8100
Phone: (909) 793-2853 Fax: (909) 307-3049
DUNS Number: 06-313-4175 CAGE Code: 0AMS3

Customer # 122855 Contract # ENTERPRISE AGREEMENT

El Dorado Irrigation District
2890 Mosquito Rd
Placerville, CA 95667-4761

ATTENTION: Timothy Ranstrom
PHONE: (530) 642-4175
EMAIL: transtrom@eid.org

To expedite your order, please attach a copy of this quotation to your purchase order.
Quote is valid from: 6/29/2022 To: 9/27/2022

If you have made ANY alterations to the line items included in this quote and have chosen to sign the quote to indicate your acceptance, you must fax Esri the signed quote in its entirety in order for the quote to be accepted. You will be contacted by your Customer Service Representative if additional information is required to complete your request.

If your organization is a US Federal, state, or local government agency; an educational facility; or a company that will not pay an invoice without having issued a formal purchase order, a signed quotation will not be accepted unless it is accompanied by your purchase order.

In order to expedite processing, please reference the quotation number and any/all applicable Esri contract number(s) (e.g. MPA, ELA, SmartBuy, GSA, BPA) on your ordering document.

BY SIGNING BELOW, YOU CONFIRM THAT YOU ARE AUTHORIZED TO OBLIGATE FUNDS FOR YOUR ORGANIZATION, AND YOU ARE AUTHORIZING ESRI TO ISSUE AN INVOICE FOR THE ITEMS INCLUDED IN THE ABOVE QUOTE IN THE AMOUNT OF $_____, PLUS SALES TAXES IF APPLICABLE. DO NOT USE THIS FORM IF YOUR ORGANIZATION WILL NOT HONOR AND PAY ESRI'S INVOICE WITHOUT ADDITIONAL AUTHORIZING PAPERWORK.

Please check one of the following:

___ I agree to pay any applicable sales tax.

___ I am tax exempt, please contact me if exempt information is not currently on file with Esri.

_____ _____
Signature of Authorized Representative **Date**

_____
Name (Please Print)

_____
Title

Any estimated sales and/or use tax reflected on this quote has been calculated as of the date of this quotation and is merely provided as a convenience for your organization's budgetary purposes. Esri reserves the right to adjust and collect sales and/or use tax at the actual date of invoicing. If your organization is tax exempt or pays state tax directly, then prior to invoicing, your organization must provide Esri with a copy of a current tax exemption certificate issued by your state's taxing authority for the given jurisdiction.

Esri may charge a fee to cover expenses related to any customer requirement to use a proprietary vendor management, procurement, or invoice program.

For questions contact:	**Email:**	**Phone:**
Jay Hoffman	jhoffman@esri.com	1-800-447-9778 x5675

The items on this quotation are subject to and governed by the terms of this quotation, the most current product specific scope of use document found at https://assets.esri.com/content/dam/esrisites/media/legal/product-specific-terms-of-use/e300.pdf, and your applicable signed agreement with Esri. If no such agreement covers any item quoted, then Esri's standard terms and conditions found at https://go.esri.com/MAPS apply to your purchase of that item. If any item is quoted with a multi-year payment schedule, then unless otherwise stated in this quotation, Customer is required to make all payments without right of cancellation. Third-party data sets included in a quotation as separately licensed items will only be provided and invoiced if Esri is able to provide such data and will be subject to the applicable third-party's terms and conditions. If Esri is unable to provide any such data set, Customer will not be responsible for any further payments for the data set. US Federal government entities and US government prime contractors authorized under FAR 51.1 may purchase under the terms of Esri's GSA Federal Supply Schedule. Supplemental terms and conditions found at https://www.esri.com/en-us/legal/terms/state-supplemental apply to some US state and local government purchases. All terms of this quotation will be incorporated into and become part of any additional agreement regarding Esri's offerings. Acceptance of this quotation is limited to the terms of this quotation. Esri objects to and expressly rejects any different or additional terms contained in any purchase order, offer, or confirmation sent to or to be sent by buyer. Unless prohibited by law, the quotation information is confidential and may not be copied or released other than for the express purpose of system selection and purchase/license. The information may not be given to outside parties or used for any other purpose without consent from Esri. Delivery is FOB Origin for customers located in the USA.

Esri Use Only:
Cust. Name _____
Cust. # _____
PO # _____
Esri Agreement # _____

SMALL ENTERPRISE AGREEMENT
SMALL UTILITY
(E215-3)

This Agreement is by and between the organization identified in the Quotation (**"Customer"**) and **Environmental Systems Research Institute, Inc.** (**"Esri"**).

This Agreement sets forth the terms for Customer's use of Products and incorporates by reference (i) the Quotation and (ii) the Master Agreement. Should there be any conflict between the terms and conditions of the documents that comprise this Agreement, the order of precedence for the documents shall be as follows: (i) the Quotation, (ii) this Agreement, and (iii) the Master Agreement. This Agreement shall be governed by and construed in accordance with the laws of the state in which Customer is located without reference to conflict of laws principles, and the United States of America federal law shall govern in matters of intellectual property. The modifications and additional rights granted in this Agreement apply only to the Products listed in Table A.

Table A
List of Products

Uncapped Quantities

Desktop Software and Extensions (Single Use)
ArcGIS Desktop Advanced
ArcGIS Desktop Standard
ArcGIS Desktop Basic
ArcGIS Desktop Extensions: ArcGIS 3D Analyst, ArcGIS Spatial Analyst, ArcGIS Geostatistical Analyst, ArcGIS Publisher, ArcGIS Network Analyst, ArcGIS Schematics, ArcGIS Workflow Manager, ArcGIS Data Reviewer

Enterprise Software and Extensions
ArcGIS Enterprise and Workgroup (Advanced and Standard)
ArcGIS Monitor
ArcGIS Enterprise Extensions: ArcGIS 3D Analyst, ArcGIS Spatial Analyst, ArcGIS Geostatistical Analyst, ArcGIS Network Analyst, ArcGIS Schematics, ArcGIS Workflow Manager

Enterprise Additional Capability Servers
ArcGIS Image Server

Developer Tools
ArcGIS Engine
ArcGIS Engine Extensions: ArcGIS 3D Analyst, ArcGIS Spatial Analyst, ArcGIS Engine Geodatabase Update, ArcGIS Network Analyst, ArcGIS Schematics
ArcGIS Runtime (Standard)
ArcGIS Runtime Analysis Extension

Limited Quantities
One (1) Professional subscription to ArcGIS Developer
Two (2) ArcGIS CityEngine Single Use Licenses
100 ArcGIS Online Viewers
100 ArcGIS Online Creators
17,500 ArcGIS Online Service Credits
100 ArcGIS Enterprise Creators
10 ArcGIS Insights in ArcGIS Enterprise
10 ArcGIS Insights in ArcGIS Online
50 ArcGIS Tracker for ArcGIS Enterprise
50 ArcGIS Tracker for ArcGIS Online
100 ArcGIS Utility Network User Type Extensions (Enterprise)
1 ArcGIS Business Analyst Web App Standard (Online)

OTHER BENEFITS

Number of Esri User Conference registrations provided annually	**3**
Number of Tier 1 Help Desk individuals authorized to call Esri	**4**
Maximum number of sets of backup media, if requested*	**2**
Five percent (5%) discount on all individual commercially available instructor-led training classes at Esri facilities purchased outside this Agreement	

*Additional sets of backup media may be purchased for a fee

Customer may accept this Agreement by signing and returning the whole Agreement with (i) the Quotation attached, (ii) a purchase order, or (iii) another document that matches the Quotation and references this Agreement ("**Ordering Document**"). **ADDITIONAL OR CONFLICTING TERMS IN CUSTOMER'S PURCHASE ORDER OR OTHER DOCUMENT WILL NOT APPLY, AND THE TERMS OF THIS AGREEMENT WILL GOVERN.** This Agreement is effective as of the date of Esri's receipt of an Ordering Document, unless otherwise agreed to by the parties ("**Effective Date**").

Term of Agreement: Three (3) years

This Agreement supersedes any previous agreements, proposals, presentations, understandings, and arrangements between the parties relating to the licensing of the Products. Except as provided in Article 4—Product Updates, no modifications can be made to this Agreement.

Accepted and Agreed:

_____
(Customer)

By: _____
Authorized Signature

Printed Name: _____

Title: _____

Date: _____

CUSTOMER CONTACT INFORMATION

Contact: _____

Address: _____

City, State, Postal Code: _____

Country: _____

Quotation Number (if applicable): _____

Telephone: _____

Fax: _____

E-mail: _____

1.0—Additional Definitions

In addition to the definitions provided in the Master Agreement, the following definitions apply to this Agreement:

"Case" means a failure of the Software or Online Services to operate according to the Documentation where such failure substantially impacts operational or functional performance.

"Deploy", "Deployed" and "Deployment" mean to redistribute and install the Products and related Authorization Codes within Customer's organization(s).

"Fee" means the fee set forth in the Quotation.

"Maintenance" means Tier 2 Support, Product updates, and Product patches provided to Customer during the Term of Agreement.

"Master Agreement" means the applicable master agreement for Esri Products incorporated by this reference that is (i) found at https://www.esri.com/en-us/legal/terms/full-master-agreement and available in the installation process requiring acceptance by electronic acknowledgment or (ii) a signed Esri master agreement or license agreement that supersedes such electronically acknowledged master agreement.

"Product(s)" means the products identified in Table A—List of Products and any updates to the list Esri provides in writing.

"Quotation" means the offer letter and quotation provided separately to Customer.

"Technical Support" means the technical assistance for attempting resolution of a reported Case through error correction, patches, hot fixes, workarounds, replacement deliveries, or any other type of Product corrections or modifications.

"Tier 1 Help Desk" means Customer's point of contact(s) to provide all Tier 1 Support within Customer's organization(s).

"Tier 1 Support" means the Technical Support provided by the Tier 1 Help Desk.

"Tier 2 Support" means the Esri Technical Support provided to the Tier 1 Help Desk when a Case cannot be resolved through Tier 1 Support.

2.0—Additional Grant of License

2.1 Grant of License. Subject to the terms and conditions of this Agreement, Esri grants to Customer a personal, nonexclusive, nontransferable license solely to use, copy, and Deploy quantities of the Products listed in Table A—List of Products for the Term of Agreement (i) for the applicable Fee and (ii) in accordance with the Master Agreement.

2.2 Consultant Access. Esri grants Customer the right to permit Customer's consultants or contractors to use the Products exclusively for Customer's benefit. Customer will be solely responsible for compliance by consultants and contractors with this Agreement and will ensure that the consultant or contractor discontinues use of Products upon completion of work for Customer. Access to or use of Products by consultants or contractors not exclusively for Customer's benefit is prohibited. Customer may not permit its consultants or contractors to install Software or Data on consultant, contractor, or third-party computers or remove Software or Data from Customer locations, except for the purpose of hosting the Software or Data on Contractor servers for the benefit of Customer.

3.0—Term, Termination, and Expiration

3.1 Term. This Agreement and all licenses hereunder will commence on the Effective Date and continue for the duration identified in the Term of Agreement, unless this Agreement is terminated earlier as provided herein. Customer is only authorized to use Products during the Term of Agreement. For an Agreement with a limited term, Esri does not grant Customer an indefinite or a perpetual license to Products.

3.2 No Use upon Agreement Expiration or Termination. All Product licenses, all Maintenance, and Esri User Conference registrations terminate upon expiration or termination of this Agreement.

3.3 Termination for a Material Breach. Either party may terminate this Agreement for a material breach by the other party. The breaching party will have thirty (30) days from the date of written notice to cure any material breach.

3.4 Termination for Lack of Funds. For an Agreement with government or government-

owned entities, either party may terminate this Agreement before any subsequent year if Customer is unable to secure funding through the legislative or governing body's approval process.

3.5 Follow-on Term. If the parties enter into another agreement substantially similar to this Agreement for an additional term, the effective date of the follow-on agreement will be the day after the expiration date of this Agreement.

4.0—Product Updates

4.1 Future Updates. Esri reserves the right to update the list of Products in Table A—List of Products by providing written notice to Customer. Customer may continue to use all Products that have been Deployed, but support and upgrades for deleted items may not be available. As new Products are incorporated into the standard program, they will be offered to Customer via written notice for incorporation into the Products schedule at no additional charge. Customer's use of new or updated Products requires Customer to adhere to applicable additional or revised terms and conditions in the Master Agreement.

4.2 Product Life Cycle. During the Term of Agreement, some Products may be retired or may no longer be available to Deploy in the identified quantities. Maintenance will be subject to the individual Product Life Cycle Support Status and Product Life Cycle Support Policy, which can be found at https://support.esri.com/en/other-resources/product-life-cycle. Updates for Products in the mature and retired phases may not be available. Customer may continue to use Products already Deployed, but Customer will not be able to Deploy retired Products.

5.0—Maintenance

The Fee includes standard maintenance benefits during the Term of Agreement as specified in the most current applicable Esri Maintenance and Support Program document (found at https://www.esri.com/en-us/legal/terms/maintenance). At Esri's sole discretion, Esri may make patches, hot fixes, or updates available for download. No Software other than the defined Products will receive Maintenance. Customer may acquire maintenance for other Software outside this Agreement.

a. Tier 1 Support

1. Customer will provide Tier 1 Support through the Tier 1 Help Desk to all Customer's authorized users.

2. The Tier 1 Help Desk will be fully trained in the Products.

3. At a minimum, Tier 1 Support will include those activities that assist the user in resolving how-to and operational questions as well as questions on installation and troubleshooting procedures.

4. The Tier 1 Help Desk will be the initial point of contact for all questions and reporting of a Case. The Tier 1 Help Desk will obtain a full description of each reported Case and the system configuration from the user. This may include obtaining any customizations, code samples, or data involved in the Case.

5. If the Tier 1 Help Desk cannot resolve the Case, an authorized Tier 1 Help Desk individual may contact Tier 2 Support. The Tier 1 Help Desk will provide support in such a way as to minimize repeat calls and make solutions to problems available to Customer’s organization.

6. Tier 1 Help Desk individuals are the only individuals authorized to contact Tier 2 Support. Customer may change the Tier 1 Help Desk individuals by written notice to Esri.

b. Tier 2 Support

1. Tier 2 Support will log the calls received from Tier 1 Help Desk.

2. Tier 2 Support will review all information collected by and received from the Tier 1 Help Desk including preliminary documented troubleshooting provided by the Tier 1 Help Desk when Tier 2 Support is required.

3. Tier 2 Support may request that Tier 1 Help Desk individuals provide verification of information, additional information, or answers to additional questions to

supplement any preliminary information gathering or troubleshooting performed by Tier 1 Help Desk.

4. Tier 2 Support will attempt to resolve the Case submitted by Tier 1 Help Desk.

5. When the Case is resolved, Tier 2 Support will communicate the information to Tier 1 Help Desk, and Tier 1 Help Desk will disseminate the resolution to the user(s).

6.0—Endorsement and Publicity

This Agreement will not be construed or interpreted as an exclusive dealings agreement or Customer's endorsement of Products. Either party may publicize the existence of this Agreement.

7.0—Administrative Requirements

7.1 OEM Licenses. Under Esri's OEM or Solution OEM programs, OEM partners are authorized to embed or bundle portions of Esri products and services with their application or service. OEM partners' business model, licensing terms and conditions, and pricing are independent of this Agreement. Customer will not seek any discount from the OEM partner or Esri based on the availability of Products under this Agreement. Customer will not decouple Esri products or services from the OEM partners' application or service.

7.2 Annual Report of Deployments. At each anniversary date and ninety (90) calendar days prior to the expiration of this Agreement, Customer will provide Esri with a written report detailing all Deployments. Upon request, Customer will provide records sufficient to verify the accuracy of the annual report.

8.0—Ordering, Administrative Procedures, Delivery, and Deployment

8.1 Orders, Delivery, and Deployment

a. Upon the Effective Date, Esri will invoice Customer and provide Authorization Codes to activate the nondestructive copy protection program that enables Customer to download, operate, or allow access to the Products. If this is a multi-year Agreement, Esri may invoice the Fee up to thirty (30) calendar days before the annual anniversary date for each year.

b. Undisputed invoices will be due and payable within thirty (30) calendar days from the date of invoice. Esri reserves the right to suspend Customer's access to and use of Products if Customer fails to pay any undisputed amount owed on or before its due date. Esri may charge Customer interest at a monthly rate equal to the lesser of one percent (1.0%) per month or the maximum rate permitted by applicable law on any overdue fees plus all expenses of collection for any overdue balance that remains unpaid ten (10) days after Esri has notified Customer of the past-due balance.

c. Esri's federal ID number is 95-2775-732.

d. If requested, Esri will ship backup media to the ship-to address identified on the Ordering Document, FOB Destination, with shipping charges prepaid. Customer acknowledges that should sales or use taxes become due as a result of any shipments of tangible media, Esri has a right to invoice and Customer will pay any such sales or use tax associated with the receipt of tangible media.

8.2 Order Requirements. Esri does not require Customer to issue a purchase order. Customer may submit a purchase order in accordance with its own process requirements, provided that if Customer issues a purchase order, Customer will submit its initial purchase order on the Effective Date. If this is a multi-year Agreement, Customer will submit subsequent purchase orders to Esri at least thirty (30) calendar days before the annual anniversary date for each year.

a. All orders pertaining to this Agreement will be processed through Customer's centralized point of contact.

b. The following information will be included in each Ordering Document:

(1) Customer name; Esri customer number, if known; and bill-to and ship-to addresses
(2) Order number
(3) Applicable annual payment due

9.0—MERGERS, ACQUISITIONS, OR DIVESTITURES

If Customer is a commercial entity, Customer will notify Esri in writing in the event of (i) a consolidation, merger, or reorganization of Customer with or into another corporation or entity; (ii) Customer's acquisition of another entity; or (iii) a transfer or sale of all or part of Customer's organization (subsections i, ii, and iii, collectively referred to as "**Ownership Change**"). There will be no decrease in Fee as a result of any Ownership Change.

9.1 If an Ownership Change increases the cumulative program count beyond the maximum level for this Agreement, Esri reserves the right to increase the Fee or terminate this Agreement and the parties will negotiate a new agreement.

9.2 If an Ownership Change results in transfer or sale of a portion of Customer's organization, that portion of Customer's organization will transfer the Products to Customer or uninstall, remove, and destroy all copies of the Products.

9.3 This Agreement may not be assigned to a successor entity as a result of an Ownership Change unless approved by Esri in writing in advance. If the assignment to the new entity is not approved, Customer will require any successor entity to uninstall, remove, and destroy the Products. This Agreement will terminate upon such Ownership Change.

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider adopting a resolution documenting annexation of assessor parcel number 092-060-055 into the El Dorado Irrigation District.

PREVIOUS BOARD ACTION

January 25, 2021 – Board approved an out-of-District water service agreement for the existing residence at accessor parcel number (APN) 092-060-055 due to documented health and safety concerns, and authorized the General Manager or his designee to apply for El Dorado Local Agency Formation Commission approval.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

BP 9030 Annexation of Land to the District
AR 9031 Application for Annexation
AR 9032 Recording of Annexation

SUMMARY OF ISSUE

The Board previously approved an out-of-District service agreement for the subject parcel in response to health and safety concerns, which required the owners to complete the annexation process. The El Dorado Local Agency Formation Commission (LAFCO) and State Board of Equalization (BOE) have approved the annexation of this parcel into the District's service area (Attachment B). To document the completion of the annexation process, staff recommends that the Board adopt a resolution documenting this annexation (Attachment C).

BACKGROUND/DISCUSSION

On January 25, 2021, the Board approved an out-of-District service agreement for this parcel due to documented health and safety concerns while owners pursued annexation through LAFCO. The subject property is a single 0.83 acre parcel, APN 092-060-055. As shown on Attachment A, the parcel is located off China Hill Road, in the town of El Dorado.
This property is currently served by a 3/4-inch meter for residential use. Sewer service was not requested nor available.

As a condition of the out-of-service agreement, the property owners were required to complete the annexation process through LAFCO. Both LAFCO and BOE have approved the annexation and the parcel is now annexed into the District's service area. With completion of the annexation process, staff recommends that the Board adopt a resolution documenting this annexation (Attachment C) to allow staff to make the necessary updates to the District's service area map and related records.

In connection with the Board's January 25, 2021 action to approve the out-of-District service agreement and the installation of a new service line to this parcel, the District filed a Notice of Exemption pursuant to the California Environmental Quality Act (CEQA). No further CEQA action is required by the District.

Annexation Conditions

As an annexed parcel, the following conditions apply to the property:

- The property is eligible for water service at normal District rates
- The property tax share will be 2.6667%
- The annexed lands will be assigned to the current District Board Division 2

BOARD OPTIONS

Option 1: Adopt a resolution documenting annexation of assessor parcel number 092-060-055 into the El Dorado Irrigation District.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1

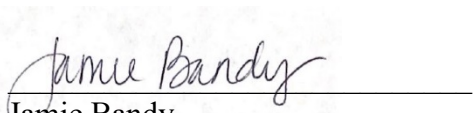
ATTACHMENTS

Attachment A: System Map
Attachment B: LAFCO and BOE Approval Letter
Attachment C: Proposed Resolution Documenting Annexation

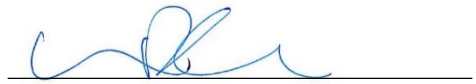
Mike Brink
Supervising Civil Engineer

Brian Deason
Environmental Resources Supervisor

Brian Mueller
Engineering Director



Jamie Bandy
Finance Director

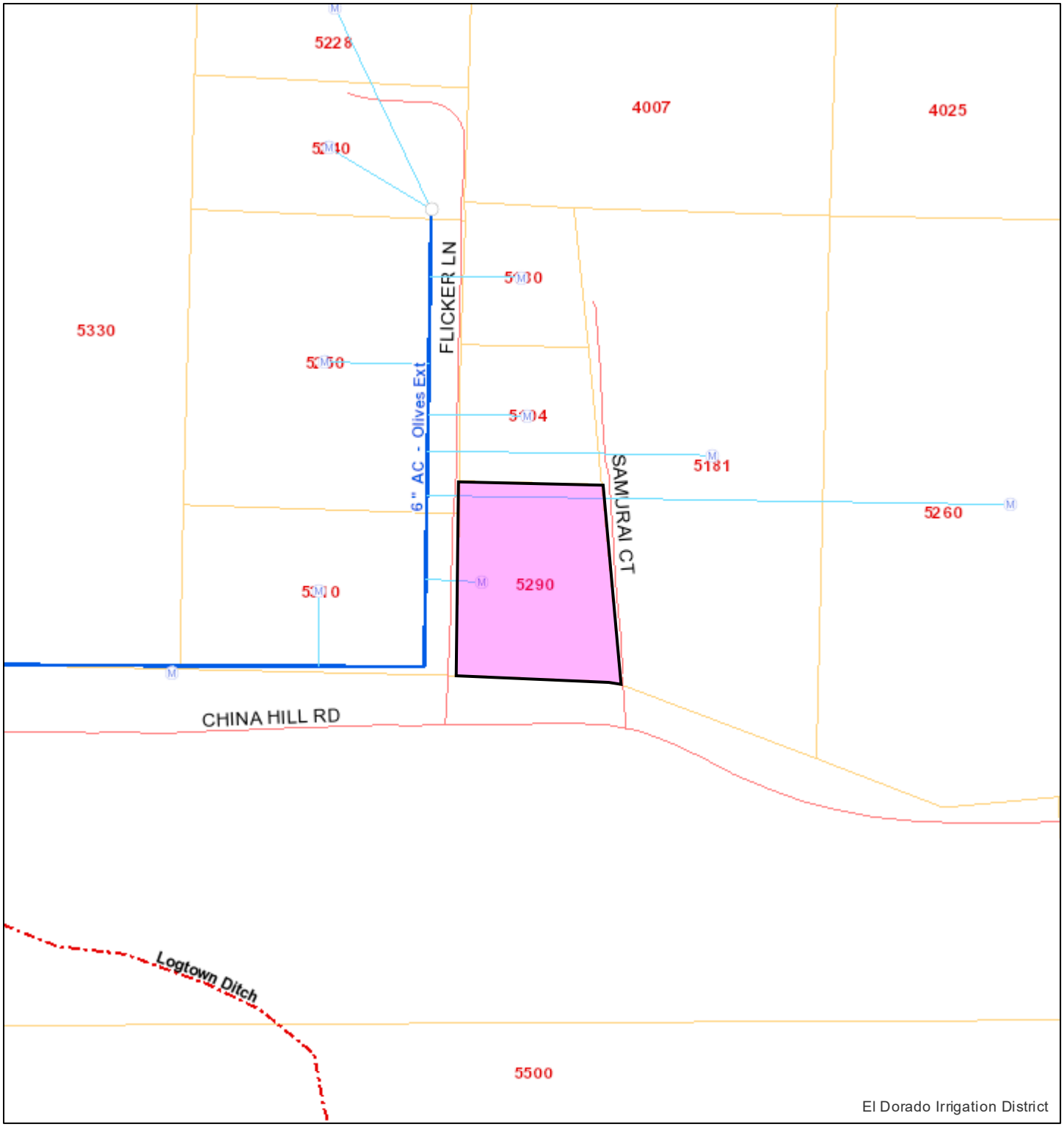


Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

Attachment A

Pacileo Annexation



Date: *August 22, 2022*

Project: *Pacileo Annexation*

APN: 092-060-055

Scale: NTS

Author: Web AppBuilder for ArcGIS
Print date: August 8, 2022

WARNING: No accuracy of map implied until field checked by EID. Exact pipe locations must be field verified.

LOCAL AGENCY FORMATION COMMISSION
550 Main Street, Suite E. Placerville, CA 95667
(530) 295-2707 · lafco@edlafco.us · www.edlafco.us

M E M O

VIA EMAIL

DATE: July 18, 2022

TO: Richard and Virginia Pacileo

CC: El Dorado Irrigation District
El Dorado County Assessor
El Dorado County Auditor
El Dorado Elections

FROM: Erica Sanchez, Interim Executive Office

SUBJECT: Pacileo Annexation into the El Dorado Irrigation District
LAFCO Project No. 2021-03

In case you have not received a copy, I have enclosed the State Board of Equalization's Final Acknowledgement for the Pacileo Annexation into the El Dorado Irrigation District, per Government Code §54902.

Enclosure (1)

STATE OF CALIFORNIA

STATE BOARD OF EQUALIZATION
PROPERTY TAX DEPARTMENT
TAX AREA SERVICES SECTION, MIC: 59
450 N STREET, SACRAMENTO, CALIFORNIA
PO BOX 942879, SACRAMENTO CALIFORNIA, 94279-0059
1-916-274-3250, FAX 1-916-285-0130
www.boe.ca.gov
TASS@boe.ca.gov

Erica Sanchez, Interim Executive Officer
El Dorado County LAFCo
550 Main St., Suite E
Placerville, CA 95667

This is to acknowledge receipt of the statement(s) required by Section 54900, et seq., of the Government Code for the action described below. Copies of your documents will be forwarded by us to other agencies. You are required by Section 54902 of the Government Code to file a complete set of documents, except for the processing fee, with the County Assessor and Auditor affected by this action.

Tax rate area boundaries and property tax allocations will become effective for the assesment roll indicated below.

BOE File No.: **2023-001**
Received at BOE: **07/11/2022**
Date of Acknowledgment: **07/13/2022**
Distribution: **1**

Assessment Roll: **2023/24**

County: **09 El Dorado**

District: **35 [0071] IRRIGATION - EL DORADO JT(09,34)**
Conducting Authority: **WAIVED**
Short Title: **PACILIEO ANNEX INTO THE EL DORADO IRRIGATION DIST**

Type of Action: **01 District - Annexation**
Resolution/Ord. No.:
LAFCo Res. No.: **L-2022-04**
Effective Date: **07/13/2022**
Fee: **$300.00**
Acreage: **0.83**

City Boundary Change
Estimated Population: **0**

Total assessed value of all property in subject territory: **0**

Ric Schwarting

Ric Schwarting
Research Manager (GIS)
State-Assessed Properties Division
Tax Area Services Section

cc: County Assessor, County Auditor

acknowledge1.fr3

Resolution No. 2022-

RESOLUTION OF THE BOARD OF DIRECTORS OF EL DORADO IRRIGATION DISTRICT DOCUMENTING ANNEXATION RICHARD AND VIRGINIA PACILEO ANNEXATION PARCEL NO. 092-060-055

WHEREAS, this request is related to an annexation of lands to the EL DORADO IRRIGATION DISTRICT, namely the following annexation: Richard and Virginia Pacileo, APN 092-060-055.

WHEREAS, El Dorado County Local Agency Formation Commission (LAFCO) and State Board of Equalization have approved the annexation.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of EL DORADO IRRIGATION DISTRICT that the District's service area map and related records will be updated to document completion of this annexation, subject to the following terms and conditions:

1. Assessor's parcel number 092-060-055 will be subject to all taxes and assessments that lands now within the District are subject to.
2. The tax increment provided to EL DORADO IRRIGATION DISTRICT is 2.6667% as approved and accepted by the District General Manager on September 13, 2021.
3. The annexed lands will be assigned to the current District Board Division 2.
4. Annexation of the land to the District provides that potential for drinking water, but does not guarantee that these services will be available.

BE IT FURTHER RESOLVED that the Clerk to the Board is hereby authorized and directed to transmit notice of this resolution to the EL DORADO COUNTY LOCAL AGENCY FORMATION COMMISSION.

The foregoing Resolution was introduced at a regular meeting of the Board of Directors of the EL DORADO IRRIGATION DISTRICT, held on the 22th day of August, 2022, by Director , who moved its adoption. The motion was seconded by Director , and a poll vote taken which stood as follows:

AYES:

NOES:

ABSENT:

ABSTAIN:

The motion having a majority of votes "Aye", the resolution was declared to have been adopted, and it was so ordered.

_____
Lori Anzini, President
Board of Directors
EL DORADO IRRIGATION DISTRICT

ATTEST:

_____
Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

(SEAL)

I, the undersigned, Clerk to the Board of the EL DORADO IRRIGATION DISTRICT hereby certify that the foregoing resolution is a full, true and correct copy of a Resolution of the Board of Directors of the EL DORADO IRRIGATION DISTRICT entered into and adopted at a regular meeting of the Board of Directors held on the 22th day of August, 2022.

_____
Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider authorizing funding in the not-to-exceed amount of $1,139,726 for the purchase of two Vactor 2100i combination sewer cleaner/vacuum trucks for the 2022 Vehicle Replacement Program Project, Project No. 22003.

PREVIOUS BOARD ACTION

November 8, 2021 – Board adopted the 2022-2026 CIP, subject to available funding.

July 25, 2022 – Board awarded a contract to Owen Equipment in the not-to-exceed amount of $1,139,726 for the purchase of two Vactor 2100i combination sewer cleaner vacuum trucks.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

BP 3010 Budget

SUMMARY OF ISSUE

Board approval is required to authorize Capital Improvement Plan (CIP) funding for the purchase of the vehicles.

BACKGROUND/DISCUSSION

Staff inadvertently neglected to request additional funding to Project 22003, 2022 Vehicle Replacement Program CIP when the Board awarded the contract to purchase two Vactor 2100i combination sewer cleaner/vacuum trucks from Owen Equipment during the July 25, 2022 Board meeting. Therefore, this agenda item requests authorizing the CIP funding for the purchase of those vehicles. While there is adequate funding currently in the 2022 Vehicle Replacement Program CIP due to the long-lead time of some equipment purchased by the Board earlier this year (e.g., dump trucks), existing funding has been encumbered toward the prior purchases and additional funding will ultimately be needed once all ordered equipment arrives. Therefore, staff requests funding for the CIP project identified in Table 1. The expenditures to date, including encumbrances, amount of new funding requested, and the funding source are listed.

Table 1
CIP Funding Request

Project Name and Number	2022-2026 CIP Plan[1]	Funded to Date	Actual Costs to date[2]	Amount Requested	Funding Source
2022 Vehicle Replacement Program 22003	**$8,286,000**	**$2,946,280**	**$2,828,702**	**$1,139,726**	**100% Wastewater rates**
TOTAL FUNDING REQUEST				**$1,139,726**	

[1] Includes all existing costs plus any expected costs in the 5-year CIP.
[2] Actual costs include encumbrances.

The following section contains a brief breakdown and description of the project in Table 1.

CIP Funding Request

Project No.	22003	**Board Date**	08/22/2022
Project Name	22003 Vehicle Replacment Program		
Project Manager	Royal/Crane		

Budget Status	**$**	**%**
Funded to date	$2,946,280	
Spent to date	$2,828,702	96%
Current Remaining	$117,578	

Funding Request Breakdown	**$**
Purchase of 2 Vactor Trucks	$1,139,726
Total	$1,139,726

Funding Source
100% Wastewater rates

Description
Combination sewer cleaner/vacuum trucks are highly specialized vehicles used by the collections staff on a daily basis for routine sewer line cleaning, emergency response and lift station maintenance. Two of these trucks are at the end of their lifecycle and should be considered for replacement. Over the past couple of years, Fleet staff has seen a significant increase in equipment failure causing a hardship to the collections maintenance crews due to the lengthy downtimes during repairs. In addition to the frequent equipment failures, replacement parts are becoming increasingly difficult to procure due to the excessive age and obsolescence of the current equipment.

BOARD OPTIONS

Option 1: Authorize funding in the not-to-exceed amount of $1,139,726 for the purchase of two Vactor 2100i combination sewer cleaner/vacuum trucks for the 2022 Vehicle Replacement Program Project, Project No. 22003.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1

ATTACHMENTS

Attachment A: CIP Summary

Tracy Crane
Wastewater/Recycled Water Manager

Dawn Noceti
Accountant

Greg Royal
Fleet Supervisor

Dan Corcoran
Operation Director

Jamie Bandy
Finance Director

Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

2022 CAPITAL IMPROVEMENT PLAN **Program:** **General District**

Project Number: **Planned**

Project Name: **Vehicle Replacement**

Project Category: **Reliability & Service Level Improvements**

Priority: **2** **PM:** **Warden** **Board Approval:** **11/08/21**

Project Description:

The following vehicle replacements are planned for 2022 - 2026. (2021 annual purchase delayed and consolidated with 2022)

2022: 7-1/2 ton 4X4 pickups, 5-1/2 ton 4X2 pickups, 3-4X4 SUV's, 2-1 ton 4X4 service truck, 2-1 1/2 ton 4X4 service truck with crane, 1-1 1/2 ton 4X4 service truck with power unit, 1-4 thousand gal water truck, 1- 1 ton water valve truck, 1- snow cat, 3-used 6-7 yard dump trucks, 2- 1 1/2 ton 4X4 service truck, 1- compact excavator, 1 vactor truck, 2- 4X4 quad runners.
2023: 4-1/2 ton 4X4 pickups, 3-used 6-7 yard dump trucks,1-used 10 yard dump truck, 1-used transfer truck, 1- 1 1/2 ton 4X4 service truck, 1-1 ton 4X4 service truck.
2024: 5-1/2 ton 4X4 pickups, 5-1 ton 4X4 service trucks, 1- vacuum pumper truck 52,000 lb, 1- 1 1/2 ton 4X4 service truck, 1-4X4 SUV's.
2025: 1- 410 4X4 backhoe, 1- 21' boat, 4 4X4 SUV's, 1- vacuum pumper truck 52,000 lb, 3- 1/2 ton 4X4 pickups, 1-1 1/2 ton 4X4 service truck with power unit, 2- 1 ton 4X4 service truck, 1- 3/4 ton 4X4 pickup, 1- 1 1/2 ton 4X4 flat bed, 1- vacuum excavation trailer.
2026: 3/4 ton flat bed 4x4, 1 jeep 4x4, 2 sedans, 3-4x4 SUVs, 4-1 ton 4x4 utility truck, 3/4 ton 2x4 utility truck, 1 ton flat bed 4x4, 1 ton utility truck, 7-1/2 ton 4X4 pickups, 5-1/2 ton 4X2 pickups.

Basis for Priority:

Enhances District assets through life-cycle replacement of existing vehicles.

Project Financial Summary:			
Funded to Date:		**Expenditures through end of year:**	**$ -**
Spent to Date:	**$ -**	**2022 - 2026 Planned Expenditures:**	**$ 8,286,000**
Cash flow through end of year:	**$ -**	**Total Project Estimate:**	**$ 8,286,000**
Project Balance	**$ -**	**Additional Funding Required**	**$ 8,286,000**

Description of Work	**Estimated Annual Expenditures**					
	2022	**2023**	**2024**	**2025**	**2026**	**Total**
Vehicles/Equipment	**$ 2,856,000**	**$ 1,343,000**	**$ 882,000**	**$ 1,365,000**	**$ 1,840,000**	**$ 8,286,000**
						$ -
TOTAL	**$ 2,856,000**	**$ 1,343,000**	**$ 882,000**	**$ 1,365,000**	**$ 1,840,000**	**$ 8,286,000**

Estimated Funding Sources	**Percentage**	**2022 Amount**
Water Rates	60%	$1,713,600
Wastewater Rates	40%	$1,142,400
		$0
Total	**100%**	**$2,856,000**

Funding Comments: Funding sources will be based on each vehicle cost center (water or wastewater)

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider ratifying EID General Warrant Registers for the periods ending August 2 and August 9, 2022, and Employee Expense Reimbursements for these periods.

PREVIOUS BOARD ACTION

The Board ratifies the District's General Warrant Registers at each regular meeting of the Board.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

Section 24600 of the Water Code provides that no claim shall be paid unless allowed by the Board.

SUMMARY OF ISSUE

District staff notifies the Board of proposed payments via email and requests ratification of the warrant registers at the subsequent regular meeting of the Board. Copies of the Warrant Registers are sent to the Board on the Friday preceding the Warrant Register's date. If no comment or request to withhold payment is received from any Director prior to the following Tuesday morning, the warrants are mailed out and formal ratification of said warrants is agendized on the next regular Board agenda.

BACKGROUND/DISCUSSION

Current Warrant Register Information

Warrants are prepared by Accounts Payable; reviewed and approved by the Finance Manager, the Director of Finance and the General Manager or their designee.

Register Date	Check Numbers	Amount
August 2, 2022	698715 – 698848	$1,761,986.52
August 9, 2022	698849 – 698909	$1,984,444.96

Current Employee Expense Reimbursements

Employee Expenses and Reimbursements have been reviewed and approved by the Finance Manager and General Manager prior to the warrants being released. These expenses and reimbursements are for activities performed in the interest of the District in accordance with Board Policy 12065 and Resolution No. 2007-059.

Additional information regarding Board and employee expense reimbursements is available for copying or public inspection at District headquarters in compliance with Government Code Section 53065.5.

BOARD OPTIONS

Option 1: Ratify the EID General Warrant Registers and Employee Expense Reimbursements as submitted.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1

ATTACHMENTS

Attachment A: Executive Summaries
Attachment B: Employee Expense Reimbursements totaling $100 or more

Tony Pasquarello
Finance Manager

Jamie Bandy
Finance Director

Jennifer Sullivan
Clerk to the Board

Jim Abercrombie
General Manager

Attachment A

July 28, 2022

To: Jim Abercrombie, General Manager

From: Tony Pasquarello, Finance Manager

Via: Jamie Bandy, Director of Finance

RE: Warrant Register Executive Summary Approval

Attached is the summary for August 2, 2022 for your review and approval.

Executive Summary for August 2, 2022 -- $1,761,986.52:

This summary highlights significant disbursements made by major business activity:

Development Services (Fund 105) – none to report

General District Operations (Fund 110)

- $3,498—Amazon Business for a desktop computer, a security camera, miscellaneous office supplies and an Amazon Prime subscription
- $9,039—AT&T for internet and phone service
- $43,773—Hunt & Sons, Inc. for card lock fuel and fuel deliveries at various locations
- $9,500—Reeb Government Relations, LLC for August 2022 retainer

Engineering Operations (Fund 210)

- $69,658—El Dorado County Auditor-Controller for 2022-2023 LAFCO fees

Water Operations (Fund 310)

- $15,491—Hiebert Commercial Services for the installation of two roof-mounted cooling units
- $18,926—MCS Inspection for coating inspection services at Reservoirs 2 and 2A
- $50,963—Sterling Water Technologies, LLC for flocculant at Reservoir A
- $3,454—Trench Plate Rental for K-rail and trench plate equipment rentals

Wastewater Operations (Fund 410)

- $5,938—B&M Builders, Inc. for concrete remediation service
- $73,279—Celadon Holdco, LLC for solar electric service at EDHWWTP and DCWWTP
- $4,048—Holt of California for a motor grader rental
- $36,713—Lime Rock Valley, LLC for annual road access fee for DCWWTP
- $4,057—Municipal Maintenance Equipment, Inc. for pump repair parts and labor and other miscellaneous repair and maintenance supplies
- $5,088—Statewide Traffic & Safety Signs, Inc. for traffic control services

Recycled Water Operations (Fund 510) – none to report

Hydroelectric Operations (Fund 610)

- $30,570—Federal Energy Regulatory Commission for annual hydropower charges
- $5,141—Watershed, LLC for 20 custom rain jackets

Recreation Operations (Fund 710)

- $18,605—Blue Ribbon Personnel Services for temporary labor at Sly Park Recreation
- $13,254—Landmark Environmental, Inc. for forest management consulting services
- $3,183—North Star Electric for the installation of an electric box and a radio charger circuit

Capital Improvement Projects (Construction Funds 140, 340, 440, 540, 640 and 740)

- $40,149—B&M Builders, Inc. for concrete remediation service – Water Service Line Replacement (Project #22002.01)
- $5,158—BT Consulting, Inc. for inspection and monitoring services:
  >Project #21047.01 – Flume 4 Replacement ($825)
  >Project #21048.01 – Flume 5 Replacement ($375)
  >Project #21049.01 – Flume 6 Replacement ($300)
  >Project #17041.01 – Flume 30 Rehabilitation Project ($1,583)
  >Project #15024.01 – Folsom Lake Intake Improvement ($850)
  >Project #11032.01 – Main Ditch-Forebay to Reservoir ($1,225)
- $34,483—Carollo Engineers, Inc. for construction management services:
  >Project #STUDY10.01 – Flume 4 Replacement ($7,668)
  >Project #15024.01 – Folsom Lake Intake Improvement ($26,815)
- $19,445—Domenichelli and Associates, Inc. for engineering design and inspection services:
  >Project #19008.01 – EDM 1 Relocate/Camino Safety ($11,640)
  >Project #11032.01 – Main Ditch-Forebay to Reservoir 1 ($7,805)
- $51,312—GHD, Inc. for engineering and design services – Wastewater Collection Facility Relocation (Project #17034.01)
- $23,330—ICM Group, Inc. for construction management and inspection services – Wastewater Collection Facility Relocation (Project #17034.01)
- $10,254—North Star Electric for a data cabinet installation at EDHWTP – Wide Area Network Upgrade (Project #18044.01)
- $23,000—Raftelis for consulting services – Hansen 7 Software Replacement (Project #18055.01)
- $1,061,453—Syblon Reid for construction services ($1,117,319):
  >Project #17041.01 – Flume 4 Replacement ($817,185). Retention held $40,859
  >Project #17041.02 – Flume 5 Replacement ($300,134). Retention held $15,007

August 4, 2022

To: Jim Abercrombie, General Manager

From: Tony Pasquarello, Finance Manager

Via: Jamie Bandy, Director of Finance

RE: Warrant Register Executive Summary Approval

Attached is the summary for August 9, 2022 for your review and approval.

Executive Summary for August 9, 2022 -- $1,984,444.96:

This summary highlights significant disbursements made by major business activity:

Development Services (Fund 105) – none to report

General District Operations (Fund 110)

- $19,527—Aqua Metric Sales Company for warehouse inventory
- $4,699—Archerhall, LLC for microfilm scanning services for microfiche conversion project
- $67,367—Association of CA Water Agencies/JPIA for second quarter worker's compensation insurance premium
- $41,272—Banner Bank for retention held for Steve P. Rados, Inc.
- $4,985—C & H Motor Parts, Inc. for miscellaneous vehicle maintenance supplies
- $4,356—Diepenbrock Elkin LLP for outside legal services
- $27,855—Hunt & Sons, Inc. for card lock fuel and fuel deliveries at various locations
- $10,345—Iconix Waterworks (US), Inc. for warehouse inventory
- $5,122—McClatchy Company, LLC for legal advertising and recruitment
- $19,970—Pace Supply Corporation for warehouse inventory
- $3,049—Sierra Nevada Tire and Wheel for tires and service calls
- $24,980—Underground Service Alert for annual membership fees

Engineering Operations (Fund 210)

- $5,439—Archerhall, LLC for microfilm scanning services for microfiche conversion project
- $4,400—Precise MRM, LLC for GPS software maintenance

Water Operations (Fund 310)

- $3,514—Grainger for an air compressor, a full face respirator and two faucet connectors
- $3,632—Olin Chlor Alkali Products for sodium hypochlorite at EDHWTP
- $25,211—PG&E for electric service
- $4,787—Ryan Herco Products Corp. for braided tubing
- $16,221—Sterling Water Technologies, LLC for flocculant at Reservoir A and Forebay Reservoir
- $31,185—Univar Solutions USA, Inc. for sodium hydroxide and sodium hypochlorite at Reservoir A and EDHWTP

Wastewater Operations (Fund 410)

- $5,483—CLS Labs for regulatory lab testing at DCWWTP and EDHWWTP
- $5,827—Ferguson Enterprises, LLC for oversized couplers for pipeline repairs
- $16,302—PG&E for electric service
- $45,477—Synagro West, LLC for sludge hauling and disposal at EDHWWTP and DCWWTP
- $3,649—Univar Solutions USA, Inc. for sodium hydroxide at DCWWTP
- $11,196—USP Technologies for facility maintenance and sulfelox for odor control
- $4,010—Vega Americas, Inc. for flow measurement sensors, controllers and display units
- $7,086—Watson Marlow, Inc. for pump element and hose lubricant

Recycled Water Operations (Fund 510)

- $3,898—Olin Chlor Alkali Products for sodium hypochlorite at DCWWTP
- $7,658—Univar Solutions USA, Inc. for sodium hypochlorite at EDHWWTP

Hydroelectric Operations (Fund 610)

- $7,850—A & P Helicopters, Inc. for helicopter services
- $3,071—Flo-Line Technology for pump repair supplies and services
- $10,425—Kestrel Power Engineering, LLC for a performance analysis of two hydroelectric generators

Recreation Operations (Fund 710)

- $14,769—El Dorado Disposal Service, Inc. for trash disposal

Capital Improvement Projects (Construction Funds 140, 340, 440, 540, 640 and 740)

- $82,246—Clyde G. Steagall, Inc. for construction services ($86,575) – Camino Intertie Pressure Reducing Station #1 (Project #20016.01). Retention held $4,329
- $30,046—Domenichelli and Associates, Inc. for engineering design services:
  >Project #21026.01 – St. Andrews Lift Station Upgrades ($7,923)
  >Project #18003.01 – Indian Creek C ($22,123)
- $13,257—GEI Consultants, Inc. for environmental studies and survey services:
  >Project #21016.01 – Penstock Stabilization ($7,472)
  >Project #21013.01 – Flumes 45A, 46A, 47A, and 47B Replacement ($5,785)
- $7,373—Hastie's Capitol Sand and Gravel Company for rock deliveries – Water Service Line Replacement (Project #22002.01)
- $121,397—Kyocera Document Solutions Northern California, Inc. for the replacement and installation of 11 District copiers and one wide-format printer for the Engineering Department:
  >Project #22013.01 – Managed Print Devices ($96,963)
  >Project #22023.01 – Wide Format Printer Replacement ($24,434)
- $36,916—MCK Americas, Inc. for construction management and inspection services – Main Ditch-Forebay to Reservoir 1 (Project #11032.01)
- $11,265—MWCH Construction, LLC for power and plumbing services and the installation of a concrete pad and a trench for propane and power – Woodside Pump Station Generator (Project #18048.09)
- $313,358—Quantum Resolve, Inc. for consulting services – Hansen 7 Software Replacement (Project #18055.01)
- $784,165—Steve P. Rados, Inc. for construction services ($825,436) – Main Ditch-Forebay to Reservoir 1 (Project #11032.01). Retention held $41,271
- $4,990—Water Works Engineers, LLC for consulting services – Green Valley Sewer Study (Project #STUDY21.01)

Attachment B

Employee Expense Reimbursements
Warrant Registers dated 08/02/22 - 08/09/22

EMPLOYEE	DESCRIPTION	AMOUNT
Aaron Dinsdale	Notary Association Training Seminar	$878.43
Jan Wolf	ESRI Conference	$1,092.92
Noel Russell	AWWA Conference	$353.96
Elizabeth Dawson	FERC Training	$101.48
		$2,426.79

498.9450763

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider ratifying Resolution No. 2022-019 to maintain the drought emergency and the Stage 1 Water Alert requesting up to 15 percent voluntary conservation, and authorize the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers if and when necessary.

PREVIOUS BOARD ACTION

June 14, 2021 – Board adopted the 2021 Drought Action Plan.

June 28, 2021 – Board adopted a resolution declaring a drought emergency and a Stage 1 Water Alert District-wide, and authorized the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers when necessary.

July 26, 2021 – Board ratified Resolution No. 2021-009 to maintain the drought emergency and ratified the General Manager's declaration of a Stage 4 Water Emergency for Outingdale customers.

October 25, 2021 – Board ratified Resolution No. 2021-009 to maintain a drought emergency and declared a return to Stage 1 Water Alert for Outingdale customers.

At every regular Board meeting since the Board adopted Resolution No. 2021-009, the Board ratified Resolution 2021-009 until it adopted Resolution No. 2022-019.

May 23, 2022 – Board adopted Resolution No. 2022-019 renewing and updating the drought emergency declaration and reaffirming a Stage 1 Water Alert requesting up to 15 percent voluntary conservation.

At every regular Board meeting since its adoption the Board has ratified Resolution No. 2022-019.

July 25, 2022 – Board awarded a contract to El Dorado Water and Shower in the not-to-exceed amount of $194,590 for potable water hauling to the Outingdale Water System.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR), AND BOARD AUTHORITY

BP 5010 Water Supply Management
BP 5030 Water Conservation
BP 5040 Drought Preparedness and Climate Variability

SUMMARY OF ISSUE

As the summer progresses, streamflow within the Middle Fork Cosumnes River continues to slowly decline. In the near future, and perhaps prior to the next Board meeting, it may become necessary the initiate hauling of potable drinking water from the District's contiguous water system to maintain public health and safety levels of water supplies to customers within the Outingdale community. When that occurs, a Stage 4 Water Emergency for the Outingdale water system would be necessary. Since the Board is not scheduled to convene again until September 26, 2022, staff requests that the Board authorize the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for the Outingdale water system if and when necessary.

BACKGROUND/DISCUSSION

On March 28, 2022, Governor Newsom issued Executive Order N-7-22, which ordered the State Water Resources Control Board (SWRCB), by May 25, 2022, to consider adopting emergency regulations for urban water conservation that would require each urban water supplier to implement, at a minimum, water shortage response actions for a shortage level of up to 20 percent (Level 2). On May 24, 2022, the SWRCB adopted an emergency regulation to implement the Governor's directives. The regulations require each urban water supplier to implement, at a minimum, the demand reduction actions identified in the supplier's water shortage contingency plan for a shortage level of 10 to 20 percent.

The District's Stage 1 voluntary actions requesting 15 percent conservation, which have been in effect since June of 2021, are consistent with these new regulations. Therefore, on May 23, 2022, the Board adopted Resolution No. 2022-019 to renew and update the Board's declared drought emergency, and to maintain the Stage 1 Water Alert to ensure compliance with the SWRCB's emergency regulations. To comply with the regulations, the District must continue its Stage 1 Water Alert. The District has taken the following actions pursuant to its Stage 1 Water Alert and the SWRCB emergency regulations:

- On May 23, 2022, the Board adopted Resolution No. 2022-019 to renew and update the drought emergency declaration and reaffirmed the Stage 1 Water Alert requesting up to 15 percent voluntary conservation.

- Staff prepared a preliminary annual water supply and demand assessment and submitted the assessment to the SWRCB by June 1, 2022. The report shows the District has adequate water supply to meet expected demand through June 2023. A final assessment was submitted by July 1, 2022.

- On June 9, 2022, staff sent a letter to our Commercial, Industrial and Institutional customers informing them of the new regulation and the associated prohibition on irrigation of non-functional turf.

In addition, due to the ongoing drought conditions, the SWRCB is curtailing water rights based on the water right priority date, informing water right holders that water is not available for particular water rights. The SWRCB has now curtailed all of the District's consumptive water rights, including the District water right that serves the Outingdale community, the direct diversion and storage rights at Jenkinson Lake, and the direct diversion and storage rights from Project 184. Fortunately, the District has sufficient water in storage to meet projected customer demands and other authorized uses during the remainder of 2022.

For Jenkinson Lake specifically, the curtailment of rights is not expected to have an effect on the overall storage in Jenkinson Lake because the licensed season of diversion to storage ended July 1 and inflows remain equal to or less than minimum outflows to Park Creek. Similarly, the curtailment of Project 184 supplies simply requires the District to transition to relying on water previously diverted and currently in storage to meet consumptive needs at both Reservoir 1 Water Treatment Plant and El Dorado Hills Water Treatment Plant (via Permit 21112). The District is also utilizing any remaining water in storage, as well as any direct diversion, for non-consumptive purposes to generate hydroelectric power.

The SWRCB's curtailment of the District's pre-1914 ditch rights would have required the District to cease deliveries to ditch customers on the North Fork Cosumnes River and Camp Creek ditch system. However, five days later, the SWRCB posted notice that the District was

able to resume diversions. It appears the SWRCB may implement multiple additional changes regarding availability of this water source for our customers, and the District's ability to continue to supply the ditch with water is subject to future curtailments. Each affected customer has been personally notified of the state's curtailment actions and resultant effects on the irrigation season.

Overall, curtailments of the District's water rights have had minimal impact on the District's overall water supply and operations. Given this evaluation, and in light of the SWRCB's emergency regulations, District staff requests that the Board ratify Resolution No. 2022-019 to maintain a drought emergency and the existing Stage 1 Water Alert, requesting up to 15 percent customer conservation.

Stage 4 Water Emergency for Outingdale

The District operates a satellite public water system for the community of Outingdale. The source water for this system is a permitted water right from the Middle Fork Cosumnes River, which has no impoundments or flow control features upstream of the District's diversion that can supplement natural flows. Therefore, source water for the Outingdale water system is restricted to the natural flows of the river. Due to ongoing drought conditions, there remains potential that the river will once again drop to levels that make physical diversions impossible, and/or raw water quality deteriorates to the point where the treatment plant cannot reliably meet drinking water standards, similar to what occurred in 2014, 2015, and 2021. Should those conditions occur again during 2022, a Stage 4 Water Emergency would be necessary to ensure potable water hauling by the District will be capable of meeting the public health and safety needs of the Outingdale community.

Outreach to the Outingdale community has and will continue to be an important component of meeting the public health and safety needs in the months ahead. In anticipation of the potential for a Stage 4 Drought Emergency due to the ongoing statewide drought, in May staff sent the letter provided in Attachment C to all Outingdale customers advising them of the potential for required hauling of potable water for health and safety purposes.

In recognition of current conditions, the District delivered the letter and email notification provided in Attachment D to all Outingdale customers on August 12, 2022 advising them of current conditions and requested Board action, and asking them to take appropriate measures to prepare for a potential Stage 4 Water Emergency. The objective of a Stage 4 Water Emergency is to reduce water demands in order to achieve a greater than 50 percent reduction, which may be accomplished through effective public outreach, enforcement of extensive restrictions on water use, and implementation of water rationing.

Should the District ultimately need to implement a Stage 4 Water Emergency, which according to the latest technical field data is appearing more likely due to degrading water quality versus insufficient flows, staff will send all Outingdale customers the letter and email notification provided in Attachment E. The District sent similar notifications to the affected District customers during 2021.

Customers subject to a Stage 4 Water Emergency will be required to reduce water usage by a minimum of 50%, limiting water usage during each bimonthly billing cycle to **401 cubic feet (approximately 3,000 gallons) of water per person**. This equates to **50 gallons per person per day**, which is the California Department of Water Resources' standard for meeting minimum health and safety requirements.

The Drought Action Plan identifies the following mandatory conservation measures during Stage 4, which would apply to all Outingdale customers:

1) Prohibited: Automatic sprinklers for the irrigation of existing turf, ornamental plants, garden or landscaped areas.
    a) Watering may only occur by hand-held hose with shut-off nozzle or by a drip irrigation system.
2) Mandatory: Single-family and multi-family residential meters are limited to 50 gallons per person per day allotment per bimonthly billing cycle for "health and safety" purposes.
    a) Allotments can be increased for special health-related issues.
3) Mandatory: Recreational Turf, non-IMS Ag, and Small Farm customers must reduce their usage by 65 percent, based upon their usage during the same billing cycle in the base period.
4) Mandatory: IMS agricultural customers must reduce their usage by 40 percent, based upon their usage during the same billing cycle in the base period. IMS customers already have restricted use through weekly soil moisture data sampling and comply with irrigation schedule.
5) Allowed: Vital healthcare and public safety uses are exempt.
6) Mandatory: Commercial, Industrial & Institutional (CII): Reduce by 65 percent.

In the near future, and perhaps prior to the next Board meeting, it may become necessary to initiate hauling of potable drinking water. Therefore, consistent with the approach during 2021 staff is requesting that the Board once again authorize the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for the Outingdale water system if and when necessary.

If ultimately necessary due to insufficient flow and/or deteriorated water quality, the Stage 4 Water Emergency would be temporary and only remain in effect until sufficient streamflow of adequate water quality resumes in the Middle Fork Cosumnes River later this fall. As soon as safely possible, the District would return the customers within the Outingdale water system back to Stage 1 consistent with the rest of the District's customer base to meet state requirements outlined above. Staff will continuously monitor flows in the river, customer water conservation efforts, and keep the community apprised of changing supply conditions.

BOARD OPTIONS

Option 1: Ratify Resolution No. 2022-019 to maintain the drought emergency and the Stage 1 Water Alert requesting up to 15 percent voluntary conservation, and authorize the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers if and when necessary.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1

ATTACHMENTS

Attachment A: Resolution 2022-019
Attachment B: SWRCB Emergency Regulation
Attachment C: May 2022 Outingdale Water System Community Outreach Letter
Attachment D: August 12, 2022 Outingdale Outreach Letter Regarding Stage 4 Potential
Attachment E: Draft Outingdale Outreach Letter Regarding Stage 4 Implementation

Patrick Wilson
Drinking Water Operations Manager

Jenny Downey
Customer Service Manager

Jesse Saich
Communications and Media Relations Manager

Dan Corcoran
Operations Director

Jamie Bandy
Finance Director

Brian Mueller
Engineering Director

Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

RESOLUTION OF THE BOARD OF DIRECTORS OF EL DORADO IRRIGATION DISTRICT RENEWING THE DECLARATION OF A DROUGHT EMERGENCY AND STAGE 1 WATER ALERT DISTRICT-WIDE

WHEREAS, El Dorado Irrigation District (District) has experienced dry and critically dry conditions since 2020; and

WHEREAS, on May 10, 2021, Governor Gavin Newsom proclaimed that a drought emergency existed in El Dorado County; and

WHEREAS, on June 14, 2021, the Board adopted the District's 2021 Drought Action Plan; and

WHEREAS, the District's adopted 2021 Drought Action Plan provides for an incremental, multi-stage drought response, summarized as follows:

- In a declared Stage 1 Water Supply Alert, customers are called on to voluntarily reduce water usage by up to 15%;
- In a declared Stage 2 Water Supply Warning, a combination of voluntary and mandatory actions are intended to reduce water usage by up to 30%;
- In a declared Stage 3 Water Supply Crisis, mandatory actions and/or water rationing are intended to reduce water usage by up to 50%; and
- If water supplies are still insufficient, a Water Supply Emergency is declared and mandatory rationing is imposed to reduce water usage by more than 50%; and

WHEREAS, on June 15, 2021, the State Water Resources Control Board (SWRCB) sent notices of water unavailability to post-1914 water right holders in the Bay-Delta watershed, including the District, urging them to stop diverting to preserve dwindling water supply for both this year and the next; and

WHEREAS, on June 28, 2021, the District's Board of Directors adopted Resolution 2021-009 declaring a drought emergency and a Stage 1 Water Alert District-wide, and authorized the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers when necessary; and

WHEREAS, on July 26, 2021, the District's Board of Directors ratified Resolution No. 2021-009 to maintain the drought emergency and ratified the General Manager's declaration of a Stage 4 Water Emergency for Outingdale customers; and

WHEREAS, in August of 2021, the SWRCB issued curtailment orders, curtailing the District's water rights and those curtailments remained in place until late October of 2021; and

WHEREAS, on October 25, 2021, the District's Board of Directors ratified Resolution No. 2021-009 to maintain a drought emergency and declared a return to Stage 1 Water Alert for Outingdale customers; and

WHEREAS, on March 21, 2022, the SWRCB sent a notice to water right holders warning of the potential for even earlier water right curtailments in 2022 than those issued in 2021; and

WHEREAS, on March 28, 2022, Governor Gavin Newsom issued Executive Order N-7-22, which required the SWRCB, by May 25, 2022, to consider adopting emergency regulations that include all of the following:

a. A requirement that each urban water supplier, as defined in section 10617 of the Water Code, shall submit to the Department of Water Resources a preliminary annual water supply and demand assessment consistent with section 10632.1 of the Water Code no later than June 1, 2022, and submit a final annual water supply and demand assessment to the Department of Water Resources no later than the deadline set by section 10632.1 of the Water Code; and
b. A requirement that each urban water supplier that has submitted a water shortage contingency plan to the Department of Water Resources implement, at a minimum, the shortage response actions adopted under section 10632 of the Water Code for a shortage level of ten to twenty percent (Level 2), by a date to be set by the Water Board; and
c. A definition of "non-functional turf" (that is, a definition of turf that is ornamental and not otherwise used for human recreation purposes such as school fields, sports fields, and parks); and
d. A ban on irrigation of non-functional turf in the commercial, industrial, and institutional sectors except as it may be required to ensure the health of trees and other perennial non-turf plantings.

WHEREAS, the SWRCB staff has prepared a draft water conservation emergency regulation to comply with the Governor's order, and the SWRCB will consider its adoption on May 24, 2022; and

WHEREAS, if approved the new regulation would be in effect beginning June 10, 2022; and

WHEREAS, Public Resources Code section 21080(b)(4) and CEQA Guidelines section 15269(c) exempt from CEQA any actions that are necessary to prevent or mitigate an emergency; and

WHEREAS, CEQA Guidelines section 15359 defines "emergency" as "a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to life, health, property, or essential public services;" and

WHEREAS, District Board Policy 2050 authorizes the District's General Manager to act "in emergency situations where no Board Policies or Administrative Regulations exist;" and

WHEREAS, District Board Policy 3060 authorizes the District's General Manager to approve all contracts or procurements or change orders with values of up to and including $100,000; and

WHEREAS, in the event of an emergency requiring immediate contract or procurement action, District Board Policy 3060 authorizes the District's General Manager to "approve any and all contracts necessary to abate the emergency after first informing the President of the Board of Directors and scheduling an emergency meeting of the Board of Directors at the earliest possible opportunity;" and

WHEREAS, District Board Policy 3060 requires the District's General Manager to bring any and all contracts or procurements with values exceeding $100,000, approved during an emergency, to the Board of Directors for ratification at the first meeting of the Board immediately following the emergency; and

WHEREAS, District Administrative Regulation 3061.05, subdivision E, provides for single source procurement for good cause, which may include when "emergency or extraordinary circumstances require immediate action that cannot be delayed for obtaining bids or proposals;" and

WHEREAS, Water Code sections 350 et seq. authorize the Board of Directors to declare a water supply emergency whenever it finds and determines, during a noticed public hearing, that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the District's water supplies; and

WHEREAS, the District previously published notice of a public hearing to consider a water supply emergency, pursuant to Water Code section 351 and Government Code section 6061, on June 21, 2021; and

WHEREAS, on June 28, 2021, the District's Board of Directors adopted Resolution 2021-009 declaring a drought emergency, and at every regular Board meeting since the Board adopted Resolution No. 2021-009, the Board has ratified Resolution 2021-009; and

WHEREAS, in response to the proposed SWRCB water conservation emergency regulations, which will require the District to implement, at a minimum, the shortage response actions adopted for a shortage level of ten to twenty percent (Level 2), it is appropriate for the Board of Directors to renew and update its drought emergency declaration; and

WHEREAS, Water Code section 10632 identifies six standard water shortage levels from the normal reliability (10, 20, 30, 40, 50 and greater than 50 percent shortage), with Level 2 of the six standard water shortage levels corresponding to a shortage level of ten to twenty percent; and

WHEREAS, the District's Drought Action Plan describes four shortage levels, Stage 1, Stage 2, Stage 3, and Stage 4, and cross-references the six standard water shortage levels identified in Water Code section 10632; and

WHEREAS, the State's standard Level 2 (10% to 20% shortage), corresponds to both Stage 1 (up to 15% shortage) and Stage 2 (up to 30% shortage) in the District's Drought Action Plan; and

WHEREAS, the District is currently implementing a Stage 1 Water Alert and has requested that customers take voluntary conservation actions to achieve up to 15% conservation; and

WHEREAS, given the District's favorable local water supply conditions and given that the District's Stage 1 Water Alert corresponds to the Level 2 shortage level required in the emergency regulations, it is appropriate for the District to remain at a Stage 1 Water Alert.

NOW, THEREFORE, BE IT AND IT IS HEREBY RESOLVED by the Board of Directors of the El Dorado Irrigation District as follows:

1. The Board renews and continues its declaration of a drought emergency and a Stage 1 Water Alert, as first declared in Resolution 2021-009.
2. The Board finds and declares that the ongoing and current drought conditions continue to constitute an emergency within the meaning of CEQA Guidelines section 15359, District Board Policies 2050 and 3060, and District Administrative Regulation 3061.05, subdivision E.
3. The Board finds and determines, consistent with Water Code section 350, that a water shortage emergency condition continues to exist within all or part of the District's service area and that the ordinary demands and requirements of District customers cannot be satisfied without depleting District supplies.

4. Consistent with the Governor's Executive Order N-7-22 and the SWRCB's proposed water conservation emergency regulations, the Board renews the declaration of a Stage 1 Water Alert District-wide.
5. The Board finds and declares that the adoption of this Resolution and all of the delegations, authorizations, and directions to the General Manager and District staff specified in paragraph 7, below, satisfy the requirements and criteria of Public Resources Code section 21080(b)(4), and CEQA Guidelines section 15269(c).
6. The foregoing findings and declarations are based upon all written, oral, and visual evidence, including both facts and professional opinions, presented to the Board at the meetings held since June of 2021 and in consideration of this Resolution.
7. The Board hereby delegates, authorizes, and directs the District General Manager and his designees to take all actions reasonably deemed necessary to respond to the continuing emergency conditions declared herein, including but not limited to the following specific actions:
   a. Implement the Stage 1 Water Alert actions, as detailed in the Drought Action Plan.
   b. Enter into professional services and construction contracts as reasonably deemed necessary to expedite the preservation and enhancement of water supply availability for the District's customers.
   c. Report to and seek ratification of the Board for any actions taken in excess of normal authority or authority expressly granted by this Resolution, at the first regular Board meeting held after each such action.
   d. Report to the Board at least monthly, and more often if necessary, on the current status of the drought conditions, responsive actions taken, weekly water usage data, and the need, if any, for further Board actions.
8. This Resolution shall take effect immediately upon adoption. Subject to the ratification required by District Board Policy 3060, this Resolution shall remain in full force and effect until rescinded by a subsequent Resolution of the Board of Directors.

The foregoing Resolution was introduced at a regular meeting of the Board of Directors of EL DORADO IRRIGATION DISTRICT, held on the 23rd day of May 2022, by Director Day, who moved its adoption. The motion was seconded by Director Veerkamp, and a poll vote taken which stood as follows:

AYES: Directors Day, Veerkamp, Osborne and Anzini

NOES:

ABSENT: Director Dwyer

ABSTAIN:

The motion having a majority of votes "Aye", the resolution was declared to have been adopted, and it was so ordered.

Lori Anzini, President
Board of Directors
EL DORADO IRRIGATION DISTRICT

ATTEST:

Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

(SEAL)

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I, the undersigned, Clerk to the Board of the EL DORADO IRRIGATION DISTRICT hereby certify that the foregoing resolution is a full, true and correct copy of a Resolution of the Board of Directors of the EL DORADO IRRIGATION DISTRICT entered into and adopted at a regular meeting of the Board of Directors held on the 23rd day of May 2022.

Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

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STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2022-0018

TO ADOPT AN EMERGENCY REGULATION
TO REDUCE WATER DEMAND AND IMPROVE WATER CONSERVATION

WHEREAS:

1. On April 21, May 10, July 8, and October 19, 2021, Governor Newsom issued proclamations that a state of emergency exists statewide due to severe drought conditions and directed state agencies to take immediate action to preserve critical water supplies and mitigate the effects of drought and ensure the protection of health, safety, and the environment.

2. These proclamations urge Californians to reduce their water use.

3. On March 28, 2022, Governor Newsom signed an Executive Order directing the State Water Resources Control Board (State Water Board or Board) to consider adopting emergency regulations to increase water conservation. The Executive Order includes a request that the Board require urban water suppliers to implement Level 2 of their water shortage contingency plans, establish water shortage response actions for urban water suppliers that have not submitted water shortage contingency plans, taking into consideration model actions that the Department of Water Resources, and establish a ban on the irrigation of non-functional turf by entities in the commercial, industrial, and institutional sectors.

4. Many Californians and urban water suppliers have taken bold steps over the years to reduce water use; nevertheless, the severity of the current drought requires additional conservation actions from urban water suppliers, residents, and the commercial, industrial, and institutional sectors.

5. Water conservation is the easiest, most efficient, and most cost-effective way to quickly reduce water demand and extend limited water supplies through this summer and into the next year, providing flexibility for all California communities. Water saved is water available next year, giving water suppliers added flexibility to manage their systems effectively over time. The more water that is conserved now, the less likely it is that a community will experience dire shortages that may require water rationing or other emergency actions.

6. Most Californians use more water outdoors than indoors. In many areas, 50 percent or more of daily water use is for irrigation of lawns and outdoor landscaping irrigation. Outdoor water use is generally discretionary, and many irrigated landscapes would not suffer greatly from receiving a decreased amount of water.

7. The use of potable water to irrigate turf on commercial, industrial, or institutional properties that is not regularly used for human recreational purposes or for civic or community events can be reduced in commercial, industrial, and institutional areas to protect local water resources and enhance water resiliency.

8. Public information and awareness are critical to achieving conservation goals, and the Save Our Water campaign (SaveOurWater.com), run jointly by the Department of Water Resources (DWR) and the Association of California Water Agencies, is an excellent resource for conservation information and messaging that is integral to effective drought response.

9. SaveWater.CA.Gov is an online tool designed to help save water in communities. This website lets anyone easily report water waste from their phone, tablet, or computer by simply selecting the type of water waste they see, typing in the address where the waste is occurring, and clicking send. These reports are filed directly with the State Water Board and relevant local water supplier.

10. Enforcement against water waste is a key tool in conservation programs. When conservation becomes a social norm in a community, the need for enforcement is reduced or eliminated.

11. On March 28, 2022, the Governor suspended the environmental review required by the California Environmental Quality Act to allow State Water Board-adopted drought conservation emergency regulations and other actions to take place quickly to respond to emergency conditions.

12. Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations in certain drought years in order to: “prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter’s priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports.”

13. On May 13, 2022, the State Water Board issued public notice that it will consider the adoption of the regulation at the Board’s regularly scheduled May 24, 2022 public meeting, in accordance with applicable State laws and regulations. The State Water Board also distributed for public review and comment a Finding of Emergency that complies with State laws and regulations.

14. The emergency regulation exempts suppliers from enforcing connection moratoria, if their Level 2 demand management actions call for them, because new residential connections are critical to addressing the state’s housing supply shortage. However, the Board recognizes connections for other projects may not be appropriate given the shortage conditions and urges water suppliers to carefully evaluate new development projects for their water use impacts.

15. Disadvantaged communities may require assistance responding to Level 2 conservation requirements, including irrigation restrictions, temporary changes to rate structures, and prohibited water uses. State shortage contingency plans aimed at increasing water conservation, and state and local agencies should look for opportunities to provide assistance in promoting water conservation. This assistance should include but not be limited to translation of regulation text and dissemination of water conservation announcements into languages spoken by at least 10 percent of the people who reside in a water supplier's service area, such as in newspaper advertisements, bill inserts, website homepage, social media, and notices in public libraries.

16. The Board directs staff to consider the following in pursuing any enforcement of section 996, subdivision (e): before imposing monetary penalties, staff shall provide one or more warnings; monetary penalties must be based on an ability to pay determination, consider allowing a payment plan of at least 12 months, and shall not result in a tax lien; and Board enforcement shall not result in shutoff.

17. The Board encourages entities other than Board staff that consider any enforcement of this regulation to apply these same factors identified in resolved paragraph 16. Nothing in the regulation or in the enforcement provisions of the regulation precludes a local agency from exercising its authority to adopt more stringent conservation measures. Moreover, the Water Code does not impose a mandatory penalty for violations of the regulation adopted by this resolution, and local agencies retain their enforcement discretion in enforcing the regulation, to the extent authorized, and may develop their own progressive enforcement practices to encourage conservation.

THEREFORE BE IT RESOLVED THAT:

1. The State Water Board adopts California Code of Regulations, title 23, section 996, as appended to this resolution as an emergency regulation that applies to urban water suppliers, as defined by Water Code section 10617.

2. State Water Board staff shall submit the regulation to the Office of Administrative Law (OAL) for final approval.

3. If, during the approval process, State Water Board staff, the State Water Board, or OAL determines that minor corrections to the language of the regulation or supporting documentation are needed for clarity or consistency, the State Water Board Executive Director or designee may make such changes.

4. This regulation shall remain in effect for one year after filing with the Secretary of State unless the State Water Board determines that it is no longer necessary due to changed conditions or unless the State Water Board renews the regulation due to continued drought conditions, as described in Water Code section 1058.5.

5. The State Water Board directs State Water Board staff to work with the Department of Water Resources and the Save Our Water campaign to disseminate information regarding the emergency regulation.

6. The State Water Board directs staff to, by January 1, 2023, survey urban water suppliers on their experience protecting trees and tree cover during drought, with attention to disadvantaged communities. The survey shall inquire about challenges encountered, strategies used, costs, and successes in protecting trees.

7. Nothing in the regulation or in the enforcement provisions of the regulation precludes a local agency from exercising its authority to adopt more stringent conservation measures. Local agencies are encouraged to develop their own progressive enforcement practices to promote conservation.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 24, 2022.

AYE:	Chair E. Joaquin Esquivel Vice Chair Dorene D'Adamo Board Member Sean Maguire Board Member Laurel Firestone
NAY:	None
ABSENT:	Board Member Nichole Morgan
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

ADOPTED EMERGENCY REGULATION TEXT

Version: May 24, 2022

Title 23. Waters

Division 3. State Water Resources Control Board and Regional Water Quality Control Boards

Chapter 3.5. Urban Water Use Efficiency and Conservation

Article 2. Prevention of Drought Wasteful Water Uses

§ 996. Urban Drought Response Actions

(a) As used in this section:

(1) "Commercial, industrial and institutional" refers to commercial water users, industrial water users, and institutional water users as respectively defined in Water Code, section 10608.12, subdivisions (e), (i), and (j), and includes homeowners' associations, common interest developments, community service organizations, and other similar entities but does not include the residences of these entities' members or separate interests.

(2) "Common interest development" has the same meaning as in section 4100 of the Civil Code.

(3) "Community service organization or similar entity" has the same meaning as in section 4110 of the Civil Code.

(4) "Homeowners' association" means an "association" as defined in section 4080 of the Civil Code.

(5) "Non-functional turf" means turf that is solely ornamental and not regularly used for human recreational purposes or for civic or community events. Non-functional turf does not include sports fields and turf that is regularly used for human recreational purposes or for civic or community events.

(6) "Plant factor" has the same meaning as in section 491.

(7) "Separate interest" has the same meaning as in section 4185 of the Civil Code.

(8) "Turf" has the same meaning as in section 491.

(9) "Urban water supplier" has the same meaning as Water Code section 10617.

(10) "Water shortage contingency plan" means the plan required by Water Code section 10632.

(b) Each urban water supplier shall submit to the Department of Water Resources a preliminary annual water supply and demand assessment consistent with section

10632.1 of the Water Code no later than June 1, 2022, and submit a final annual water supply and demand assessment to the Department of Water Resources no later than the deadline set by section 10632.1 of the Water Code.

(c) (1) Each urban water supplier that has submitted a water shortage contingency plan to the Department of Water Resources shall implement by June 10, 2022, at a minimum, all demand reduction actions identified in the supplier's water shortage contingency plan adopted under Water Code 10632 for a shortage level of ten (10) to twenty (20) percent (Level 2).

(2) Notwithstanding subdivision (c)(1), urban water suppliers shall not be required to implement new residential connection moratoria pursuant to this section.

(3) Notwithstanding subdivision (c)(1), an urban water supplier may implement the actions identified in subdivision (d) in lieu of implementing the demand reduction actions identified in the supplier's water shortage contingency plan adopted under Water Code section 10632 for a shortage level of ten (10) to twenty (20) percent (Level 2), provided the supplier meets all of the following:

(i) The supplier's annual water supply and demand assessment submitted to the Department of Water Resources demonstrates an ability to maintain reliable supply until September 30, 2023.

(ii) The supplier does not rely on, for any part of its supply, the Colorado River, State Water Project, or Central Valley Project, and no more than ten (10) percent of its supply comes from critically overdrafted groundwater basins as designated by the Department of Water Resources.

(iii) The supplier's average number of gallons of water used per person per day by residential customers for the year 2020 is below 55 gallons, as reported to the Board in the Electronic Annual Report.

(d) Each urban water supplier that has not submitted a water shortage contingency plan to the Department of Water Resources shall, by June 10, 2022, and continuing until the supplier has implemented all demand reduction actions identified in the supplier's water shortage contingency plan adopted under Water Code 10632 for a shortage level of ten (10) to twenty (20) percent (Level 2), implement at a minimum the following actions:

(1) Initiate a public information and outreach campaign for water conservation and promptly and effectively reach the supplier's customers, using efforts such as email, paper mail, bill inserts, customer app notifications, news articles, websites, community events, radio and television, billboards, and social media.

(2) Implement and enforce a rule or ordinance limiting landscape irrigation with potable water to no more than two (2) days per week and prohibiting landscape irrigation with potable water between the hours of 10:00 a.m. and 6:00 p.m.

(3) Implement and enforce a rule or ordinance banning, at a minimum, the water uses prohibited by section 995. Adoption of a rule or ordinance is not required if the supplier has authority to enforce, as infractions, the prohibitions in section 995 and takes enforcement against violations.

(e) (1) To prevent the unreasonable use of water and to promote water conservation, the use of potable water is prohibited for the irrigation of non-functional turf at commercial, industrial, and institutional sites.

(2) Notwithstanding subdivision (e)(1), the use of water is not prohibited by this section to the extent necessary to ensure the health of trees and other perennial non-turf plantings or to the extent necessary to address an immediate health and safety need.

(3) Notwithstanding subdivision (e)(1), an urban water supplier may approve a request for continued irrigation of non-functional turf where the user certifies that the turf is a low water use plant with a plant factor of 0.3 or less, and demonstrates the actual use is less than 40% of reference evapotranspiration.

(f) The taking of any action prohibited in subdivision (e) is an infraction punishable by a fine of up to five hundred dollars ($500) for each day in which the violation occurs. The fine for the infraction is in addition to, and does not supersede or limit, any other remedies, civil or criminal.

(g) A decision or order issued under this section by the Board, or an officer or employee of the Board, is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the Water Code.

Authority: Section 1058.5, Water Code.

References: Article X, Section 2, California Constitution; Sections 4080, 4100, 4110, and 4185, Civil Code; Section 8627.7, Government Code; Sections 102, 104, 105, 275, 350, 377, 491, 1122, 10608.12, 10617, 10632, and 10632.1, Water Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463; *Stanford Vina Ranch Irrigation Co. v. State of California* (2020) 50 Cal.App.5th 976.

El Dorado Irrigation District

Notice to Outingdale Customers
Outingdale Infrastructure Investments – Stage 1 Water Alert Continues

With El Dorado Irrigation District (EID) and our customers facing another dry year, we wanted to take this opportunity to reach out to our customers in the Outingdale community to let you know what EID is doing to maintain service and inform you of potential temporary limitations that could occur should conditions similar to last year prevail later this summer. EID's service areas are currently under a Stage 1 Water Alert, which seeks a voluntary 15 percent reduction in customer water use.

As you are likely aware, EID supplies water to our customers in the Outingdale area through water sourced from the Middle Fork Cosumnes River.

Over the past five years, EID has replaced its intake facilities at the river, rehabilitated its diversion dam, and replaced a treated drinking water storage tank to increase the resiliency of its infrastructure to provide service to your community. These $3.6 million in investments will assist EID in maintaining normal service as long as possible during drought conditions.

The rehabilitated dam (top), replaced intake facilities (below), and new water storage tank (not pictured) will increase the resiliency of the facilities that allow EID to serve your community

District personnel continue to monitor the river flows closely and, similar to the last drought in 2014-2015 and the summer of 2021, there is a possibility that flows in the river will reduce to a point where we will be physically unable to divert water for treatment. Additionally, the State Water Resources Control Board (SWRCB) has indicted that it will likely curtail the District's water right for this facility during these ongoing drought conditions.

EID has once again requested SWRCB to authorize continued diversions during the curtailment so we can maintain normal service for your community as long as water is physically available by increasing an equivalent amount of water from storage in Jenkinson Lake to offset any water diverted by our Outingdale customers.

In the event that river flows make it impossible for us to treat and deliver water, EID will immediately begin to truck sufficient quantities of potable water for health and safety purposes from EID's main water system to storage tanks that supply the Outingdale service area.

Please take this opportunity to review your household water needs and begin to prepare for these conditions to return later this year. We are hopeful that the late spring rains will delay, and potentially even eliminate, the need for trucking water to Outingdale this year, but it is important to prepare now given that it remains to be seen how Mother Nature will provide for the Middle Fork Cosumnes River through the summer and fall.

We thank you for your efforts to reduce water use. Additional resources are located at www.eid.org/drought. We will continue to keep you informed of any additional information that affects your community.

If you have any questions about this letter, please contact EID customer services at (530) 642-4000 or by email to billing@eid.org.

El Dorado Irrigation District

August 12, 2022 In reply refer to: CS0822-010

«CONTACTNAME»
«ADDR1»
«ADDR2»
«CITY», «STATE» «ZIP»

Subject: Outingdale Water Conditions – Drought Preparation
Service Address:
Account #:

Dear Customer,

With El Dorado Irrigation District (EID) and our customers facing another exceptionally dry year, we wanted to take this opportunity to reach out to the Outingdale community in an effort to get as much information out as soon as possible. In May we provided each of our customers in the Outingdale community an early notification of potential water use limitations for health and safety purposes only during 2022 due to the ongoing statewide drought. It is appearing likely those conditions may be triggered in the near future.

EID has been continuously monitoring streamflow within the Middle Fork Cosumnes River and, similar to the last drought in 2014-2015 and the summer of 2021, EID anticipates water flow in the river will be reduced to a point where we will be physically unable to divert and/or water quality may degrade to the point where the District cannot reliably meet drinking water standards.

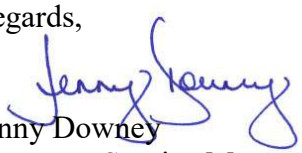
As a result, on August 22, 2022 the EID Board of Directors will be considering authorization for the General Manager to declare a Stage 4 Water Emergency for the Outingdale community if and when conditions warrant. EID is also making preparations to truck water for health and safety purposes from its main distribution system to storage tanks that supply the Outingdale service area when needed.

Customers subject to a Stage 4 Water Emergency will be required to reduce water usage by a minimum of 50%, limiting water usage during each bimonthly billing cycle to **401 cubic feet (approximately 3,000 gallons) of water per person**. This is equal to **50 gallons per person per day**, which is the California Department of Water Resources' standard for meeting minimum health and safety requirements. We ask that you take this opportunity to review your household water needs and begin to prepare for this potential water emergency.

We thank you for your efforts in reducing your water demands and will continue to keep you informed of any additional information that affects your community.

If you have any questions about this letter please contact EID customer services at 530-642-4000 or by email to billing@eid.org.

Regards,



Jenny Downey
Customer Service Manager

Cc: Patrick Wilson, Drinking Water Operations Manager

Attachment E

El Dorado Irrigation District

August XX, 2022 In reply refer to: CS0822-0XX

«CONTACTNAME»
«ADDR1»
«ADDR2»
«CITY», «STATE» «ZIP»

Subject: Stage 4 Water Emergency Drought Declaration for Outingdale
Service Address: «SERVICEADDRESS»
Account #: «ACCTNO»

Dear Customer,

As you are aware El Dorado Irrigation District (EID/District) staff has been closely monitoring streamflow as well as water quality within the Middle Fork Cosumnes River, which supplies drinking water supplies to the Outingdale community, to ensure there is sufficient streamflow and adequate quality to divert water from the river.

Conditions have now reached the point the District is no longer able to safely and reliably divert water from the river. Due to these conditions and in accordance with direction from the Board of Directors, EID's General Manager, Jim Abercrombie, has declared a **Stage 4 Water Emergency for the Outingdale service area.** EID will now begin trucking drinking water to meet public health and safety needs from its main distribution system to tanks that supply the Outingdale service area. This practice will continue until conditions in the Middle Fork Cosumnes River improve, which is not expected until the rainy season begins. With the trucking operation, there should be no interruption of services, but supplies will be very limited. The trucking operation will take place during daylight hours, seven days a week.

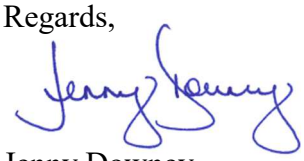
The District's Drought Action Plan requires all residential customers subject to a Stage 4 Water Emergency to reduce their water usage by more than 50 percent and Small Farm customers must reduce their usage by 65 percent, based upon their usage during the same billing cycle in 2020. The use of automatic sprinklers to irrigate existing turf, ornamental plants, gardens, or landscaped areas is prohibited. Customers must limit water usage during each bimonthly billing cycle to **401 cubic feet (approximately 3,000 gallons) of water per person**. This bimonthly volume is equal to **50 gallons per person per day**, which is the California Department of Water Resources' standard for meeting minimum health and safety requirements. Consistent with the Drought Action Plan, **please immediately curtail all outside watering other than that which occurs by hand-held hose with shut-off nozzle or by drip irrigation and pay close attention to conserving water inside your home.**

We are very confident that the Outingdale community will be able to make the necessary reductions in order to ensure EID can continue to deliver water in order to meet health and safety needs as they have done in past extreme drought years when it was necessary to truck water.

Additional drought information, including the Drought Action Plan, can be found on our website at www.eid.org/drought.

If you have any questions related to your account, such as your historical water usage, please contact EID customer services at 530-642-4000 or by email to billing@eid.org.

Regards,



Jenny Downey
Customer Service Manager

Cc: Patrick Wilson, Drinking Water Operations Manager

Drought Emergency Declaration
Stage 1 Water Alert Ratification
and
Stage 4 Water Emergency Authorization for Outingdale

August 22, 2022

Previous Board Actions

- June 14, 2021 – Board adopted the 2021 Drought Action Plan
- June 28, 2021 – Board adopted a resolution declaring a drought emergency and a Stage 1 Water Alert Districtwide, and authorized the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers when necessary
- July 26, 2021 – Board ratified Resolution No. 2021-009 to maintain the drought emergency and ratified the General Manager's declaration of a Stage 4 Water Emergency for Outingdale customers
- October 25, 2021 – Board ratified Resolution No. 2021-009 to maintain a drought emergency and declared a return to Stage 1 Water Alert for Outingdale customers

Previous Board Actions (Continued)

- At every regular Board meeting since the Board adopted Resolution No. 2021-009, the Board ratified Resolution 2021-009 until it adopted Resolution No. 2022-019
- May 23, 2022 – Board adopted Resolution No. 2022-019 renewing and updating the drought emergency declaration and reaffirming a Stage 1 Water Alert requesting up to 15 percent voluntary conservation
- At every regular Board meeting since its adoption the Board has ratified Resolution No. 2022-019.
- July 25, 2022 – Board awarded a contract to El Dorado Water and Shower in the not-to-exceed amount of $194,590 for potable water hauling to the Outingdale Water System

Summary of Issue

- May 23, 2022 – Board adopted Resolution No. 2022-019 to maintain Stage 1 Water Alert
  - Ensure compliance with SWRCB's emergency regulations
- Middle Fork Cosumnes River – slow decline
  - May become necessary to initiate hauling of potable drinking water
  - Hauling would trigger Stage 4 Water Emergency conditions

Water Supply and Demand Conditions

- District has been under Stage 1 Water Alert since June 28, 2021
  - Voluntary conservation up to 15%
- District's water supply in 2022 is much improved
  - State continues to experience drought
- Outingdale
  - Water right for Outingdale curtailed since June 2022 but District secured permission from SWRCB to continue diversions so long as District can operate
  - Anticipate challenges in diversions from Middle Fork Cosumnes River
    - Need adequate streamflow and water quality to reliably meet regulatory standards
  - Water hauling would provide only health and safety levels of water use

Stage 1 Water Alert

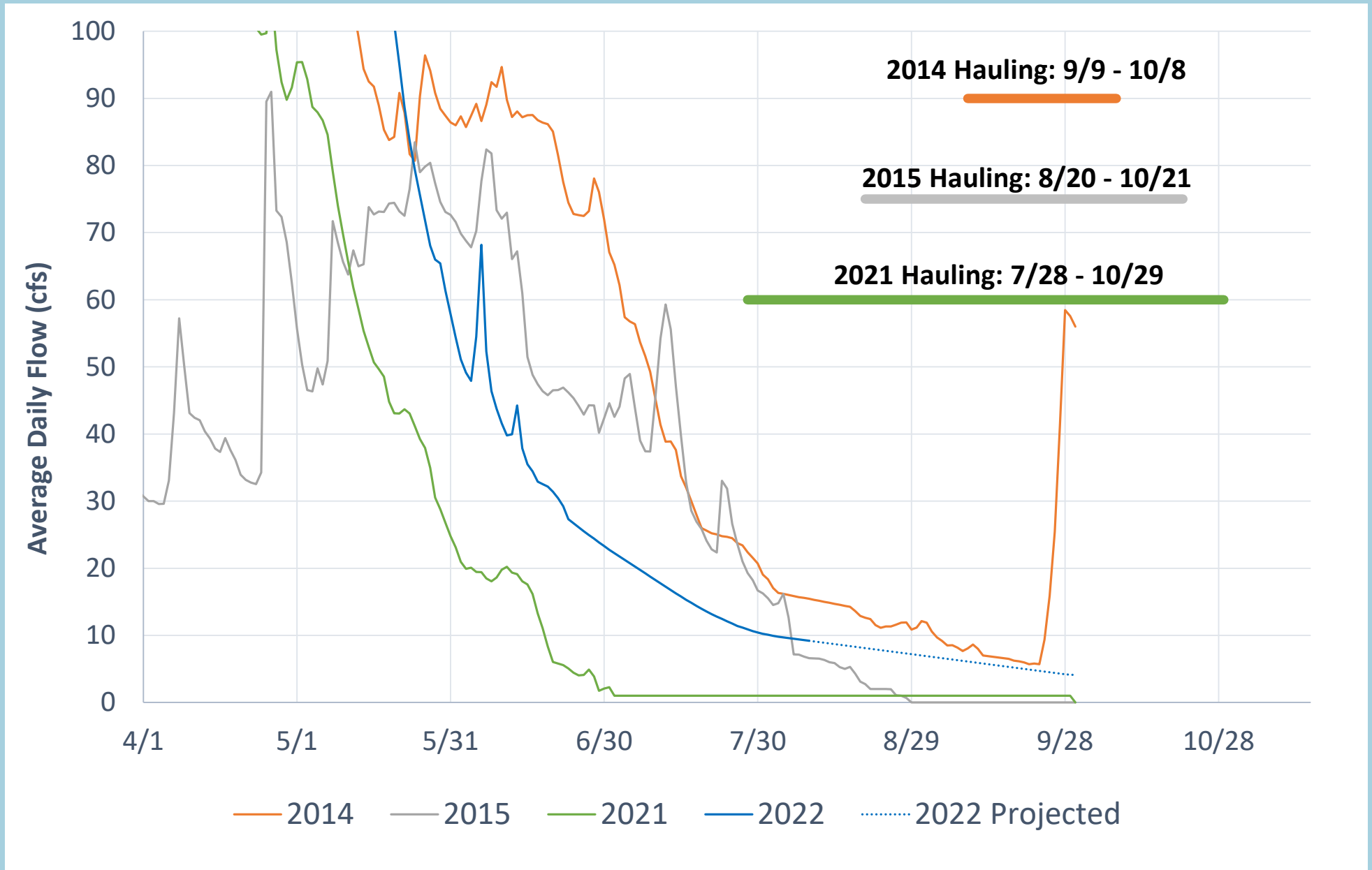
- Initiate public awareness of possible water shortages, encourage water conservation
- Target up to 15% voluntary demand reduction from 2020 levels
- Continue to make progress toward this goal
- Sufficient water in storage to meet demands and carryover targets

Outingdale - Stage 4 Water Emergency

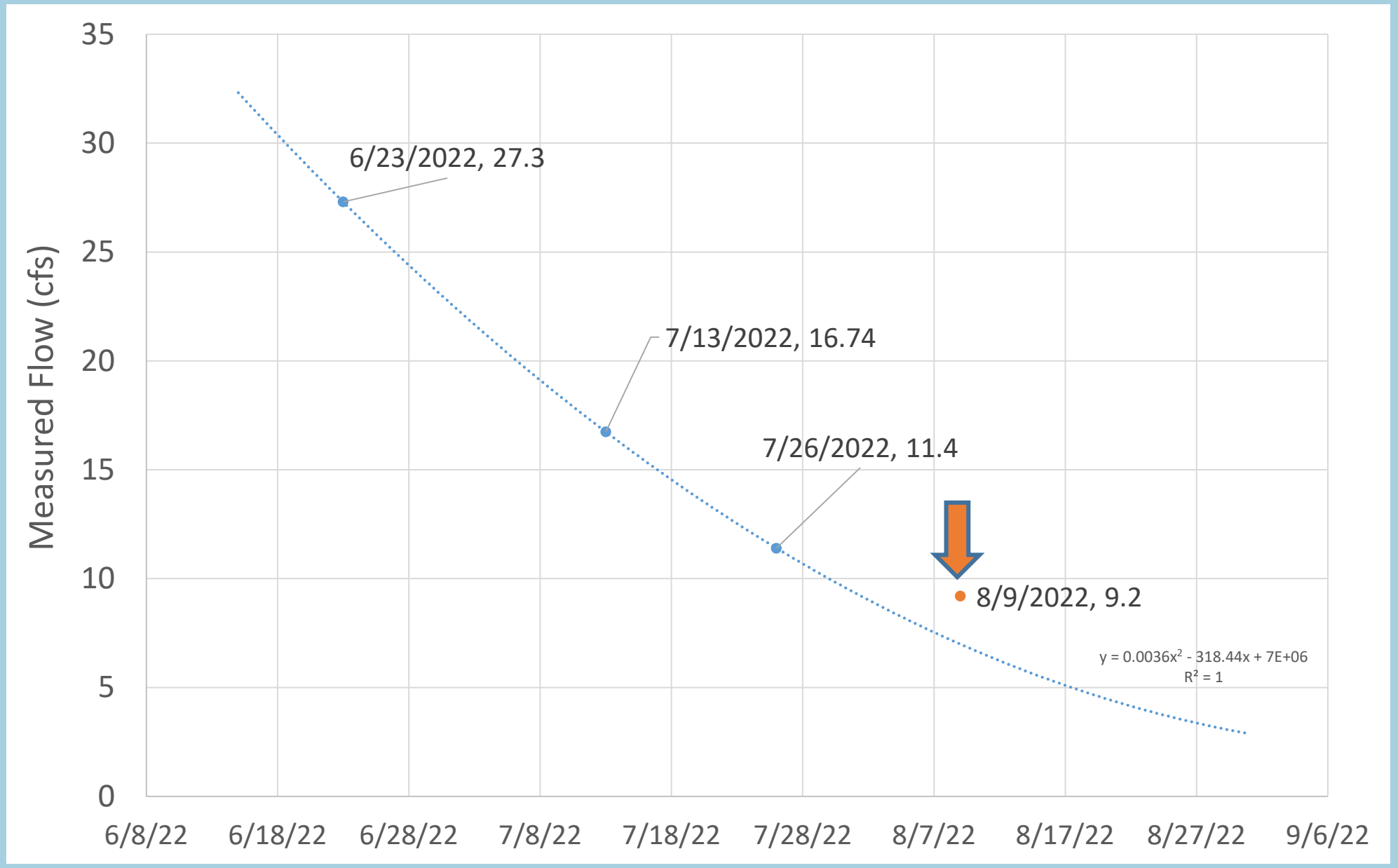
- Middle Fork Cosumnes – only water source
- Source water has no flow control system
- River levels may continue to drop until diversion precluded
- Water quality may degrade challenging water treatment
- Request Board authorize General Manager to declare a Stage 4 Water Emergency when necessary

Outingdale Dam – August 8th

MF Cosumnes Historical Flows and Water Hauling Dates



Cosumnes River Flow Measurements and Predictions



Outingdale - Public Outreach

- May 2022
  - Community Outreach Letter
  - Recent investments and potential for hauling due to ongoing drought
- August 12, 2022
  - Letter and email notification to customers
  - Advised of current conditions and request to Board for Stage 4 authorization
  - Request to take appropriate measures in advance of anticipated use restrictions
- Implementation Letter
  - If Stage 4 conditions triggered all customers to receive letter and email notifying them use restrictions in effect

Outingdale - Stage 4 Water Emergency Greater than 50%

- Prohibited
  - No automatic sprinklers (Only drip or hand water with shutoff nozzle only)
- Health and Safety water allotment
  - Department of Water Resources standard
  - 50 gallons per day (gpd)/person
- 65% reduction for Small Farm

Board Options

- **Option 1:** Ratify Resolution No. 2022-019 to maintain the drought emergency and the Stage 1 Water Alert requesting up to 15 percent voluntary conservation, and authorize the General Manager, subject to subsequent Board ratification, to declare a Stage 4 Water Emergency for Outingdale customers if and when necessary.

- **Option 2:** Take other action as directed by the Board

- **Option 3:** Take no action

Recommendation

- Option 1

Questions/Comments

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider awarding a contract to GHD Inc. in the not-to-exceed amount of $421,523 for design of the Flume 45 Section 3 replacement and authorize additional funding of $155,000 for capitalized labor and $100,000 for environmental support services for a total funding request of $676,523 for the Flume 45 Section 3 Replacement Project, Project No.22014.01.

PREVIOUS BOARD ACTION

November 8, 2021 – Board adopted the 2022-2026 CIP, which included this project, subject to funding availability.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

BP 3060 Contracts and Procurement
BP 8010 Hydroelectric System Management

SUMMARY OF ISSUE

Flume 45 Section 3 is an elevated wooden flume that is currently supported by a historic rock wall and is in need of replacement due to its current degraded condition. A portion of the historic rock wall, which was previously stabilized by PG&E, is also showing signs of movement and instability. Flume 45 Section 3 was last rebuilt in 1991, and has reached the end of its useful life and needs replacement.

BACKGROUND/DISCUSSION

Flume 45 Section 3 is a wooden flume approximately 940 feet in length and was last replaced in 1991. The Project is located west of Riverton and is south and directly above Highway 50. This section of Flume 45 rests on an 1870's era historic, un-mortared, hand-stacked rock wall that is elevated in areas up to 30 feet tall and spans a landslide area where PG&E performed a repair to the flume and to the hillside above. The portion of the rock wall that is up to 30 feet tall is supporting the flume with steel beams and columns that were installed by PG&E. During the 2016 Flume Assessment it was noted that there is movement of the bracing system at the base of the columns. The District relined this section of Flume 45 in 2015 to extend its service until it can be replaced.

The rock wall supporting Flume 45 Section 3 will require stabilization and/or complete replacement as part of this Project. Because the rock wall is located on U.S. Forest Service (USFS) land and is a contributing element to the El Dorado Rock Wall Discontiguous District that is listed as an eligible resource on the National Register of Historic Properties (NRHP) and the California Register of Historic Places (CRHP), work that will adversely affect the wall will require approval from the USFS and the California State Historic Preservation Officer (SHPO). To facilitate USFS and SHPO review, the District must provide a detailed project description, a complete discussion of all potential alternatives for repairing or stabilizing the rock wall, and an analysis of why alternatives that may avoid adverse effects are not feasible. Preparation of the project description, identification of potential alternatives, and the analysis of the alternatives is included in the scope of the design contract and will be prepared in coordination with an on-call cultural resource firm to help ensure the analysis meets USFS and SHPO requirements.

Construction of the Flume 45 Section 3 Replacement Project is planned for two construction seasons during the 2023 and 2024 annual outages between October and December of each year. Staff envisions this Project will replace the elevated wood flume with concrete flumes or canal. Access to the downstream section will be improved to allow construction vehicle access. The upstream portion will likely be accessed by the existing road that is upslope of Flume 45.

Request for Proposals

A request for proposals (RFP) for design services was released on June 3, 2022 and emailed to the District's Engineering Services on-call list and placed on the District's website. Six consultants attended the pre-proposal meeting and the District received the following proposals:

Engineering Firm	Fee Proposal
GHD, Inc.	$421,523
MGE Engineering	$537,386
Gannett Fleming	$685,946

GHD has provided recent design and construction services for the District, and has demonstrated the experience and knowledge to conduct this design. Therefore, staff is recommending award to GHD Engineering.

Environmental Review

The Project is subject to compliance with the California Environmental Quality Act (CEQA). Under CEQA, a project that may cause a substantial adverse effect on the significance of a historical resource is a project that may have a significant effect on the environment (CEQA Guidelines Section 15064.5(b)). Given the potential that this project may result in substantial adverse effects to the rock wall that supports Flume 45 Section 3, staff recommends preparation of an Environmental Impact Report (EIR). To support the environmental review process, staff contracted with on-call consultants in 2022 to perform a preliminary cultural resource survey and conduct seasonally dependent biological resource surveys. Staff is also preparing an Initial Study/Notice of Preparation (IS/NOP) to initiate the EIR process and anticipates releasing that document for public review in August 2022. The analysis provided in the IS/NOP is anticipated to help focus the scope of the detailed analysis required in the EIR to a few select resource categories, including historic resources. Staff is seeking additional support from an on-call cultural resource firm to support the design process and evaluate potential effects to the historic rock wall associated with the proposed project and alternatives. Following the public review period for the IS/NOP, staff will also be requesting proposals from on-call consulting firms to support preparation of the EIR. Staff is requesting $100,000 to fund these tasks.

FUNDING

Staff is requesting funding of $676,523 for the Project as summarized below. The anticipated funding source is 100% water FCCs.

Flume 45 Section 3 Funding Requirements

	Amount
GHD Inc. – Design Services	$421,523
Capitalized labor – Engineering, environmental staff support	$155,000
Professional services to support environmental review	$100,000
TOTAL	**$676,523**

The 2022–2026 CIP estimates expenditures of $12 million over three years for environmental, geotechnical, design, and construction of the Project. The design scope also includes additional geotechnical evaluations necessary to determine the best solution to stabilize the historic rock wall, additional laboratory testing, and coordination with SHPO. Construction costs will be further refined as the design proceeds.

BOARD OPTIONS

Option 1: Award a contract to GHD Inc. in the not-to-exceed amount of $421,523 for design of the Flume 45 Section 3 replacement and authorize additional funding of $155,000 for capitalized labor, and $100,000 for environmental support services for a total funding request of $676,523 for the Flume 45 Section 3 Replacement Project, Project No.22014.01.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1

ATTACHMENTS

Attachment A: CIP Summary
Attachment B: GHD Proposal

Cary Mutschler
Senior Engineering

Brian Deason
Environmental Resources Supervisor

Elizabeth Dawson
Engineering Manager

Brian Mueller
Engineering Director

Dan Corcoran
Operations Director

Jamie Bandy
Finance Director

Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

2022 CAPITAL IMPROVEMENT PLAN **Program:** **Hydroelectric**

Project Number: **PLANNED**

Project Name: **Flume 45 Section 3 Replacement**

Project Category: **Reliability & Service Level Improvements**

Priority: **2** **PM:** **Mutschler** **Board Approval:** **11/08/21**

Project Description:

This section of Flume 45 is an elevated wood flume approximately 940 feet in length and last replaced in 2001. This portion of the flume was constructed to span a section of the historic rock bench that had previously failed and replaced by PG&E. Because of the historic rock wall, the design will need to be approved by the State Historic Preservation Office. The replacement of this flume section is scheduled to occur during the scheduled canal outage in the 2024. Construction cost estimates will be revised upon completion of the geotechnical assessment and design.

Basis for Priority:

The flume will continue to deteriorate potentially causing flume failures that would result in significant impacts to the public, Highway 50, and the South Fork of the American River. Additionally, water supply would be out of service for an extended period to make emergency repairs resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	**$ -**	**Expenditures through end of year:**	**$ -**
Spent to Date:	**$ -**	**2022 - 2026 Planned Expenditures:**	**$ 11,950,000**
Cash flow through end of year:	**$ -**	**Total Project Estimate:**	**$ 11,950,000**
Project Balance	**$ -**	**Additional Funding Required**	**$ 11,950,000**

Description of Work	**Estimated Annual Expenditures**					
	2022	**2023**	**2024**	**2025**	**2026**	**Total**
Study/Planning	**$ 100,000**	**$ 50,000**				**$ 150,000**
Design	**$ 400,000**	**$ 400,000**				**$ 800,000**
Construction			**$ 11,000,000**			**$ 11,000,000**
						$ -
TOTAL	**$ 500,000**	**$ 450,000**	**$ 11,000,000**	**$ -**	**$ -**	**$ 11,950,000**

Funding Sources	**Percentage**	**2022**	**Amount**
2025 Bond	100%		$500,000
			$0
			$0
Total	**100%**		**$500,000**

Funding Comments:

Attachment B

Flume 45 Section 3

Replacement Project

El Dorado Irrigation District

25 July 2022

→ **The Power of Commitment**

GHD Inc. DIR 100018754
4080 Plaza Goldorado Circle, Suite B,
Cameron Park, CA 95882,
T 530.667.5515 | **ghd.com**

25 July 2022

Contract Management
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 59667

Re: RFP 22-02 for Flume 45 Section 3 Replacement Project

Dear Selection Committee:

Established in 1928 and privately owned by our people, GHD is pleased to respond to El Dorado Irrigation District (District) RFP22-02 to provide professional services for the Flume 45 Section 3 Replacement Project. Our local team is well acquainted with the District's facilities, and we appreciate the opportunity to once again be of service.

Why choose GHD? The answer is simple. GHD has more experience on the District's Project 184 than any other engineering firm. Since 1995, GHD has designed all but a few hundred feet of system repairs for your Capital Improvement Projects, Operations and Maintenance, and Disaster Recovery. In the 22 miles of Project 184 system evaluated, GHD has designed for the same conditions as Flume 45 and those designs were successfully constructed on schedule and budget. GHD has the experience to provide the Best Value to the District on this important project.

GHD has carefully evaluated the District's Request For Proposal and understand the approach. We acknowledge that we could propose a cheaper design approach where the entire rock bench is removed and replaced with modern MSE wall; but we did not take that approach. Rather, GHD has tailored our proposal to fully understand the native soil and rock and condition of the rock bench to save an estimated $1.5M in construction costs. If the rock bench is not adequately assessed and if another engineer's plans call for removal, 7,500 cubic yards of material would need to be removed, disposed of, and replaced with imported engineered fill meeting the certified weed free requirements of the USFS. This key element affects both the cost and schedule for construction.

GHD BRINGS RELEVANT AND PRACTICAL ENGINEERING SKILLS TO THE DISTRICT

- **District Knowledge and Experience** – GHD has more than 27 years' experience working extensively with the District. Project Manager, Amy Deakyne, PE, has worked with the District since 2006 on a variety of engineering and construction projects. We are proud to say that our local staff lives, works, and plays within District boundaries.
- **Extensive Regulatory Experience** – GHD understands the rigor required to maintain and operate District facilities in this regulatory universe. We have extensive FERC, USFS, State RWQCB and Water Board, and local county experience from planning through construction support and have successfully completed more than one hundred projects for the District.
- **Construction Support** – Our staff is dedicated to reacting to construction needs as they arise in order to help the District quickly respond to construction issues.
- **Knowledge of Local Conditions** – GHD's knowledge of the geologic conditions in the Sierra Foothills and High Sierras is extensive. We have performed geotechnical and survey investigations and provided civil and structural design for all types of construction projects from towers at the top of hard rock mountain peaks to building and tank foundations in the sedimentary deposits of the lower foothills.

In the pages that follow, we are excited to show you how GHD's team will carefully listen to your needs and tailor our resources to successfully meet the goals of the District's Capital Improvement Plan. We look forward to continuing to serve the District for the next three years. If you have any questions regarding our submittal or need additional information, please do not hesitate to contact me at 530.350.0918.

Respectfully submitted,

Tom Burkhart, PE, SE
Senior Project Manager
530.387.5692
Tom.Burkhart@GHD.com

Amy Deakyne, PE
Technical Director – Dams and Hydropower Lead
US West Region
530.350.0918
Amy.Deakyne@GHD.com

1 | Scope of Work

Unique Project Considerations

In order to achieve the design objectives, GHD has prepared a proposal that includes significantly more geotechnical budget and work than a common bench removal and replacement project. Specifically:

Geophysics – The RFP identifies ten seismic refraction lines. GHD agrees with the approach. Ten seismic refraction lines provide for coverage of the key design elements (top and toe) over the entire length of the current Flume 45 project. Five seismic refraction lines will be performed at the downhill side (toe) of the bench to verify the depth to bedrock. Another five seismic refraction lines will be performed at the uphill side of the bench cut to also verify the depth to bedrock and essential information for tendon support design to save the rock bench. When combined with geotechnical borings, the requested geophysics program will result in a 3-dimentional continual network of subsurface data for the design; geophysics will "connect the dots" from the borings.

Geotechnical Borings – GHD agrees with the approach for geotechnical borings. Combined with geophysics, the borings will provide the nature and extent of soil and the depth to strong bedrock. Understanding the nature of strong bedrock at this site is critical to saving the rock bench. GHD also includes an additive cost to continue the borings into rock tendon/anchor supporting bedrock with HQ coring in order to confirm the design parameters for the rock tendons/anchors.

Rock Bench Coring – The RFP identifies eight horizontal cores from the downhill wall face into the bench. GHD agrees with the approach for rock bench coring. In fact, this element is a significant portion of our entire geotechnical budget. Rock bench coring provides verification that the entire bench is constructed of stacked rock and can be solidified in-place like we did on Flume 41 and recently on Flume 30 (what you see on the face of the wall is the same material behind the wall). If done properly, rock coring will provide critical information directing the design and providing the opportunity to save $1.5M in construction cost.

Background

Flume 45 is located in El Dorado County, California on the south side of U.S. Highway 50 east of the town of Pollock Pines. Flume 45 is part of the District's El Dorado Federal Energy Regulatory Commission (FERC) Project No. 184-CA (El Dorado Project), which consists of a series of dams, canals, flumes, siphons, penstock, and powerhouse to deliver water from the South Fork of the American River for drinking water and power generation.

Project Summary

Flume 45 is approximately 1,942 feet in length and consists of three sections. Section 3 of Flume 45 is approximately 942 feet in length and last replaced by PG&E in the early 1990's. In 2015, visual inspections and core samples of the wooden structural timbers were collected and analyzed. The findings of the inspection show movement as evidenced by failure of the bracing connection near the base of the columns. In addition, when the flume was replaced in the 1990's, undersized structural timber was used. This condition is compounded today by the degradation of the sills over the last 25 years that have resulted in overstressing of the wood flume support structure. In 2015, Hydro operations staff re-lined section three to prolong its use until a complete replacement can occur. The flume is of wood construction and is constructed on a historic hand stacked rock wall. Portions of the flume have been buttressed by PG&E with steel girders and columns. Columns, stringers, sills, posts, and braces have been replaced as needed to extend the service life of the asset. The 25 plus year old flume has now reached end of its useful life and requires replacement.

As currently envisioned, the Flume 45 Section 3 Replacement Project is to be constructed in two construction seasons during the 2024 and 2025 outage running from October through December. The project is envisioned to consist of replacing the wood flume with concrete flumes/canal.

GENERAL SCOPE OF SERVICES

GHD will be responsible for conducting design review meetings at the District's main office and providing administrative support including preparing, copying, and distributing agendas, meeting minutes, developing and maintaining overall project schedule in Microsoft Project, geotechnical analysis, surveying, preparation of design drawings and specifications, and action item follow up. GHD will be responsible for monitoring the project schedule and their budget.

1. Meetings and Site Visits:

a. Kickoff meeting – Assume one 3 hour kickoff meeting for the project.

b. Design review meetings – For the 30%, 50%, 75%, and 100% design review meetings assume 4 meetings at 4 hours for each meeting. For the Bid Set design review meeting assume a 2 hour meeting.

c. Team site visits –GHD will conduct site visits during the design phase. All site visits will be coordinated with the District. It is anticipated that numerous site visits will be required as the design is developed. It is assumed this project will have 4 site visits at 5 hours each.

2. Progress Reports and Schedules:

a. Monthly progress reports – Prepare and submit monthly progress reports that will accompany the invoice. These reports will include progress-to-date, schedule updates, District action items, team action items, status of deliverables; problems encountered with suggested solutions, budget expenses vs. anticipated and anticipated work for the next month.

b. Schedule – Provide and maintain a design schedule and submit to the District as changes occur. The District desires 100% Design Set design to be complete by February 2023 for submission to FERC. Project close out and warranty will continue into 2026. For a more detailed schedule see Item 10. GHD will develop and maintain the schedule in Microsoft Project and include planning, geotechnical investigation, design, environmental, permitting, FERC review, bidding, and construction.

3. Field Topographic and LiDAR Surveys

A recently completed LiDAR survey exists of the entire route of the Project 184 canal system.

3.1 Topographic Survey of Flumes 45 Section 3

a. A field topographic survey will be conducted as needed to augment the existing LiDAR survey for mapping and design of the Flume 45 Section 3 Replacement Project. This survey will include trees greater than 6" DBH within the FERC boundary; borrow sites, construction areas, and any feature that was not picked up clearly with the LiDAR survey.

b. Post process field data and incorporate data into the LiDAR base mapping.

c. Scale of this work will match LiDAR mapping scale and contour intervals.

d. Complete QC of new work and its integration with the LiDAR base mapping.

e. Provide electronic copies of mapping to District in a format that is able to be viewed and edited by District software.

4. Geotechnical Investigations

Geotechnical investigations will be performed for design for all phases of the project. A geotechnical report will be prepared that documents anticipated conditions and will be made available to the contractor during bidding. All field work will be coordinated with the project manager prior to beginning work. Report will also be provided to FERC for review. GHD will address any questions or comments by FERC.

NOTE: Due to the steep and unstable terrain, safety precautions will be taken to prevent rock and debris from being dislodged and impacting Flume 45 Section 3 and Highway 50.

4.1 Field Investigations

a. Perform site reconnaissance.

b. Review available published geotechnical data applicable to the project.

c. Rock wall core borings shall be done according to the following table.

No. of Corings	Description
8	Spaced to get a representation of the rock walls profile

Cores will be logged and collected for laboratory testing. Water pressure test will be performed at each boing at low pressure to determine permeability and applicability for permeation grouting. Core holes will be back grouted and finished even with the adjacent rock. Coring will be scheduled with District staff to ensure that the canal integrity is not threatened.

d. Dig test pits, or perform cone penetrometer tests, obtain soil samples, and do other field work and tests as required to obtain sufficient information to make recommendations in the geotechnical report. Soils shall be classified using the Unified Soil Classification System. Soil samples shall be taken from depths at and below footings or where concrete structures will be placed.

No. of Borings	Description
4	Assess borrow, stability and subgrade

e. The following will be presented with the summary report.
   - Drawing showing boring and coring locations.
   - Drawing showing local geologic cross section profiles.

4.2 Field and Laboratory Tests

Perform field and laboratory tests of the type and number as required to obtain sufficient information to prepare the geotechnical report. In the report, standards used for laboratory tests must be stated. Currently, there is one potential borrow sources identified for the project. The soil stockpiles are assumed to be from the SPI staging area. Other borrow sites may be identified as design progresses requiring additional testing.

Laboratory tests of native in-situ and potential borrow source materials include the following:

a. Classification of soil materials in accordance with the Unified Soil Classification System (i.e., Atterberg limits and grain size)
b. Sieve analysis
c. Strength of soil
d. Strength of rock in psi
e. Moisture content and dry density
f. Compaction
g. Perform laboratory testing for corrosion on at least one sample; the laboratory testing of each soil sample shall include the following:
   - pH
   - Resistivity (ohm-centimeter)
   - Redox (millivolts, positive or negative)
   - Sulfides (positive, negative, or trace)
   - Chlorides (parts per million)
   - Sulfates (parts per million)

4.3 Seismic Refraction Studies

The purpose of the seismic refraction is to provide detailed subsurface topographical information; therefore, a minimum 24 geophone setup at maximum 8 foot interval is proposed with shots spaced at 4-foot intervals. A closer spaced interval while maintaining the approximately required total length of 180 feet may be proposed.

The scope of the seismic refraction services includes the following.

No. of Seismic Lines	Description
10	Assess depth to rock and subgrade

The following will be presented with the GHD's summary report

- Drawing showing seismic refraction survey line locations
- Drawing showing local geologic cross section profiles

4.4 Geologic Landslide Mapping

Provide detailed geologic mapping of the landslide conditions at Flume 45 Section 3. Prepare numeric analysis defining the current Factor of Safety and the proposed mitigation and resulting FOS under static and pseudo-static (dynamic) loading conditions with surcharge from the Facility.

4.5 CBC Seismic Study

Provide seismic design information in accordance with Chapters 16 and 18 of the 2016 CBC in sufficient detail to support seismic class recommendation for design work. The ground motion shall be based on the geologic, tectonic, seismic recurrence information, and foundation material properties associated with the specific site. The design ground motion shall be 10 percent probability of being exceeded in 50 years.

4.6 Geotechnical Report

Submit a draft and final geotechnical report. A draft report shall be submitted for the review and comment by the District. The final report shall incorporate changes as required by these comments. For all design values, indicate if they are

allowable design values or ultimate values to avoid use of double safety factors in the design. The report shall contain the following information.

4.7 General Information:

a. Provide a site description and review of historical photographs.
b. Provide a list of existing geotechnical reports that have been prepared for the project site.
c. Discuss the general and local site geology.
d. Discuss the general site stability.
e. Discuss the seismicity of the area.
f. Discuss the magnitude and impact of ground shaking at the site.
g. Discuss the potential for liquefaction or settlement during earthquakes.
h. Provide the depth to groundwater, if encountered, whether the groundwater is perched, and the historical summary of annual groundwater fluctuations (if available).
i. Discuss the corrosivity of the soils at the site with respect to corrosion rates anticipated for buried structures and with respect to anticipated deleterious effects on concrete coatings and structures.
j. Provide a plan showing the locations of test pits and a log of test pits.
k. Discuss the type of bedrock and estimated compressive strength, if encountered.
l. Provide a summary of all laboratory test data.
m. Discuss pertinent geotechnical factors (soil, rock, geology, and water) that could affect the design and construction of this facility.
n. Include a statement in the body of the report that the report was prepared to provide information to the District for design purposes.

4.8 Conclusions and Recommendations:

a. Recommend lateral soil pressures for flat and sloping backfill for use in the design of buried structures. Provide information for soil located above the water tables to include the following lateral soil loads:
    - Active soil pressure
    - At rest soil pressures for stiff structures
    - Passive soil pressures
    - Surcharge soil pressures
    - Design parameters for MSE wall and elevated steel flume support structures.
b. Recommended landslide repair/mitigation.
c. Recommend the type of foundation system(s) to be used.
d. Recommend allowable spread foundation bearing pressures and minimum embedment depths for isolated and continuous foundations.
e. Provide information on the expected settlement and differential settlements for structures.
f. Recommend mitigation measures for expansive soils.
g. Recommend sub base requirements for foundations.
h. Provide design criteria for MSE retaining-wall-type structures. This information shall include unit weight, internal friction angle, cohesion, and coefficient of friction between soil or sub base and foundation for use in resisting lateral load.
i. Provide recommended bench section for heavy construction vehicles.
j. Recommend maximum slopes for permanent cuts and fills and discuss the need for erosion control.
k. Provide requirements for under drain and drain pipe trench design including:
    - Compaction and moisture requirements for bedding and backfill
    - Methods to prevent the under drain and drain pipe bedding and backfill from acting as a conduit for the flow of groundwater along the pipe
    - Recommendations for use of geotextiles, if necessary

- Identify special design requirements to minimize under drain and drain pipe settlement, including seismically induced settlement.

l. Discuss excavation difficulty, depth to bedrock, bedrock excavation/blasting.

m. Recommend 2022 California Building Code seismic design coefficients for the project site for use in seismic design.

n. Provide recommendations for excavation and site earthwork, including procedures for subgrade preparation and proper placement of fills and backfill.

o. Recommend suitable materials for site fills and for backfill around structures (i.e., native soil, imported soil, or other) and compaction requirements.

p. Recommendations for processing soil stockpiles at the SPI staging area for use as suitable fill material in the project.

4.9 Deliverables

a. Draft Geotechnical and Seismic Reports – 2 bound copies and 1 electronic copy on flash drive.

b. Final Geotechnical and Seismic Reports – 2 bound copies and 1 electronic copy on flash drive.

5. 30% Design Memorandum

Develop a design memorandum (DM) at the 30% design level that will be used as a planning level study to evaluate Flume 45 Section 3 replacement options only. The DM is to evaluate landslide stabilization options, canal, flume bench or flume support structure alternatives, drainage, foundations types, etc. for a project that can be completed during a normal canal outage (Oct 1 to mid-December). The DM shall also assess steel reinforced air placed concrete canal, precast concrete, MSE bench, and steel support structure options including life cycle costs and opinion of probable cost for each. The DM will be developed after the geotechnical report has been completed. The 50% design will commence after the project team has reached consensus and the DM is finalized.

6. Project Design and Design Documents

The Flume 45 Section 3 Replacement project design will be based on the outcome of the 30% DM as stated above.

GHD's design and bid documents will:

a. Conduct design review meetings that will be held at the District's office in Placerville.

b. Meet all applicable and most current codes, laws, regulations, FERC Factors of Safety and Guidelines, and professional standards.

c. Identify access routes and schedule constraints. **It is assumed that existing access routes to Flume 45 will be used for this project.**

d. Be in conformance with the sixteen-division format of the Construction Specification Institute and the District's design standards. GHD will cooperate with District in coordinating the plans and technical specifications with the District supplied standard Division 0 and Division 1 specifications. GHD will provide work descriptions and final opinion of probable cost for inclusion into District's standard specifications and complete sections 00400, 00520, 01100, and 01200 in addition to providing additional Division 1 construction contract specifications as necessary for the Project and not supplied in District's standard specifications. GHD will also provide a list of anticipated submittals per section 01330.

e. All necessary quality assurance and quality control procedures such as inspections, tests, submittals or other measures that the Contractor must satisfy, meet or perform will be clearly identified. The QCIP will be prepared by GHD for submittal to FERC and respond to any comments from FERC.

f. Include the requirements for tests, controls, performances and certifications needed to verify the specified quality level of Work for that specification section and QCIP.

g. Include dedicated subsection within each work-related specification section to identify and list required Contractor submittals along with testing and inspection requirements.

h. Provide a minimum of three alternatives on design with respect to the historic rock wall. These alternatives will be used to consult with the State Historic Preservation Office regarding potential adverse effects to the historic rock wall. The alternatives will include constructability review, cost estimates, and an analysis of why alternatives that might avoid adverse effects are infeasible or were not selected for the project design. Alternative evaluated shall include but is not limited to an analysis of in-kind replacement and buttressing with steel girders and columns (as previously done by PG&E). These alternatives will be presented in the 30% Design Memorandum.

i. Provide a separate listing of tests, inspections and reports required under the construction plans and specifications prepared by GHD, and responsibility therefore, to occur in connection with the Project and QCIP.

j. Incorporate the District's comments at each design review phase.

k. Include cost estimates which will take into consideration the current bidding environment.

l. Include a hydraulic analysis model and memorandum to ensure that the replaced canal maintains a minimum of 12" freeboard at peak design flow rate of 165 cfs.

Deliverables:

a. 30% Design Submittal (Preliminary Design)
    1. 30% design level drawings with the 30% DM. Drawings must identify impacted wetlands or waters of the United States, borrow and fill sites, trees to be removed, project improvements, etc.
    2. Microsoft Project schedule including design, permitting, agency approvals, FERC review, bidding, and construction.
    3. The DM is to be finalized prior to starting on the 50% design phase.
    4. Planning, design, bidding and construction schedule in MS Projects.

b. 50% Design Submittal
    1. 50% level design drawings.
    2. Written response to any comments on 30% design that was not incorporated into the drawings.
    3. Detailed project description that will be used to obtain permits, agency approvals, and associated environmental documents.
    4. Revised Opinion of Probable Cost.
    5. Project Description for submittal to permitting agencies.
    6. Updated Microsoft Project schedule.

c. 75% Design Submittal
    1. 75% level design drawings.
    2. Written response to any comments on 50% design that was not incorporated in the design drawings.
    3. Revised Opinion of Probable Cost.
    4. Updated Microsoft Project schedule.
    5. Technical specifications in Microsoft Word format.

d. 100% Design Submittal
    1. Written response to any comments on the 75% design that was not incorporated.
    2. The 100% submittal shall essentially be biddable documents that will be submitted to FERC.
    3. Flash drive with front end documents and technical specifications in Microsoft Word format, and drawings in AutoCAD and high resolution PDF in 11x17 and 24x36 format.
    4. Design calculations for submission to FERC.
    5. Hydraulic design memorandum summarizing findings from the hydraulic model.
    6. Electric copy of the FERC Quality Control Inspection Program (QCIP) documents for submission to FERC.
    7. Revised Opinion of Probable Cost.
    8. Front end specification as outlined in section 6d.
    9. Revised technical specifications in Microsoft Word format.
    10. Constructability review documentation.
    11. Updated Microsoft Project schedule.

e. Bid Set Design Submittal
    1. Written response to any comments on the 100% design that was not incorporated.
    2. Final project plans and specifications will reflect required FERC and regulatory requirements and will be complete within 10 working days from receipt of District comments.

3. Flash drive with electronic copy in Microsoft Word of “Final” front end documents of sections 00400, 00520, 01100, 01200, 01330, technical specifications, and complete plan set in AutoCAD and high resolution PDF in 11x17 and 24x36 format.
4. Final Opinion of Probable Cost.
5. Updated Microsoft Project schedule.
6. QA/QC review documentation.
7. District signature on coversheet & stamped plan set by Engineer of Record.

7. Regulatory and FERC / Legal Descriptions

The District will obtain the regulatory and environmental permits required for the work, along with FERC notification of the design. It is anticipated that the 50% design drawings will be used to obtain the regulatory permits, and that the 100% design drawings will be submitted to FERC. GHD will prepare supporting documents, including drawings and details, as needed for the approvals and respond to comments received.

2 | Relevant Experience and Expertise

GHD works closely with other water districts and power providers throughout the Sierra Nevada Foothills. Our clients face many of the same project types and struggle with similar challenges to the District. Our project approach utilizes a project manager who becomes the client’s main point of contact throughout the life of the project. Each discipline then receives a discipline leader to oversee the technical work and maintains a clear line of communication with the project manager for the entirety of the project. The following is a list of some project examples which highlight the experience of our firm and team members.

EID Caldor Fire Flume 4, 5 and 6 Emergency Replacements

El Dorado County, CA

As a result of the Caldor Fire that swept through El Dorado County August of 2021 GHD responded immediately to this emergency. GHD was contracted to support the District with Engineering Design and Drafting, Site Topographical Surveys, Geotechnical Investigations, HazMat Testing and Reporting, Engineering Support during Construction, District Inspections, QCIP, As-builts and Reporting, and Project Management services.

Forced to cease running water until repairs could be completed GHD worked with the District and Contractor to design and repair the burned wooden flumes in just 6 months. In this 6-month window, GHD was contracted to complete geotechnical assessments, land surveying, design documents, and support construction of repairs. GHD met EID’s deadline utilizing our highly skilled design team working alongside an experienced contractor with whom our past experience and the ability to communicate enabled the success of this project.

The commitment and flexibility of key members allowed design and construction to advance simultaneously on parallel tracks to meet the challenging deadline. A strong sense of teamwork and high level of commitment helped the project succeed while 24-hour work days were conducted in historic weather conditions. In addition to inclement weather, challenges included the lack of vehicle access to the site, steep terrain, and saturated earth.

GHD developed innovative techniques to access the damaged facilities and restore service in the spring of 2022, in order to meet peak summer demands. Our design replaced approximately 1000 feet of canal of this critical facility with a cast-in-place reinforced concrete U-Shaped Canal and Flume.

EID Flume 38-40 Replacement

El Dorado County, CA

GHD was contracted in 2016 to provide land surveying and the multi-discipline engineering assessment, design, and construction services to support the conversion of Flumes 38 and 39-40 from elevated wood flumes to a canal. Prior to final design, the District opted to replace the old wooden flumes with cast-in-place concrete canal on engineered bench using mechanically stabilized earth (MSE) retaining wall systems.

Flumes 38 and 39-40 are components of El Dorado Irrigation District’s multi-year Capital Improvement Program to upgrade the facilities of the El Dorado Canal, FERC Project No. 184.

Flume 38 was locally destabilized following a historic breach, and the area integral to support the facility no longer met current standards. Included in GHD's design of this project are improvements to the canal bench and the design of replacement bridges over the canal upstream and downstream of the project site at Camp X and R71. Through minor improvements and construction of a new canal crossing, overall construction cost would be lowered by providing vehicle access to the site. With the improved access and eliminating complex elevated superstructure assembly at Flume 39-40, flume benches could be reconstructed using MSE retaining walls to support the new flume sections. The added benefit of improved maintenance access will pay additional dividends to the District for years to come. Further, by constructing the improvements simultaneously, the District could realize a significant savings in contractor costs by cutting mobilization/demobilization efforts and through efficient circulation of equipment and haul trucks utilizing the R71 and Camp X access roads.

Project construction restored the integrity of the District's El Dorado Canal's system of flumes, canals, tunnels and dams, its water flowing over 22 miles to the El Dorado Powerhouse, capable generating 21 MW of renewable green power that produces an annual revenue averaging $8 million. Improving the system benefits the public by reducing the amount of water loss while providing drinking water to the citizens and visitors of western El Dorado County.

EID Flume 30 Replacement

El Dorado County, CA

The 22-mile-long El Dorado Canal, FERC Project No. 184, consists of flumes, canals, tunnels, and dams. GHD's Flume Condition Assessment identified Flume 30 as a high-priority flume for replacement. Its aged wood-frame flume construction and transition structures offers a design water flow capacity of 160 cubic feet per second. The upstream end of Flume 30 transitions from a TBM tunnel (8-feet 8-inches in diameter), and our investigations included a stability evaluation and flow dynamics for the planned improvements. The downstream end of Flume 30 transitions to lined canal.

In 2020 GHD's project team prepared plans, specifications, and estimates to support a completely new construction access that would minimize or eliminate expensive helicopter use during construction as well as the replacement of elevated wooden flume with a new shotcrete canal on a mechanically stabilized earthfill (MSE) bench. However, in the fall of 2021 the Caldor Fire destroyed the wooden flume and GHD was call upon to support the District in a replacement that would take 6 month opposed to the two years originally slated for this project. In this 6-month window, GHD was contracted to redesign the plans from an above grade cast-in-place flume to a mostly in-grade concrete canal. GHD met EID's deadline utilizing our highly skilled design team working alongside an experienced contractor with whom our past experience and the ability to communicate enabled the success of this project. The commitment and flexibility of key members allowed design and construction to advance simultaneously on parallel tracks to meet the challenging deadline. A strong sense of teamwork and high level of commitment helped the project succeed while 24-hour work days were conducted in historic weather conditions. In addition to inclement weather, challenges included the lack of vehicle access to the site, steep terrain, and saturated earth.

EID Flume 41 Replacement

El Dorado County, CA

Cohesive civil, structural, geotechnical, electrical and land survey services were required for the replacement design and construction of Flume 41 (located at an elevation of approximately 3,850 feet) and Spillway 23. This design called for the removal of 697 feet of wooden fume and spillway structure; the flling in of 603 feet of canal to serve as a temporary spur road for supplies and equipment to be trucked to the Flume 41 bench; scaling the uphill side of the fume bench of trees, loose soil, and boulders to meet FERC mandated Factors of Safety; stabilizing in-place a hand-stacked rock retaining wall; new concrete fume boxes; and a new automated spillway. The absence of an adequate access road for delivery of supplies and equipment to the project was estimated to require approximately $1.5 to $2 million in helicopter expenses. The solution involved the design and construction of an improved access road, a strong wide bridge over the canal, and a staging area for construction supplies and equipment at a cost of $1.5 million.

Since areas of the Flume 41 bench were approximately thirty feet tall, exacting design efforts were vital. A constructability review suggested that an existing hand-stacked rock wall supporting a portion of the fume and dating back to 1876 did not achieve the FERC's stability criteria and contained rocks too large to be used as engineered fill without expensive handling and processing. The engineered design called for adding a single mat of rebar to the face of the stacked rock wall and

spraying shotcrete over the face; it was also held together by anchor bolts cored through the stacked rock and into ten feet of solid granitic bedrock. Next, stabilization grout was pumped into ports drilled eight feet apart from the top of the stacked rock to fll up any voids between the rocks.

On the upstream side of the Spillway 23, another section of Flume 41 also contained loose boulders. Engineering design called for removal of this rock followed by the construction of a concrete leveling pad to serve as the foundation of a mechanically stabilized earthen (MSE) wall to stabilize the degraded bench. The engineered MSE wall consists of numerous layers of crushed rock in metal cages, strong synthetic geogrid material, and engineered fill.

The existing Spillway 23 required a manual release of water. The new design called for a fully-automated structure utilizing SCADA (supervisory control and data acquisition), a computer-controlled system that monitors and controls specific processes and can include multiple sites and large distances. Above and below the spillway structure, sensors in Flume 41 conveys current water levels and other data to EID headquarters.

Following a successful design phase, GHD provided bid assistance; civil, geotechnical, and structural construction support; SWPPP stormwater services; construction staking; precast concrete Quality Control Inspection Plan (QCIP); construction observation and testing services; special inspection; and construction management and administration. Flume construction was completed in the short construction window delineated by EID's annual 75-day scheduled system outage in 2013. Construction stormwater services consisted of conducting SWPPP feld inspection and monitoring services for BMP items at the project site to ensure the project remains in full compliance with the State Water Board permit.

EID Flume 44 Replacement

El Dorado County, CA

GHD developed a feasibility report with recommendations of construction methods to replace severely deteriorated flumes, including Flume 44, in the most cost effective manner without interrupting the normal operation of the Canal. GHD designed and supported construction for both the interim repairs and permanent replacement.

The El Dorado Canal (Canal), FERC Project No. 184 provides more than one-third of the drinking water supply to El Dorado County and delivers water to a hydroelectric powerhouse capable of generating 21 MW of renewable green power. In 2014, GHD developed a feasibility report with recommendations of construction methods to replace four water conveyance flumes—all in severely deteriorated condition—in the most cost effective manner that would not interrupt the normal operation of the Canal.

Located on US Forest Service (USFS) property, Flume 44 was 473 feet in length with two elevated sections. In 2015, GHD provided USFS coordination assistance, fall restraint guard rail design, repair design to Rock Crusher Road that provides access to Flume 44, as well as storm damage repair design to the mechanically stabilized earth (MSE) wall and the generator building at adjacent Spillway 23. In 2016, GHD provided civil and geotechnical design of a replacement MSE wall to remediate tree damage and improve access on Rock Crusher Road and a canal bridge. Interim repairs on a total of 30 feet of flume consisted of the replacement of degraded timber sub structure components in various locations. GHD provided support for the District’s construction crews implementing repairs as part of their maintenance activities.

Design and construction of permanent flume replacement was divided into two phases due to the length of required repairs and the need to improve construction access. Completed in 2018, Phase One included improvements to the access road and staging area, box culvert design and construction, and new canal conveyance with adjacent bench improvements to support HS-20 Traffic Loading during construction. Completed in 2019, Phase Two included landslide mitigation (drainage, soil and rock anchors, and MSE buttressing), construction of a new MSE bench, and conversion of the elevated wooden flume into a reinforced shotcrete canal.

For both phases, GHD’s work consisted of the preparation of PS&E reviewed by USFS and FERC as well as QCIP and construction support that included daily inspection, specialty inspection, and construction and engineering services. Specialty inspection services included construction observation and testing of excavation and keyways; installation of subsurface drainage; earth-fill compaction verification; and materials testing of shotcrete, concrete, and grout. Engineering support included construction meetings, RFI and submittal responses, site visits, field clarifications, and immediate response to problems encountered by construction crews.

3 | Project Team

Tom Burkhart, PE, SE

Project Manager

Tom Burkhart has is experienced in structural engineering analysis, design and construction, value engineering, forensic evaluations, assessing aged, damaged, or otherwise deficient structures, stability analysis, demand vs. capacity analysis, compliance with design standards and building codes and life cycle cost evaluations. As a senior project manager, Tom has contributed to many significant multi discipline projects including a variety of water conveyance, hydroelectric facilities, power transmission and distribution facilities, telecommunication facilities, and solid waste facilities.

Qualifications: BS Civil Engineering, 1986, Sacramento State University; Model Law Professional Structural Engineer, CA, AZ, NV

Amy Deakyne, PE

Program Director

Ms. Deakyne has over 16 years of experience, which includes structural analysis, design, compliance with design standards and building codes, construction review and oversight, and project management. Specializing in project management of multi-discipline engineering projects. Ms. Deakyne leads our dams and hydropower engineering team for the US West. She is adept at developing, reviewing, monitoring, and meeting budgets and project schedules while organizing multiple internal engineering disciplines. Ms. Deakyne has worked with the District since 2006 on a variety of successful engineering and construction projects that have kept the El Dorado Canal water flowing.

Qualifications: BS, Architectural Engineering, California Polytechnic State University, San Luis Obispo, 2006; CA Professional Engineer

Gregory Watanabe, PE

Principal in Charge

Mr. Watanabe has an extensive amount of professional experience in capital improvement program and project management. His emphasis has been in the oversight, planning, development, analysis, assessment, rehabilitation, design and construction of water distribution and transmission systems and hydraulic system modeling for public utility systems. Mr. Watanabe has served as Principal in Charge for many of the projects managed by the engineering staff in GHD's Cameron Park office. Those projects include the District's water conveyance and hydroelectric facilities.

Qualifications: BS, Civil Engineering, California State Polytechnic State University Pomona 1997; CA Professional Engineer

Carl Moore, PE/QSD, LEED AP, ENV SP

Civil Engineer

Mr. Moore has more than 20 years of civil engineering in planning, design, and construction services. His technical background includes preparation and review of civil engineering design calculations, reports, master plans, improvement plans, engineering estimates, specifications, and SWPPP and water quality management plan documentation.

Qualifications: BS, Civil Engineering, Santa Clara University, 1998; CA Professional Engineer #C62181; CA Certified QSD

Steven Millett, PE

Civil Engineer

Mr. Millett's technical background includes conducting site feasibility studies; earthwork analysis and determining earthwork quantities; site development including site grading and drainage design and site utility layout; existing utility locating and mapping; roadway and intersection design; designing hydraulic structures, slope protection, and dredging; stormwater treatment, flow control, and detention; firewater loop design; performing hydrologic and hydraulic modelling, stormwater calculations, and existing stormwater infrastructure analysis; preparing sewer, water, and drainage reports; developing bid set drawings, technical specifications, and construction cost estimates for both new structures and facility improvement projects.

Qualifications: BS, Civil Engineering, Seattle University, WA, 2016; CA Professional Engineer

Paula McKenna, CPESC, QSD/QSP

Civil/Geotechnical Designer

Ms. McKenna has more than 16 years of experience, which lies in research, coordination, and drafting of civil and geotechnical plans. Her technical skills also includes preparation of civil engineering design calculations,

reports, cost estimates, and specifications for District hydroelectric projects.

Qualifications: BA, Civil & Arch. Design/ Drafting, Precision Technical Institute, Sacramento, 2005; AA, Design Drafting: Electro/Mechanical PCB Design, Mission College, Santa Clara, 1998; CA Certifications for CPESC, QSD/QSP

David Jermstad, PG, CEG, QSD

Engineering Geologist

Mr. Jermstad has more than 43 years' experience in all aspects of engineering geology. Since 1997, he has been responsible for leading District projects and FERC regulated engineering projects. He managed 6 award-winning multi-discipline projects for FERC Project 184 and has completed detailed geotechnical and seismic hazard analysis on scores of FERC Projects, including Nos. 184, 233, 2019, and 2101 as well as the initial and updated detailed assessments of the El Dorado Canal.

Qualifications: BS, Geology, CA State Univ., Sacramento, 1984; CA Professional Geologist; CA Certified Eng. Geologist; CA Certified QSD

Samantha Faddis (Moose), PE

Structural Engineer

Samantha's professional experience includes performing structural design and analysis for public and private sector projects. Samantha has performed analysis on a variety of structure types including buildings, bridges, retaining structures hydropower infrastructure, water and wastewater treatment plant infrastructure, and infrastructure for solid waste applications. Samantha's technical expertise includes the analysis and design of all major construction materials. She is knowledgeable on the current code requirements and adept at the computer modeling and analysis of structures.

Qualifications: MS Civil/Structural Engineering, University of California Davis, 2013; BS Civil Engineering, Chico State University, 2011; Professional Structural Engineer, CA, AZ, IL, OR

Patrick Brutzman, PE

Structural

Patrick Brutzman has strong fundamental and technical skills in structural design and analysis. His professional experience ranges from schematic design to construction documents and construction administration. He leverages his experience in mechanics of materials and retrofit/remodel work to adapt to unconventional design and detailing constraints within projects.

Qualifications: MS Architecture, BS Architectural Engineering, California Polytechnic State University San Luis Obispo, 2017; CA Professional Engineer

Alyceson Pratt

Structural Designer

Ms. Pratt has more than 23 years of experience in engineering design and drafting. She has served as Designer/ CAD Technician on a great number of District projects.

Qualifications: AA in Design Technology, American River College, 2006; AA General Education, Folsom Lake College, 2006

John Hanser, PLS

Survey

Mr. Hanser has more than 20 years of survey experience that includes topographic, boundary, aerial, and construction surveys, and the preparation of maps and exhibits. He is experienced with the protocol and reporting rigor required for federal/state permitted projects and is proficient with a broad spectrum of conventional and non-conventional survey equipment.

Qualifications: AS, Sierra College, Rocklin, CA, 1996; CA Professional Land Surveyor

Subconsultants

Our project teams will rely on support from these subconsultant partners with the FERC experience and the expertise necessary to achieve the District's goals:

NV5

Holdrege & Kull was founded in 1993, joined NV5 in 2017. Founded in 1949, NV5's local offices specialize in civil, geotechnical engineering, environmental engineering, and construction quality assurance (CQA).

http://www.NV5.com | Chuck Kull | 530.478.1305 | Chuck.Kull@NV5.com

Taber Drilling

Taber Drilling has been performing subsurface exploration for soils, materials and foundation investigations for well over 60 years in some of the most difficult and varied field conditions. Field personnel are OSHA certified (29CFR 1910.120).

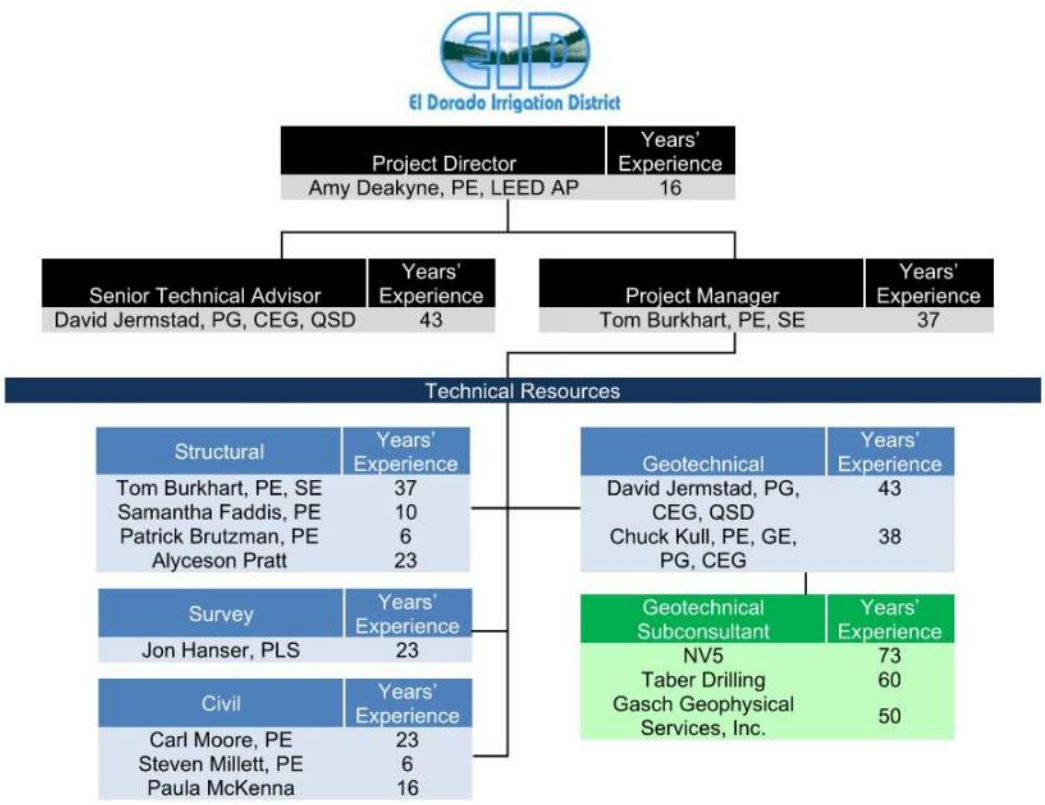
http://taberdrilling.com | Brian Young | 916.371.1690 | byoung@taberdrilling.com

Gasch Geophysical Services, Inc.

Gasch Geophysical Services, Inc. (Gasch) provides geophysical services, including Seismic Analysis, for a wide variety of applications related to the engineering, geotechnical, environmental and exploration professions. Gasch emphasizes the science of geophysics by integrating geophysical techniques appropriate for each situation.

http://geogasch.com | Kent Gasch | 916.635.8906 | **kent@geogasch.com**

Organizational Chart



4 | Quality Assurance and Control/Conflicts

Quality Assurance/ Quality Control

GHD firmly believes that corporate Quality Assurance/Quality Control (QA/QC) is essential to delivering the consistent quality of service expected by our clientele. GHD's quality commitment to our clients is reflected in the following Quality System Policy Statement.

GHD's success at exceeding our clients' needs is evidenced by the high percentage of repeat business that GHD enjoys with many long term clients and by the results of client feedback questionnaires. GHD is registered under the ISO 9001:2015 international standard in Consulting, Engineering, and Design Services. To date, under our Quality System client feedback survey, 97% of respondents have indicated GHD's overall performance was *Good* or *Excellent*, and 98% have indicated GHD met or exceeded their expectations.

Quality System Policy Statement

At GHD, we harness the experience and capability of our connected global network to deliver quality outcomes to our clients across the entire asset value chain.

Our core purpose is to create lasting community benefits together with our clients. We are guided by our client service led strategy, which responds to the global demands of water, energy, and urbanization.

We are committed to the continual improvement of the effectiveness of our Quality Management System, which encompasses all professional services undertaken by our clients.

GHD offers QA/QC services to our clients throughout the span of their projects by providing a variety of pre-construction services including responding to requests for information during the bid process. Our goal is to respond immediately, thus becoming a driving force toward project completion. During construction, GHD is available to provide additional insight or clarification as well as onsite observation to immediately identify obstructions to successful project completion.

Conflicts

GHD has no current or foreseeable actual or potential professional conflicts that could hinder the provision of the requested services and will not risk our relationship with the District to bid on any work that would create said conflict.

5 | Client References

Reference: *MR. NATHAN BOWERSOX, PE,* **SACRAMENTO MUNICIPAL UTILITY DISTRICT**
Principal Civil Engineer, Power Generation | 916.732.5552 | nathan.bowersox@smud.org

Reference: *MR. DARYL NOEL,* **SR DIVERSIFIED, LLC**
Hydroelectric Consultant | 530.919.7056 | DarylN@SRDiversified.com

Reference: *MS. AUBREE FRENCH,* **CALIFORNIA DEPT OF GENERAL SERVICES**
Project Director II | 916.375.4230 | Aubree.French@dgs.ca.gov

6 | Contract and Insurance Requirements

GHD Inc is willing to execute a contract in the form shown in Exhibit B of the RFP, the Professional Service Agreement. In addition, we are able to comply with the insurance requirements of Appendix C of Exhibit B.

7 | Addenda

As requested in your RFP, we confirm that GHD has received Addenda No.1 issued by the District in response to this RFP, which were posted on the District's website and address SOW changes, Q&A, clarifications.

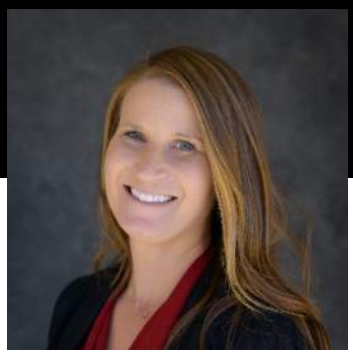
Appendix A

Resumes

A GHD Associate

Amy Deakyne PE, LEED AP

Project Director / Senior Project Manager



Location
Cameron Park, CA

Experience
16 years

Qualifications/Accreditations
– BS, Architectural Engineering, California Polytechnic State University, San Luis Obispo, CA, 2006
– Civil Engineer, CA #74859
– Leadership in Energy and Environmental Design Professional Accreditation (LEED AP)

Key technical skills
– Multi-Discipline Program / Project Management
– Hydropower / Dams Engineering Design/Analysis
– Structural Engineering Design/Analysis
– Engineering During Construction

Memberships
– Structural Engineers Association of California, Steel Construction
– American Society of Civil Engineers (ASCE)

Relevant experience summary

Amy Deakyne has over 16 years of experience in the engineering field, which includes structural engineering analysis, design, compliance with design standards and building codes, construction review and oversight, and project management for a variety of small and large projects in Northern California. She specializes in structural design and project management of water conveyance structures, flumes, canals, spillways, tunnels, bridges, buildings, retaining structures, and foundations for a variety of public and private clients ranging from water agencies, power agencies, municipal clients, as well as commercial and industrial development. Amy is experienced with management of multi-discipline engineering staff, field technicians, and subconsultants, all working within fixed budgets. She is adept at developing, reviewing, monitoring, and meeting budgets and project schedules; conducting site visits; organizing multiple internal engineering disciplines; coordinating with local regulatory agencies; performing construction observation; managing projects with limited site access; and providing designs to address site constraints. Amy has performed structural analysis and design for small and mid-rise commercial and industrial buildings, single-and multi-family residential buildings, tenant improvements, hydraulic structures, and bridge structures. Her experience includes the structural design of specialty foundation systems; Concrete Masonry Unit (CMU) and Cast-in-Place (CIP) concrete retaining walls; Mechanically Stabilized Earth (MSE) walls; and steel, concrete, timber, and CMU structures. As a project director, Amy provides support to project managers to ensure all the necessary resources are available for each project. She also serves as a client advocate, assuring that milestones are set and met, and that each client is fully satisfied with GHD's services and product.

Caldor Fire Flumes 4, 5, and 6 Emergency Replacement – FERC Project No. 184

Project Manager, Engineer of Record
El Dorado Irrigation District | Pollock Pines, CA

Project manager for the replacement of three separate wooden flumes that were destroyed in the 2021 Caldor Fire. Work includes flume alignment, a new shotcrete canal, a new access road, repairs to an existing access road and a new bench adjacent to each of the flumes. Challenges included designing and constructing at a fast pace to restore water to EID's critical infrastructure. MSE walls, Rip Rap slopes, and RSS slopes were utilized to provide support the canal bench on the steep terrain. Responsible for oversight of multi-discipline team including structural, civil, and geotechnical engineering, environmental assessment, construction inspection and QCIP teams.

Flume 38-40 Canal Conversion - FERC Project No. 184

Project Director
El Dorado Irrigation District | El Dorado County, CA

Responsible for oversight and support of the multi-discipline project team providing design and engineering for this canal conversion project that consists of the replacement of existing elevated wooden Flume 38—destabilized following a historic breach—to a canal and the replacement of existing elevated wooden flume to a MSE bench with canal. Included in this project are improvements to the canal bench and the design of two replacement bridges over the canal upstream and downstream of Flumes 38 and 39-40. With the improved access and eliminating complex elevated superstructure assembly at Flume 39-40, flume benches could be reconstructed using MSE retaining walls to support the new Flume 38-40 flume sections. Following approval of construction documents, GHD provided bid support, a US Forest Service survey, and an array of construction services to include construction staking, and Quality Control Inspection Plan (QCIP) and Specialty Inspection Services.

Flume 30 Replacement Design - FERC Project No. 184

Co-Project Manager, Senior Engineer
El Dorado Irrigation District | Pollock Pines, CA

Served as Co-Project Manager and Senior Project Engineer for the replacement of a 25-year-old elevated wooden flume with a 415-foot-long concrete canal structure. Replacement work included flume alignment, a new shotcrete canal, and a new access road to be constructed on a steeply sloping hillside within an undeveloped heavily forested area. Challenges included a natural 30-to-40-degree slope inclination throughout the project; the design and construction of MSE bench and walls were utilized to provide support on the sloping terrain. Responsible for advising/mentoring new project manager to provide seamless comprehensive project management, as well as assisting with structural engineering design.

FERC Project No. 184 Flume Conditions Assessment

Senior Engineer
El Dorado Irrigation District | El Dorado County, CA

Responsible for assisting in the collection of data and the evaluation of all elevated and at grade flume structures along the 22-mile water conveyance system. Duties included client consultation, conducting multiple site visits/assessments, data analysis, and report preparation. Findings of these flume condition assessments have been used to develop a CIP, prioritize flume replacement projects, and schedule ongoing maintenance.

El Dorado Irrigation District Flume 44 Replacement - FERC Project No. 184

Staff Engineer
El Dorado Irrigation District | Riverton, CA

Responsible for assisting with the structural design and engineering for the replacement of multiple severely deteriorated flumes, including Flume 44—473 feet in length with two elevated sections—and located on US Forest Service property. Work included development and preparation of Plans, Specifications, and Estimates (PS&E) and construction administration services in regard to structural engineering aspects.

Flume 41 and Spillway 23 Replacement Design - FERC Project No. 184

Project Engineer
El Dorado Irrigation District | Pollock Pines, CA

Responsible for preparation of the structural construction documents, opinion of probable construction cost, and technical specifications associated with the flume and spillway replacement project for the El Dorado Irrigation District. Provided structural design of new cast-in-place concrete spillway structure that includes a new pre-fabricated metal building. The project included pre-cast concrete flume as well as shotcrete lined canal. Also provided structural design of a new MSE retaining wall that supports the new flume bench. The project also included inspection, assessment, and stabilization of an existing stacked rock bench with the use of shotcrete lined facing, grouting of voids behind the facing, and rock anchors into the stable hillside behind the bench to provide stable support for the new flume above.

Other Related Areas of Interest

Recognized

- CEATI International Annual Conference, March 2020, Palm Springs, CA
- Northwest Hydro Association Annual Conference, February 2020, Seattle, WA
- PG&E Safety Training, Refreshed Annually
- Association of State Dam Safety Officials (ASDSO) Dam Safety National Conference 2019
- GHD Dams and Hydropower Technical Conference, November 2019, Newcastle, Australia

Career history

2018 - present	GHD, Senior Project Manager (Dams and Hydropower Lead – US West Region)
2013 - 2018	SAGE Engineers, Senior Engineer
2006 - 2013	Carlton Engineering, Engineer
2004 - 2006	Carton Engineering, Intern

David Jermstad PG, CEG, QSD

Senior Engineering Geologist

Location

Cameron Park, CA

Experience

43 years

Qualifications/Accreditations

- BS, Geology, California State University, Sacramento, CA, 1984
- Professional Geologist, CA #5591
- Certified Engineering Geologist, CA #1727
- Certified Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer, CA #G01727
- Certified Environmental Manager, NV #EM-1164

Key technical skills

- Geotechnical Field Techniques and Sampling Protocol
- Construction Inspection, Materials Testing, Quality Control Inspection Plan (QCIP) Protocol

Memberships

- N/A

Relevant experience summary

David Jermstad has over 43 years of experience in all aspects of engineering geology and site assessment. His expertise covers all aspects of project development from project evaluation and feasibility study through conceptual and detailed engineering to equipment and materials selection, project construction, construction management and inspection. David is highly experienced in the Western US with technical rock mechanics and slope stability in the field of analysis, design, and construction of embankment dams, levees, tunnels, canals, flumes, penstocks, and pipelines for water conveyance projects. He has experience in subsurface investigations, soil mechanics, retaining wall design criteria, seepage and piping, slope stability evaluations using limit equilibrium analysis, erosion protection design, and earthwork construction. His experience includes forensic investigation of seepage, settlement, stability, and deformation problems associated with embankments constructed on weathered rock, alluvial soils, glacial outwash, and other geological formations. As an engineering geologist, David is proficient in assessing seepage and piping through and beneath earthen dams constructed on or within various geologic environments, including but not limited to fractured and faulted rock, as well as glacial materials. He is familiar with identification of geological hazards including soft sediment deformation and numeric liquefaction evaluation in high seismic areas, exploration techniques, field and laboratory testing, and instrumentation. David's experience includes the design of subsurface drains, grout curtains and cutoff walls and he has a working knowledge of grout rheology, concrete mix designs, and other materials used in foundation seepage barriers. He is proficient in uplift pressures, rock mechanics including post tensioned high strength steel anchors to stabilize concrete structures, rock strength parameters development, and specialized techniques specific to grouting in galleries. Since 1977, he has been involved with hundreds of slope stability and rock mechanics projects and has interfaced with Caltrans, US Forest Service (USFS), Federal Energy Regulatory Commission (FERC), Bureau of Land Management (BLM), US Fish & Wildlife Service (USFWS), and the California Regional Water Quality Control Board (RWQCB). He has a working relationship with the USFS staff on slope stability and rockfall mitigation including projects in the El Dorado National Forest, Tahoe National Forest, and Stanislaus National Forest.

Caldor Fire Flumes 4, 5, and 6 Emergency Replacement – FERC Project No. 184

Senior Technical Advisor, Engineering Geologist
El Dorado Irrigation District | Pollock Pines, CA

Responsible for providing geotechnical design to support the replacement of three separate wooden flumes that were destroyed in the 2021 Caldor Fire. Work includes flume alignment, a new shotcrete canal, a new access road, repairs to an existing

access road and a new bench adjacent to each of the flumes. Challenges included designing and constructing at a fast pace to restore water to EID's critical infrastructure. MSE walls, Rip Rap slopes, and RSS slopes were utilized to provide support the canal bench on the steep terrain.

Flume 38-40 Canal Conversion - FERC Project No. 184

Project Manager, Senior Engineering Geologist
El Dorado Irrigation District | Pollock Pines, CA

Responsible for the activities of the multi-discipline project team that provided design and engineering for this canal conversion project that consisted of the replacement of existing elevated wooden Flume 38—destabilized following a historic breach—to a canal and the replacement of existing elevated wooden flume to a Mechanically Stabilized Earth (MSE) bench with canal. Included in this project were improvements to the canal bench and the design of two replacement bridges over the canal upstream and downstream of Flumes 38 and 39-40. With the improved access and eliminating complex elevated superstructure assembly at Flume 39-40, flume benches were reconstructed using MSE retaining walls to support the new Flume 38-40 flume sections. Following approval of construction documents, GHD provided bid support, a USFS survey, and an array of construction services to include construction staking, and QCIP and specialty inspection services.

Flume 30 Replacement Design - FERC Project No. 184

Senior Technical Advisor, Engineering Geologist
El Dorado Irrigation District | Pollock Pines, CA

Served as Senior Technical Advisor and Senior Engineering Geologist for this water conveyance replacement project. A 415-foot structure constructed of pre-cast, as well as cast-in-place concrete will replace the 25-year-old wooden flume, and a new access road will be constructed on a steeply sloping hillside within an undeveloped heavily forested area. Challenges included a natural 30-to-40-degree slope inclination throughout the project; the design and construction of MSE walls were utilized to provide support on the sloping terrain. Responsible for advising/mentoring new project manager as well as assisting with engineering design.

Flume 44 Replacement - FERC Project No. 184

Project Manager, Engineering Geologist
El Dorado Irrigation District | Riverton, CA

Responsible for oversight of the multi-discipline engineering for the replacement of multiple severely deteriorated flumes, including Flume 44—473 feet in length with two elevated sections—and located on USFS property. Work began with the development of a feasibility report, discussing interim repairs and recommendations of construction methods to replace the flumes in the most cost-effective manner without interrupting the normal operation of the El Dorado Canal. GHD subsequently provided PS&E then QCIP and engineering services during construction.

Emergency Storm Response - FERC Project No. 184

Project Manager
El Dorado Irrigation District | El Dorado County, CA

Responsible for the coordination and quality control of the activities of the project team contracted to provide emergency assessment, interim repair recommendations and/or designs, and permanent improvement plans with the goal of restoring the integrity of the 22-mile El Dorado Canal system and "watering up" as soon as possible. Owned and operated by the El Dorado Irrigation District, the water storage system was put out of commission by severe storm damage, causing a daily revenue loss in the neighborhood of $40,000. Sixteen (16) sites required a variety of GHD's survey and engineering services. Duties included initial site visits, assessment, immediate stabilization recommendations, client support/advocacy for meetings with Federal Emergency Management Agency (FEMA), and oversight of construction activities in accordance with the Quality Control Inspection Program.

Flume Conditions Assessment - FERC Project No. 184

Principal-in-Charge, Senior Engineering Geologist
El Dorado Irrigation District | El Dorado County, CA

Responsible for geotechnical evaluation of all elevated and at grade flume structures along the 22-mile water conveyance system. Duties included client consultation, programming, conducting site visits for evaluation of flume benches, supervision of project engineers performing field studies, soil stability analysis, report preparation, and quality assurance review of the completed work product. Findings of these flume condition assessments have been used to develop a capital improvement program, prioritize flume replacement projects, and schedule ongoing maintenance.

Flume 41 Replacement Design - FERC Project No. 184

Principal-in-Charge
El Dorado Irrigation District | Pollock Pines, CA

Responsible for the activities of the project team providing multi discipline engineering and land survey services for design and construction for the replacement of Flume 41 and Spillway 23. Also responsible for the geotechnical design recommendations and site

investigations associated with the flume replacement, consisting of approximately 700 feet of up to16-foot-tall hand stacked rock bench, and new automated spillway structure. Site constraints included complex terrain impacted by slope instabilities, rockfall hazards, highly variant soil conditions including areas of poor drainage, and remote site construction constraints. Following the dewatering process for annual system outage, a limited construction window further complicated option. The geotechnical team developed recommendations to grout in place and anchor the rock bench, saving import/export costs and greatly reducing construction costs. Also responsible for the QCIP's that took place during construction, as well as providing construction administration. Responsible for supervising QSP's providing stormwater services consisting of conducting SWPPP field inspection and monitoring services for Best Management Practices (BMP) items at the project site to ensure the project remains in full compliance with the State Water Board permit.

Other Related Areas of Interest

Recognized

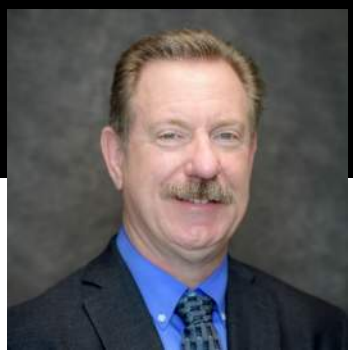
- PG&E Safety Training, Refreshed Annually
- Heartsaver First Aid CPR AED Certification
- TensarSoil™ Design 8-Hour, 2015
- MSA Safety W65 Filter Self-Rescuer 8-Hour Training, MCI, 2014
- Permit Required Confined Spaces Entry (Cal/OSHA Regulation 8 CCR 5157), Since 2011
- National Radon Proficiency Program (NRPP) Radioactive Materials Training/Radon Gas Tester Certification 40-Hour, 1994
- Troxler Nuclear Testing Equipment Safety Training and Gauge Operation, 1993
- Troxler IATA Hazmat Certification (49 CFR 172 Subpart H), Since 1990
- NPDES Training (40CFR122.26) since 1990
- OSHA 8-Hour Hazwoper Refresher Course (29 CFR 1910.120.e)
- OSHA 40-Hour Hazmat Certification (29 CFR 1910.120.e), Since 1990

Career history

1995 - Present	GHD (formerly Carlton Engineering, Inc.), Senior Engineering Geologist
1995 - 2014	Principal / Vice President
1990 - 1995	Youngdahl & Associates, Inc., Principal
1976 - 1990	Wheeldon and Associates, Geologist

Tom Burkhart PE, SE

Senior Structural Engineer



Location

Cameron Park, CA

Experience

37 years

Qualifications/Accreditations

- BS, Civil Engineering, California State University, Sacramento, CA, 1986
- Civil Engineer, CA #44659, NM #16355
- Model Law Structural Engineer, CA #4378, AZ #63122, NV #19134

Key technical skills

- Multiple Discipline Program/Project Management
- Structural Engineering Design/Evaluation
- Concrete Repair/Rehabilitation
- Engineering During Construction

Memberships

- Structural Engineers Association of California (SEAOC)
- American Concrete Institute (ACI)
- American Institute of Steel Construction (AISC)

Relevant experience summary

Tom Burkhart has over 36 years of experience in structural engineering analysis, design and construction, constructability reviews, value engineering, forensic evaluations, assessing aged, damaged, or otherwise deficient structures, stability analysis, demand vs. capacity analysis, compliance with design standards and building codes and life cycle cost evaluations. Tom has also served as an independent third-party plan review engineer for a variety of agencies, reviewing projects for compliance with codes and standards including participation on multiple US Army Corps of Engineers (USACE) Independent Expert Peer Review panels for hurricane and flood protection projects in New Orleans, Louisiana. As a senior project manager, Tom has contributed to many significant multi discipline projects including a variety of water conveyance, hydroelectric facilities, power transmission and distribution facilities, telecommunication facilities, and solid waste facilities.

Caldor Fire Flumes 4, 5, and 6 Emergency Replacement – FERC Project No. 184

Senior Engineer, Engineer of Record
El Dorado Irrigation District | Pollock Pines, CA

Responsible for providing structural design and engineering to support the replacement of three separate wooden flumes that were destroyed in the 2021 Caldor Fire. Work includes flume alignment, a new shotcrete canal, a new access road, repairs to an existing access road and a new bench adjacent to each of the flumes. Challenges included designing and constructing at a fast pace to restore water to EID's critical infrastructure. MSE walls, Rip Rap slopes, and RSS slopes were utilized to provide support the canal bench on the steep terrain.

Flume 38-40 Flume Conversion - FERC Project No. 184

Senior Engineer
El Dorado Irrigation District | El Dorado County, CA

Responsible for providing structural design and engineering for this canal conversion project that consists of the replacement of existing elevated wooden Flume 38—destabilized following a historic breach—to a canal and the replacement of existing elevated wooden flume to a Mechanically Stabilized Earth (MSE) bench with canal. Included in this project are improvements to the canal bench and the design of two replacement bridges over the canal upstream and downstream of Flumes 38 and 39-40. With the improved access and eliminating complex elevated superstructure assembly at Flume 39-40, flume benches could be reconstructed using MSE retaining walls to support the new Flume 38-40 flume sections. Work included structural analysis, structural calculations, structural design development, and construction documents for the flumes and benches.

During construction activities, provided construction services to include attendance at weekly construction meetings and response to submittals and requests for information.

Flume 30 Replacement Design - FERC Project No. 184

Senior Engineer
El Dorado Irrigation District | Pollock Pines, CA

Responsible for providing the structural design and engineering to support the replacement of a 25-year-old elevated wooden flume with a 415-foot-long concrete canal structure. Work includes flume alignment, a new shotcrete canal, and a new access road to be constructed on a steeply sloping hillside within an undeveloped heavily forested area. Challenges included a natural 30- to 40-degree slope inclination throughout the project; the design and construction of MSE bench and walls were utilized to provide support on the sloping terrain.

Flume 44 Replacement - FERC Project No. 184

Senior Engineer
El Dorado Irrigation District | El Dorado County, CA

Responsible for providing the structural design and engineering services for the replacement of Flume 44, one portion of the 22-mile El Dorado Canal system. The existing facility, last replaced in 1948, had reached its useful life. Stabilizing landslide material and constructing a MSE bench with a lined canal was anticipated to be the most cost-effective solution. During construction activities, provided construction services to include attendance at weekly construction meetings and response to submittals and requests for information.

Spillway 10 Upgrades - FERC Project No. 184

Senior Engineer
El Dorado Irrigation District | Kyburz, CA

Responsible for the design and construction documents for replacement of an aged, automated spillway structure constructed primarily of wood components. Coordinated mechanical and electrical aspects for the new structure, which included passive and emergency spill sections, protective cover for maintenance and operations personnel, and an equipment and storage building.

Flume 41 and Spillway 23 Replacement - FERC Project No. 184

Project Manager, Senior Engineer
El Dorado Irrigation District | El Dorado County, CA

Responsible for the architectural, structural, mechanical, and electrical engineering aspects of this flume and spillway design project. Work included replacement of aged and deteriorated wood flume with new MSE retaining structure, stabilization of an existing historic hand stacked rock bench, foundations, precast concrete flume, and new automated emergency spillway for this 692-foot water conveyance replacement project owned by the El Dorado Irrigation District. Managed the mechanical and electrical subconsultants in the performance of their work, which included SCADA and automation aspects. Also responsible for QA/QC for structural aspects, including special inspections and testing services during construction.

Flume 10 Repair QCIP - FERC Project No. 184

Senior Engineer
El Dorado Irrigation District | El Dorado County, CA

Responsible for structural engineering activities including design and construction documents for replacement of damaged flume sections. Supervised engineers performing structural tasks, as well as the special inspection staff performing material testing and inspection during construction.

Flume Conditions Assessments - FERC Project No. 184

Structural Project Manager
El Dorado Irrigation District | El Dorado County, CA

Responsible for structural evaluation of all elevated and at grade flume structures along the 22-mile water conveyance system. Duties included client consultation, programming, conducting site visits for evaluation of structures, supervision of project engineers performing field studies, structural stability analysis, report preparation, and QA review of the completed work product. Findings of these flume condition assessments have been used to develop a capital improvement program, prioritize flume replacement projects, and schedule ongoing maintenance.

Flume 10 Emergency Storm Response - FERC Project No. 184

Senior Engineer
El Dorado Irrigation District | El Dorado County, CA

Responsible for providing the emergency structural design and engineering services for the interim and permanent repairs of Flume 10, one portion of the 22-mile El Dorado Canal system put out of commission by severe storm damage. During construction activities, provided construction services to include attendance at weekly construction meetings and response to submittals and requests for information.

Other Related Areas of Interest

Continuing Education

- 16-Hour GHD Project Management Series, 2020
- 8-Hour Confined Space Training, 2020
- 8-Hour Fall Protection Training, 2019
- 16-Hour Tower Modeling & Design presented by Tower Numerics Inc., 2019
- 8-Hour TensarSoil™ Design Seminar presented by Tensar International Corporation, 2015
- 2-Hour Mine Safety Appliances W65 Filter Self-Rescuer Training, Mining Construction Inc., 2014

Recognized

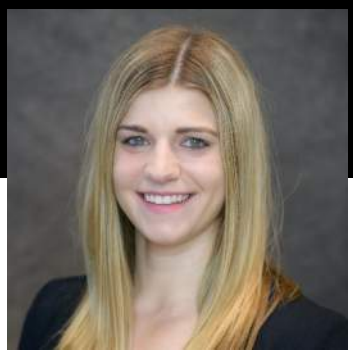
- 2017 ASCE Sacramento Section Outstanding Geotechnical Project of the Year Award for the El Dorado Irrigation (El Dorado Irrigation District) Flume 10 Replacement Project, El Dorado County, CA - Structural Engineer of Record
- 2015 ASCE Sacramento Section Geotechnical Project of the Year Award for the El Dorado Irrigation District Flume 42-43 Replacement Project, El Dorado County, CA - Structural Engineer of Record
- 2011 ASCE Sacramento Section Small Project of the Year Award for the Alpine County Hawkins Peak Telecommunications Site Project, Alpine County, CA - Principal-in-Charge / Structural Engineer of Record
- 2010 ASCE Region 9 (statewide) Outstanding Project of the Year Award for the Trans Bay Cable Converter Stations Project, Contra Costa and San Francisco Counties, CA - Principal-in-Charge / Structural Engineer of Record
- 2010 ASCE San Francisco Section Large Project of the Year Award for the Trans Bay Cable Converter Stations Project, Contra Costa and San Francisco Counties, CA - Principal-in-Charge / Structural Engineer of Record
- 2010 American Public Works Association (APWA) Sacramento Chapter's Project of the Year in the Transportation category $500,000 to $2,000,000 Award for the El Dorado County Transit Authority Central Transit Center Project, El Dorado County, CA - Structural Engineer of Record
- 2010 ASCE Region 9 (statewide) Outstanding Small Water Project of the Year Award for the El Dorado Irrigation District Flume 51 Replacement Project, El Dorado County, CA - Structural Engineer of Record
- 2010 Associated General Contractors (AGC) California Constructor Award for Innovation in Construction Techniques or Materials for the El Dorado Irrigation District Flume 51 Replacement Project, El Dorado County, CA - Structural Engineer of Record
- 2009 ASCE Sacramento Section Geotechnical Project of the Year Award for the El Dorado Irrigation District Flume 51 Replacement Project, El Dorado County, CA - Structural Engineer of Record
- 2008 Consulting Engineers and Land Surveyors of California (CELSOC) Merit Award for Engineering Excellence for the El Dorado Irrigation District Echo Lake Tunnel Slip Line Project, El Dorado County, CA - Structural Engineer of Record
- 2008 CELSOC Merit Award for Engineering Excellence for the El Dorado Irrigation District Akin Powerhouse Emergency Landslide Repair and Stabilization Project, Pollock Pines, CA - Structural Engineer of Record
- 2008 ASCE Construction Institute Award for the City of Placerville Hangtown Creek Water Reclamation Facility Project, Placerville, CA - Structural Engineer of Record

Career history

2014 - present	GHD (formerly Carlton Engineering Inc.), Senior Project Manager / Structural Engineer
2007 - 2014	Carlton Engineering Inc., Principal / General Manager / Senior Structural Engineer
1994 - 2007	Carlton Engineering Inc., Principal / Structural Department Manager / Senior Structural Engineer
2000	Named Principal
1986 - 1994	David A. Crane & Associates, Structural Engineer

Samantha Faddis PE, SE

Structural Team Lead – US West EDO



Location

Roseville, CA

Experience

10 years

Qualifications/Accreditations

– MS, Civil / Structural Engineering, University of California, Davis, CA, 2013
– BS, Civil Engineering, California State University, Chico, CA 2011
– Civil Engineer, CA #82799, OR #96758
– Structural Engineer, CA #6729, AZ #72295, IL #081.008592, OR #96758

Key technical skills

– Structural Design and Analysis
– Structural Design of Foundations
– Public and Private Sector Projects
– Design of All Major Construction Materials

Memberships

– Structural Engineering Association of California

Relevant experience summary

Samantha Faddis has over 10 years of experience in the engineering field. Her professional experience includes performing structural design and analysis for public and private sector projects. Samantha has performed analysis on a variety of structure types including buildings, bridges, retaining structures hydropower infrastructure, water and wastewater treatment plant infrastructure, and infrastructure for solid waste applications. Her design experience includes the design of cast-in-place concrete retaining walls, steel framing for industrial applications and communication towers, steel connections, concrete foundations, and analysis / retrofit of existing structures. Samantha's technical expertise includes the analysis and design of all major construction materials. She is knowledgeable on the current code requirements and adept at the computer modeling and analysis of structures.

Flume 30 Replacement - FERC Project 184

Structural Project Engineer
El Dorado Irrigation District (El Dorado Irrigation District) | El Dorado County, CA

Served as Structural Project Engineer responsible for providing structural design and engineering to support the replacement of a 25-year-old elevated wooden flume with a 415-foot-long concrete canal structure. Work includes flume alignment, a new shotcrete canal, and a new access road to be constructed on a steeply sloping hillside within an undeveloped, heavily forested area, and adjacent hand stack rock walls were replaced or encapsulated. Work included structural analysis, structural calculations, structural design development, and construction documents for the flume and road sites.

Flume 38-40 Replacement - FERC Project No. 184

Structural Project Engineer
El Dorado Irrigation District | El Dorado County, CA

Structural Project Engineer responsible for providing structural design and engineering for this canal conversion project that consists of the replacement of existing elevated wooden Flume 38—destabilized following a historic breach—to a canal and the replacement of existing elevated wooden flume to a Mechanically Stabilized Earth (MSE) bench with canal. Included in this project are improvements to the canal bench and the design of two replacement bridges over the canal upstream and downstream of Flumes 38 and 39-40. With the improved access and eliminating complex elevated superstructure assembly at Flume 39-40, flume benches could be reconstructed using MSE retaining walls to support the new Flume 38-40 flume

sections. Work included structural analysis, structural calculations, structural design development, and construction documents for the flumes and benches. During construction activities, provided responses to submittals and requests for information.

Ralston Penstock Access Stairs - FERC Project No. 2079

Structural Project Engineer
Placer County Water Agency | Placer County, CA

Served as Structural Project Engineer responsible for providing the structural elements in the design of access stairs at the Ralston Powerhouse penstock. The project included conducting a site visit to document data required for preliminary engineering, reviewing existing available documentation, and the preparation of the structural engineering elements of a multi-discipline design criteria memorandum that also includes land survey, geotechnical and geologic engineering, OSHA requirements, helicopter installation limitations, penstock clearances, security and safety requirements, and preliminary layout sketches. Following approval of the design criteria memorandum, will be tasked to provide structural construction documents, bid support, and construction administration for the project.

Emergency Storm Response - FERC Project No. 184

Project Engineer
El Dorado Irrigation District | El Dorado County, CA

Served as Structural Project Engineer responsible for providing emergency structural design and engineering support for the interim and permanent repairs at multiple locations along the 22-mile El Dorado Canal system put out of commission by severe storm damage. During construction activities, provided construction services to include response to submittals and requests for information. Parts of the system—including the SAD Bridge portion of the project—are located on US Forest Service lands. Provided structural design of the repairs to SAD Bridge, which involved a short design phase almost concurrent with the start of repairs.

Flume 10 Emergency Storm Response - FERC Project No. 184

Structural Project Engineer
El Dorado Irrigation District | El Dorado County, CA

Served as Structural Project Engineer responsible for providing the emergency structural design and engineering services for the interim and permanent repairs of Flume 10, one portion of the 22-mile El Dorado Canal system put out of commission by severe storm damage. During construction activities, provided construction services to include attendance at weekly construction meetings and response to submittals and requests for information.

Flume 44 Replacement - FERC Project No. 184

Structural Project Engineer
El Dorado Irrigation District | El Dorado County, CA

Served as Structural Project Engineer responsible for providing the structural design and engineering services for the replacement of Flume 44, one portion of the 22-mile El Dorado Canal system. The existing facility, last replaced in 1948, had reached its useful life. Stabilizing landslide material and constructing a MSE bench with a lined canal was anticipated to be the most cost-effective solution. Detailed tasks include the design of the concrete channel and box culvert used for water conveyance. During construction activities, provided responses to submittals and requests for information.

Lower Drum Canal 2012 Outage - FERC Project No. 14531

Project Engineer
PG&E | Placer County, CA

Served as Project Engineer responsible for providing engineering support during the Lower Drum Canal 2012 Outage. Provided on-site support to the contractor during construction and aided in making on site decisions when unanticipated conditions were encountered in the field.

Pittman Flume Structural Engineering Assessment

Design Engineer
PG&E | Placer County, CA

Served as Design Engineer responsible for performing structural analysis of the existing Pittman Flume located on the Drum Canal. The analysis included creating a SAP2000 model with all of the necessary loads, determining what was causing the observed behavior of the existing structure, and identifying potential repair and rehabilitation options.

conveyance in Butte County. Work included managing resources and coordination with the client, as well as developing improvement plans, calculations, and specifications.

Career history

2016 - present	GHD, Team Lead
2012 - 2016	SAGE Engineers Inc., Project Engineer
2010 - 2012	Roberts Consulting Engineering, Student Intern

Patrick Brutzman PE

Staff Engineer

Location

Concord, CA

Experience

4 years

Qualifications/Accreditations

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

Key technical skills

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

Memberships

– N/A

Relevant experience summary

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

Public Projects

MFP Powerhouse Pedestrian Bypass - Federal Energy Regulatory Commission (FERC) Project No. 2079

Staff Engineer
Placer County Water Agency (PCWA) | Placer County, CA | 2021

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

Gallinas Creek Levee Upgrade

Staff Engineer
Marin County Flood Prevention District | Santa Venetia, CA | 2021-2022

Served as Staff Engineer for repair and improvement of an existing earthen berm protecting the Santa Venetia community from flooding. Timber-reinforced earthen walls were designed to cap an earthen levee, crossing 100+ private properties along a tidal marsh.

Municipal Pier Repairs

Staff Engineer
City of Pacifica | Pacifica, CA | 2021

This project supports the replacement of a portion of concrete guard rail that collapsed during high wave action in the winter of 2020-2021, located at the existing municipal fishing pier. Responsibilities included field observations, developing a summary report, and structural design for proposed repair alternatives. Construction documents for the selected cast-in-place concrete design alternative are currently in development.

Spring Valley Flume Alternatives Analysis - FERC Project No. 2079

Staff Engineer
PCWA | Colfax, CA | 2021

This project supports the future design of a water conveyance structure to replace PCWA's Spring Valley Flume, an aging 37-foot-long wooden flume. Following a review of existing documentation, Responsibilities included preliminary design of elements for GHD's

Alternatives Analysis Memorandum that includes cost estimates of the alternatives.

Public Projects - Military

FY11 Satellite Earth Terminal Station

Staff Engineer, Quality Control (QC) Field Observer
Contrack-Watts | Camp Roberts, CA | 2018-2020

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

Private Projects

College of the Redwoods – Physical Education & Fieldhouse

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

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

Harborwalk Plaza

Staff Engineer
Private Client | Morro Bay, CA | 2019

Served as Staff Engineer for new light framed two-story waterfront structure. Responsibilities included analysis to propose preliminary designs, and to develop construction documents for building department submittal.

Skyway Office Building

Staff Engineer
Private Client | Santa Maria, CA | 2018

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

Heavy Timber Residence

Staff Engineer
Private Client | Santa Rosa, CA | 2019

Project was for new Heavy Timber two-story residential building with adjacent Accessory Dwelling Unit (ADU) over garage, located in Santa Rosa. Responsibilities included computer and hand analysis of heavy-timber trusses and timber frame systems, with a combination of Structural Insulating Panel (SIP) and wood panel shear walls for lateral support.

Interior Theater Remodel

Staff Engineer
Mission College Preparatory | San Luis Obispo, CA | 2018

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

Del Rio Ridge – Site Walls

Staff Engineer
People's Self-Help Housing | Atascadero, CA | 2020

Project was for new multi-family housing development with several multi-story structures with surrounding parking and recreation areas located along a sloping site. Responsibilities included coordination with civil, architectural, and building structural design team, and design of concrete and masonry features including tiered retaining wall systems, ramps, stairs, trash enclosures, and other site features.

Career history

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

Carl Moore PE, QSD, LEED AP

Senior Project Manager

Location

Roseville, CA

Experience

23 years

Qualifications/Accreditations

– BS, Civil Engineering, Santa Clara University, Santa Clara, CA, 1998
– Civil Engineer, CA #62181, NV #25638
– Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer
– Leadership in Energy and Environmental Design Accredited Professional (LEED AP), US Green Building Council

Key technical skills

– AutoCAD
– State, County, City, and Other Regulations and Requirements

Memberships

– American Society of Civil Engineers

Relevant experience summary

Carl Moore has over 23 years of civil engineering leadership and expertise in planning, design, and construction administration services for public and private clients in various market segments including military, transportation, civic, commercial, corporate, K-12 schools, and higher education. His technical background includes preparation and review of civil engineering design calculations, reports, master plans, improvement plan sets, engineering estimates, specifications, SWPPP and water quality management plan documentation, and LEED certification and credit documentation. Carl routinely interacts directly with clients, consultants, agencies, and other team members, ensuring that critical path items are addressed in a timely manner. He mentors staff in AutoCAD use, engineering design, and plan production. Carl has a wide range of project management experience including the development of project budgets and schedules for new projects; budget tracking; verification of project compliance with Caltrans, California Building Code, National Fire Prevention Association, Americans with Disabilities Act (ADA), Division of the State Architect, state, county, city, and other regulations and requirements; and the management of each project's engineering and support team toward the timely and economic production of technical reports and deliverables. Carl is a Qualified SWPPP Developer for stormwater planning (California Construction General Permit).

Flume 30 Replacement - Federal Energy Regulatory Commission (FERC) Project 184

Project Manager, Senior Civil Engineer
El Dorado Irrigation District | El Dorado County, CA

Served as Senior Engineer responsible for the civil engineering services for this water conveyance replacement project. A 415-foot structure constructed of pre-cast, as well as cast-in-place concrete will replace the 25-year-old wooden flume, and a new access road will be constructed on a steeply sloping hillside consisting of an undeveloped heavily forested area. Work consisted of engineering design; construction documents depicting earthwork, foundations, retaining walls, surface drainage, and erosion control for the flume and road sites; and construction administration services.

El Dorado Irrigation District Flume 38-40 Canal Conversion - FERC Project #184

Project Manager, Senior Civil Engineer
El Dorado Irrigation District | Pollock Pines, CA

Served as Senior Engineer responsible for the civil engineering design and the preparation of construction documents for the demolition and conversion of two flumes, both vital elements of the El Dorado Irrigation District's hydro-electric system. Flume 38, a destabilized elevated wooden structure, was converted into a canal; Flume 39-40, an elevated wood flume on a steel superstructure, was converted to a Mechanically

Stabilized Earth (MSE) bench with canal. Work included transitions required between new and existing canal improvements to the canal bench, the design of two replacement bridges over the canal upstream and downstream of the project site, a seven-foot by eight-foot stream crossing box culvert, and connection to an existing siphon.

Flume 42-43 Replacement - FERC Project #184

Project Manager, Senior Civil Engineer
El Dorado Irrigation District | Pollock Pines, CA

Served as Senior Engineer responsible for the preparation of construction documents for in-kind replacement of Flume 42/43, which was in a severely deteriorated condition. The construction work consisted of complete replacement of approximately 432 lineal feet of flume and supporting substructure as well as the construction of two bench areas using a retaining wall to provide construction access to the upstream portion of Flume 44. This flume is one element of the El Dorado Canal, a 22-mile water conveyance system owned and operated by the El Dorado Irrigation District.

El Dorado Irrigation District Flume 44 Replacement - FERC Project #184

Project Manager, Senior Civil Engineer
El Dorado Irrigation District | Pollock Pines, CA

Served as Senior Engineer responsible for the civil engineering design and the preparation of construction documents for the demolition and replacement of Flume 44, a severely deteriorated 475-foot-long wooden structure, and a vital element of the El Dorado Irrigation District's hydro-electric system. Work included coordination with other discipline leads and district staff as well as providing construction administration services during the construction phase limited to the two-month period of system shutdown. The greatest challenge was lack of access; the project included the design and construction of two bench areas using a retaining wall to provide construction access to the upstream portion of the flume.

Flume 41 Replacement Design - FERC Project #184

Project Manager, Senior Civil Engineer
El Dorado Irrigation District | El Dorado County, CA

Served as Project Manager and Senior Civil Engineer responsible for finalizing the project's record drawings for the replacement of 692 feet of trapezoidal wooden flume.

Hayford Flume #2 Replacement - FERC Project #2079

Project Manager, Senior Civil Engineer
Placer County Water Agency | Colfax, CA

Served as Project Manager and Senior Civil Engineer responsible for the civil design and engineering for the replacement of approximately 450 feet of elevated flume that traverses a small, bowl-like valley in Placer County. Challenges include a new design that will reduce Placer County Water Agency's maintenance costs, fire risk and liability, and calculating earthwork and benching per geotechnical engineering recommendations. Work included California Environmental Quality Act (CEQA) support, construction documents for the new conveyance structure, bid support, and construction administration services.

Iowa Hill Pumped-Storage Development Project - FERC Project #2101

Project Manager, Senior Civil Engineer
Sacramento Municipal Utility District (SMUD) | Camino, CA

Served as Project Manager and Senior Civil Engineer responsible for the development of the project's preliminary functional design that showed, in sufficient detail, the location, size, and key components of the major elements of this pumped storage project for submittal to the regulatory agencies. The design team worked collaboratively with SMUD's technical and hydro operations and maintenance staff to assure that their input was incorporated into the preliminary functional design and that the design included long-term operation and maintenance considerations. Work included calculations that supported the design basis for each element. In a subsequent contract, served as Senior Engineer responsible for the design of access roadway improvements required to begin the geotechnical investigation drilling program during which rock drilling and coring activities took place at three remote locations.

Career history

2018 - present	GHD, Senior Project Manager
2016 - 2018	Psomas, Project Manager, Senior Civil Engineer
2013 - 2016	Carlton Engineering Inc. (now GHD), Project Manager, Senior Civil Engineer
2012 - 2013	EBI, Senior Civil Engineer
2009 - 2012	LPA Inc., Senior Civil Engineer
2004 - 2009	Psomas, Senior Civil Engineer
2003 - 2004	Sandis, Project Engineer
2001 - 2003	MRO Engineers, Project Engineer
1998 - 2001	HMH, Assistant Engineer

Steven Millett PE

Staff Engineer

Location

Cameron Park, CA

Experience

6 years

Qualifications/Accreditations

– BS, Civil Engineering, Seattle University, Seattle, WA, 2016
– Civil Engineer, CA #93505

Key technical skills

– Hydrologic and Hydraulic Modeling
– Engineering During Construction
– Software Programs: AutoCAD, Civil 3D, HEC-HMS, HEC-1, Sanitary Sewer Analysis, SWMM

Memberships

– American Society of Civil Engineers (ASCE)

Relevant experience summary

Steven Millett has over five years of experience in civil design from schematic design through construction documents for drainage conveyance systems, pump stations, flow control structures, new buildings, and expansion projects for public and private clients. His technical background includes conducting site feasibility studies; earthwork analysis and determining earthwork quantities; site development including site grading and drainage design and site utility layout; existing utility locating and mapping; roadway and intersection design; existing roadway alignments; designing hydraulic structures, slope protection, and conceptual dredging; stormwater treatment, flow control, and detention; firewater loop design; performing hydrologic and hydraulic modeling, preliminary stormwater calculations, and existing stormwater infrastructure analysis; preparing sewer, water, and drainage reports for long term management of both property retrofits and land development projects; developing bid set drawings, technical specifications, and construction cost estimates for both new structures and facility improvement projects. Steven has also provided engineering services during construction including conducting site visits to inspect progress, responding to Requests for Information (RFI's); reviewing submittals, change orders, and construction bulletins; and performing dredging compliance analysis. His experience includes laboratory testing of construction materials such as compression testing on concrete, grout, and mortar; soil compaction curves; and soil and aggregate gradation.

Caldor Fire Flumes 4, 5, and 6 Emergency Replacement – FERC Project No. 184

Civil Engineer
El Dorado Irrigation District | Pollock Pines, CA

Responsible for providing civil design and engineering to support the replacement of three separate wooden flumes that were destroyed in the 2021 Caldor Fire. Work includes flume alignment, a new shotcrete canal, a new access road, repairs to an existing access road and a new bench adjacent to each of the flumes. Challenges included designing and constructing at a fast pace to restore water to EID's critical infrastructure. MSE walls, Rip Rap slopes, and RSS slopes were utilized to provide support the canal bench on the steep terrain.

Flume 30 Replacement Design - FERC Project No. 184

Civil Engineer
El Dorado Irrigation District | Pollock Pines, CA

Responsible for providing the civil design and engineering to support the replacement of a 25-year-old elevated wooden flume with a 415-foot-long concrete canal structure. Work includes flume alignment, a new shotcrete canal, and a new access road to be constructed on a steeply sloping hillside within an undeveloped heavily forested area. Challenges included a natural 30- to 40-degree slope inclination throughout

the project; the design and construction of MSE bench and walls were utilized to provide support on the sloping terrain.

Recycled Water River Discharge

Civil Project Engineer
City of Lathrop | Lathrop, CA

Project consisted of the design of a new riverbank outfall and slope protection on the San Joaquin River, 2,000 linear feet of new treated sewer discharge pipe, and a new pipeline crossing up and over an existing levee. Responsible for development of bid set drawings, specifications, and construction cost estimate. Assisted in development of Environment Impact Report (EIR) and 404/408 permit documents for the US Army Corps of Engineers (USACE).

Maintenance Dredging

Design Engineer
Port of Vancouver | Vancouver, WA

Project consisted of the annual dredging for multiple ship berths along the Columbia River for the Port of Vancouver. Responsible for site grading, earthwork analysis, construction submittal reviews, and responding to RFI's.

Pier 4 Reconfiguration

Construction Support
Port of Tacoma | Tacoma, WA

Project consisted of the construction of a new wharf, upland grading, utility improvements, dredging of approximately 470,000 cubic yards of bank line material, and placement of new rip rap along readjusted bank line. Responsible for submittal review, RFI responses, and dredging compliance analysis utilizing LiDAR data and Civil3D.

Natural Resource Damage Site Remediation

Design Engineer
Vigor Shipyard | Seattle, WA

Project consisted of schematic design for site remediation of former shipyard and drydock, including dredging of hazardous materials, demolition of drydock, and habitat restoration. Responsible for developing Civil 3D model and grading design through close coordination with both environmental and structural engineers. Developed earthwork quantities and construction cost estimate.

Vigor Shipyard Stormwater Treatment Upgrades

Design Engineer
Vigor Shipyard | Portland, WA

Project goal was to develop alternatives and provide analyses for stormwater treatment upgrades for this existing shipyard. Responsible for developing conceptual industrial water treatment options for site including design of new pump station, conveyance system along a 2,000 linear feet finger pier. Developed construction cost estimates for all options, as well as design development drawings.

Port of Seattle Terminal 18 Stormwater Upgrades

Design Engineer, Construction Support
SSA Marine | Seattle, WA

Project included stormwater treatment upgrades for a container terminal at the Port of Seattle. Responsible analysis of existing stormwater infrastructure using Sanitary Sewer Analysis, as well as submittal review and responding to RFIs.

Marine Terminal Upgrades

Civil Project Engineer
Port of Everett | Everett, WA

Project consisted of the modernization of a 700-foot-wide wharf, including dredging design, new water service, relocation of existing warehouse, industrial stormwater treatment, and site grading for new ship-to-shore cranes. Responsible for creating bid set documents, drainage report, and specifications.

Pier 1 Redevelopment

Design Engineer
Port of Vancouver | Vancouver, WA

Project consisted of the demolition of existing hotel and wharf in the Port of Vancouver, as well as the design of new wharf drainage, utility services, and grading. Responsible for development of 30% civil design documents and preliminary stormwater calculations.

Career history

2021 - present	GHD, Staff Engineer
2016 - 2021	KPFF Consulting Engineers, Civil Engineer
2015 - 2016	Wilson-Jones Commissioning Engineers, Technician
2014	Port of Seattle, Construction Management Intern
2013	Construction Testing Services, Laboratory Technician

Paula McKenna QSD/P, CPESC

Documentation Technician

Location

Cameron Park, CA

Experience

16 years

Qualifications/Accreditations

- AS, Design Drafting: Electro / Mechanical Printed Circuit Board (PCB) Design, Mission College, Santa Clara, CA, 1998
- Certificate, Civil and Architectural Design / Drafting, Precision Technical Institute, Sacramento, CA, 2005
- Certificate, Design Drafting: Electronic, Schematic Creation, Mission College, Santa Clara, CA, 1998
- Certificate, Design Drafting: Mechanical, 3D Models, AutoCAD, Mission College, Santa Clara, CA, 1998
- Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer / Practitioner (QSD/P) #01379
- Certified Professional in Erosion & Sediment Control (CPESC), CA #6651

Key technical skills

- AutoCAD Civil 3D 2021
- AutoCAD 2021
- Adobe Office Suite

Memberships

- N/A

Relevant experience summary

Paula McKenna has over 16 years of experience, which lies in research, coordination, and drafting of civil improvement plans; demolition plans; grading, drainage, and erosion control plans; geotechnical plans; road profiles; master planning development projects; and a variety of exhibit drawings for streets, sewer, water, and other public and private utilities. Her technical background also includes preparation of civil engineering design calculations, reports, engineering estimates, and specifications. Paula's experience encompasses complex multi discipline environments with focused attention to detail in site layout, roadway geometric designs, and site grading for a wide variety of public and private projects including commercial, industrial, municipal infrastructure, water conveyance, and essential facilities, such as schools, universities, telecommunication sites, and hospitals. She has had a broad range of exposure to road and highway design and rehabilitation; utility design including storm sewer analysis, sanitary sewer, force mains and water distributions systems; erosion and sediment control; and commercial and residential subdivisions design. In addition, Paula is highly experienced and proficient in all versions of civil 3D and vehicle tracking, as well as with the protocol and rigor required for state and federal permitted projects (e.g., Federal Energy Regulatory Commission (FERC), Federal Emergency Management Agency (FEMA), and Division of the State Architect (DSA)). Paula is a CPESC and a QSD/P for stormwater planning (CA Construction General Permit). In addition, she has received the Caltrans certification training qualifying her to prepare SWPPP's for Caltrans projects.

Caldor Fire Flumes 4, 5, and 6 Emergency Replacement – FERC Project No. 184

Designer

El Dorado Irrigation District | Pollock Pines, CA

Responsible for providing design support for the replacement of three separate wooden flumes that were destroyed in the 2021 Caldor Fire. Work includes flume alignment, a new shotcrete canal, a new access road, repairs to an existing access road and a new bench adjacent to each of the flumes. Challenges included designing and constructing at a fast pace to restore water to EID's critical infrastructure. MSE walls, Rip Rap slopes, and RSS slopes were utilized to provide support the canal bench on the steep terrain.

Flumes 38 40 Flume Conversion - FERC Project No. 184

Designer
El Dorado Irrigation District | Pollock Pines, CA

Responsible for providing design support for the demolition and replacement of Flumes 38 and 39 40, a vital element of the District's hydroelectric system. Work consisted of assisting in the preparation of construction drawings for a total of 5,000 linear feet of all-weather surface roads to access two new bridges, a new box culvert undercrossing Flume 39 40, and canal and transition details.

Flume 30 Replacement - FERC Project No. 184

Designer
El Dorado Irrigation District | El Dorado County, CA

Responsible for providing design support for this water conveyance replacement project. A 415-foot structure constructed of pre-cast, as well as cast-in-place concrete will replace the 25-year-old wooden flume, and a new access road will be constructed on a steeply sloping hillside consisting of an undeveloped heavily forested area. Work consisted of the design of improvements and preparation of construction documents depicting earthwork, foundations, retaining walls, surface drainage, and erosion control for the flume and road sites.

Flume 44 Replacement - FERC Project No. 184

CAD Technician
El Dorado Irrigation District | El Dorado County, CA

Responsible for assisting in the preparation of improvement plans following a design review meeting with the client. Also developed an exhibit for the Geotechnical Investigation Summary Report. The report provided recommendations for the design of replacement facilities. The existing facility, last replaced in 1948, had reached its useful life. Stabilizing landslide material and constructing a Mechanically Stabilized Earth (MSE) bench with a lined canal was anticipated to be the most cost-effective solution. Flume 44 is an important element of the 22-mile El Dorado Canal water system (FERC Project No. 184) managed by El Dorado Irrigation District.

Emergency Slide Repair Construction Management - FERC Project No. 184

CAD Technician
El Dorado Irrigation District | Pollock Pines, CA

Responsible for producing the project's record drawings at the conclusion of the repair and stabilization of five landslides located at various sites managed by El Dorado Irrigation District. The slides threatened operations of the District's water conveyance system and hydro power plant and were declared as emergency repairs by the FEMA.

Northside Canal Flume 7 Emergency Response & Flume Replacement - FERC Project No. 2179

Senior Designer
Merced Irrigation District | Merced County, CA

Responsible for providing design support in response to the collapse of the Flume 7 facility on the Northside Canal. Assisted in the preparation of civil and structural construction drawings for the replacement of the damaged flume. Also responsible for drafting the geotechnical exhibits to be included in the Geotechnical Investigation Report, which was conducted to evaluate foundation and subsurface conditions in the area integral to the damaged facility and report findings, conclusions, and recommendations for civil and structural design of the replacement structures. Specific tasks included project design and layout, set-up of the project plan set, and assistance with submittal packages.

Other Related Areas of Interest

– Caltrans SWPPP Certification Training
– Heartsaver First Aid CPR AED Certification

Career history

2017 - present	GHD, Senior Designer, Senior Stormwater Technician
2014 - 2017	Morton & Pitalo, Inc., Senior Designer, Senior Stormwater Technician
2013 - 2014	Jacobson, James & Associates, Database and Graphics Specialist, Stormwater Technician
2010 - 2013	WorleyParsons Group, Civil Designer II
2005 - 2010	Carlton Engineering (Now GHD), Civil Designer

Alyceson Pratt

Structural Designer

Location

Cameron Park, CA

Experience

23 years

Qualifications/Accreditations

– AA, Design Technology, American River College, Sacramento, CA, 2006
– AA, General Education, Folsom Lake College, Folsom, CA, 2006

Key technical skills

– AutoCAD Civil 3D 2021, AutoCAD 2021
– Revit 2021 and BIM360

Memberships

– N/A

Relevant experience summary

Alyceson Pratt has over 23 years of experience in engineering design and drafting. Her project experience includes site layouts, grading and drainage layouts, erosion control plans, equipment and piping models and isometrics, single-line diagrams, equipment layout, and fixed and tracking solar field layout for the civil/structural, electronics, photovoltaic, and mechanical industries. Alyceson is highly proficient in AutoCAD, MicroStation, Vehicle Tracking, IRASB Raster Design Software, SmartPlant Piping and Instrumentation Diagram (P&ID), PDS Piping and Equipment Modeling, and PVSyst Solar Modeling Software.

Hydropower Designer

– Caldor Fire Flumes 4, 5, and 6 Emergency Replacement – FERC Project No. 184 | El Dorado Irrigation District (EID) | El Dorado County, CA
– Flume 30 Replacement - FERC Project No. 184 | El Dorado Irrigation District (EID) | El Dorado County, CA
– Flume 38-40 Flume Conversion - FERC Project No. 184 | EID | El Dorado County, CA
– Flume 7 Repair - FERC Project No. 184 | EID | El Dorado County, CA
– Esmeralda Tunnel Emergency Repair - FERC Project No. 184 | EID | El Dorado County, CA
– Flume 10 Emergency Repair - FERC Project No. 184 | EID | El Dorado Co, CA
– Flume 9 Emergency Repair - FERC Project No. 184 | EID | El Dorado Co, CA
– Flume 5 Emergency Repair - FERC Project No. 184 | EID | El Dorado Co, CA
– SADD Bridge Emergency Repair - FERC Project No. 184 | EID | El Dorado Co, CA
– Flume 44 Replacement - FERC Project No. 184 | EID | El Dorado County, CA
– Flume 38-40 Replacement - FERC Project No. 184 | EID | El Dorado County, CA
– Adit 4 Tunnel Spoils Stabilization Project - FERC Project No. 2409 | Northern California Power Agency (NCPA) | Murphys, CA
– POE Powerhouse Bridge Shoring - FERC Project No. 2107 | PG&E | Butte County, CA
– Salt Springs Bear River Penstock - FERC Project No. 137 | PG&E | Camino, CA
– Flume 51 Replacement - FERC Project No. 184 | EID | El Dorado County, CA
– Flume 9 Replacement - FERC Project No. 184 | EID | El Dorado County, CA
– Spillway 47C Replacement - FERC Project No. 184 | EID | El Dorado County, CA
– Flume 3 Replacement Design - FERC Project No. 184 | EID | El Dorado Co, CA
– Flume 2A Replacement Design - FERC Project No. 184 | EID | El Dorado Co, CA
– Flume 2 Replacement Design - FERC Project No. 184 | EID | El Dorado Co, CA
– Flume 31 & 31A Replacement- FERC Project No. 184 | EID | El Dorado County, CA
– Spillway 10 Upgrades - FERC Project No. 184 | El Dorado County, CA
– Emergency Slide Repair Construction Management - FERC Project No. 184 | EID | El Dorado County, CA

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- Camp 5 Bridge load Capacity Evaluation | EID | El Dorado County, CA
- Weber Dam Access | EID | El Dorado County, CA

Water

Designer

- Wastewater Collections Facility Relocation | El Dorado Irrigation District | El Dorado Hills, CA
- East County Advanced Water Purification (ECAWP) Project: Joint Powers Authority Advanced Water Purification Pipelines | Orion Construction | San Diego County, CA
- Wastewater Collection Facility Relocation | EID | El Dorado Hills, CA
- Hydro Crew Room Upgrade | EID | El Dorado Co, CA
- Newport Coast Lift Station Rehabilitation | Irvine Ranch Water District | Newport Coast, CA
- New Walsh Water Storage Tank | Scottsdale, AZ
- Bixby Road Tank | Felix Construction | Globe, AZ
- Corte Bella Tank Site Expansion | Epcor Water | Sun City West, AZ
- Mogollon Well No. 5 ARF | Arizona Water Company | Heber, Navajo County, AZ
- Blue Horizons Water Facility | Arizona Water Company | Buckeye, AZ
- Tartesso Well No. 3 | Tartesso 1261, LLC | Buckeye, AZ
- Montclair Townhomes Emergency Slide Repair | EID | Cameron Park, CA
- Pierroz Road Water Line Extension | Allwest Fire Protection | Placerville, CA
- Sly Park Waterline Trench Paving | EID | Pollock Pines, CA
- Cedar Bluffs Offsite Waterline | Confidential Private Developer | Placerville, CA
- Pleasant Oak Main Station 66+50 | EID | Pleasant Oak, CA
- Motherlode Force Main Sewer Plan Revisions | EID | Shingle Springs, CA
- Dam Piezometer Monitoring Plan | Rancho Murieta Community Services District | Rancho Murieta, CA
- Black Rock Water Feasibility Study | Confidential Private Client | Pilot Hill, CA
- Lenain Water Treatment Plant Design Improvements | City of Anaheim | Anaheim, CA
- Phoenix Digester Design for 91st Avenue Water Treatment Plant | City of Phoenix | Phoenix, AZ
- Ponca City Water Treatment Plant Residuals Design | Ponca City, OK
- Wastewater Ponds Improvements | Lake Berryessa Resort Improvement District | Napa County, CA
- Chaparral Water Treatment Plant ARV Evaluation | City of Scottsdale | Scottsdale | Scottsdale, AZ
- Pasco Leachate Wellhead | JMG Engineering | Pasco, FL
- Chaparral Reservoir #2 Design-Build | City of Scottsdale | Scottsdale, AZ
- Sunset Water Treatment Plant | Placer County Water Agency | Rocklin, CA
- El Dorado Hills Wastewater Treatment Plant Groundwater Studies | EID | El Dorado Hills, CA
- Davidson Road Process Water Handling | CEMEX | Placerville, CA

Other Related Areas of Interest

Certifications / Trainings

- Heartsaver First-Aid CPR AED Certification

Career history

2016 - present	GHD, Structural Designer
2015 - 2016	NLine Energy, Inc., Designer
2008 - 2015	WorleyParsons Group, Designer
2007 - 2008	Carlton Engineering, Designer
2004 - 2005	Farrell Design Build, Designer

John Hanser PLS

Technical Specialist – Land Surveyor

Location

Sacramento, CA

Experience

21 years

Qualifications/Accreditations

- AS, Survey / Mapping, Sierra College, Rocklin, CA, 1996
- Professional Land Surveyor, CA #9578
- Federal Aviation Administration (FAA) Remote Pilot Certification

Key technical skills

- AutoCAD LDD, Trimble Terramodel, Trimble Business Center, and Microsoft Office Suite

Memberships

- N/A

Relevant experience summary

John Hanser has over 21 years of land surveying experience with a thorough knowledge of the principles, practice, and procedures of topographic, boundary, aerial, American Land Title Association (ALTA), and construction surveys on a broad range of projects including water conveyance, hydroelectric, road/highway transportation, industrial, commercial, subdivision and residential projects for public and private clients. He has performed construction staking for rough and finished grades for alignment and grade, buildings, walls, parking areas, driveways, roads, curb and gutter, joint trench and crossings, lift stations, sewer, water, storm drain, and fire hydrants, as well as slope staking and mass grade staking. John is also experienced with the protocol and reporting rigor required for federal and state permitted projects (e.g., Federal Energy Regulatory Commission (FERC), Federal Emergency Management Agency (FEMA), and Division of the State Architect (DSA)). He is well-experienced in coordinating with public agencies; complying with their stringent requirements and established cost limitations; and ensuring deliverables meet all applicable codes, standards, regulations, laws, and licensing requirements. John is highly experienced in utilizing incoming survey data to produce a wide variety of maps including tentative and final maps, subdivision maps, parcel maps, boundary line adjustment maps, lot line adjustment maps and ALTA survey maps. John is proficient with a broad spectrum of conventional survey equipment; data collection techniques include using Real-Time Kinematic (RTK), Global Positioning System (GPS), LiDAR, and 3D Laser Scans. He is competent with current software, including AutoCAD LDD, Trimble Terramodel, Trimble Business Center, and Microsoft Office Suite.

Flume 44 Replacement - FERC Project No. 184

Staff Land Surveyor
El Dorado Irrigation District | El Dorado County, CA

Served as Staff Land Surveyor for this flume replacement project, a key element of the 22-mile-long El Dorado Canal. Provided accurate data collection during fieldwork, which consisted of locating and identifying trees on the project site and added to the topographic map. During construction, provided staking calculations and performed construction staking for flume replacement and related support structures.

El Dorado Penstock Stabilization - FERC Project No. 184

Staff Land Surveyor
El Dorado Irrigation District | Pollock Pines, CA

Responsible for accurate data collection during fieldwork and for providing the needed expertise in the office to map the incoming survey data collected during the field surveys and producing a detailed master drawing to facilitate the engineering design of access improvements. The base map was prepared using a combination of existing LiDAR data, conventional survey, and aerial photography. Work included identification of key features on the site such as the rock surface under the switchyard, concrete pillars, footings,

penstocks, existing ladders, and any other points of interest beneficial to the design team. The greatest challenge was the extreme topography of the site.

Emergency Storm Response / Flume 10 Collapse & Redesign - FERC Project No. 184

Staff Land Surveyor
El Dorado Irrigation District | El Dorado County, CA

Responsible for accurate data collection during fieldwork, which consisted of construction staking activities for the permanent repairs of Flume 10, put out of commission by severe storm damage. Also provided survey data to support the production of as-built topographic mapping. This project won the 2017 American Society of Civil Engineer Sacramento Section's "Outstanding Geotechnical Project of the Year Award".

Sacramento Municipal Utility District New Slab Creek Powerhouse & Boating Flow Release Facility - FERC Project No. 2101

Staff Land Surveyor
McMillen Jacobs Associates | El Dorado County, CA

Responsible for accurate data collection during fieldwork, which consisted of locating and identifying trees on the project site, as well as providing construction staking services. Also provided the needed expertise in the office to map the incoming survey data collected during the field surveys and producing a map for the client's use. The powerhouse to be constructed approximately 0.25 miles downstream of Slab Creek Dam on the left abutment of the South Fork of the American River.

Forebay Dam - FERC Project No. 184

Staff Land Surveyor
El Dorado Irrigation District | Pollock Pines, CA

Served as Staff Land Surveyor for this dam modification project, which includes upgrades to the dam, stability berm, emergency spillway, intake structure, and associated facilities/features. Quality assurance surveys included a pre-construction topographic survey, a number of interim topographic surveys, and a final topographic survey following completion of the planned modifications.

Lake Alpine Dam Monitoring - FERC Project No. 2019

Staff Land Surveyor
Northern California Power Agency | Murphys, CA

Responsible for accurate survey data collection during annual field surveys of 20+/- surface monitoring points at Lake Alpine in the Bear Valley area. Following field work, produced the draft Surface Settlement Monitoring Survey Report.

Log Cabin and Our House Dams - FERC Project No. 2246

Staff Land Surveyor
Yuba County Water Agency | Camptonville, CA

Responsible for accurate data collection during fieldwork and for providing the needed expertise in the office to map the incoming survey data collected during field surveys. The sediment surveys will be utilized to support the relicensing efforts for the Yuba River Development Project. The Log Cabin and Our House Diversion Dams on Oregon Creek and the Middle Yuba River, respectively, are important features of this 361.9 MW hydroelectric project.

McKay's Reservoir Dam Slide Monitoring - FERC Project No. 2019

Staff Land Surveyor
Northern California Power Agency | Calaveras County, CA

Responsible for accurate survey data collection and assisting principal land surveyor during quarterly field surveys of approximately 40 points around the landslide adjacent McKay's Reservoir Dam for the Northern California Power Agency, who is obligated to submit quarterly reports to the regulatory agencies. Following field work, produced the draft report summarizing findings.

Merced Weir

Staff Land Surveyor
Site Works Solution | Merced, CA

Responsible for accurate data collection during field survey as well as for drafting all data into a topographic survey to support the engineering design of improvements.

Woodridge Court Waterline

Staff Land Surveyor
El Dorado Irrigation District | Placerville, CA

Responsible for accurate data collection during fieldwork and for providing the needed expertise in the office to map the incoming survey data collected to locate water valves, meters, and sewer appurtenances on two residential courts. Work also included mapping the topographic contours from a combination of survey points and existing LiDAR data.

Bradford Island Emergency Drought Barrier Monitoring Program

Staff Land Surveyor
Bradford Island Reclamation District 2059 | Contra Costa County, CA

Responsible for accurate data collection during fieldwork and for providing the needed expertise in the office to identify property corners on mapping for use by the engineering team responsible for estimating earthwork quantities.

Mt. Madonna & Stevens Creek Tank Improvements

Staff Land Surveyor
County of Santa Clara | Santa Clara County, CA

Responsible for accurate data collection during fieldwork and for providing the needed expertise in the office to map the incoming survey data collected and producing a topographic survey map to support the design of improvements to two tank sites.

Additional Training

- 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Initial Training (Title 8CCR 5192(e)(3)(A) & CFR 1910.120(e), 2019
- PG&E Safety Training, 2019
- California Survey & Drafting Services (CSDS) Trimble Business Center 3.61, 2016
- California Land Surveyor Association (CLSA) LS Review, 3-Day Seminar, 2010
- CLSA LSIT Review, 3-Day Seminar, 2008
- CSDS GPS Training, 2004

Career history

2018 - present	GHD, Technical Specialist – Land Surveyor
2005 - 2018	Hanser & Associates Inc.
2015 - 2016	Bock & Clark Corporation
2003 - 2005	Burrell Consulting
2001 – 2003	Andregg, Inc.
1999 – 2000	Land Development Services
1995 - 1999	Masuda and Associates

GEOTECHNICAL ENGINEERING SERVICES
Nevada City, CA
Chuck.Kull@NV5.com
530.478.1305

EDUCATION

M.S. Civil Engineering, San Jose State University
B.S. Engineering Geology, San Jose State University

REGISTRATIONS

Professional Engineer, CA No. 46701
Geotechnical Engineer, CA No. 2359
Professional Geologist, CA No. 5159
Certified Engineering Geologist, CA No. 1622
Professional Engineer, Oregon, Washington, Nevada, Colorado, Arizona, and Hawaii

EXPERTISE

Deep foundation design
Tie-back retaining wall design
Rock bolt design
Shoring design
Construction-phase project management
Reinforced earth retaining walls with Geogrid Geosynthetics
Earth dam and spillway design
Pavement Design
Bridge Foundations

AFFILIATIONS

Geoprofessional Business Association
California Geotechnical Engineers Association
Association of Engineering Geologists

CHUCK KULL, PE, GE, PG, CEG

Principal Engineer

Principal in Charge and Project Manager

Chuck Kull, PE, GE, PG, CEG, has designed and overseen geotechnical engineering projects throughout California since 1984; he is also licensed in Nevada, Oregon, Washington, Arizona, Hawaii and Colorado. His professional engineering background includes transportation and infrastructure design for the public and private sectors; forensic engineering and disaster mitigation; mining and reclamation; shoring and tie-back design; geo-structural design and rock bolting for large penstock thrust blocks, bridge abutments, tunnels and towers; and earthwork grading projects in challenging soil conditions.

Chuck excels at alternative design approaches to mitigate challenging site conditions. He has designed and overseen the construction of California Department of Water Resources (CDWR) Division of Safety of Dams (DSOD) earth dams including seepage and slope stability analysis, engineering design, borrow material selection and construction quality assurance (CQA).

Chuck has assisted the California Board for Professional Engineers, Land Surveyors and Geologists throughout much of his career. He is currently involved with test development, grading and enforcement of the California Certified Engineering Geologist certification. He also serves as an expert witness on California Department of Transportation (Caltrans) construction disputes.

PROJECT EXPERIENCE

YOSEMITE NATIONAL PARK 70KV TRANSMISSION TOWER REPLACEMENTS

MARIPOSA COUNTY, CA

NV5 is assisting Pacific Gas & Electric (PG&E) with their replacement transmission towers, referred to as Exchequer-Yosemite. We provided geotechnical engineering services for the foundation design, engineering analysis and observation and testing services for rock bolts to support the foundations of the replacement towers. There were 63 towers to be replaced, each requiring literature review, sampling and materials testing and design. Chuck was the project manager, overseeing the field engineer and reviewing Daily Field Reports (DFRs) and lab results and communicating them to PG&E.

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EAGLE CANYON ROCKFALL MITIGATION

MANTON, CA

Project manager and engineer for geotechnical and geological engineering design for rockfall protection and scaling of the basalt bluffs above excavation work for rock removal of a fish blockage in North Fork Battle Creek. During our analysis, we marked rocks that appeared to be susceptible to fall with a paint gun and biodegradable colored pellets. We then prepared a rockfall mitigation plan which was submitted to the California Department of Fish and Wildlife. We worked closely with a scaling contractor to remove loose rock prior to construction in the creek channel. 2020-2021

TABLE MOUNTAIN CASINO ROCKFALL MITIGATION AND SOIL NAIL WALL DESIGN

FRIANT, CA

Project manager for geotechnical and geological engineering design for rockfall protection and scaling of granitic outcrops above the proposed new casino. NV5 performed a site investigation to characterize rock quality and identify geohazards, and used the Colorado Rock Slope Simulation Program (CRSP) and Rocfall™ software to verify the proposed rockfall barrier system would be protective. Based on the site investigation and engineering analysis, Chuck determined the location and extent of the rockfall barrier and provided a barrier design including rockfall barrier foundations and anchor bolts. The selected design included a Maccaferri Double Twist Hexagonal Mesh rock fall netting and tied-back larger boulders with wire rope and rock anchors. We also designed a 60-foot tall, 2,000 foot long soil nail wall for a large cut slope and MSE retaining wall abutment for bridges up to 50 feet tall.

BEAR RIVER CANAL EMERGENCY SLOPE REPAIR

COLFAX, CA

Project manager for the design of bolts and a safety platform for this emergency repair project. A portion of the Bear River Canal owned by PG&E failed during the winter of 2010-2011. Part of the repair involved installing a series of high capacity bolts on a reinforced concrete waler. Chuck designed the rock bolts and oversaw the proof and performance testing of the bolts. He was retained on a Thursday afternoon to design the bolts and a temporary drilling platform that would support the workers and drill rig. The platform had to be designed for various slope angles up to 75 percent. Chuck provided the design and working drawings to a local steel fabricator, and the platform was delivered to the site on Saturday afternoon, approximately 40 hours after his initial site visit. Work was performed in 2011.

JACKSON MEADOWS SPILLWAY

NEVADA COUNTY, CA

Project manager for the analysis of the hillside above this High Sierra lake spillway to evaluate slope stability and estimate the volume of soil/rock that could enter the spillway if a slope failure occurred. Analysis included laboratory testing of soil and rock samples, and mapping joints, fractures and bedding attitudes in onsite volcanic rock. While on-site NV5 analyzed the existing penstock and rock tunnel for scour, joints and fractures in the unlined portion of the tunnel and performed ultrasound testing on the high pressure penstock. The work was performed under the apuses of the Federal Energy Regulatory Commission (FERC).

DORSEY DRIVE INTERCHANGE ON STATE ROUTE 49

GRASS VALLEY, CA

The project required testing of 47,000 cubic yards of fill, 800 cubic yards of structural concrete and 21,000 tons of hot mix asphalt (HMA). NV5 developed a procedural specification for fill placement utilizing the onsite excavated weathered rock, thus eliminating the need to off-haul the material and reducing the chance for project delay. NV5 was responsible for observing and confirming compaction of the mass fills containing high volumes of rock, which was being generated during on-site grading operations. Following grading, NV5 provided quality assurance (QA) sampling and materials testing services, including density testing during construction of structural road sections; sampling and testing of aggregate baserock to confirm compliance with project specifications; and plant inspection, field sampling and laboratory testing of concrete during construction of cast-in-drilled-hole (CIDH) piers, bridge girders, bridge deck and bridge abutments. This project earned the 2014 Construction Project of the Year Award from the Sacramento Chapter of the American Society of Civil Engineers (ASCE) and the 2014 Transportation (Interchange) Project of the Year Award from the Sacramento Chapter of the American Public Works Association (APWA).

NID BOWMAN RESERVOIR, ROLLINS RESERVOIR, SCOTTS FLAT RESERVOIR, COMBIE RESERVOIR

NEVADA COUNTY, CA

Project manager in charge of an ultrasound analysis of the existing penstocks under and adjacent to the dams under the jurisdiction of the Nevada Irrigation District (NID). Analysis included measuring the penstock thicknesses of the steel pipe, recording pipe thickness and providing patches over the ultrasound locations. Chuck also provided consultation on a thrust block within the Rollins Lake Powerhouse that was bleeding efflorescence. The Federal Energy Regulatory Commission (FERC) was concerned the integrity of the concrete was compromised. Chuck provided non-destructive testing and provided a report on the adequate concrete strength.

JOHNNY CASH TRAIL TUNNEL AND PEDESTRIAN BRIDGE

FOLSOM, CA

Principal in charge for the geotechnical engineering services for the Johnny Cash Train Tunnel and Pedestrian Bridge in Folsom, California. NV5 reviewed the drawings prepared by Kimley Horn and the soil report prepared by Geocon. NV5 designed temporary shoring for the cut slopes adjacent to the proposed pre-fabricated tunnel, Ultrablock retaining wing walls and a temporary cut slope for the crane pad at the pedestrian bridge. At the site visit, NV5 observed exploratory trenching and collected soil/rock samples in the vicinity of the cut slopes for both the tunnel and crane pad excavations. NV5 performed laboratory strength testing on selected soil/rock samples. We also provided calculations and stamped drawings of the temporary cut slopes, and calculations and design for the proposed Ultrablock walls. NV5 provided two site visits to observe the cut slopes during the excavation sequence of the tunnel and crane pad sides.

SAN FRANCISCO/OAKLAND BAY BRIDGE

BAY AREA, CA

Project manager in charge of geologic mapping and kinematic analysis in order to design a rock fall protection and shoring system for the W2 foundation on Yerba Buena Island. The excavation was 70 feet square and 90 feet deep. The shoring system required a pattern of rock bolts stressed to 100 kips and rock fall netting to support a 1-million-pound crane surcharge load. Chuck also performed pre- and post-blast surveys for blasting in the excavation. Work was performed from 2003 to 2005.

FOLSOM DAM AUXILIARY SPILLWAY

FOLSOM, CA

Project manager responsible for conducting a rock fall investigation that led to design of a shoring system, including rock bolts up to 3 inches in diameter, with design loads of 820 kips. Chuck designed a jacking load chair for the large-diameter bolts and provided proof and performance testing spreadsheets in conformance with the Post Tension Institute. He provided an analysis on crane surcharge loading on over-steepened mechanically stabilized earth slopes, as well as the design of rock-fall netting used when blasting occurred near structures and workers. Chuck used the Colorado Rockfall Simulation Program (CRSP) and RocFall™ for rock impact energy. Work was performed from 2012 to 2016

ROBB'S PEAK POWER HOUSE

EL DORADO COUNTY, CA

Project manager responsible for the slope stability analysis and recommendations for the temporary 50-foot-deep tie back anchors associated with the Robb's Peak Power House in El Dorado County, California. To prepare the stability analysis, Chuck visited the site to observe existing conditions and reviewed boring logs and photographs of the power house during its construction from 1963-1964. It was determined the backfill around the power house was to be removed to allow for repairs and resealing the concrete walls. NV5 provided excavations as deep as 50 feet. Since it was estimated that granular soil was present between the proposed temporary cut face and competent granitic rock. NV5 proposed to use rock bolts that would extend through the granular backfill and bond into the granitic rock. NV5 provided recommendations for an approximately 51-foot vertical cut, which included 1-inch 75 KSI threadbars loaded to 42 kips. The anchors retained a double-twist hexagonal netting face.

WINCHESTER EARTH DAM, MJ PROPERTIES

PLACER COUNTY, CA

Project manager responsible for the field investigation, design of the dam and oversight of construction of the keyway, fill placement and spillway. The dam is a homogenous earth dam, 45 feet high and 400 feet long, under the jurisdiction of the

Division of Safety of Dams (DSOD). The project also included evaluation of excavatability of tens of miles of onsite water/wastewater and dry utilities.

LAKE ANGELA DAM

NEVADA COUNTY, CA

Project manager in charge of the stability analyzation of a concrete gravity dam in Nevada County, California. NV5 was responsible for analyzing the dam in its current state with the removal of four failed anchors. NV5 concluded the concrete addition was still stable without the replaced anchors. Division of Safety of Dams (DSOD) allowed the reservoir to be filled to the 1972 capacity. NV5 then analyzed the dam by evaluating it with the use of passive (non-tensioned) dowels as an alternative. NV5 provided stability analyses for both the 1972 extension of the dam as well as the full dam height, considering both static and seismic loading conditions. NV5 concluded that passive grouted dowels would be sufficient to replace the post-tensioned tendons along the damaged portions of the dam extension. This design alternative allowed for the use of smaller dowels, smaller drilled holes and shallower embedment, greatly reducing construction costs. This change also eliminated the need for costly post-tensioning procedures and proof/performance testing.

FRIANT DAM

FRESNO, CA

Project manager retained by a contractor to design temporary and permanent rock bolts for a new hydroelectric power plant to be installed at the base of Friant Dam. Excavations exceeded 35 feet in depth and retained granular fill and weathered rock. Some of the challenges included unstable slopes from groundwater seepage, crane surcharge loading, 30-inch High Density Poly Ethylene (HDPE) bypass shoring, and design of rock bolts for tunneling under existing concrete stairs. He also designed a coffer dam to hold back water from the dam tailrace. The two-year project was completed with no shoring complications.

CENTENNIAL RESERVOIR

NEVADA COUNTY, CA

Project manager in charge of performing preliminary siting studies for this new reservoir. The preliminary plan is for a 275-foot-high rockfill or roller-compacted concrete dam to be located between Rollins Reservoir and Combie Reservoir on the Bear River. Studies conducted so far have narrowed the site options to two locations, based on seismic data, water storage and site geology. NV5 has been involved in the exploratory and laboratory testing for the dam. Final site selection and dam type is still being determined. NV5 teamed with AECOM for this project. This dam is under Division of Safety of Dams (DSOD) jurisdiction.

AUKUM VIEW DAM

EL DORADO COUNTY, CA

Project manager for the geotechnical investigation of an earth dam under the jurisdiction of Division of Safety of Dams (DSOD). The project scope included the diagnosis of a seepage problem, interaction with DSOD, identification of options to repair or modify the dam and development of cos- effective ways to lower the spillway.

WILDCAT DAM REMOVAL

TEHAMA AND SHASTA COUNTIES, CA

Project manager responsible for providing slope stability analysis of canyon walls along Battle Creek to evaluate the potential for naturally occurring rock fall and rock fall as a result of construction activities. NV5 also designed an inflatable bladder for the stream diversion. Work was performed in 2009.

LAKE VAN NORDEN

NEVADA COUNTY, CA

Engineer in charge of repairs to the Lake Van Norden reservoir spillway; provided recommendations for emergency repairs prior to winter snowfall. Currently working with the owner and Division of Safety of Dams (DSOD) to develop final spillway repairs.

PINE GROVE DAM

NEVADA COUNTY, CA

Geotechnical engineer in charge of repairing a leaking earth dam in Nevada County that is under the jurisdiction of Division of Safety of Dams (DSOD). NV5 directed the owner to install grout into voids in the groin of the dam in order to map the grout path

and determine the cause of the leak. Once the grout had cured, Chuck observed the excavation of the grouted area and determined water was leaking through fractures in the native rock. He prepared a work plan that was submitted to DSOD.

TURLOCK IRRIGATION DISTRICT TUNNEL REHABILITATION

TURLOCK, CA

Project engineer for the rehabilitation of Tunnels 1, 2 and 3 along the Turlock Irrigation District (TID) Upper Main Canal near La Grange, California, in Stanislaus County. The purpose of the rehabilitation was to reduce the potential for collapse of tunnel material into the irrigation canal that could restrict water flow. Chuck supervised the progress of the rehabilitation through onsite visits and by reviewing Daily Field Reports (DFRs) and digital photos remotely via the Internet.

HELL HOLE RESERVOIR WITH NEILS CONTROLLED BLASTING

PLACER COUNTY, CA

Project manager responsible for the design of rock bolts and vertical steel columns as part of a value engineering venture with Neil's Controlled Blasting. Several large blocks of rock were unstable in the water conveyance tunnel under the dam, and the original design would have proved difficult to construct in the limited tunnel space. The new design, which reduced construction costs by more than 50 percent, was approved and installed without issues.

RANCHO SANTA FE RESERVOIR, RANCHO SANTA FE CSD

IRWINDALE, CA

Project manager serving as the liaison between the Rancho Santa Fe Community Services District (CSD) and Division of Safety of Dams (DSOD) in facilitating a difficult approval. NV5 provided construction drawings and specification for the new dam and worked with DSOD to coordinate the modification required. Provided recommendations to the CSD for obtaining approval.

BIG CUT MINE

PLACERVILLE, CA

Project manager for providing consultation on the reclamation plan for the Big Cut Mine located off Donovan Ranch Road in Placerville, California. As a part of the sequencing plan, NV5 established final finish grades for the proposed cut slopes, and performed a slope stability analysis of intermediate and finish slope gradients. Cemented sand and gravel slopes were generally stable at slope gradients up to 3/4:1, horizontal to vertical (H:V). Competent rock slopes were typically stable in a vertical orientation; however, intermediate benches were required for rock fall protection and end use vegetative planting. On the grading plan, NV5 included all established drainage channels, road access to the mine, industrialized areas and bio-mass areas (as requested). After the grading plan was complete, NV5 sized culverts and the retention basins to hold surface runoff of the 20-year storm event. Storm water sampling locations were determined and the procedure for collection and testing waster for turbidity was established. NV5 analyzed the existing tunnels driven into the bluffs 50 to 100 years ago for tunnel stability, and worked with the biologist to have the data placed on the new aerial topographic survey. The biologist also worked with NV5 to address impacts to Weber Creek, existing historic ponds on the site and sensitive species.

BLACK DIAMOND MINE REGIONAL PRESERVE

ANTIOCH, CA

Project manager in charge of geotechnical engineering services for the improvement project on the mine. Work involved on the mine included bolt and waler calculations for the tunnel lid which was based on conditions found in Condor's report. NV5 recommended spot bolts, reinforcing and shotcrete. In addition, NV5 provided verification of welds and loads for the new stairway and landings installed in the mine. Footing design and construction were also provided for a new steel stairway, staircases, landings and gates. NV5 utilized plans provided by Global Fabrications to assist with the verification. The bolt and waler calculations and footing design were based on conditions found in the Condor Earth Technologies report. Other new construction included an approximately 35-foot-deep excavation and temporary shoring.

GALLERY AT GREENHORN

ANGELS CAMP, CA

Project manager in charge of providing recommendations for closure of the relic tunnels to allow for residential development. Prior to clearing and site grading, NV5 located all surface mining features and had them surveyed into a local datum and plotted on a site plan. This was a critical step, as mining features can be easily masked during clearing operations. During site grading,

an excavator exposed the shafts and tunnels that had been plotted on the site plan. NV5 then mapped the strike and dip of the tunnels and observed the structural integrity of the overlying rock. NV5 determined the rock was too heavily sheared to close the shafts in place and adequately support the proposed overlying structures; therefore, the mining features were over-excavated to depths of 50 feet below existing grade, the tunnel roofs collapsed and fill material brought back up to grade. Two vertical shafts that extended below the 50-foot depth were graded to an inverted cone and backfilled with large boulders. The boulders were then shaded with cobbles and rock and backfilled with compacted soil material. More than 650 feet of tunnels were over-excavated and backfilled. The decommissioned shafts and tunnels, along with the closure methodology, were plotted on an AutoCAD drawing for documentation.

SPRING MOUNTAIN VINEYARD

NAPA COUNTY, CA

Principal in charge for the slope repair above a reservoir constructed at Spring Mountain Vineyard. NV5 was retained to determine the cause of the slide and provide recommendations for repairs. During a review of the United States Geological Survey (USGS), NV5 located a 7.5 minute, 1976 landslide map of the Calistoga Quadrangle. The landslide map showed a large rotational slide in the area. An overlap of the map on Google Earth put the historic landslide in the middle of the new reservoir. NV5's initial work was to stabilize portions of the slide while performing a subsurface investigation. An earthwork contractor was retained to grade trails into the slide area so NV5 could core borings through the slide mass until competent material was encountered. Slope stability calculations of the existing slide mass and the proposed fix were performed. Plans and specifications were prepared, and the repair is pending.

NORTH BATTLE CREEK FEEDER DAM ACCESS ROAD

SHASTA COUNTY, CA

Project manager responsible for the design of a rockfall protection system that included anchors and cables to mitigate potentially unstable rock above the access road, and the placement of a rock fall drapery on the existing cut slope above the lower portion of the access road. Work was performed from 2013 to 2014.

HIGHWAY 80 ROCK FALL NETTING DESIGN

NEVADA AND PLACER COUNTIES, CA

Project manager responsible for providing a hybrid rockfall netting system for a stretch of Highway 80 between Emigrant Gap and Highway 20. Chuck performed Colorado Rockfall Simulation Program (CRSP) analysis and designed rock anchors to support the rockfall netting. Work was performed from 2010 to 2013.

HIGHWAY 80 ROCK ANCHOR DESIGN

COLFAX, CA

Project manager in charge of designing rock bolts for rockfall netting on steep slopes up to 120 feet high with slope gradients exceeding 100 percent. Load testing was done in accordance with the Post Tensioning Institute manual. The loading frame was fabricated specifically for this project. All work was performed with fall protection, making this a challenging project. Work was performed in 2013.

EL DORADO FISH SCREEN ROCK BOLT DESIGN

EL DORADO COUNTY, CA

Project manager responsible for the design and testing of rock bolts for El Dorado Irrigation District. There was concern the fish screen may have an uplift issue based on potential buoyancy in a large flood event. Chuck designed the bolts and tested them using PTI proof and performance guidelines. Great care was exercised to make sure that anchor loading on the bearing plates would not create a punching shear problem. Work was performed in 2013.

BALDWIN CREEK FISH BARRIER

SHASTA COUNTY, CA

Project manager for the stream diversion plan, coffer dam calculations, and HDPE pipe sizing for the stream diversion of Baldwin Creek. Water for the HDPE pipe system had to be collected behind the coffer dam, routed over the new concrete structure to be built and then back down to the creek. A series of wooden trusses were designed to support the pipe. (Similar to this project, Chuck provided calculations for the Pacific Power Diversion, which was necessary to divert water around a canal that needed

servicing. He reviewed pump curves and sized pipe for the diversion.) Chuck also prepared a pre and post blast survey of the surrounding structures. Work was performed in 2013.

RED BLUFF FISH PASSAGE SCREENS & LADDERS

RED BLUFF, CA

Project manager for sheet pile shoring for excavations up to 25 feet deep adjacent to the Sacramento River near Red Bluff. Also developed a dewatering plan for a concrete siphon beneath Red Bank Creek. The dewatering plan called for 24-inch-diameter well points placed on 50-foot centers to draw groundwater down to allow construction of the siphon. Work was performed in 2010.

JACKSON MEADOWS SPILLWAY

NEVADA COUNTY, CA

Project manager for the analysis of the hillside above this high Sierra lake spillway to evaluate slope stability and estimate the volume of soil/rock that could enter the spillway if a slope failure occurred. Analysis included laboratory testing of soil and rock samples, and mapping joints, fractures, and bedding attitudes in onsite volcanic rock. The work was performed for Nevada Irrigation District at the request of the Federal Energy Regulation Commission.

SUGAR BOWL EXPANSION PROJECT

NORDEN, CA

Project Manager for the geotechnical investigation for expansion of the ski resort in the Sierra Nevada Mountains, and provided foundation design criteria for a new lodge, maintenance building, employee housing building and bridge along a new access road. The proposed access road to the resort traversed Nevada County and Placer County land, as well as Tahoe National Forest property. NV5 developed geotechnical recommendations that met the different design and grading requirements mandated by the three agencies. Special geotechnical considerations included providing recommendations for gradational fills up to 20 feet deep and rock bolting of concrete bridge abutments. Chuck also oversaw the quality control services during grading of the new roadway, retaining wall backfill and foundation construction. We also performed onsite and laboratory testing of borrow material, compaction testing of subgrade fill, utility trench backfill, aggregate baserock and asphalt. With an altitude above 5,000 feet, special considerations for the colder climate are required.

Appendix B

Cost Proposal

Fee Summary

El Dorado Irrigation District – RFP 22-02 – Flume 45 Section 3 Replacement

Cost Considerations: GHD provided a Class 5 cost estimate for the repair of Flume 45 Section 3 and conversion to U-Canal to the District in 2016, with a total estimated cost of approximately $6 Million. If another proposer's geotechnical work is not adequate to assess the existing stacked rock wall and bench, the construction cost is more on the order of $7.5 Million. GHD's proposed cost of $421K is approximately 7% of the recommended construction cost and offers our Best Value to the District. We are able to leverage our extensive hydroelectric design experience as a cohesive team of surveyors, geotechnical, structural, and civil engineers. GHD is self-performing the requested work and not relying on subconsultants for key elements of this design.

GHD notes that for every dollar spent in construction, ten cents is for the cost of engineering. For every dollar spent in construction, up to twenty dollars is for the cost of maintenance over the life of the design. For Flume 45, GHD is proposing a robust system to solidify the rock bench and tie it into strong bedrock to meet current FERC design standards. This will allow the District to construct fire and impact resistant and resilient cementitious U-Canal on an engineered bench. A good design results in less maintenance over the life cycle of the project, so the District's savings continue for 75 to 100 years.

Task 1 **-**	Meetings and Site Visits	**$34,376.00**
Task 2 **-**	Progress Reports and Schedules	**$9,988.00**
Task 3 **-**	Field Topographic and LiDAR Survey	**$23,786.00**
Task 4 **-**	Geotechnical Investigations	**$113,893.00**
Task 5 **-**	30% Design Memorandum	**$19,804.00**
Task 6 **-**	30% Design Submittal	**$47,492.00**
Task 7 **-**	50% Design Submittal	**$32,172.00**
Task 8 **-**	75% Design Submittal	**$27,596.00**
Task 9 **-**	100% Design Submittal	**$28,436.00**
Task 10 **-**	Bid Set Design Submittal	**$19,676.00**
Task 11 **-**	Project Management	**$64,304.00**
PROJECT TOTAL		**$421,523.00**

Multi-Discipline Work Plan

Proposed Project Name: Flume 45 - Section 3
Client / Contact Name: El Dorado Irrigation District / Cary Muechler
Project Number: 12587274
Proposal Due Date: 7/25/2022

PROJECT TOTAL: $421,523

PROJECT COST BREAKDOWN

LABOR * O=Office Hours F=Field Hours S=Survey Hours

FIELD SURVEY Services

STAFF ROLE	STAFF NAME	HOURLY RATE	TASK 1 * Meetings and Site Visits	TASK 2 * Progress Reports and Schedules	TASK 3 * Field Topographic and LiDAR Survey	TASK 4 * Geotechnical Investigations	TASK 5 * 30% Design Memorandum	TASK 6 * 30% Design Submittal	TASK 7 * 50% Design Submittal	TASK 8 * 75% Design Submittal	TASK 9 * 100% Design Submittal	TASK 10 * Bid Set Design Submittal	TASK 11 * Project Management	LINE ITEM TOTALS: LABOR HOURS	LINE ITEM TOTALS: LABOR DOLLARS
Survey Principal	Doug Ries	$340.00	O	O	O	O	O	O	O	O	O	O	O 16	16	$5,440.00
Survey Manager	Brian Howard	$263.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Land Surveyor	John Hanser	$185.00	O	O	O 24	O	O	O	O	O	O	O	O	24	$4,440.00
Land Surveyor	VACANT		O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Chainman	VACANT	$90.00	F	F	F	F	F	F	F	F	F	F	F	0	$0.00
Two Man Survey Crew		$285.00	S	S	S	S	S	S	S	S	S	S	S	0	$0.00
Two Man Survey Crew (Prevailing Wage)		$315.00	S	S	S 50	S	S	S	S	S	S	S	S	50	$15,750.00
One Man Survey Crew		$180.00	S	S	S	S	S	S	S	S	S	S	S	0	$0.00
One Man Survey Crew (Prevailing Wage)		$210.00	S	S	S	S	S	S	S	S	S	S	S	0	$0.00
LAND SURVEYING LABOR SUBTOTALS:			**$0.00**	**$0.00**	**$20,190.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$5,440.00**	**90**	**$25,630.00**

PROJECT MANAGEMENT Staff Services

STAFF ROLE	STAFF NAME	HOURLY RATE	TASK 1 F Meetings and Site Visits	TASK 2 * Progress Reports and Schedules	TASK 3 * Field Topographic and LiDAR Survey	TASK 4 * Geotechnical Investigations	TASK 5 * 30% Design Memorandum	TASK 6 * 30% Design Submittal	TASK 7 * 50% Design Submittal	TASK 8 * 75% Design Submittal	TASK 9 * 100% Design Submittal	TASK 10 * Bid Set Design Submittal	TASK 11 * Project Management	LINE ITEM TOTALS: LABOR HOURS	LINE ITEM TOTALS: LABOR DOLLARS
Hydroelectric Principal	Greg Watanabe	$340.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Sr Engineering Geologist	David Jermstad	$315.00	O 20	O	O	O	O	O	O	O	O	O	O	20	$6,300.00
Project Director	Amy Deakyne	$283.00	O 20	O	O	O	O 8	O	O	O	O	O	O 8	36	$10,188.00
Civil Engineer	Steven Millett	$195.00	O 42	O 28	O	O	O	O	O	O	O	O	O	70	$13,650.00
Structural Engineer	Tom Burkhart	$283.00	O 42	O 16	O	O	O	O	O	O	O	O	O 200	258	$73,014.00
Assistant Project Manager	Vanessa Eckerman	$195.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Structural Designer	Alyceson Pratt	$195.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Civil Designer	Paula McKenna	$220.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Administrative Support	MSAT	$105.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
GEOTECHNICAL ENGINEERING LABOR SUBTOTALS:			**$32,036.00**	**$9,988.00**	**$0.00**	**$0.00**	**$2,264.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$58,864.00**	**384**	**$103,152.00**

GEOTECHNICAL ENGINEERING LABOR SUBTOTALS:

STAFF ROLE	STAFF NAME	HOURLY RATE	TASK 1 * Meetings and Site Visits	TASK 2 * Progress Reports and Schedules	TASK 3 * Field Topographic and LiDAR Survey	TASK 4 * Geotechnical Investigations	TASK 5 * 30% Design Memorandum	TASK 6 * 30% Design Submittal	TASK 7 * 50% Design Submittal	TASK 8 * 75% Design Submittal	TASK 9 * 100% Design Submittal	TASK 10 * Bid Set Design Submittal	TASK 11 * Project Management	LINE ITEM TOTALS: LABOR HOURS	LINE ITEM TOTALS: LABOR DOLLARS
Geotechnical Principal	Greg Watanabe	$340.00	O	O	O	O 2	O	O	O	O	O	O	O	2	$680.00
Sr Engineering Geologist	David Jermstad	$315.00	O	O	O	O 110	O 8	O	O	O	O	O	O	118	$37,170.00
Sr Geotechnical Engineer	Chuck Kull	$276.00	O	O	O	O 18	O	O	O	O	O	O	O	18	$4,968.00
Civil Engineer	Steven Millett	$195.00	F	F	F	F 120	F	F	F	F	F	F	F	120	$23,400.00
Laboratory Manager	Bryon Iseger	$184.00	F	F	F	F 40	F	F	F	F	F	F	F	40	$7,360.00
Geotechnical Field Tech	Chris Walker	$153.00	F	F	F	F 40	F	F	F	F	F	F	F	40	$6,120.00
Assistant Project Manager	Vanessa Eckerman	$195.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
			O	O	O	O	O	O	O	O	O	O	O	0	$0.00
			O	O	O	O	O	O	O	O	O	O	O	0	$0.00
HYDROELECTRIC ENGINEERING LABOR SUBTOTALS:			**$0.00**	**$0.00**	**$0.00**	**$77,178.00**	**$2,520.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**338**	**$79,698.00**

CIVIL ENGINEERING

STAFF ROLE	STAFF NAME	HOURLY RATE	TASK 1 * Meetings and Site Visits	TASK 2 * Progress Reports and Schedules	TASK 3 * Field Topographic and LiDAR Survey	TASK 4 * Geotechnical Investigations	TASK 5 * 30% Design Memorandum	TASK 6 * 30% Design Submittal	TASK 7 * 50% Design Submittal	TASK 8 * 75% Design Submittal	TASK 9 * 100% Design Submittal	TASK 10 * Bid Set Design Submittal	TASK 11 * Project Management	LINE ITEM TOTALS: LABOR HOURS	LINE ITEM TOTALS: LABOR DOLLARS
Civil Principal	Greg Watanabe	$340.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Senior Civil Engineer	Amy Deakyne	$283.00	O	O	O	O	O 8	O 4	O 4	O 4	O 4	O 4	O	28	$7,924.00
Civil Engineer	Spencer Wells	$195.00	O	O	O	O	O	O 8	O	O	O	O 8	O	16	$3,120.00
Civil Eng (H&H)	Steven Millett	$195.00	O	O	O 4	O	O 24	O 80	O 40	O 40	O 40	O 32	O	260	$50,700.00
Sr Designer	Paula McKenna	$220.00	O	O	O 8	O	O	O 40	O 32	O 16	O 16	O 16	O	128	$28,160.00
Designer	Odie Malko	$132.00	O	O	O 8	O	O	O 60	O 40	O 32	O 32	O 24	O	196	$25,872.00
Administrative Support	MSAT	$105.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
CIVIL ENGINEERING LABOR SUBTOTALS:			**$0.00**	**$0.00**	**$3,596.00**	**$0.00**	**$6,944.00**	**$35,012.00**	**$21,252.00**	**$16,676.00**	**$16,676.00**	**$15,620.00**	**$0.00**	**628**	**$115,776.00**

STRUCTURAL ENGINEERING

STAFF ROLE	STAFF NAME	HOURLY RATE	TASK 1 * Meetings and Site Visits	TASK 2 * Progress Reports and Schedules	TASK 3 * Field Topographic and LiDAR Survey	TASK 4 * Geotechnical Investigations	TASK 5 * 30% Design Memorandum	TASK 6 * 30% Design Submittal	TASK 7 * 50% Design Submittal	TASK 8 * 75% Design Submittal	TASK 9 * 100% Design Submittal	TASK 10 * Bid Set Design Submittal	TASK 11 * Project Management	LINE ITEM TOTALS LABOR HOURS	LINE ITEM TOTALS LABOR DOLLARS
Structural Principal	Dan Reiter	$315.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Senior Structural Engineer	Tom Burkhart	$283.00	O	O	O	O	O 12	O 12	O 8	O 8	O 16	O 8	O	64	$18,112.00
Senior Civil Engineer	Amy Deakyne	$283.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Structural Engineer	Samantha Moose	$237.00	O	O	O	O	O	O	O	O	O	O	O	0	$0.00
Civil Engineer (Structural)	Patrick Brutzman	$195.00	O 12	O	O	O	O 24	O 32	O 24	O 24	O 24	O 8	O	148	$28,860.00
Designer	Alyceson Pratt	$195.00	O	O	O	O	O	O 32	O 32	O 32	O 32	O 8	O	136	$26,520.00
Administrative Support	MSAT	$105.00	O	O	O	O	O	O	O	O	O 8	O 8	O	16	$1,680.00
STRUCTURAL ENGINEERING LABOR SUBTOTALS:			**$2,340.00**	**$0.00**	**$0.00**	**$0.00**	**$8,076.00**	**$12,480.00**	**$10,920.00**	**$10,920.00**	**$11,760.00**	**$4,056.00**	**$0.00**	**364**	**$75,172.00**

SUBCONSULTANTS

GEOTECHNICAL ENGINEERING / COT / QCIP

SUBCONSULTANTS	TASK 1 Meetings and Site Visits	TASK 2 Progress Reports and Schedules	TASK 3 Field Topographic and LiDAR Survey	TASK 4 Geotechnical Investigations	TASK 5 30% Design Memorandum	TASK 6 30% Design Submittal	TASK 7 50% Design Submittal	TASK 8 75% Design Submittal	TASK 9 100% Design Submittal	TASK 10 Bid Set Design Submittal	TASK 11 Project Management	LINE ITEM TOTALS EXPENSE DOLLARS	LINE ITEM TOTALS PLUS 15% MARK-UP
Gasch Geophysical Services				$12,811.00								$12,811.00	$14,732.65
Taber Drilling				$11,615.00								$11,615.00	$13,357.25
Rock Wall Coring Rental - GHD Field Extra				$7,500.00								$7,500.00	$8,625.00
NV5												$0.00	$0.00
GEOTECHNICAL ENGINEERING SUBCONSULTANTS SUBTOTALS:	**$0.00**	**$0.00**	**$0.00**	**$31,926.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$31,926.00**	**$36,715.00**

DISCIPLINE TOTALS PER TASK

Labor, Expenses, and Subconsultants

	TASK 1 Meetings and Site Visits	TASK 2 Progress Reports and Schedules	TASK 3 Field Topographic and LiDAR Survey	TASK 4 Geotechnical Investigations	TASK 5 30% Design Memorandum	TASK 6 30% Design Submittal	TASK 7 50% Design Submittal	TASK 8 75% Design Submittal	TASK 9 100% Design Submittal	TASK 10 Bid Set Design Submittal	TASK 11 Project Management	DISCIPLINE TOTALS
SUBTOTALS:	**$34,376.00**	**$9,988.00**	**$23,786.00**	**$113,893.00**	**$19,804.00**	**$47,492.00**	**$32,172.00**	**$27,596.00**	**$28,436.00**	**$19,676.00**	**$64,304.00**	**$421,523.00**

Flume 45 Section 3 Replacement Design Contract

August 22, 2022

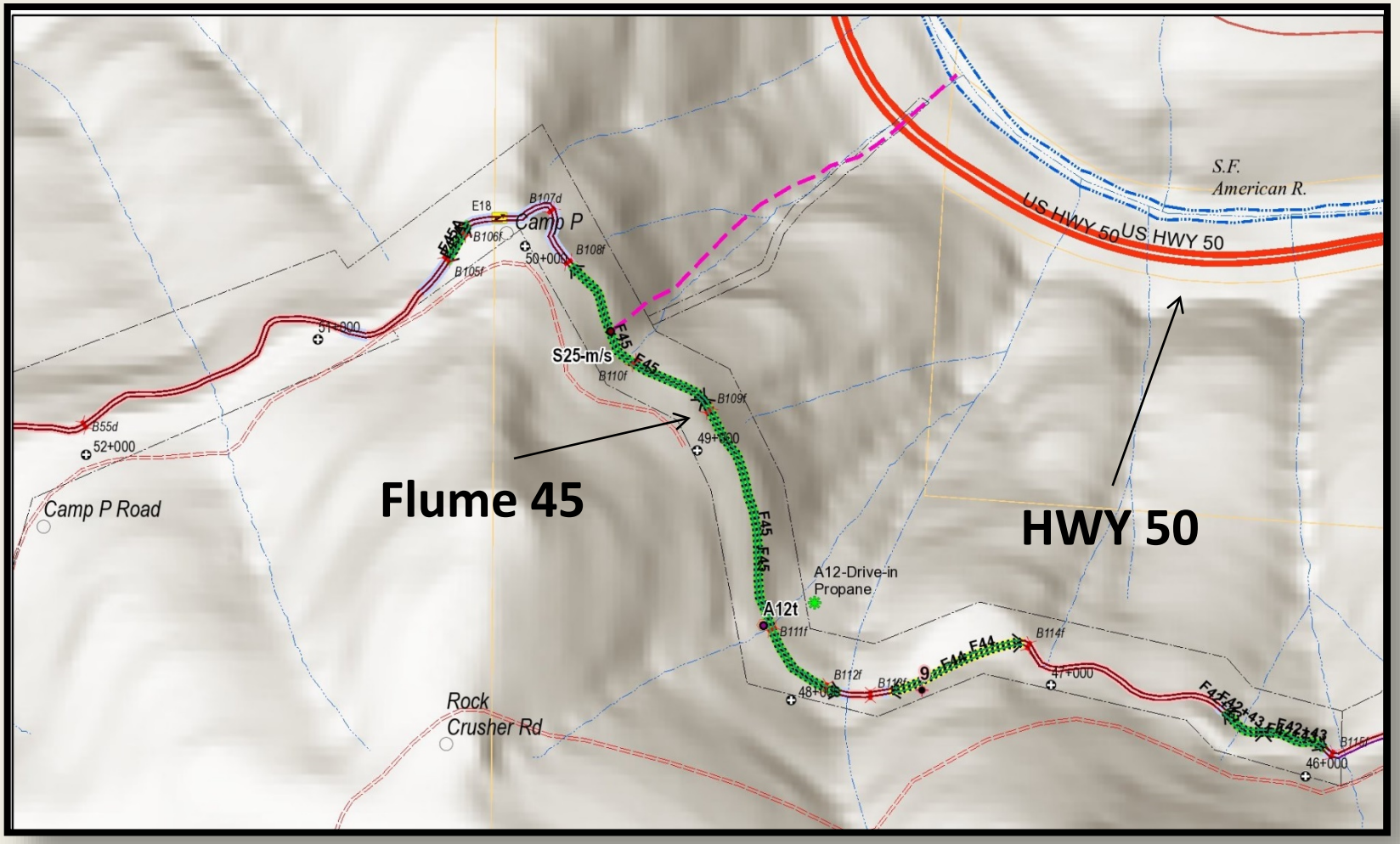
By: Cary Mutschler
Senior Civil Engineer

El Dorado Irrigation District

Previous Board Actions

- November 8, 2021 – Board adopted the 2022-2026 CIP, which included this project, subject to funding availability.

Project Site



Summary of Issues

- Flume 45 section 3 is in a degraded condition and needs replacement
- A previous destabilized area repaired by PG&E in 1991 has shown signs of movement
- Staff requesting to initiate design for 2023/2024 planned construction

Background

- Flume 45 is a 1,900 foot long flume, section 3 was last replaced in 1991
- Most of the flume rests on a historic rock wall constructed in the 1870's
- Section 3 is a 940 foot long section on the downstream side in an area that has experienced a slide
- Stability measures implemented in 1991 on the 30 foot tall rock wall section
- Project requires approval from U.S. Forest Service and State Historic Preservation Officer for potential impacts to historic wall

Flume 45 Section 3 Issues

Flume 45 Section 3 Issues

Flume 45 Section 3 Issues

Flume 45 Section 3 Issues

Flume 45 Section 3 Issues

Flume 45 Section 3 Issues

Scope of Work

- Develop replacement and stabilization alternatives for the historic rock wall
  - Support consultation with U.S. Forest Service and State Historic Preservation Officer
- Perform geotechnical analysis of site
- Finalize design for replacement and stabilization of Flume 45 Section 3
- Develop construction phasing for the 2023 and the 2024 outage
- Schedule is aggressive
  - Seismic refraction, boring, core samples, complicated design, environmental review

Proposals

Engineering Firm	Fee Proposal
GHD, Inc.	$421,523
MGE Engineering	$537,386
Gannett Fleming	$685,946

Environmental Review

- Project is subject to compliance with the California Environmental Quality Act
  - Project may result in adverse effects to the historic rock wall that supports Flume 45 Section 3
  - Potential adverse effects require preparation of an Environmental Impact Report (EIR)
- Staff is preparing an Initial Study/Notice of Preparation to initiate the EIR process
- Staff will seek proposals from on-call consulting firms to support preparation of the EIR

Cost Breakdown

Flume 45 Section 3 Funding Requirements

	Amount
GHD Engineering – Design Services	$421,253
Capitalized labor – Engineering, environmental staff support	$155,000
Professional services to support environmental review	$100,000
TOTAL	**$676,523**

Board Options

- **Option 1**: Award a contract to GHD Inc. in the not-to-exceed amount of $421,523 for design of Flume 45 Section 3 and authorize additional funding of $155,000 for capitalized labor, and $100,000 for professional services for environmental support for a total funding request of $676,523 for the Flume 45 Section 3 Replacement Project, Project No.22014.01.
- **Option 2**: Take other action as directed by the Board.
- **Option 3**: Take no action.

Recommendation

- **Option 1**

Questions?

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider approving a contract change order to Domenichelli and Associates, Inc. in the not-to-exceed amount of $22,010 for design of the Motherlode Force Main Phase 3 and authorize additional funding of $22,010 for the Motherlode Force Main Phase 3 Project, Project No. 21081.01.

PREVIOUS BOARD ACTION

November 8, 2021 – Board adopted the 2022-2026 Capital Improvement Plan (CIP), subject to available funding.

January 10, 2022 – Board authorized additional funding in the amount of $75,000 for design services and $50,000 for capitalized labor, for a total funding request of $125,000 for the Motherlode Force Main Phase 3 Replacement Project, Project No. 21081.01.

July 25, 2022 – Board authorized additional funding in the amount of $20,000 for environmental services, $25,000 for engineering services, and $25,000 for capitalized labor for a total funding request of $70,000 for the Motherlode Force Main Phase 3 Project, Project No. 21081.01.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

BP 0010 District Mission Statement
BP 6010 Wastewater System Management

SUMMARY OF ISSUE

The Motherlode Force Main (MLFM) and downstream gravity pipeline is a nine-mile conveyance system servicing the District's wastewater customers in Diamond Springs, El Dorado, and Shingle Springs. The original pipeline segments were constructed in 1979 and continue to experience failures that disrupt safe and reliable wastewater collection service and can result in sanitary sewer overflows. Programmatic replacement of the MLFM is necessary to maintain wastewater collection system reliability.

BACKGROUND/DISCUSSION

The Motherlode conveyance system begins at the El Dorado Lift Station (EDLS) in the town of El Dorado and consists of eight miles of force main that connects to one mile of gravity pipe prior to eventually discharging at the Deer Creek Wastewater Treatment Plant (DCWWTP). The original pipe construction was completed in the late 1970's and consisted of 12-inch asbestos cement pipe. Pipe materials such as asbestos cement and reinforced concrete are susceptible to hydrogen sulfide (H_2S) corrosion in a wastewater setting, especially in a long conveyance system. The force main has experienced numerous failures over the years and undergone multiple replacement projects, both in emergency situations and planned repairs. To date, the District has replaced approximately 50% of the original pipe with polyvinyl chloride (PVC) pipe.

The EDLS has three pumps within the pump station wet well, consisting of two low horsepower (HP) pumps and one high HP pump. Normal operations utilize the two low HP pumps while the high HP pump is utilized during wet weather events that produce an increase in wet weather flow

to the EDLS. The EDLS has a permitted equalization pond for temporary emergency storage during excessive rain events. Utilization of the equalization pond triggers daily regulatory permit testing requirements.

The most recent failures of the MLFM occurred on October 25 and October 26, 2021. At the time, the area experienced historic rain fall in excess of 10 inches of rain over a 36-hour period. This event necessitated the use of the overflow pond to capture the excess flow at EDLS, and all three pumps at EDLS were utilized to convey the wastewater contained in the equalization pond to the DCWWTP. While normal operational procedures were used, the higher pressure and flow from the station, combined with the corroded force main resulted in a pipeline break in one of the upstream sections along Pleasant Valley Road and resulted in a sanitary sewer overflow (SSO). SSOs are defined as unpermitted releases from sanitary sewer systems, are prohibited under the Clean Water Act, and constitute a regulatory violation. Fortunately, released wastewater did not reach surface waters or a drainage channel tributary. The District contracted with Doug Veerkamp General Engineering Inc. to make emergency repairs the day of the pipeline failure. Pumping operations resumed briefly, however, another failure occurred just several feet upstream the following day, causing a second SSO. Video inspection of the pipe revealed that downstream of the failure and 200 feet upstream of the failure, the pipe is severely corroded due to prolonged exposure to H_2S gas. The pipe was once again repaired and EDLS was placed back in service, but at a reduced pumping capacity to prevent further pipe failures. The reduced pumping operation currently employed is sufficient for normal dry weather flow conditions, however, low to moderate storm activity now requires the use of the equalization pond. Operating at a reduced pumping capacity is not sustainable, as the equalization pond should only be utilized when all pumps cannot keep up with the EDLS influent peak wet weather flows.

Recent design efforts and bidding

In response to the 2021 failures, staff proposed to accelerate the MLFM replacement included in the 2022-2026 CIP. In January 2022, staff executed a design contract with Domenichelli and Associates, Inc. (D&A) to develop construction contract documents for the remaining 17,400 linear feet of force main. Due to environmental permitting time limitations for two of the three remaining miles, staff completed design for the most critical section, Phase 3A, for immediate replacement. Staff deferred design efforts and construction document development for the remaining two miles of force main for planned replacement in 2023.

In May of 2022, staff solicited construction bids for the Phase 3A portion which represented approximately 1 mile of force main. However, only one bid was received at a substantially higher unit price than estimated. Staff elected to reject the single bid and solicited comments from pre-bid meeting attendees regarding the lack of bids and any contractor concerns. Responses generally included lack of staffing resources for the 2022 construction season and concerns over material price volatility and availability. In reply, staff is pursuing a repackaging of bid documents to combine Phase 3A with the remaining two miles of force main for a target construction solicitation in February/March 2023. By proceeding in this fashion, staff anticipates a greater economy of scale, and bidding projects over the winter allows contractors to plan the project into their schedules and generally results in more competitive bidding and greater interest. Bidding well in advance of the summer construction period should also resolve concerns over material availability and market stability.

Additionally, staff intends to release a Request for Qualifications in fall 2022 to formulate a list of qualified bidders to perform the construction work that will also serve to garner contractor interest and advanced planning for the 2023 construction season. Environmental permitting for the full length of the project is anticipated to be complete in January 2023.

Design Contract
In recent months, staff has been collaborating with D&A to finalize basis of design efforts for the two remaining miles of force main. Unforeseen utility conflicts necessitate augmenting the current design contract to properly address the conflicts in the final construction bid documents. Services included in the design contract change order include utility conflict relocation, proper connection of wastewater service connections, incorporation of environmental mitigation measures (if any), and vehicle turnouts to provide safe access for staff while maintaining air relief valves.

Motherlode Force Main Design Contract	**Cost**
Initial Contract	$74,770
Amendment 1 – Traffic Control Plans	$3,052
Amendment 2 – District Directed Changes	$22,010
Total Contract Amount	**$99,832**

While the cumulative contract amount, including the proposed change order, is still within the authority of the General Manager's approval level, staff believe it is prudent to seek Board authorization for this proposed change order. It also provides an opportunity to update the Board on the status of replacing a critical component of the District's wastewater collection system.

Public Outreach
Staff has developed a public outreach/communication plan for the project during the design phase. There are several key elements of this that are outlined below:

- Letters describing the project and construction schedule will be sent to a wide swath of property owners and tenants in the area. The letters will be delivered to properties, businesses, and schools on Pleasant Valley Road, Motherlode Drive, and Buckeye Road, and other connecting streets.
- Staff will develop a project website for up-to-date information and schedule.
- The project email will be monitored and replies to inquiries made in a timely manner.
- Any individual with questions can call the District's main phone number and ask to speak to a project representative.

With the majority of the pipeline construction occurring in Pleasant Valley Road, Motherlode Drive, and Buckeye Road, staff will prepare a traffic control plan and encroachment permit application for coordination with El Dorado County Department of Transportation.

FUNDING
This project was identified in the 2022-2026 CIP, and included planned expenditures of $6 million over the five-year period to replace 2.5 miles of the force main section. As indicated above, staff is planning to proceed with accelerated design and construction of the remaining force main sections, for an approximate length of 3.3 miles. The design will include a revised construction cost estimate, and the estimated funding will be increased in the 2023-2027 CIP approval process. The funding source for this project is wastewater FCCs and construction bid documents will be formatted with alternates to provide flexibility in awarding portions of the project or all three phases, depending on cash flow and funding considerations.

BOARD OPTIONS

Option 1: Approve a contract change order to Domenichelli and Associates, Inc. in the not-to-exceed amount of $22,010 for design of the Motherlode Force Main Phase 3 and authorize additional funding of $22,010, for the Motherlode Force Main Phase 3 Project, Project No. 21081.01.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1

ATTACHMENTS

Attachment A: Domenichelli and Associates, Inc. Task Form

Liz Carrington
Senior Civil Engineer

Elizabeth Dawson
Engineering Manager

Brian Mueller
Engineering Director

Tracy Crane
Wastewater and Recycled Water Operations Manager

Jamie Bandy
Finance Director

Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

El Dorado Irrigation District

Exhibit 1 to Appendix A

PROPOSAL FOR PROFESSIONAL SERVICES – ON-CALL CONTRACT (THROUGH 12/31/2022)

(PURSUANT TO PARAGRAPH 1 OF APPENDIX A OF THE PROFESSIONAL SERVICES AGREEMENT FOR ON-CALL PROFESSIONAL SERVICES 01/01/2020 THROUGH 12/31/2022, THIS PROPOSAL – IF SELECTED BY DISTRICT AND EXECUTED BY BOTH PARTIES – SHALL BECOME THE **SCOPE OF WORK** FOR THE SPECIFIC ON-CALL TASK(S) IDENTIFIED HEREIN.)

TYPE OF SERVICE: General Engineering

CONSULTANT NAME: Domenichelli & Associates, Inc.
EID Project Name: Motherlode Force Main, Phase 3 – Task 2, Addendum 2

EID Project No.: 21081

ESTIMATED HOURS AND COST PROPOSAL				
ITEM NO.	TASK DESCRIPTION	PROJECTED HOURS	COST PER HOUR/ITEM **(REQUIRED)**	PROJECTED COSTS
1	Design – District Directed Changes	142	$155.00	$22,010.00
	TOTAL HOURS	142	TOTAL NOT TO EXCEED	$22,010.00

ESTIMATED DURATION: 4 months (REQUIRED)

CONSULTANT MUST ALSO ATTACH A MORE DETAILED DESCRIPTION OF EACH TASK LISTED ABOVE, IDENTIFYING ALL PARTICIPATING PERSONNEL AND SUBCONSULTANTS, A TIMETABLE FOR PERFORMANCE OF EACH TASK, AND ALL DELIVERABLES.

CONSULTANT:

SIGNATURE _____ DATE 7/29/22

==========

DISTRICT APPROVAL:

SIGNATURE _____ DATE _____

SIGNATURE _____ DATE _____

SIGNATURE _____ DATE _____

FOR EID USE ONLY:
Charge Nos.: *Notes:*

Are safety submittals required? ☐ Yes ☐ No
If "Yes", safety submittal form needs to be completed and attached to this form. District's Safety/Security Officer must approve safety submittals before commencement of work.

El Dorado Irrigation District

Motherlode Force Main Phase 3 Project

Contract Change Order and Project Funding

Project No. 21081.01

August 22, 2022

Previous Board Actions

- November 8, 2021 – Board adopted the 2022–2026 Capital Improvement Plan (CIP), subject to available funding

- January 10, 2022 – Board authorized additional funding in the amount of $75,000 for design services and $50,000 for capitalized labor, for a total funding request of $125,000 for the Motherlode Force Main Phase 3 Project, Project No. 21081.01

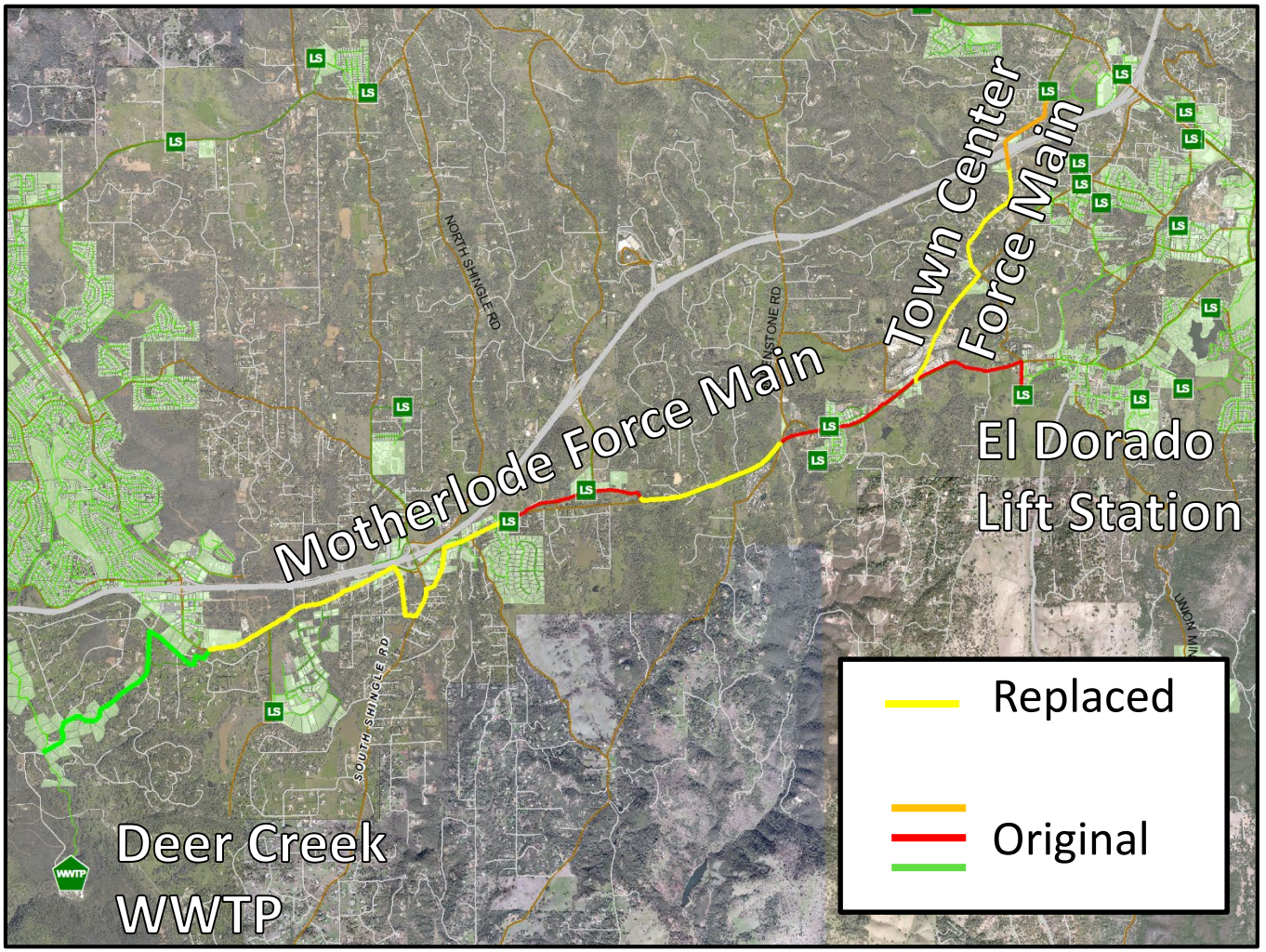
Previous Board Actions

- July 25, 2022 – Board authorized additional funding in the amount of $20,000 for environmental services, $25,000 for engineering services, and $25,000 for capitalized labor for a total funding request of $70,000 for the Motherlode Force Main Phase 3 Project, Project No. 21081.01

Summary of Issues

- Motherlode Force Main was originally constructed in 1979
- Historical pipe failures in 1999, 2012, and 2021 disrupt wastewater collection service
- Programmatic replacement will enhance collection system reliability

Background



El Dorado Irrigation District

Background

Background

October 25, 2021 Failure

Background

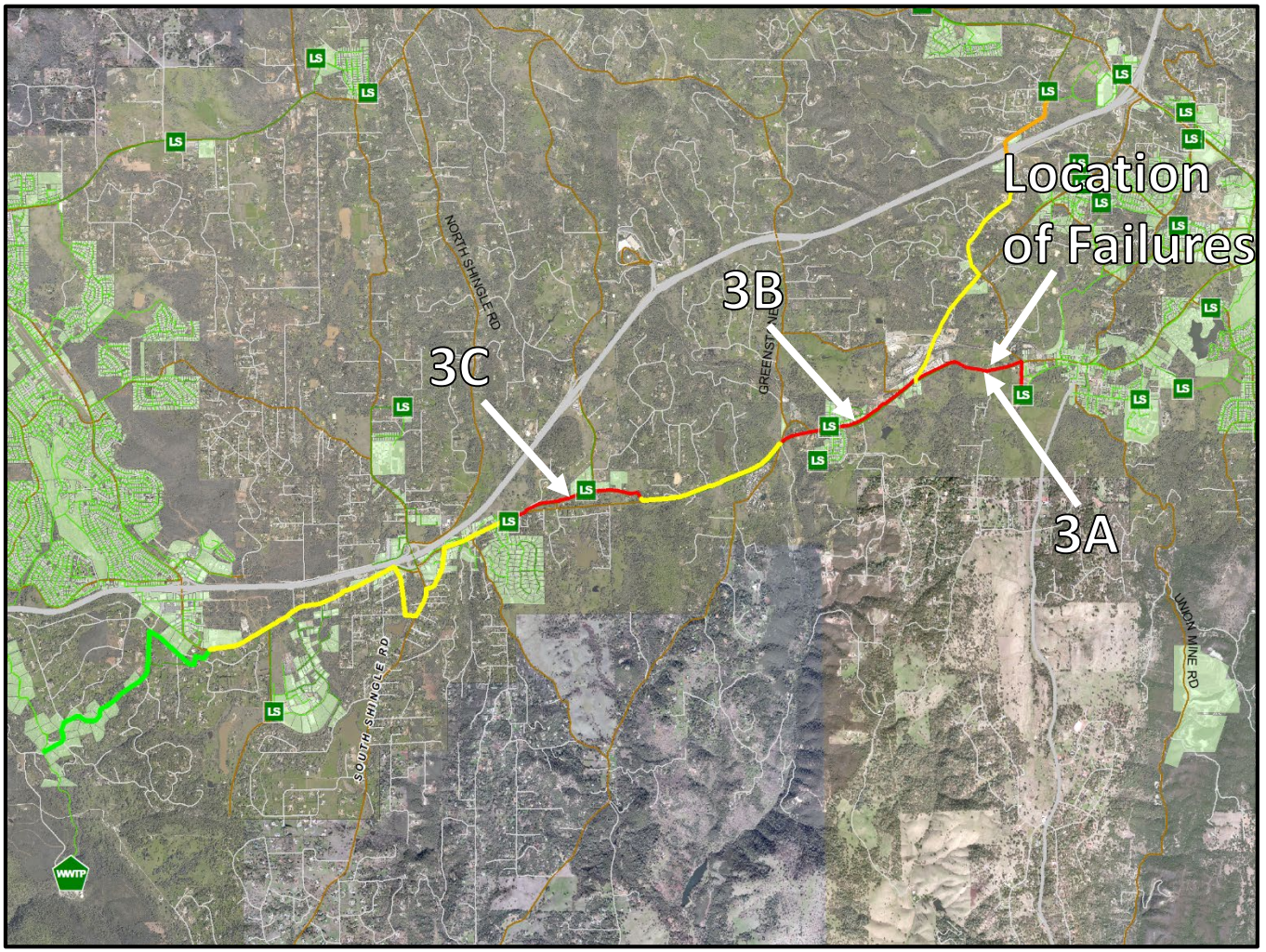
October 26, 2021 Failure

Background

Corroded Pipe

Non-Corroded Pipe

Design and Bidding



El Dorado Irrigation District

Design and Bidding

- Phase 3A construction bids
  - One bid received
  - Elevated unit price
  - Rejected all bids

- Repackaging of construction bid documents
  - Greater economy of scale
  - Ideal timing for 2023 construction season execution
  - Modified bid form

Schedule

- Request for Qualifications (RFQ) in fall 2022
- Environmental permitting – January 2023

Design Contract Change Order

- Utility conflict relocation
- Wastewater service connections
- Environmental mitigation measures (if any)
- Vehicle turn-outs at air release valves

Design Contract

Item	Cost
Initial contract	$74,770
Amendment 1 – Traffic control plans	$3,052
Amendment 2 – District directed changes	$22,010
Total Requested Funding	**$99,832**

Public Outreach

- Proposed construction outreach efforts
  - Courtesy notice
  - Email notifications
  - Project webpage

Funding

- Project identified in 2022-2026 budget
- Revised cost estimate will inform 2023-2027 CIP

Board Options

- Option 1: Approve a contract change order to Domenichelli & Associates, Inc. in the not-to-exceed amount of $22,010 for design of the Motherlode Force Main Phase 3 and authorize additional funding of $22,010, for the Motherlode Force Main Phase 3 Project, Project No. 21081.01.

Board Options

- Option 2: Take other action as directed by the Board

- Option 3: Take no action

Recommendation

- Option 1

Questions/Comments

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consider approving a contract change order to Zanjero, Inc. in the not-to-exceed amount of $174,100 for hydrologic modeling services and authorize additional funding of $30,000 for capitalized labor for a total funding request of $204,100 for the Permit 21112 Change in Point of Diversion, Project No. 16003.

PREVIOUS BOARD ACTION

August 10, 2020 – Board awarded a contract to Zanjero in the not-to-exceed amount of $395,890 to perform hydrologic modeling and authorized additional funding of $50,000 for capitalized labor and $25,000 for additional special water rights counsel services for a total funding request of $470,890 for Permit 21112 Change in Point of Diversion, Project No. 16003.

October 26, 2020 – Board awarded a contract to AECOM in the not-to-exceed amount of $364,275 to prepare an Environmental Impact Report and authorized additional funding of $75,000 for capitalized labor for a total funding request of $439,275 for Permit 21112 Change in Point of Diversion, Project No. 16003.

February 28, 2022 – Board awarded a contract change order to Zanjero, Inc. in the not-to-exceed amount of $124,840 for hydrologic modeling services and authorized additional funding of $7,925 for on-call engineering services and $20,000 for capitalized labor for a total funding request of $152,765 for the Permit 21112 Change in Point of Diversion, Project No. 16003.

BOARD POLICIES (BP), ADMINISTRATIVE REGULATIONS (AR) AND BOARD AUTHORITY

BP 5010 Water Supply Management
BP 3060 Contracts and Procurement

SUMMARY OF ISSUE

The District is pursuing a change petition with the State Water Resources Control Board (SWRCB) to add up to two points of diversion to Water Right Permit 21112. To support continued advancement of this project, staff requests Board approval of a contract change order to Zanjero, Inc. for additional hydrologic modeling services and funding for capitalized labor.

BACKGROUND/DISCUSSION

This project seeks to add up to two points of diversion to the District's existing Water Right Permit 21112 (Permit 21112), which provides the District with the right to consumptively use up to 17,000 acre-feet annually from the supplies originating in the District's Project 184 reservoirs (i.e. Caples, Silver, and Aloha Lakes) and direct diversions from the South Fork American River. Presently, Permit 21112 only allows the District to directly divert or re-divert these water supplies at Folsom Reservoir for consumptive use purposes.

The additional points of diversion are proposed at the District's existing El Dorado Diversion Dam near Kyburz and an additional diversion at either the Sacramento Municipal Utility District's (SMUD) White Rock Powerhouse Penstock north of Placerville near Chili Bar, or at SMUD's Slab Creek Dam/Reservoir. The White Rock Powerhouse Penstock or Slab Creek Dam/Reservoir diversion would require additional future water diversion, transmission and

treatment facilities to bring the water into the District's water system. In contrast, the El Dorado Diversion Dam diversion would utilize existing conveyance facilities and Permit 21112 water could be diverted at this location upon immediate approval of the change petition. In addition, the District proposes to add a point of re-diversion from the El Dorado Diversion Dam at Jenkinson Lake to allow for storage of Permit 21112 water in Jenkinson Lake. By taking Permit 21112 water supply at the upstream locations of El Dorado Diversion Dam and at the White Rock Powerhouse Penstock or the Slab Creek Dam/Reservoir, water can be treated and distributed largely via gravity flow to meet demands throughout the District's service area. In addition, amending the permit to allow storage of Permit 21112 in Jenkinson Lake would help address the imbalance of low water availability and high water demand in the summer months. Also, adding points of diversion under Permit 21112 would increase water supply reliability by maximizing the flexibility to meet demands in various locations throughout the District with multiple points of diversion.

This water rights project requires extensive hydrologic modeling and stakeholder engagement. As described further below, staff has continued to make progress on this initiative with efforts focusing on developing the hydrologic model for the project and continued stakeholder outreach and involvement.

Hydrologic Modeling

Hydrologic modeling is an essential tool needed to support the SWRCB change petition and environmental review processes for the project. Zanjero, Inc. has developed a HEC Res-Sim hydrologic modeling tool needed to conduct the analysis of potential project effects. This extensive effort involved developing an operational model of the District's Project No. 184 system that could be joined with an existing model of Sacramento Municipal Utility District's (SMUD) Upper American River Project (UARP) to create a hydrologic model of the entire South Fork American River watershed. The model development was a multi-step process that involved compiling and updating hydrologic information, developing a baseline model representing current operational conditions, and developing project modeling scenarios for the new proposed points of diversion. Model development continues to be an iterative process that involves review and input by EID, review and input from stakeholders, and then any necessary revisions made by Zanjero, Inc. The modeling effort has required extensive coordination meetings to ensure the model is accurately depicting system operations, and extensive outreach to help engage stakeholders in the development of the model.

Zanjero, Inc. has also initiated modeling efforts to evaluate potential impacts to downstream resources, including potential impacts to the Folsom Reservoir coldwater pool management and water temperature and flow management in the Lower American River and the Sacramento River. This modeling effort requires use of a suite of separate modeling tools, primarily CalSim, to evaluate potential impacts.

Stakeholder Outreach

Staff has conducted extensive outreach efforts with stakeholders to share information on the proposed change petition as well as involve interested stakeholders in the development of the hydrologic model for the project. Staff has convened multiple technical meetings with staff from SMUD to ensure the model accurately depicts SMUD's operations of the UARP. Staff has also held technical meetings with recreation stakeholders, which include representatives from American Whitewater, California Sportfishing Protection Alliance, Friends of the River, Planning and Conservation League, professional river guides, and private citizens interested in whitewater recreation on the South Fork American River. Staff has also met with other agencies

and interested stakeholders to review the project, including staff from the SWRCB, California Department of Fish and Wildlife, U.S. Bureau of Reclamation, representatives from the Sacramento Water Forum, and El Dorado County Water Agency.

Staff plans to continue significant outreach efforts with stakeholders as modeling progresses with the development of project alternatives and/or mitigation measures to address potential impacts associated with the project.

California Environmental Quality Act (CEQA)

In October 2020, the District awarded a contract to AECOM to prepare an environmental impact report (EIR) for the project to comply with the requirements CEQA. Preparation of the EIR is highly dependent on output from the hydrologic modeling because the modeling provides the data that directly informs the analysis of potential effects in the EIR for several resource categories (hydrology, biology, recreation, and hydropower, etc.). To help ensure preparation of the EIR is done as efficiently and cost-effective as possible, substantial work on the EIR is on hold pending further advancement of the modeling. Once the modeling has advanced to a point when no major changes to model or project scenarios are anticipated, the Zanjero team will coordinate with the AECOM team to generate the model outputs needed to perform the effects analysis for the various resource categories for the EIR. Staff currently forecasts the release of the Draft EIR for public review in summer 2023. Staff plans to file the change petition with the SWRCB concurrently with the release of the Draft EIR. Ongoing stakeholder outreach efforts, final definition of the proposed project, and development of alternatives and/or mitigation measures could affect the release date of the Draft EIR.

Hydrologic Modeling Contract Change Order

Staff is requesting approval of a contract change order for the modeling contract with Zanjero, to make adjustments to the HEC-ResSim and CALSIM models that were not previously anticipated and to provide additional modeling simulations to be able to address stakeholder feedback. This contract change order also includes a task to update the HEC-ResSim modeling study period with 2020 and 2021 hydrology data, to ensure the model reflects recent drought conditions.

During recent stakeholder outreach efforts, SMUD representatives identified some specific elements of the UARP component of the pre-existing HEC-ResSim model that they requested be adjusted to better reflect current UARP operations. These elements include potential modifications to the operational rules and corresponding changes to modeled reservoir storage at its UARP reservoirs. In addition to modification of the underlying modeling assumptions, SMUD has also indicated they may request additional modeling runs to evaluate specific hydrologic scenarios. During investigation of what level of effort would be required to make the requested modifications, it was discovered that additional changes to the baseline and project modeling would also be necessary to accurately reflect SMUD's current and potential future recreation-related flow requirements under their FERC license. The current scope and cost estimate for the Permit 21112 modeling effort assumed that modifications to the UARP component of the pre-existing HEC-ResSim model would not be necessary for this project. Therefore, to make the requested adjustments to the UARP modeling and perform the associated additional analysis will require further modeling beyond what is currently included in the modeling scope and budget. Specifically, the additional effort includes modifying the underlying modeling assumptions and adjusting the model logic to generate the requested model output. The proposed contract change order includes making the necessary adjustments to the model and performing up to four additional Hec-ResSim model simulations, accompanying technical analysis, and consultant time to continue coordination with SMUD and other stakeholders.

This contract change order also seeks additional funding to address two elements related to the CalSim modeling, including performing additional modeling simulation runs following a correction to the model software and providing additional CalSim modeling runs to support agency and stakeholder outreach, if necessary. Preliminary CalSim modeling output for the project revealed a software error within the model. After troubleshooting the model and working directly with California Department of Water Resources (DWR), Zanjero determined that the source of the error was within the model software itself and was able to coordinate with DWR to correct the problem. This change order will supplement the current budget for CalSim modeling to cover the unanticipated work effort necessary to correct the modeling tool. The proposed contract change order would also provide funding for additional CalSim modeling simulations. The current scope and budget for the Permit 21112 modeling effort includes up to three separate CalSim model simulations. However, based on the experience with the outreach efforts to date for the HEC-ResSim model, staff anticipates that additional CalSim modeling runs will be necessary to provide additional information and analysis to facilitate outreach efforts with agencies and Lower American River stakeholders. The proposed contract change order includes performing up to two additional CalSim model simulations, accompanying technical analysis, and consultant time to continue coordination with stakeholders.

The proposed contract change order also includes a task to update the HEC-ResSim modeling study period with 2020 and 2021 hydrology data. The current scope and budget provide hydrologic information for the timeframe from 1975-2019. In order to ensure the model reflects the most recent hydrology, staff recommends updating the modeling timeframe to include the most recent available data (i.e., 2020 and 2021 hydrologic data). Being able to model potential project effects during these most recent critically dry water years are expected to be of interest to stakeholders as well as the District, and will provide a more robust analysis of potential project effects.

Because these efforts associated with the HEC-ResSim and CalSim modeling for the project exceed the original scope of the hydrologic modeling contract, staff is requesting approval of a contract change order in order to keep advancing the project.

FUNDING

Funding requests for the project are provided in the table below. With the proposed contract change order, the new total contract amount for Zanjero modeling contract is $694,830. The funding source for the project is 100% water facility capacity charges.

Current funding request

Zanjero contract change order	$174,100
Capitalized labor	$30,000
Total funding request	**$204,100**

BOARD OPTIONS

Option 1: Approve a contract change order to Zanjero, Inc. in the not-to-exceed amount of $174,100 for hydrologic modeling services and authorize additional funding of $30,000 for capitalized labor for a total funding request of $204,100 for the Permit 21112 Change in Point of Diversion Project, Project No. 16003.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

RECOMMENDATION

Option 1

ATTACHMENTS

Attachment A: Zanjero Contract Change Order

Elizabeth Leeper
Senior Deputy General Counsel

Brian Deason
Environmental Resources Supervisor

Brian Mueller
Engineering Director

Dan Corcoran
Operations Director

Jamie Bandy
Finance Director

Brian Poulsen
General Counsel

Jim Abercrombie
General Manager

ZANJERO
ADVISE • MANAGE • SOLVE

MEMORANDUM

To: Brian Deason / El Dorado Irrigation District

From: Michael J. Preszler / Zanjero

Date: 9 August 2022

RE: Professional Services Proposal to provide additional services Modification of Water Right Permit 21112: Strategic Support and Technical Assistance – Change Order No. 2

Zanjero is working with the El Dorado Irrigation District (District) providing strategic support and technical assistance consulting services in support of modification of water right Permit 21112 (Project No. 16003.01, August 10, 2020). The original contract is in the amount of $395,890 and Change Order No. 1 is in the amount of $124,840 covering services for a total of $520,730. This Change Order No. 2 requests an additional $174,100 which would bring the total contract amount to $694,830.

This contract amendment request is to provide additional services. The cost for these additional services is summarized in the following:

Task 3.0 Development of Technical Information	
Task 3.1 Hydrology Data	$23,900
Task 4.0 Hydrologic Modeling	
Task 4.1.1 ResSim Modeling of Proposed Project and Alternatives	$92,200
Task 4.3 CALSIM II Modeling of Proposed Project and Alternatives	$58,000
Total Change Order No. 2 Request	**$174,100**

We enjoy working with the District and are excited to continue to provide support for this important effort. The work will be completed within a schedule supporting the project following written authorization to proceed.

ZANJERO
ADVISE • MANAGE • SOLVE

I. WORK PROGRAM AND LEVEL OF EFFORT

Task 3.0 Development of Technical Information

3.1 Hydrology Data

The Hec-ResSim computer model uses mean daily hydrology information for the study period of 1975 through 2019. This task will update the study period to be 1976 through water year 2021. Basic data will be collected, reduced, reviewed for quality, adjusted and estimated as necessary to develop the additional hydrology information. Additionally, the Hec-ResSim model structure will be updated to extend the study period through 2021.

For this task, we are assuming the following breakdown of Zanjero staff time:

Personnel	*Rate*	*Hours*	*Total*
Preszler, Michael	$250.	50	$12,500.
Lyles, Frank	$190.	60	$11,400.
Task total			$23,900.

Task 4.0 Hydrologic Modeling

4.0 ResSim Model Development

4.1.1 ResSim Modeling of Proposed Project and Alternatives

A Hec-ResSim computer model simulating the project has been developed and is being used to work directly with interested stakeholders to understand potential effects of the project. Working with stakeholders has been very helpful to understand potential project effects.

We are working with the Sacramento Municipal Utility District (SMUD) to understand operational flexibility in the Upper American River Project (UARP) to be sure our approach adequately represents current operational procedures and resulting potential project effects on the UARP. SMUD representatives have identified some specific elements of the UARP component of the HEC-ResSim model that they are requesting be adjusted to better reflect current UARP operations. These elements include potential modifications to the operational rules and corresponding changes to reservoir storage at its UARP reservoirs associated with implementation of the project. In addition to modification of the underlying modeling assumptions, SMUD has also indicated there may request additional modeling runs to evaluate specific hydrologic scenarios. During investigation of what level of effort would be required to make the requested modifications, it was discovered that additional changes to the baseline and project modeling would also be necessary to accurately reflect SMUD's

current and potential future recreation-related flow requirements under their FERC license.

The current scope and cost estimate for the P-21112 modeling effort assumed that modifications to UARP elements of the HEC-ResSim model would not need to be modified to complete the necessary modeling for the project. However, to make the adjustments and perform the additional analysis will require additional effort beyond what is currently included in the modeling scope and budget. Specifically, the additional effort includes modifying the underlying modeling assumptions and adjusting the model logic to generate the requested model output.

We are also working with recreational stakeholders to understand potential project effects to boating and other recreational interests. This task also includes additional modeling and resulting technical effort which may be necessary in responding to requests from this group of stakeholders.

This change order includes up to four additional tailored Hec-ResSim model simulations, accompanying technical analysis, and staff time to continue coordination with stakeholders. The work effort described here will provide information and analysis to help the District continue its outreach efforts with interested stakeholders. The work products generated from this effort can be used to work directly with stakeholders to better understand operational effects of the project as well as potential options to minimize effects, if necessary.

For this task, we are assuming the following breakdown of Zanjero staff time:

Personnel	*Rate*	*Hours*	*Total*
Preszler, Michael	$250.	80	$20,000.
Lyles, Frank	$190.	380	$72,200.
Task total			$92,200.

4.3 CALSIM 3 Modeling of Proposed Project and Alternatives

CALSIM 3 is a computer model created by the Department of Water Resources (DWR) that is being used to help identify potential operational effects of the project to Folsom Reservoir and the Lower American River (LAR), as well as the integrated operations of the Central Valley Project and State Water Project. The CALSIM 3 modeling output is a critical component to support the District's project outreach efforts to Reclamation and other LAR stakeholders. The current scope and budget for the project includes the use of the CALSIM 3 model. However, this change order seeks additional funding for this effort for two elements: 1) to perform additional modeling simulation runs following a correction to the model software and 2) provide additional CALSIM 3 modeling runs to support agency and stakeholder outreach, if necessary.

Preliminary CALSIM 3 modeling output for the project revealed a software error within the model. After troubleshooting the model and working directly with DWR, we determined that the source of the error was within the model software itself. DWR provided us with a software patch, which fixed the problem and will allow us to advance the project modeling using the CALSIM 3 model when appropriate. This change order is to supplement the current budget for CALSIM 3 modeling to cover the unanticipated work effort necessary to correct the modeling tool.

This change order request also includes up to two additional CALSIM 3 modeling simulations, accompanying technical analysis, and staff time to coordinate with agencies and LAR stakeholders. The current scope and budget for the P-21112 modeling effort includes five modeling runs with up to three separate model simulations would be adequate to perform the project modeling. However, based on the experience with the outreach efforts to date for the HEC-ResSim model, we anticipate that additional CALSIM 3 modeling runs beyond what is included in the current scope and budget will also be necessary to provide information and analysis to help the District with its outreach efforts with agencies and LAR stakeholders. The work products generated from this effort can be used to work directly with stakeholders to better understand operational effects of the project as well as potential options to minimize effects, if necessary.

For this task, we are assuming the following breakdown of Zanjero staff time:

Personnel	*Rate*	*Hours*	*Total*
Preszler, Michael	$250.	80	$20,000.
Lyles, Frank	$190.	200	$38,000.
Task total			$58,000.

II. TOTAL NOT-TO-EXCEED BUDGET

The total not-to-exceed budget totals $174,100, as follows.

Personnel	**Role on Project**	**Rate**	**Total Hours**	**Total**
Michael Preszler	Project Manager	$250.00	210	$52,500
Frank Lyles	Modeling	$190.00	640	$121,600
Total Change Order No. 2 Request:				**$174,100.00**

El Dorado Irrigation District

Additional Points of Diversion for Water Right Permit 21112

Consider approving a contract change order for hydrologic modeling and authorize funding for capitalized labor

August 22, 2022

PREVIOUS BOARD ACTION

- August 10, 2020 – Board awarded a contract to Zanjero in the not-to-exceed amount of $395,890 to perform hydrologic modeling and authorized additional funding of $50,000 for capitalized labor and $25,000 for additional special water rights counsel services for a total funding request of $470,890 for Permit 21112 Change in Point of Diversion, Project No. 16003

PREVIOUS BOARD ACTION

- February 28, 2022 – Board awarded a contract change order to Zanjero, Inc. in the not-to-exceed amount of $124,840 for hydrologic modeling services and authorized additional funding of $7,925 for on-call engineering services and $20,000 for capitalized labor for a total funding request of $152,765 for the Permit 21112 Change in Point of Diversion, Project No. 16003

SUMMARY OF ISSUE

- The District is pursuing a change petition with the State Water Resources Control Board (SWRCB) to add two upstream points of diversion to Water Right Permit 21112
- To support continued advancement of this project, staff requests Board approval of a contract change order to Zanjero, Inc. for additional hydrologic modeling services and funding for capitalized labor

OUTLINE

- Project overview
- Project status update
  - Hydrologic Modeling
  - Stakeholder Outreach
  - Environmental Review
- Contract Change Order and funding request

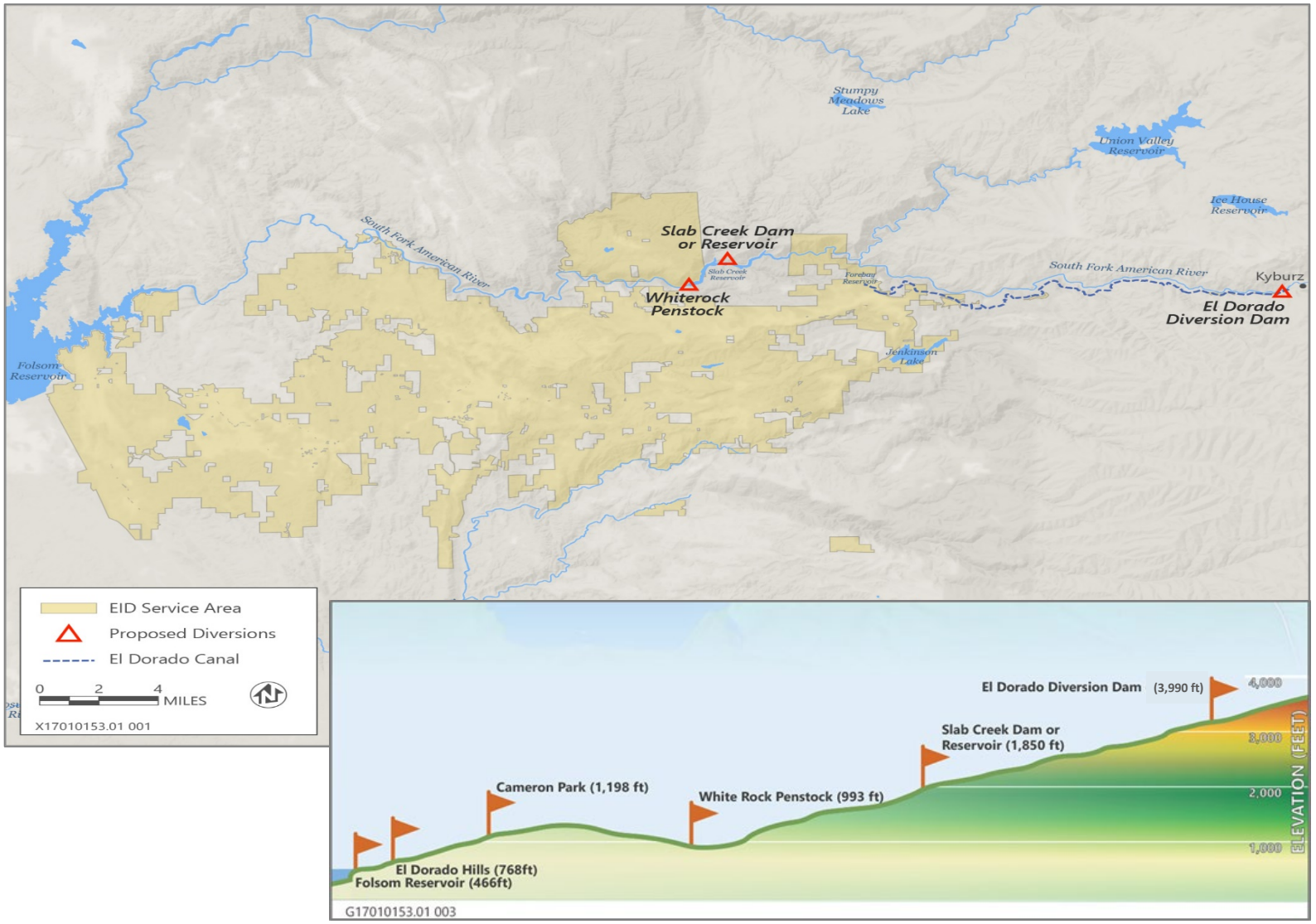
PROJECT OVERVIEW

- 2001 – State Water Board approved Water Right Permit 21112
- Authorizes consumptive diversion of 17,000 acre-feet per year
- Direct diversion and releases from Project 184 reservoirs
- Authorized point of diversion at Folsom Reservoir

PROJECT OVERVIEW

- Modification of Permit 21112
  - Diversion at El Dorado Diversion Dam
    - Re-diversion to storage at Jenkinson Lake
  - Diversion at SMUD's White Rock Powerhouse Penstock or Slab Creek Dam/Reservoir
- Maintain existing diversion at Folsom
- No change to total maximum diversion

PROJECT OVERVIEW



PROJECT OVERVIEW
(PROJECT OBJECTIVES)

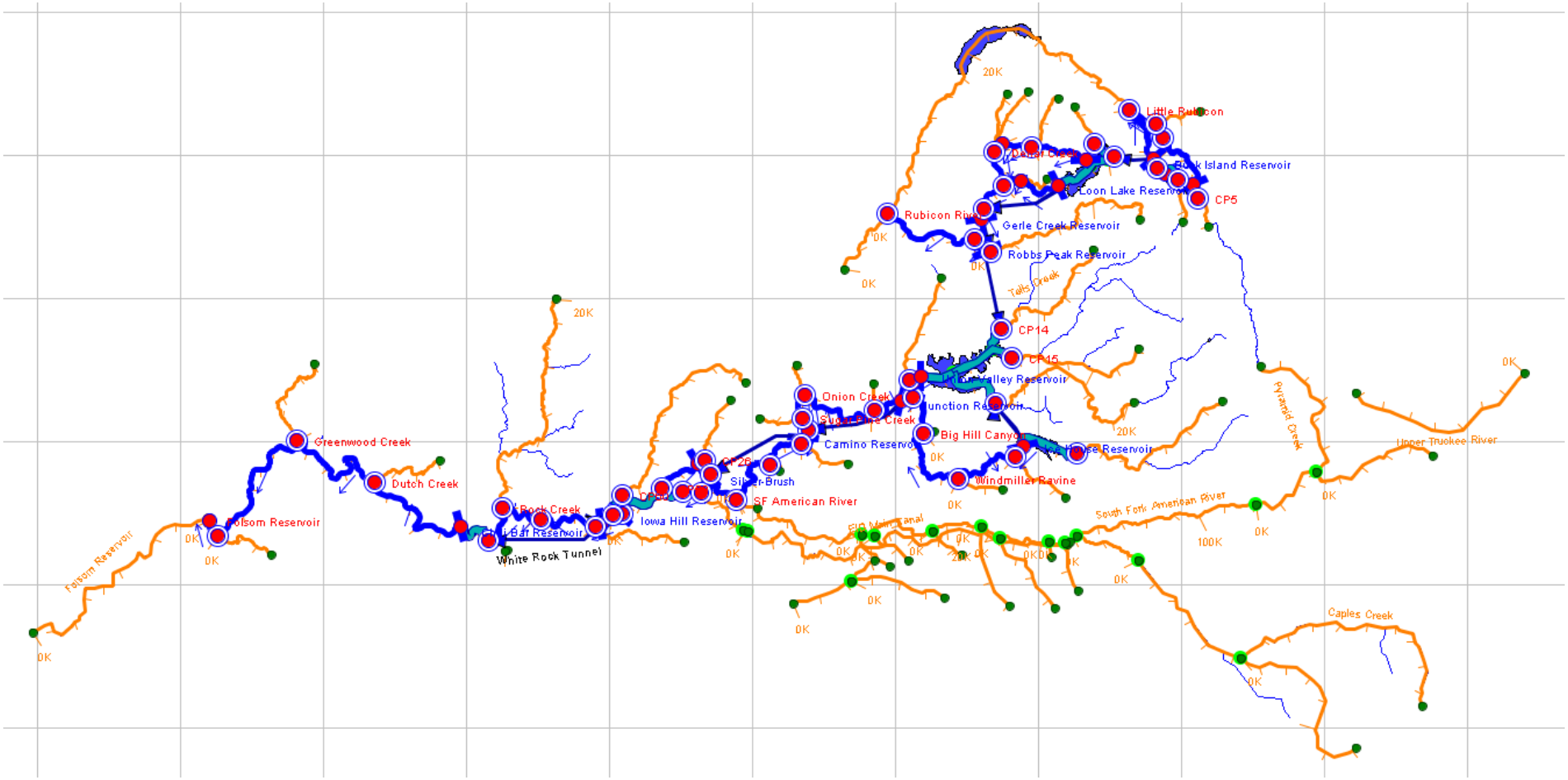
- Meet future water demand as identified in long-term water supply planning efforts
- Optimize beneficial use of the Permit 21112 water right
- Reduce cost of water conveyance and delivery and save energy
- Increase flexibility, reliability and drought resiliency in water delivery systems

PROJECT STATUS

- Hydrologic modeling is an essential tool needed to support the SWRCB change petition and environmental review processes for the project

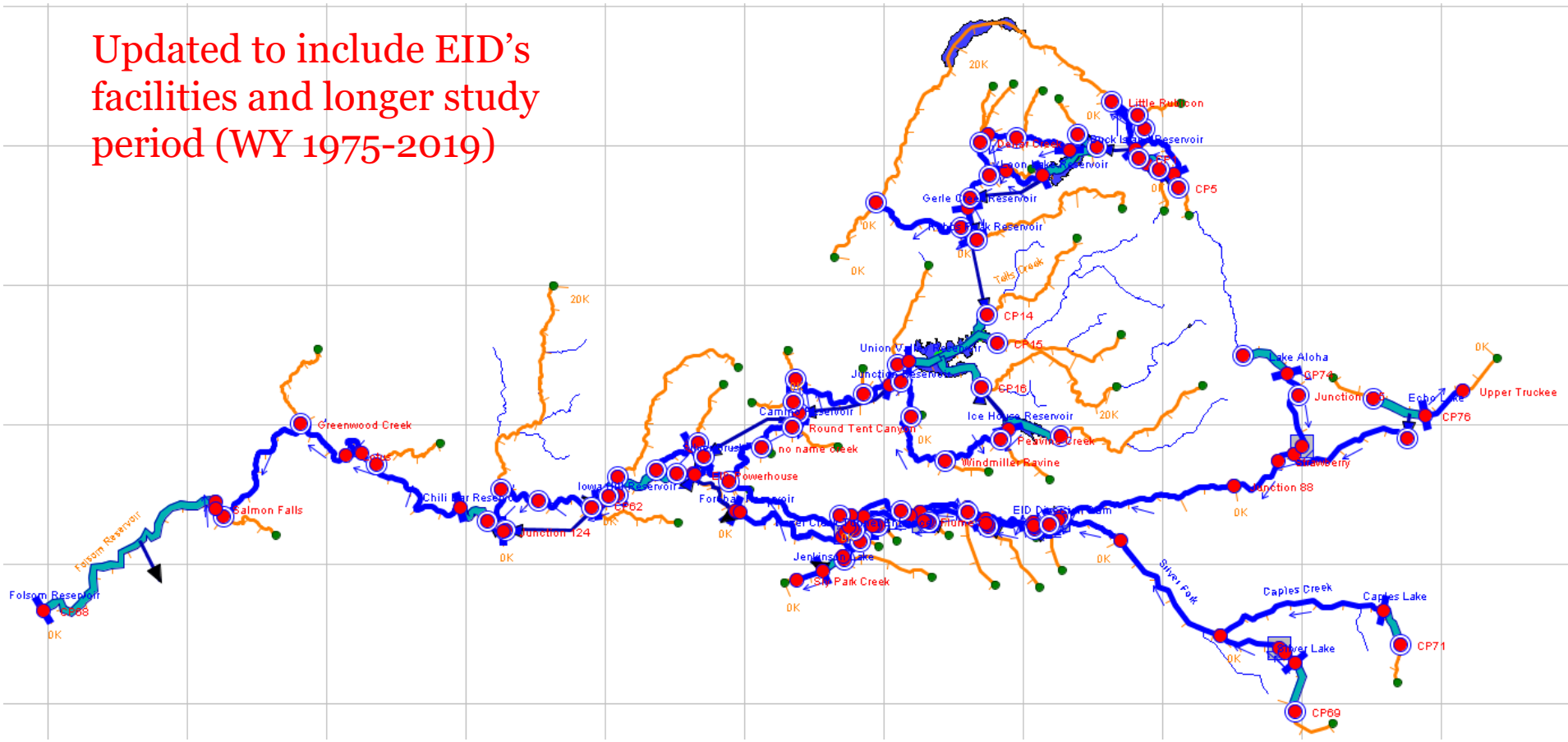
- Zanjero, Inc. developed a HEC Res-Sim hydrologic modeling tool needed to reflect baseline conditions and conduct the analysis of potential project effects

2005 UARP ResSim Model



2021 UARP + EID ResSim Model

Updated to include EID's facilities and longer study period (WY 1975-2019)



PROJECT STATUS

- Zanjero, Inc. has also initiated modeling efforts to evaluate potential impacts to downstream resources
  - Folsom Reservoir coldwater pool
  - Water temperature and flow management on the Lower American River and the Sacramento River
- This modeling effort requires use of a suite of separate modeling tools, primarily CalSim, to evaluate potential impacts

PROJECT STATUS

- The model development a multi-step process
  - Compiling and updating hydrologic information
  - Developing a baseline model representing current operational conditions
  - Developing project modeling scenarios for the new proposed points of diversion
- Model development continues to be a complex and iterative process
- Requires extensive coordination to ensure the model is accurately depicting system operations and extensive outreach to help engage stakeholders

PROJECT STATUS

- Staff conducting extensive stakeholder outreach
  - Sacramento Municipal Utility District
  - American Whitewater
  - Friends of the River
  - California Sportfishing Protection Alliance
  - Planning and Conservation League
  - Private citizens and professional guides interested in whitewater recreation on the South Fork American River
  - El Dorado County Water Agency
  - U.S. Bureau of Reclamation
  - California Department of Fish and Wildlife
  - State Water Resources Control Board
  - Water Forum

PROJECT STATUS

- In October 2020, the District awarded a contract to AECOM to prepare an environmental impact report (EIR) for the project
- Preparation of the EIR highly dependent on hydrologic modeling because model provides the data that directly informs the analysis of potential effects (hydrology, biology, recreation, and hydropower, etc.)
- Substantial work on the EIR is on hold pending further advancement of the modeling
  - Help ensure preparation of the EIR is done as efficiently and cost-effective as possible

CONTRACT CHANGE ORDER

- Several efforts exceed the original scope of the hydrologic modeling contract
  - Make adjustments to the HEC-ResSim and CalSim models that were not previously anticipated (e.g. modify operational rules for SMUD facilities)
  - Provide additional modeling simulations to be able to address stakeholder feedback and requests
  - Update the HEC-ResSim modeling study period with 2020 and 2021 hydrology data, to ensure the model reflects recent drought conditions

FUNDING

Zanjero, Inc. contract change order	$174,100
Capitalized labor	$30,000
Total	$204,100

- Funding source for the project is 100% water facility capacity charges
- With the proposed contract change order, the new total contract amount for Zanjero modeling contract is $694,830

BOARD OPTIONS

- **Option 1:** Approve a contract change order to Zanjero, Inc. in the not-to-exceed amount of $174,100 for hydrologic modeling services and authorize additional funding of $30,000 for capitalized labor for a total funding request of $204,100 for the Permit 21112 Change in Point of Diversion Project, Project No. 16003.

- **Option 2:** Take other action as directed by the Board.

- **Option 3:** Take no action.

RECOMMENDATION

- **Option 1**