PLEDGE OF ALLEGIANCE

CALL TO ORDER 9:00 AM
2270 Trumble Road, Perris, CA 92570

INTRODUCTION OF GUESTS - PUBLIC AFFAIRS OFFICER

I. PUBLIC COMMENTS
Any subject within the jurisdiction of EMWD. Speakers are required to limit comments to 3 minutes.

II. EXECUTIVE REPORTS
A. General Manager's Report (Jones)

B. DGMs / AGMs Reports (Kanetis, Nomura, Mouawad, Wall)

III. CONSENT CALENDAR
A. Approve Board Meeting Minutes
   1. Board of Directors - Regular Meeting - Dec 11, 2019 9:00 AM

B. November Meeting Summary and Expense Reports of the Board of Directors and General Manager (Jones)

C. Adopt Proposed Resolution Authorizing 2020 Board, Committee and Other Assignments, Including Approval of Memberships and Agency and Outside Organization Representation at Meetings/Events (Jones)

D. Approve and Authorize an Amendment to Agreement with Tetra Tech ($207,281) for Final Design of Wells 201, 202, 203, and 205 Equipping, Pipelines, and Centralized
Treatement Facilities, and Additional Appropriation in the Amount of $264,800 (Mouawad/Kowalski)

E. Approve and Authorize Reimbursement Agreement with Pulte Homes ($178,900) for the French Valley Recycled Water Pipeline Phase IIIA and Appropriation in the Amount of $198,900 (Mouawad/Wuerth)

IV. ACTION CALENDAR

A. Approve and Authorize an Agreement with Carollo Engineers ($998,000) for the Final Design of the Moreno Valley Regional Water Reclamation Facility Plant 2B Equipping Project, and Appropriation in the Amount of $1,144,000 (Mouawad/Jorgensen)

B. Approve and Authorize Award of Contract with Carollo Engineers ($674,202) for the Warm Springs Sewage Lift Station Rehabilitation Preliminary Design and Condition Assessment of the Upstream Trunk Sewers, and Appropriation of $1,116,200 (Mouawad/Jorgensen)

C. Approve and Authorize the Award of Contracts with J.R. Filanc Construction Company, Incorporated, ($438,962) for the Moreno Valley and Temecula Valley Regional Water Reclamation Facilities Aeration Panel Membrane Replacements, and Hemet Manufacturing Company, Incorporated, dba Genesis Construction, ($484,228) for the Perris Valley Regional Water Reclamation Facility Aeration Panel Membrane Replacements, and Parkson Corporation, for Aeration Membrane Materials ($406,068) for a Total Project Cost Not to Exceed $1,642,000 (Wall/Melendez)

V. INFORMATION ITEMS / PRESENTATIONS

None

VI. RECEIVE AND FILE

A. Reports

1. Change Orders to Specifications (Mouawad)

B. Committee Meeting Notes

1. Board Operations and Engineering Committee - Regular Meeting - Dec 18, 2019 3:30 PM

2. Board Executive Committee - Regular Meeting - Dec 19, 2019 7:30 AM

VII. CALENDAR REVIEW / DIRECTOR ATTENDANCE REPORTS

A. Board Calendar Review (Perkins)
B. Meetings (Corona)
   1. Rancho California Water District Board Meeting - December 12
   2. Update with General Manager - December 12

C. Meetings (Paule)
   1. Building Industry Association Legislative Affairs Committee - December 13
   2. CalDesal Executive Committee Teleconference - December 16
   3. Customer Portal Overview - December 19

D. MWD Meetings (Record)
   1. Standing Committee and Board Meetings - December 9-10, 2019
   2. Colorado River Water Users Association Annual Conference - December 11-13
   3. California Farm Water Coalition Board Meeting - December 16

E. EMWD Meetings (Record)
   1. Association of California Water Agencies - December 3-6
   2. Update Meeting with General Manager - December 6
   3. Promotion Ceremony for Brigadier General Melissa Coburn - December 6
   4. Update Meeting with General Manager - December 17
   5. Monday Morning Group Presentation - December 18

F. Meetings (Slawson)
   1. Riverside Community College District Foundation Meeting - December 16
   2. Moreno Valley Chamber of Commerce Meeting - December 18

VIII. DIRECTOR'S COMMENTS / FUTURE AGENDA ITEMS

IX. CLOSED SESSION
   None

X. ADJOURNMENT
   Adjourn the meeting to a Special Meeting on Wednesday, January 22, 2020, at 9:00 a.m.
Members of the public are invited to present comments to the Board on matters within the District's jurisdiction, but not on the agenda. Those persons wishing to address the Board on any matter, whether or not it appears on the agenda, are requested to inform the Board Secretary prior to the start of the meeting. The public may present comments on agenda items when the matter is called. Three minutes time is allotted to each speaker.

At the discretion of the Board, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated and may be subject to action by the Board.

**ADDITIONS TO AGENDA** - (if any) In Accordance with §54954.2 of the Government Code (Brown Act) Two-Thirds Vote Required for Action Items (Upon a determination by two-thirds vote of the legislative body, or if less than two-thirds of the members are present, a unanimous vote of those members present, that the need to take action arose after the Agenda was posted).

**AVAILABILITY OF AGENDA MATERIALS** - Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the Eastern Municipal Water District Board of Directors in connection with a matter subject to discussion or consideration at an open meeting of the Board of Directors are available for public inspection in the District’s office, at 2270 Trumble Road, Perris, California (“District Office”). If such writings are distributed to members of the Board less than 72 hours prior to the meeting, they will be available from the District’s Board Secretary of the District Office at the same time as they are distributed to Board Members, except that if such writings are distributed one hour prior to, or during the meeting, they can be made available from the District’s Board Secretary in the Board Room of the District’s Office.

**REVISIONS TO THE AGENDA** - In accordance with §54954.2(a) of the Government Code (Brown Act), revisions to this Agenda may be made up to 72 hours before the Board Meeting, if necessary, after mailings are completed. Interested persons wishing to receive a copy of the set Agenda may pick one up at the District's Main Office, located at 2270 Trumble Road, Perris, California, up to 72 hours prior to the Board Meeting.

**REQUIREMENTS RE: DISABLED ACCESS** - In accordance with §54954.2(a), requests for a disability related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting, should be made to the Board Secretary at least 48 hours in advance of the meeting to ensure availability of the requested service or accommodation. The Board Secretary may be contacted by telephone at (951) 928-3777, Ext. 4235, or in writing at the Eastern Municipal Water District, P.O. Box 8300, Perris, California, 92572-8300.
Board of Directors  
January 8, 2020

SUBJECT:  
General Manager's Report

I. Updates from the January 3, 2020 Weekly Report

a. North Perris Basin Groundwater Basin Project Update: On December 20, 2019, staff and President Sullivan met with Western Municipal Water District (WMWD) representatives to discuss a revised conceptual proposal for WMWD’s participation in the $73 million groundwater recovery and treatment project. The revised proposal would provide WMWD water from the project for exclusive use on the March Air Reserve Base (MARB). The amount provided would be based upon metered potable demands for MARB, which are currently approximately 500 AF/year, capped at a maximum amount of 1,500 AF/year. EMWD would design, build, own and operate the project and provide the water to WMWD for resale to MARB at EMWD’s unit cost based upon project development, capital, operating and maintenance expenses. WMWD representatives concurred with the revised proposal and staff will now work with WMWD to finalize the term sheet and prepare a draft project participation agreement.

II. Past and On-going Activities


b. Termination of MWD Cyclic Storage In-Lieu Credit Program: EMWD has been taking delivery of additional treated water from MWD in-lieu of pumping local groundwater under the Cyclic Storage In-Lieu Credit Program since August 1, 2019. MWD terminated Cyclic Storage In-Lieu Credit Program and all other cyclic deliveries (including untreated Cyclic Storage deliveries being taken by Rancho California Water District) on December 31, 2019. In 2019, EMWD was able to store 4,337 AF of water under Cyclic Storage In-Lieu Credit Program, exceeding our target of 4,250 AF. MWD has indicated the programs may be reinitiated should conditions continue to stay wet throughout the upcoming months.

III. Items of Interest to the Board

a. Cal/OSHA Voluntary Protection Program Cal Star Recertification: On January 6, 2020, Cal/OSHA began a week-long inspection and audit of EMWD for the District’s sixth
re-certification under the California Voluntary Protection Program (Cal/VPP). The Cal/OSHA evaluation process is a rigorous combination of site inspections, employee interviews and documentation review conducted by a team of six inspectors. As background, the Cal/VPP is a program designed by Cal/OSHA to recognize employers and their employees who have implemented advanced safety and health programs that effectively prevent and control occupational hazards. The Cal Star certification is the highest level awarded under Cal/VPP and recognizes businesses that go above and beyond minimal Cal/OSHA standards and provide the best feasible safety protection for their work sites. EMWD has been a certified under the Cal Star program since 1999 and was the first public agency to receive this recognition nationally. EMWD is still the only public agency in the state to receive the Cal Star certification and has been re-certified five times. The district has benefitted significantly from the program through reduced lost work time, fewer accident claims, and safer construction worksites; and has an excellent safety incident rate of 2.11% compared to an industry average of 5.4%. Cal/OSHA will complete all field work this week and will notify EMWD of the inspection and recertification results in later January.

b. Newsom Administration Releases the 2020 Water Resilience Portfolio: On January 3, 2020 the California Resources Agency, CalEPA and the California Department of Food and Agriculture released the draft of the administration’s 2020 Water Resilience Portfolio (link: http://waterresilience.ca.gov/). The document includes 117 recommendations under 27 categories, with a heavy emphasis on climate change, ecosystem restoration and drought resilience. Notably, the draft portfolio does include one recommendation regarding the implementation of a single tunnel under the Sacramento – San Joaquin River Delta to safeguard State Water Project and Central Valley Project supplies. It also includes multiple recommendations developed and submitted by the WaterReuse Association on water recycling and by ACWA on water transfers, conveyance, storage, groundwater sustainability and other key water industry priorities. Comments are due to the state by February 7, 2020, and EMWD staff will work through our associations to provide input.

IV. Operational Highlights

a. Potable Water Production and Demands: Water consumption was at 74 MGD. The potable supply blend was eight percent from potable wells, seven percent from the Desalting, 13 percent from imported raw water treated at EMWD’s plants, and 72 percent from imported, treated water.

b. San Jacinto River Diversions: River diversions began on December 4, 2019 for the 2020 water year at the Grant Avenue Ponds. A total of 321 AF of surface water from the San Jacinto River has been diverted to the Grant Avenue (Grant) ponds to date.
c. **Groundwater Replenishment and Storage of Imported Water:** The District continues to recharge Soboba Settlement water from MWD. To date, “pre-delinieries” of year 2022 water have totaled 1,970 AF.

d. **Water Filtration Facilities:** The Perris Water Filtration Plant (PWFP) produced 8.2 MGD. The Hemet Water Filtration Plant (HWFP) produced 1.3 MGD.

e. **Menifee and Perris I Desalters:** The Menifee and Perris I Desalters produced 5.4 MGD.

f. **Recycled Water:** The average daily demands were 1 MGD. Tertiary recycled water storage is at 1,648 MG, or 71 percent of total capacity. Staff is making preparations for discharge into the Temescal Wash should due to continued low demands and high storage levels.

g. **Wastewater Treatment Facilities:** All four regional water reclamation facilities (RWRFs) met their water quality objectives for the past week treating a total daily average of 48.5 MG.

h. **Warm Springs Lift Station Update:** All work associated with the repair of the sink hole at Warm Springs Lift Station has been completed and the bypass pumping equipment has been returned to the vendor. Additionally, traffic control measures were removed and Diaz Road is fully open to traffic. Final costs are being compiled for ratification by the Board at its January 22, 2020 meeting.

V. **Upcoming Meetings and Events**

a. 1/9/20: Rancho California Water District Board Meeting (Corona)

b. 1/9/20: Joint Inland Orange County MWD Caucus (Record)

c. 1/9/20: Winchester Municipal Advisory Committee (Paule)

Note: The Planning Committee originally scheduled for January 9, 2020, has now been rescheduled to January 15, 2020.
PLEDGE OF ALLEGIANCE
The Pledge of Allegiance was led by Laura Nomura.

CALL TO ORDER 9:00 AM
2270 Trumble Road, Perris, CA 92570
Ronald W. Sullivan President
Philip E. Paule Vice President
Stephen J. Corona Board Member
Randy A. Record Board Member (Absent)
David J. Slawson Board Member
Paul D. Jones II P.E. General Manager
Nick Kanetis Deputy General Manager
Laura Nomura Deputy General Manager
Joe Mouawad Assistant General Manager
Jeff D. Wall P.E. Assistant General Manager
Sheila Zelaya Board Secretary
Melissa Jordan Computer Technician II
Steven P. O'Neill Legal Counsel
April Coady Director of Public and Governmental Affairs
Charles Turner Chief Financial Officer and Treasurer
Matthew Melendrez Director of Water Reclamation
Mike Malone Sr. Director of Information Systems
Danielle Coats Legislative Analyst
Laura Zamora Director of Human Resources

INTRODUCTION OF GUESTS - PUBLIC AFFAIRS OFFICER
Guests in attendance included the following:

Jennifer Farr, Davis Farr LLP; Hayden Hamilton, Rainbow Municipal Water District

I. PUBLIC COMMENTS
Any subject within the jurisdiction of EMWD. Speakers are required to limit comments to 3 minutes.

None

II. PUBLIC HEARING

A. Approve Eastern Municipal Water District's Revised 2019 Sewer System Management Plan (Voelz Alexander/Edwards)

RESULT: APPROVED [4 TO 0]
MOVER: Philip E. Paule, Vice President
SECONDER: Stephen J. Corona, Board Member
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record

III. EXECUTIVE REPORTS

A. General Manager's Report (Jones)

B. DGMs / AGMs Reports (Kanetis, Nomura, Mouawad, Wall)

DGM Kanetis noted that the lab renovation project is successfully wrapping up.

AGM Mouawad noted that excavation of the Mountain Avenue West Replenishment Basin began yesterday. The plan is to continue hauling dirt over the next several months.

AGM Wall provided a presentation on the sinkhole at the Warm Springs Road Lift Station.

IV. CONSENT CALENDAR

RESULT: APPROVED [4 TO 0]
MOVER: Stephen J. Corona, Board Member
SECONDER: David J. Slawson, Board Member
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record

A. Approve Board Meeting Minutes

1. Board of Directors - Regular Meeting - Nov 20, 2019 9:00 AM

B. Approve and Authorize Additional Appropriation ($405,000) to Agreement No. 107862 with Brenntag Pacific, Incorporated, for the Supply of Sodium Hydroxide for a Revised Not-To-Exceed Total of $1,150,000 (Wall/Howell)
C. Approve and Authorize Three, Three-Year Agreements with up to Two, One-Year Renewals for Herbicide Application, Weed Abatement, and Landscape Maintenance Services in the Combined, Full-Term, Not-to-Exceed Total of $1,316,000 (Nomura/Howell)

D. Approve and Authorize the Execution of Project Agreement 25 (One Water One Watershed Program) and Project Agreement 26 (Roundtables and Task Forces) with the Santa Ana Watershed Project Authority; and Designate Alternate Representative to the Project Agreement 24 (Brine Line) Committee (Kanetis)

E. Approve and Authorize Reimbursement Agreement with North Murrieta Community, LLC ($107,000) for Abandonment of the Menifee Court Sewer Lift Station, and Additional Appropriation of $105,000 (Mouawad/Wallace)

F. Approve and Authorize a Five-Year Agreement with Aramark Uniform & Career Apparel, LLC to Provide Uniform Services in the Full-Term, Not-to-Exceed Total of $615,000 (Nomura/Howell)

G. Adopt a Proposed Resolution Updating the Consolidated Schedule of Rates, Fees and Charges (Nomura/Turner)

   Resolution 2019-123

H. Approve and Authorize Funds for the Rental of Portable Power Generators in the Amount Not-to-Exceed $300,000 (Wall/Nealeigh)

I. October Meeting Summary and Expense Reports of the Board of Directors; Expense Report of the General Manager (Jones)

J. Approve and Authorize an Award of Contract with Kennedy Jenks Consultants, Incorporated, ($229,487) for the Golden Triangle Sewer Infrastructure Project, and Appropriation of $376,900 (Mouawad/Jorgensen)

K. Approve and Authorize an Agreement with Dudek ($93,630) for the Design of the Sherman Road Brackish Water Transmission Pipeline Project, and Appropriation in the Amount of $229,630 (Mouawad/Kowalski)


   Resolution 2019-124

   Resolution 2019-125


   Resolution 2019-126
Resolution 2019-127


Resolution 2019-128
Resolution 2019-129

V. ACTION CALENDAR

A. Receive and Accept the Comprehensive Annual Financial Report and the Assessment District Nos. 5, 7, 8, and 12 Financial Statements of the Eastern Municipal Water District for the Fiscal Year Ended June 30, 2019 (Nomura/Turner)

Mr. Turner and Ms. Farr provided a presentation on this item

RESULT: APPROVED [4 TO 0]
MOVER: David J. Slawson, Board Member
SECONDER: Philip E. Paule, Vice President
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record

B. Approve and Authorize Award of Contract with Hemet Manufacturing Company, Incorporated, dba Genesis Construction ($869,777) for the Installation of Engineered Media for the Perris Valley Regional Water Reclamation Facility Biofilter Media Replacement Project (Wall/Melendrez)

Mr. Melendrez provided a presentation on this item

RESULT: APPROVED [4 TO 0]
MOVER: Philip E. Paule, Vice President
SECONDER: Stephen J. Corona, Board Member
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record

C. Adopt a Resolution in Support of a Proposed Reorganization by Rainbow Municipal Water District and Fallbrook Public Utility District and Their Filing of Applications with the Local Agency Formation Commission for Such Purpose (Kanetis)

Resolution 2019-130

DGM Kanetis provided an oral presentation on this item.

Mr. Hamilton addressed the Board and expressed his support for this item.

RESULT: APPROVED [4 TO 0]
MOVER: Stephen J. Corona, Board Member
SECONDER: David J. Slawson, Board Member
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record
D. Approve and Authorize an Award for a Board Room Electronics Upgrade in an Amount Not to Exceed $135,000 (Nomura/Malone)

Mr. Malone provided a presentation on this item

RESULT: APPROVED [4 TO 0]
MOVER: Philip E. Paule, Vice President
SECONDER: David J. Slawson, Board Member
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record

E. Approve and Authorize Renewal of Consulting Contract for Representation in Sacramento with Niemela Pappas & Associates Not to Exceed $10,000 Per Month for the Contract Period (Walsh/Coats)

Ms. Coats provided an oral presentation on this item

RESULT: APPROVED [4 TO 0]
MOVER: Stephen J. Corona, Board Member
SECONDER: David J. Slawson, Board Member
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record

F. Adopt a Proposed Resolution Approving Cost of Living Adjustments (COLA) to Salary Schedules of Ranges and Classification and Salary Schedules (Jones/Zamora)

Resolution 2019-131

Ms. Zamora provided an oral presentation on this item

RESULT: APPROVED [4 TO 0]
MOVER: Philip E. Paule, Vice President
SECONDER: David J. Slawson, Board Member
YES: Sullivan, Paule, Corona, Slawson
ABSENT: Record

VI. INFORMATION ITEMS / PRESENTATIONS

A. Financial Operating and Capital Highlights Through the First Quarter of Fiscal Year 2019-20 (Nomura/Turner)

Mr. Turner provided a presentation on this item
A. Reports

1. Change Orders to Specifications (Mouawad)

2. Public and Governmental Affairs Highlights and Legislative Updates (Coady/Walsh)

3. Employee Reimbursement of at Least $100 (AB1542) for October 2019 (Nomura/Turner)

4. Treasurer's Report for October 2019 (Nomura/Turner)

5. Post Audit of Checks for the Month of October 2019 (Nomura/Turner)

6. Contracts Executed on Behalf of the District for October 2019 (Nomura/Howell)

7. Human Resources Staffing Status Update for October 2019 (Jones/Zamora)

8. Receive Senate Bill 165 Annual Accountability Report for All Applicable Community Facilities Districts (Nomura/Turner)

9. Quarterly Risk Management and Legal Fees Through the Fourth Quarter, Fiscal Year 2018-19 (Hefley)

B. Committee Meeting Notes

1. Board Executive Committee - Regular Meeting - Nov 21, 2019 7:30 AM

2. Board Operations and Engineering Committee - Regular Meeting - Nov 26, 2019 3:30 PM

3. Board Administrative Committee - Regular Meeting - Dec 9, 2019 7:30 AM

VIII. CALENDAR REVIEW / DIRECTOR ATTENDANCE REPORTS

The respective board members reported on their District activities for the period of November 25 through December 10, 2019

A. Board Calendar Review (Zelaya)

Ms. Zelaya reviewed the Board’s EMWD calendar and special events for December 2019 through February 2020

B. Meetings (Corona)

1. Outreach Meeting with April Coady - November 25

C. Meetings (Paule)

1. Hemet-San Jacinto Watermaster Meeting - November 25
2. Cucamonga Valley Water District Board Meeting - November 26
3. Bi-Monthly Update with Deputy General Manager Nomura - December 2
4. CalDesal Board Meeting - December 4
5. Association of California Water Agencies Fall Conference - December 4-6

D. Meetings (Slawson)
   1. Moreno Valley Region Economic and Workforce Development Summit - November 22
   2. Monthly Update with General Manager - November 25
   3. Western Riverside Council of Governments Executive Committee - December 2
      *Did not attend*
   4. Association of California Water Agencies Fall Conference - December 4-6

E. Meetings (Sullivan)
   1. Tour and Briefing with Colonel Coburn - November 25
   2. Festival of Trees Gala - November 26
   3. Monthly Update with General Manager - November 27
   4. Association of California Water Agencies Fall Conference - December 3-5
   5. Monthly Update with General Manager - December 10
   6. Perris North Groundwater Basin Meeting - December 10

IX. DIRECTOR'S COMMENTS / FUTURE AGENDA ITEMS

   None

X. CLOSED SESSION

A. Quarterly Risk Management and Legal Fees Through the Fourth Quarter, Fiscal Year 2018-19 (Hefley)
   Anticipated Litigation
   Government Code Section 54956.9(b)
   Significant Exposure to Litigation (15 claims)

   *Discussion was held, no formal action taken*
B. Potential Litigation (One case)
   Conference with Legal Counsel
   Government Code Section 54956.9

   On a motion by Director Paule and seconded by Director Corona, the Board
   unanimously voted to reject all claims from Angelina Ayala, Phyllis Scott, Steven
   Shipe, Mary Shogren, Rodney Topkov, Klara Toth, and Appolonia Ugonna.

XI. ADJOURNMENT

   There being no further business to come before the Board, President Sullivan adjourned
   the meeting at 11:09 a.m., to be reconvened on Wednesday, January 8, 2020 at 9:00
   a.m.
ACTION

Board of Directors
January 8, 2020

SUBJECT:

November Meeting Summary and Expense Reports of the Board of Directors and General Manager

BACKGROUND:

Pursuant to the District’s Administrative Code as it relates to Directors’ compensation, employee travel, and the expense reimbursement, staff has assembled for committee review an expense summary, as shown in Exhibits A and B for the District’s Board Members and the General Manager. Provided below is a summary of expenses paid for the month of November:

<table>
<thead>
<tr>
<th>November Reporting</th>
<th>Mileage, and other District related expense (Taxable)</th>
<th>Conference, travel, mileage, and other District related expense (Non-taxable/Other)</th>
<th>Meeting Compensation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corona</td>
<td>$59.16</td>
<td>$13.92</td>
<td>$892.00</td>
<td>$965.08</td>
</tr>
<tr>
<td>Paule</td>
<td>$114.84</td>
<td>$186.27</td>
<td>$2,230.00</td>
<td>$2,531.11</td>
</tr>
<tr>
<td>Record (EMWD)</td>
<td>$38.28</td>
<td>$0.00</td>
<td>$446.00</td>
<td>$484.28</td>
</tr>
<tr>
<td>Record (MWD)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$1,561.00</td>
<td>$1,561.00</td>
</tr>
<tr>
<td>Slawson</td>
<td>$120.64</td>
<td>$70.18</td>
<td>$2,007.00</td>
<td>$2,197.82</td>
</tr>
<tr>
<td>Sullivan</td>
<td>$56.84</td>
<td>$2,882.60</td>
<td>$2,230.00</td>
<td>$5,169.44</td>
</tr>
<tr>
<td>Sub-Total</td>
<td>$389.76</td>
<td>$3,152.97</td>
<td>$9,366.00</td>
<td>$12,908.73</td>
</tr>
</tbody>
</table>

FINANCIAL IMPACT:

Funding for this item is provided for in the Biennial Budget for Fiscal Years 2019-20 and 2020-21.

STRATEGIC PLANNING GOAL/OBJECTIVE:

Ensure financial stability and demonstrate responsible stewardship of public funds.

Paul Jones, General Manager - Conference, Travel, and other District Related Expense

$625.99
ENVIRONMENTAL IMPACT:

This item is not a project as defined in the California Environmental Quality Act Code of Regulations, Title 14, Chapter 3, Section 15378.

RECOMMENDATION:

Ratify the Board member meeting attendance under Eastern Municipal Water District Administrative Code Section 2.207, and receive and file this report.

SUBMITTED BY:

[Signatures]

Paul D. Jones II, P.E., General Manager 12/13/2019
Laura Nomura, Deputy General Manager 12/10/2019

Attachment(s):

Exhibit A - Meeting Summary and Expense Report, All Board Members
Exhibit B - Expense Report, General Manager

History:

12/19/19    Board Executive Committee   RECOMMENDED FOR APPROVAL
01/08/20    Board Meeting

Staff Contact: Paul Jones
## Corona, Stephen Calendar – 4 Compensable Meetings
Friday, November 1, 2019 – Saturday, November 30, 2019

### November 2019

Su Mo Tu We Th Fr Sa

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>24</td>
<td>25</td>
</tr>
</tbody>
</table>

- **(1) EMWD Board Meeting**
  - Wed, Nov 6

- **(1) Rancho California Water District Board Meeting**
  - Thu, Nov 14

- **(1) EMWD Board Meeting**
  - Wed, Nov 20

- **(1) EMWD Outreach Meeting with April Coady (Temecula)**
  - Mon, Nov 25
Travel Reimbursement
Employee: CORONA, STEPHEN
Report Name: November Meetings (Taxable)
Report ID: 7E0C9FB5E34E487084B0
Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>59.16</td>
<td>59.16</td>
</tr>
<tr>
<td>Total</td>
<td>59.16</td>
<td>59.16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>59.16</td>
<td>0100</td>
<td>58161</td>
<td>71800</td>
</tr>
</tbody>
</table>
**Travel Reimbursement**

Employee: CORONA, STEPHEN  
Report Name: November Meetings (Non-Taxable)  
Report ID: 2224107132B342EE8A6B  
Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>13.92</td>
<td>13.92</td>
</tr>
<tr>
<td>Total</td>
<td>13.92</td>
<td>13.92</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.92</td>
<td>0100</td>
<td>58161</td>
<td>71800</td>
</tr>
</tbody>
</table>

Dec 9, 2019 1:50:53 PM
Paule, Philip Calendar – 10 Compensable Meetings
Friday, November 1, 2019 – Saturday, November 30, 2019

November 2019
Su Mo Tu We Th Fr Sa

1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

▲ (1) EMWD Board Meeting  Wed, Nov 6

▲ (1) EMWD Board Administrative Committee  Thu, Nov 7

(0) CalDesal Regulatory Work Group Conference Call
(Non-compensable, same day meeting)

(0) Meeting with Craig Hughes, Audubon Society (Banning)
(Non-compensable, same day meeting)

▲ (1) French Valley Air Show  Sat, Nov 9

▲ (1) 6th Annual Business Outreach Luncheon  Wed, Nov 13

▲ (1) EMWD Update Meeting with General Manager (Perris)  Thu, Nov 14

▲ (1) Domenigoni Basin Group Meeting  Mon, Nov 18

▲ (1) Annual Raincross Trophy Dinner Honoring Fourth Air Force (Riverside)  Tue, Nov 19

▲ (1) EMWD Board Meeting  Wed, Nov 20

(0) Hemet Acquisition Update  (Non-compensable, same day meeting)

▲ (1) Hemet-San Jacinto Watermaster Meeting  Mon, Nov 25

▲ (1) Cucamonga Valley Water District Board Meeting & Farewell Reception (Rancho Cucamonga)  Tue, Nov 26
**Travel Reimbursement**

Employee: PAULE, PHILIP E.
Report Name: November Meetings (Taxable)
Report ID: 9B4641CF73E145A391DA

Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>114.84</td>
<td>114.84</td>
</tr>
<tr>
<td>Total</td>
<td>114.84</td>
<td>114.84</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>114.84</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>
Travel Reimbursement

Employee: PAULE, PHILIP E.
Report Name: November Meetings (Non-Taxable)
Report ID: B0F9CED9AB574E8DB3C8
Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual District Cost</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Meal (attendees)</td>
<td>23.87</td>
<td></td>
<td>23.87</td>
</tr>
<tr>
<td>Car Mileage</td>
<td></td>
<td>162.40</td>
<td>162.40</td>
</tr>
<tr>
<td>Total</td>
<td>23.87</td>
<td>162.40</td>
<td>186.27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>186.27</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>
Record, Randy Calendar – 9 Compensable Meetings (7 MWD and 2 EMWD)
Friday, November 1, 2019 – Saturday, November 30, 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2019</td>
<td></td>
</tr>
<tr>
<td>Su Mo Tu We Th Fr Sa</td>
<td></td>
</tr>
<tr>
<td>1 2</td>
<td></td>
</tr>
<tr>
<td>3 4 5 6 7 8 9</td>
<td></td>
</tr>
<tr>
<td>10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td>17 18 19 20 21 22 23</td>
<td></td>
</tr>
<tr>
<td>24 25 26 27 28 29 30</td>
<td></td>
</tr>
<tr>
<td>(2) MWD State Water Project Delta Tour</td>
<td>Fri, Nov 1 to Sat, Nov 2</td>
</tr>
<tr>
<td>(2) MWD Board and Committee Meetings</td>
<td>Mon, Nov 4 to Tue, Nov 5</td>
</tr>
<tr>
<td>(1) MWD Water Education Foundation Meeting</td>
<td>Wed, Nov 6</td>
</tr>
<tr>
<td>(1) MWD Special Board Meeting</td>
<td>Tue, Nov 12</td>
</tr>
<tr>
<td>(1) EMWD Diamond Valley Lake Memorandum of Intent Implementation Committee</td>
<td>Wed, Nov 13</td>
</tr>
<tr>
<td>(0) EMWD Monthly Update with General Manager</td>
<td></td>
</tr>
<tr>
<td>(1) MWD Conference Call with Chairwoman Gray</td>
<td>Tue, Nov 19</td>
</tr>
<tr>
<td>(1) EMWD Board Meeting</td>
<td>Wed, Nov 20</td>
</tr>
</tbody>
</table>
# Travel Reimbursement

**Employee:** RECORD, RANDOLPH A.  
**Report Name:** November Meetings (Taxable)  
**Report ID:** 4E81BD3818534C1EA29F  
**Report Purpose:**

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>38.28</td>
<td>38.28</td>
</tr>
<tr>
<td>Total</td>
<td>38.28</td>
<td>38.28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.28</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>

Dec 9, 2019 1:46:57 PM
Slawson, David Calendar – 9 Compensable Meetings
Friday, November 1, 2019 – Saturday, November 30, 2019

November 2019
Su Mo Tu We Th Fr Sa

1  2
3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

▲ (1) Western Riverside Council of Governments Executive Committee (Riverside)  Mon, Nov 4
▲ (1) Santa Ana Watershed Project Authority Commission Meeting (Riverside)  Tue, Nov 5
▲ (1) EMWD Board Meeting  Wed, Nov 6
▲ (1) Riverside Community College District Foundation Meeting  Tue, Nov 19
▲ (1) EMWD Board Meeting  Wed, Nov 20
▲ (1) EMWD Board Executive Committee  Thu, Nov 21
▲ (1) Moreno Valley Region Economic and Workforce Development Summit  Fri, Nov 22
▲ (1) EMWD Update Meeting with General Manager (Moreno Valley)  Mon, Nov 25
▲ (1) EMWD Board Operations & Engineering Committee  Tue, Nov 26
Travel Reimbursement

Employee: SLAWSON, DAVID J.
Report Name: November Meetings (Taxable)
Report ID: C387376FB6F144E6BB4A
Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>120.64</td>
<td>120.64</td>
</tr>
<tr>
<td>Total</td>
<td>120.64</td>
<td>120.64</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>120.64</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>
Travel Reimbursement

Employee: SLAWSON, DAVID J.
Report Name: November Meetings (Non-Taxable)
Report ID: 06CD5B87C6764933B163

Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>70.18</td>
<td>70.18</td>
</tr>
<tr>
<td>Total</td>
<td>70.18</td>
<td>70.18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>70.18</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>

Dec 4, 2019 1

9:30:38 AM
Sullivan, Ronald Calendar – 10 Compensable Meetings
Friday, November 1, 2019 – Saturday, November 30, 2019

November 2019
Su Mo Tu We Th Fr Sa

1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

▲ (1) EMWD Board Meeting
   Wed, Nov 6

▲ (2) National Water Resources Association Annual Conference
   (One day non-compensable, same day meeting)
   Wed, Nov 6 to Fri, Nov 8

▲ (1) Annual Business Outreach Luncheon
   Wed, Nov 13

▲ (1) Initial Meeting to Introduce the Inland Center for Sustainable Development (Riverside)
   Thu, Nov 14

▲ (1) Santa Ana Watershed Project Authority Commission Meeting
   (Riverside)
   Tue, Nov 19

   (0) Annual Raincross Trophy Dinner Honoring Fourth Air Force
   (Non-compensable, same day meeting)

▲ (1) EMWD Board Meeting
   Wed, Nov 20

▲ (1) EMWD Board Executive Committee
   Thu, Nov 21

   (0) EMWD and Western Municipal Water District Joint Committee Meeting
   (Non-compensable, same day meeting)

▲ (1) EMWD Tour and Briefing with Colonel Melissa Coburn, U.S. Air Force
   Mon, Nov 25

▲ (1) EMWD Board Operations & Engineering Committee
   Tue, Nov 26

   (0) Festival of Trees Gala
   (Non-compensable, same day meeting)

▲ (0) EMWD Update with General Manager (Perris)
   (Non-compensable, maximum 10 meetings reached)
   Wed, Nov 27
**Travel Reimbursement**

Employee: SULLIVAN, RONALD W.

Report Name: November Meetings (Taxable)

Report ID: 3A47A7A77A09445FB36F

Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>56.84</td>
<td>56.84</td>
</tr>
<tr>
<td>Total</td>
<td>56.84</td>
<td>56.84</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>56.84</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>

Attachment: Exhibit A - Meeting Summary and Expense Report, All Board Members (4120 : Board/GM Expense Reports (November))
Travel Reimbursement

Employee: SULLIVAN, RONALD W.
Report Name: November Meetings (Non-Taxable)
Report ID: 857E764457434238AA94
Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Mileage</td>
<td>139.78</td>
<td>139.78</td>
</tr>
<tr>
<td>Total</td>
<td>139.78</td>
<td>139.78</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>139.78</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>

Dec 4, 2019 9:25:42 AM
### Travel Reimbursement

**Employee:** SULLIVAN, RONALD W.  
**Report Name:** 11/6-11/8 NWRA Conf Houston  
**Report ID:** 2997B8D0BE8E4C148EA5  
**Report Purpose:**

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual District Cost</th>
<th>Actual Employee Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airfare</td>
<td>744.00</td>
<td>744.00</td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>50.33</td>
<td>50.33</td>
<td></td>
</tr>
<tr>
<td>Car Mileage</td>
<td></td>
<td>51.04</td>
<td>51.04</td>
</tr>
<tr>
<td>Conference &amp; Meetings</td>
<td>795.00</td>
<td>795.00</td>
<td></td>
</tr>
<tr>
<td>Dinner</td>
<td></td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>Hotel</td>
<td>933.16</td>
<td>-44.23</td>
<td>888.93</td>
</tr>
<tr>
<td>Lunch</td>
<td>8.30</td>
<td>8.30</td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>63.00</td>
<td></td>
<td>63.00</td>
</tr>
<tr>
<td>Taxi</td>
<td>70.44</td>
<td>26.80</td>
<td>97.24</td>
</tr>
<tr>
<td>Tips/Gratuities</td>
<td>10.00</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,655.93</strong></td>
<td><strong>86.91</strong></td>
<td><strong>2,742.84</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>795.00</td>
<td>0100</td>
<td>58121</td>
<td>071800</td>
</tr>
<tr>
<td>1,947.84</td>
<td>0100</td>
<td>58161</td>
<td>071800</td>
</tr>
</tbody>
</table>

Dec 4, 2019
Travel Reimbursement

Employee: JONES, PAUL D
Report Name: November Meetings
Report ID: 08EF17AD74B94ED882FB
Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual District Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Meal (attendees)</td>
<td>155.66</td>
<td>155.66</td>
</tr>
<tr>
<td>Gas</td>
<td>60.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Lunch</td>
<td>4.93</td>
<td>4.93</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>220.59</strong></td>
<td><strong>220.59</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>220.59</td>
<td>0100</td>
<td>58161</td>
<td>071100</td>
</tr>
</tbody>
</table>

Dec 10, 2019
# Travel Reimbursement

Employee: JONES, PAUL D  
Report Name: 11/8 SB414 Meetings, Sacramento  
Report ID: C17DC0EB7ADE4F698ECB  
Report Purpose:

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Actual District Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airfare</td>
<td>308.96</td>
<td>308.96</td>
</tr>
<tr>
<td>Business Meal (attendees)</td>
<td>47.24</td>
<td>47.24</td>
</tr>
<tr>
<td>Parking</td>
<td>21.00</td>
<td>21.00</td>
</tr>
<tr>
<td>Taxi</td>
<td>28.20</td>
<td>28.20</td>
</tr>
<tr>
<td>Total</td>
<td>405.40</td>
<td>405.40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approved Amount</th>
<th>Company</th>
<th>Account Code</th>
<th>Cost Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>405.40</td>
<td>0100</td>
<td>58161</td>
<td>071100</td>
</tr>
</tbody>
</table>
Board of Directors
January 8, 2020

SUBJECT:

Adopt Proposed Resolution Authorizing 2020 Board, Committee and Other Assignments, Including Approval of Memberships and Agency and Outside Organization Representation at Meetings/Events

BACKGROUND:

In January 2019, the Board last approved the updated Board, Committee and Other Assignments and Outside Organization Board Representation at Meetings/Events (Board, Committee and Other Assignments). This conforms to the requirements of the EMWD Administrative Code to identify meetings which may be compensable for the Directors and are eligible for expense reimbursement pursuant to California Government Code Sections 53232.1 and 53232.2. In addition, California Water Code Section 71597 permits the District to obtain membership in associations having for their purpose the furtherance of subjects relating to the powers and duties of the District and for the interchange of information relating to such powers and duties.

Typically, the Board, Committee and Other Assignments is updated in January to reflect the Board’s election of new officers (only after an election year), and to approve any outside assignment changes requested by the Board members.

On December 13, 2019, staff solicited all Board members for any requested changes in committees or outside assignments. This information was reviewed and discussed by the Executive Committee on December 19, 2019.

Attached as Exhibit A is the updated redlined version of the Board, Committee and Other Assignments reflecting the requests of the Board and the input of the Executive Committee. Also attached as Exhibit B is resolution for the Board’s consideration adopting the proposed assignments.

FINANCIAL IMPACT:

Funding for this item is provided for in the Biennial Budget for Fiscal Years 2017-18 and 2018-19.

STRATEGIC PLANNING GOAL/OBJECTIVE:

Engage in mutually beneficial community outreach and intergovernmental partnerships; communicate with clarity and purpose and conduct constructive advocacy with all stakeholders
including customers and the Federal, State and local legislators and agencies.

ENVIRONMENTAL IMPACT:

This item is not a project as defined in the California Environmental Quality Act Code of Regulations, Title 14, Chapter 3, Section 15378.

RECOMMENDATION:

Adopt the proposed Resolution Authorizing 2020 Board, Committee and Other Assignments, including Approval of Memberships and Agency and Outside Organization Representation at Meetings/Events.

SUBMITTED BY:

[Signature]
Paul D. Jones II P.E., General Manager 12/13/2019

Attachment(s):
Exhibit A - EMWD Committee Assignments
Exhibit B - Resolution

History:
12/19/19  Board Executive Committee  RECOMMENDED FOR APPROVAL
01/08/20  Board Meeting

Staff Contact: Paul Jones
### Officers:

- **President**: Ronald W. Sullivan  
- **Vice President**: Phillip E. Paule  
- **Treasurer**: Charles Turner

### Committees:

- **Executive Committee**: Ronald W. Sullivan, David J. Slawson
- **Administrative Committee**: Philip E. Paule, Ronald W. Sullivan
- **Operations and Engineering Committee**: David J. Slawson, Ronald W. Sullivan
- **Planning Committee**: Randy A. Record, Stephen J. Corona
- **Deferred Compensation Administrative Oversight Committee**: Philip E. Paule, David J. Slawson

### Other Assignments:

- **Eastern Municipal Water District Financing Authority**: All Members of the Board of Directors
- **EMWD Facilities Corporation**: All Members of the Board of Directors
- **Hemet/San Jacinto Watermaster**: Philip E. Paule, Randy A. Record (alternate), David J. Slawson (second alternate)
- **Western Riverside Water and Wastewater Financing Authority**: Stephen J. Corona, David J. Slawson
- **Various Directors’ Advisory Councils**: All Members of the Board of Directors

### Ad Hoc Committees:

- **EMWD/Elsinore Valley Municipal Water District**: Stephen J. Corona, Philip E. Paule
EMWD Board, Committee and Other Assignments
Updated: January 16, 2019
Page 2

EMWD/Western Municipal Water District
David J. Slawson
Ronald W. Sullivan

Lake Hemet MWD Ad Hoc
Philip E. Paule
Randy A. Record

EMWD/Rancho California Water District
Randy A. Record
Stephen J. Corona

EMWD/Soboba Tribal Committee
Randy A. Record
Philip E. Paule

EMWD/Pechanga Tribal Committee
Randy A. Record
Stephen J. Corona
Ronald W. Sullivan

Outside Agency Assignments:

Metropolitan Water District of Southern California
Randy A. Record

SAWPA, SAWPA PA 25, SAWPA PA 26
Ronald W. Sullivan (Commissioner)
David J. Slawson (Alternate)
David J. Slawson (Commissioner)
Ronald W. Sullivan (Alternate)

SAWPA PA 24 (Inland Empire Brine Line)
Paul D. Jones II (Member)
Ronald W. Sullivan (Alternate)
David J. Slawson (Commissioner)

Western Riverside Council of Governments
David J. Slawson
Ronald W. Sullivan (Alternate)
Ronald W. Sullivan
David J. Slawson (alternate)

Outside Organization Representation:

Association of California Water Agencies
All Members of the Board of Directors

Cal Desal
Philip E. Paule

California Association of Sanitation Agencies
All Members of the Board of Directors

California Special Districts Association
All Members of the Board of Directors

City of Hemet
Randy A. Record

City of Menifee
Ronald W. Sullivan

City of Moreno Valley
David J. Slawson
<table>
<thead>
<tr>
<th>Organization</th>
<th>Assignee</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Murrieta</td>
<td>Phillip E. Paule</td>
</tr>
<tr>
<td>City of Perris</td>
<td>Ronald W. Sullivan</td>
</tr>
<tr>
<td>City of San Jacinto</td>
<td>Randy A. Record</td>
</tr>
<tr>
<td>City of Temecula</td>
<td>Stephen J. Corona</td>
</tr>
<tr>
<td>Colorado River Water Users Association</td>
<td>All Members of the Board of Directors</td>
</tr>
<tr>
<td>Lakeview Nuevo Municipal Advisory Committee</td>
<td>Philip E. Paule</td>
</tr>
<tr>
<td>Menifee Action Group</td>
<td>Ronald W. Sullivan</td>
</tr>
<tr>
<td>Menifee Chamber of Commerce</td>
<td>Ronald W. Sullivan</td>
</tr>
<tr>
<td>Monday Morning Group</td>
<td>Randy A. Record</td>
</tr>
<tr>
<td>Moreno Valley Chamber of Commerce</td>
<td>David J. Slawson</td>
</tr>
<tr>
<td>Moreno Valley Hispanic Chamber of Commerce</td>
<td>David J. Slawson</td>
</tr>
<tr>
<td>Multi-State Salinity Coalition (MSSC)</td>
<td>Ronald W. Sullivan</td>
</tr>
<tr>
<td>Murrieta / Temecula Group</td>
<td>Phillip E. Paule</td>
</tr>
<tr>
<td>National Water Resources Association (NWRA)</td>
<td>Ronald W. Sullivan</td>
</tr>
<tr>
<td>Perris Chamber of Commerce</td>
<td>Ronald W. Sullivan</td>
</tr>
<tr>
<td>Riverside Community College Foundation</td>
<td>David J. Slawson</td>
</tr>
<tr>
<td>Riverside County Water Task Force</td>
<td>All Members of the Board of Directors</td>
</tr>
<tr>
<td>Southern California Water Committee</td>
<td>All Members of the Board of Directors</td>
</tr>
<tr>
<td>Temecula Chamber of Commerce</td>
<td>Stephen J. Corona</td>
</tr>
<tr>
<td>Urban Water Institute</td>
<td>All Members of the Board of Directors</td>
</tr>
<tr>
<td>WateReuse Association</td>
<td>All Members of the Board of Directors</td>
</tr>
<tr>
<td>Western Coalition of Arid States (WestCAS)</td>
<td>Ronald W. Sullivan</td>
</tr>
<tr>
<td>Winchester Municipal Advisory Committee</td>
<td>Philip E. Paule</td>
</tr>
</tbody>
</table>
RESOLUTION AUTHORIZING 2019 BOARD, COMMITTEE AND OTHER ASSIGNMENTS, INCLUDING APPROVAL OF MEMBERSHIPS AND AGENCY AND OUTSIDE ORGANIZATION REPRESENTATION AT MEETINGS/EVENTS

WHEREAS, Eastern Municipal Water District (District) benefits from participating in non-District meetings and events held by cities, trade organizations, and non-profit organizations; and,

WHEREAS, Government Code sections 53232.1 and 53232.2 permit District to compensate District board members and reimburse their actual and necessary expenses for their attendance at certain types of occasions that constitute the performance of official duties; and,

WHEREAS, Water Code section 71597 permits the District to obtain membership in associations having for their purpose the furtherance of subjects relating to the powers and duties of the District and for the interchange of information relating to such powers and duties, and to appropriate funds for such purposes; and,

WHEREAS, District desires to approve director attendance at certain meetings, and approve membership fees to the non-District entities identified in attached Exhibit “A”;

NOW, THEREFORE, THE BOARD OF DIRECTORS OF EASTERN MUNICIPAL WATER DISTRICT RESOLVES AS FOLLOWS:

1. The Board of Directors hereby authorizes attendance at meetings of the non-District entities identified in attached Exhibit “A” and, where required, to pay any membership dues or fees for membership in such entities.

2. The Secretary of the Board of Directors shall certify to the passage and adoption of this resolution and enter it into the book of original resolutions.

3. This resolution shall become effective immediately upon its passage and adoption.

PASSED, APPROVED, and ADOPTED on January 8, 2020.

Ronald W. Sullivan, President

ATTEST:

Sheila Zelaya, District Secretary

(SEAL)
Board of Directors  
January 8, 2020  

SUBJECT:  
Approve and Authorize an Amendment to Agreement with Tetra Tech ($207,281) for Final Design of Wells 201, 202, 203, and 205 Equipping, Pipelines, and Centralized Treatment Facilities, and Additional Appropriation in the Amount of $264,800  

BACKGROUND:  
Eastern Municipal Water District (District) is advancing the San Jacinto Valley Water Banking - Enhanced Recharge and Recovery Program (SJVWB-ERRP). The SJVWB-ERRP is part of the District’s Groundwater Reliability Plus initiative that will expand groundwater recharge and recovery capacity by recharging imported water in the local groundwater basin.  

The SJVWB-ERRP groundwater production facilities are proposed to be implemented in multiple phases. The Phase 1 Project facilities include design and construction of Wells 201, 202, and 203, which are partially funded by the Santa Ana River Conservation and Conjunctive Use Program Proposition 84 grant. In addition, Phase 1 facilities include associated conveyance pipelines and requisite centralized groundwater treatment facilities. Future phases will include eight additional wells with associated conveyance pipelines.  

On September 6, 2017, the Board approved and authorized an agreement with Tetra Tech of Irvine, California, for the preliminary design of the SJVWB-ERRP Phase 1 Well Equipping and Treatment Facilities as well as appropriation of $812,200. The preliminary design was completed successfully in July 2018.  

On October 3, 2018 the Board approved and authorized an agreement with Tetra Tech for final design of project facilities, and additional appropriation of $1,463,800 to fund the project through the bidding phase. To provide additional economies of scale, the equipping of Well 205 was included in the scope of work since the proposed well will be integrated with SJVWB-ERRP operations. The locations of the proposed wells, pipelines, and centralized treatment facilities are shown on Exhibit A.  

As a result of SCE’s recent implementation of the Public Safety Power Shutoff policy and EMWD’s ongoing safety and risk management process, staff recommends permanent standby emergency generators be incorporated at the well sites and at the centralized treatment facility. The subject facilities are vital for the continued supply of potable water to the public, and these generators will greatly enhance public safety and reliability of the facilities during emergencies.  

On November 18, 2019 staff received a proposal from Tetra Tech to incorporate the above-mentioned standby generators into the design. Also included in the scope are design
adjustments based on the results of the drilling and well development, as well as value engineering recommendations. A not-to-exceed fee proposal in the amount of $207,281 was negotiated with Tetra Tech that is commensurate with the necessary level of effort. The amended design scope is presented in Exhibit B.

With the design amendment, the total project cost through the bid phase is estimated to be $2,540,800 per the attached project cost estimate (Exhibit C). At this time, staff is requesting additional appropriation in the amount of $264,800 to fund project expenses and associated engineering labor costs through the bid phase of the project. Final design is scheduled to be completed by June of 2020.

**FINANCIAL IMPACT:**

This project will be financed from the General District Restricted Water System Expansion Fund with partial reimbursement from Proposition 84 Grant Funding.

**STRATEGIC PLANNING GOAL/OBJECTIVE:**

Water Supply Diversity and Reliability: Develop and implement a portfolio of projects and management techniques to achieve a reliable and cost-effective balance of water supplies utilizing imported, local and recycled water sources.

**ENVIRONMENTAL IMPACT:**

This project is subject to the California Environmental Quality Act (CEQA) and an Environmental Impact Report (EIR) was prepared in conformance with California Code of Regulations Title 14, Chapter 3, Article 7, Section 15080, et seq. The Final EIR was certified and adopted by the Board on June 20, 2018.

**RECOMMENDATION:**

Approve and authorize the following:

1. Execution by the General Manager, or his designee, of the District’s standard form of contract amendment with Tetra Tech of Irvine, California, in the amount of $207,281 for final design of Wells 201, 201, 203, and 205 Equipping, Pipelines, and Treatment Facilities;

2. Administrative award and execution by the General Manager, or his designee, of the District’s standard form of necessary contracts and agreements for final design of Wells 201, 201, 203, and 205 Equipping, Pipelines, and Treatment Facilities; and
3. Appropriation of $264,800 to fund the project through the completion of the final design and bid phases.

SUBMITTED BY:

[Signatures]

Attachment(s):
Exhibit A - Location Map
Exhibit B - Proposal
Exhibit C - Cost Estimate
Presentation

History:
12/18/19       Board Operations and Engineering Committee       RECOMMENDED FOR APPROVAL
01/08/20       Board Meeting

Staff Contact: Greg Kowalski, Dustin Christensen
Wells 201, 202, 203, and 205 Well Sites, Pipelines, and Centralized Treatment Facility
December 5, 2019

Mr. Greg Kowalski, PE
Eastern Municipal Water District
2270 Trumble Road
Post Office Box 8300
Perris, CA 92572-8300

Reference: Proposal for Additional Design Services for Wells 201, 202, 203, 205 Equipping and Centralized Groundwater Treatment Plant

Dear Mr. Kowalski:

Based on the recommendations presented in the Value Engineering (VE) meeting and additional items including standby generators for each site as requested by Eastern Municipal Water District (District) staff, Tetra Tech is pleased to submit this proposal for the additional final design services for Wells 201, 202, 203 and 205 Equipping and the Centralized Treatment Plant.

SCOPE OF WORK

The detailed Scope of Work for this project is presented in this section.

Task 1 – Value Engineering Design Revisions. A number of design changes were discussed at the VE meeting and with District staff. These items are summarized herein.

A. Revisions to Well Hydraulics. The design of the wells and treatment facility were based on the assumption that each well would produce about 1,400 gpm. Based on the analysis provided during the well drilling, the new wells may be able to pump at least 2,000 gpm or greater. The District is also looking at the transmission system capacity at Hewitt and Evans. As a result, the system hydraulics needs to be re-evaluated from each well site to the treatment plant and then into the distribution system. The design and operating point for each well pump and the size of the motors will need to be reevaluated.

B. Block Wall Design. The District requested that a block wall be added along the west side of treatment plant. This was originally going to be a chain link fence and screen slats. An additional profile drawing will be required. Based on the discussion at the safety pre-use meeting, a block wall was also requested around Well 205. Updated drawings and sections will be provided accordingly. An additional 2 sheets will be needed for Well 205, and two sheets will need to be modified. One additional civil sheet will be added for the treatment plant.

C. Well 203 Direct Discharge to System. Well 203 is currently designed to go into the header to the treatment plant. As an additional option, the District would like to add a discharge pipeline that connects directly into the existing 18-inch water line in Evans Street. One additional sheet will be needed for the pipeline and connection details.

D. Treatment Filters. Based on the recent results of the well water quality, two of the wells have manganese levels of about 25 µg/l and the other two wells are in excess of the District’s 80% MCL goal. As a result, a portion of the flow can be treated and then a portion bypassed to achieve a finished water of about 30 to
35 ug/l of manganese. In accordance with the VE recommendations, only two filters would be constructed in the initial phase, but the remaining two filters could be added if the water quality degrades with higher manganese levels. As a result, there will need to be modifications to the filter design and the plan and section drawings. In addition, an in-line blending connection will need to be provided for the bypassed water and the treated water since the forebay reservoir will not be constructed during this phase. A total of ten (10) drawings will need to be modified including general, civil, piping, mechanical, electrical and process and instrumentation.

E. Grading and Drainage. For each of the well sites, the original intent was to grade only the areas of the well sites enclosed in a block wall. However, at a previous meeting, Class II aggregate base was requested at all of the sites and the treatment plant site. As a result, grading and drainage (beyond the block wall limits) will need to be addressed for the entire District-owned property at each well site. Three additional civil drawings are required for those well sites to show the entire parcel beyond the limits of the well site.

Task 2 – Standby Generator Addition. At the District’s request for increased fire safety to the District and to the community, standby emergency generators were requested to be incorporated into the building structures at each of the well sites and the treatment facility. As a result, the currently designed well buildings and treatment plant building will need to be modified accordingly.

A. Preliminary Layout and Evaluation. Tetra Tech will perform a preliminary evaluation that would include generator sizing (based on the updated hydraulics and motor loads), review of the building footprint, room height to house the generator. The fuel requirements to run the generators for a 40-hour period at the wells and the treatment plant will be reviewed. Storage options may include an integrated tank below the generator and an above-ground outdoor Convault diesel fuel storage tank. Tetra Tech will also review the site accessibility and layout of each of the well sites and the treatment plant site to accommodate the larger building footprint and location of the fuel storage tank. A review meeting with District staff will be held to discuss the layouts, options and recommendations before continuing with final design plans and specifications.

B. Acoustical Studies. Tetra Tech will retain Behrens & Associates as a subconsultant to perform acoustical modeling for noise mitigation for each site to maintain a certain noise limit at the property line while the generator is operating. Ambient field monitoring will be provided for a 24 hour period at the four well sites and the treatment plant site. The results of the study will be prepared in a report and will be used to provide recommendations for noise attenuation with sound panels and other means. See Appendix A for the scope of work for the modeling.

C. AQMD Permit Coordination. Tetra Tech will provide assistance to the District for the AQMD permit applications for the standby generators for each site. We understand that District staff will file the permits with AQMD and pay any required application fees.

D. Final Design Plans and Specifications. Tetra Tech will prepare the revised structural, architectural, electrical and civil drawings to accommodate the new standby generators at both the well sites and the treatment plant. It is expected that all of the existing plans will require modification to incorporate the generator at the well sites and the treatment plant. Tailored specifications will be prepared for the standby generators, filters, silencers and automatic transfer switches. Storage of diesel fuel will also be included in the design at each site. Tetra Tech will also update the construction cost estimates for the building, generator, appurtenances for each site.

E. Updated Safety Pre-Use Studies. As a result of the addition of a standby generator to each well site and the treatment plant, this will necessitate changes to the safety pre-use reports previously prepared. Tetra Tech
will provide assistance for updating the reports accordingly. A meeting with the safety pre-use group will be conducted by District staff only.

F. Optional Task – Updated Arc Flash Studies. Tetra Tech prepared an electrical arc flash study for each of the well sites and the treatment plant site which was submitted to the District in June. However, now that a standby generator will be added for each site, the arc flash studies will need to be done based on electrical equipment operation under generator load. Tetra Tech will utilize the same previously used software program for the revised model. The data will be provided to the selected contractor for finalizing the arc flash studies based on the equipment selected. Five individual reports will be prepared for the wells and treatment plant.

Task 3 – Project Management. The original project schedule indicated that the final design would be completed in August 2019. Based on the revisions to the project scope, the final bid documents are expected to be completed in April 2020. Therefore, additional project management time is requested to cover project management, scheduling, project meetings, presentations and telephone conference calls.

Credit – Pilot Testing. The logistics of performing a pilot test at the recently drilled wells for manganese removal was reviewed during the design. It was decided that the proposed pilot test to evaluate different filter media for manganese removal would be deleted from the scope. As a result, a credit in the amount of $44,362 is provided which includes deletion of the subconsultant costs for the pilot work, laboratory water quality testing and workshop.

PROJECT SCHEDULE

An updated project schedule has been prepared. Currently, Tetra Tech has completed the 90% plans and specifications for the Phase 1B pipelines and is awaiting District comments. The 60% plans and specs for the well equipping and treatment plant plans were submitted in June and Tetra Tech has picked up some of the comments from previous workshop meetings.

The latest revisions to the scope as indicated herein will necessitate an extension of the project schedule. Tetra Tech would first evaluate the revised system hydraulics, changes to the treatment plant layout and evaluation of the impacts to each site with the generator addition. A workshop would be held with District staff in mid-December to review the results. Tetra Tech would then continue with final design to the 90% level. We anticipate that the 90% plans and specifications will be submitted to the District in February 2020, with the final signed bid documents submitted by April 2020. An updated project schedule is attached herein.

FEE

Based on the scope of work presented herein, a labor and not-to-exceed fee estimate has been prepared for the additional scope of work as presented in Table 1. The base fee with credit is $182,128. The total fee with the credit and optional arc flash study is $207,281.

Should you have any questions, please do not hesitate to contact us.

Sincerely,

Mark W. Bush PE
Vice President

Steve Ellis, PE, BCEE
Senior Project Manager
WELLS 201, 202, 203, AND 205 EQUIPPING AND TREATMENT FACILITIES
PROJECT COST ESTIMATE

<table>
<thead>
<tr>
<th>PHASE</th>
<th>ESTIMATED COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACILITIES PLANNING PHASE</td>
<td>$15,000</td>
</tr>
<tr>
<td>Eng. Branch Labor</td>
<td>$15,000</td>
</tr>
<tr>
<td>PRELIMINARY DESIGN PHASE</td>
<td>$544,500</td>
</tr>
<tr>
<td>Engineering Consultant (Tetra Tech)</td>
<td>$464,500</td>
</tr>
<tr>
<td>Engineering Branch Labor</td>
<td>$75,000</td>
</tr>
<tr>
<td>Misc. Costs (Title Reports, Permits, Etc.)</td>
<td>$5,000</td>
</tr>
<tr>
<td>FINAL DESIGN PHASE</td>
<td>$1,921,581</td>
</tr>
<tr>
<td>Engineering Consultant (Tetra Tech)</td>
<td></td>
</tr>
<tr>
<td>Phase 1A Pipelines</td>
<td>$57,800</td>
</tr>
<tr>
<td>Well 205 Equipping</td>
<td>$109,400</td>
</tr>
<tr>
<td>Well 201, 202, 203 Equipping/Ph 1B Pipelines/ Centralized Treatment Facility</td>
<td>$969,200</td>
</tr>
<tr>
<td>Sub-Consultant- Survey/Potholing/Geotechnical</td>
<td>$26,600</td>
</tr>
<tr>
<td>Design Amendment No.1</td>
<td><strong>$207,281</strong></td>
</tr>
<tr>
<td>Consultant- 3rd Party Value Engineering</td>
<td>$92,000</td>
</tr>
<tr>
<td>Permits/Clearances</td>
<td>$27,500</td>
</tr>
<tr>
<td>AQMD Permit Fees</td>
<td><strong>$22,500</strong></td>
</tr>
<tr>
<td>Contingency</td>
<td>$148,500</td>
</tr>
<tr>
<td>Engineering Branch Labor</td>
<td>$225,800</td>
</tr>
<tr>
<td>Engineering Support</td>
<td>$30,000</td>
</tr>
<tr>
<td>Environmental Labor (Permits)</td>
<td>$5,000</td>
</tr>
<tr>
<td>SPEC REVIEW</td>
<td>$22,900</td>
</tr>
<tr>
<td>Final prep of plans &amp; specs</td>
<td>$22,900</td>
</tr>
<tr>
<td>BID/AWARD PHASE</td>
<td>$36,800</td>
</tr>
<tr>
<td>Includes Labor, Advertisement, and Materials</td>
<td>$36,800</td>
</tr>
<tr>
<td>TOTAL- ESTIMATED PROJECT COST THROUGH FINAL DESIGN</td>
<td><strong>$2,540,781</strong></td>
</tr>
</tbody>
</table>

PRIOR APPROPRIATIONS $2,276,000
REQUESTED ADDITIONAL APPROPRIATION $264,800
TOTAL APPROPRIATION $2,540,800

Notes:
1) Additional Appropriation is highlighted in yellow
2) Includes $44,362 credit for deletion of pilot study

Reviewed: ____________________________
Wells 201, 202, 203, and 205 Equipping, Pipelines, and Treatment Facilities

Greg Kowalski, P.E.
December 18, 2019
Groundwater Banking Program
Design Amendment - Background

Emergency Standby Generators
- SCE’s Public Safety Power Shutoff policy
- Increased community safety
- Vital potable water supply facilities
- Risk management & Increased reliability
- Well Sites (4) and Treatment Facility (1)

Design Revisions
- Increased well pumping capacities based on drilling results
- Treatment plant and filter design updates based on Value Engineering
- Design updates based on workshop recommendations and Value Engineering

<table>
<thead>
<tr>
<th>Pumping Capacities (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well 201</td>
</tr>
<tr>
<td>Anticipated (1)</td>
</tr>
<tr>
<td>Current (2)</td>
</tr>
</tbody>
</table>

(1) Based on the Preliminary Design Report
(2) Based on Results from Drilling and Well Development
Scope of Work

Design Revisions
- Well hydraulics and pump capacities
- Treatment plant influent and filters
- Site Grading and Drainage

Emergency Standby Generators
- Revised building design and layout
- Acoustical studies
- AQMD permitting
- Updated safety Pre-use analysis
- Updated arc flash studies

Project Management
- Meetings and Administration

Credit
- Deletion of Pilot Study

Design Amendment Fee Proposal

<table>
<thead>
<tr>
<th>Description</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Revisions</td>
<td>$61,584</td>
</tr>
<tr>
<td>Emergency Generators</td>
<td>$156,255</td>
</tr>
<tr>
<td>Project Management</td>
<td>$33,804</td>
</tr>
<tr>
<td>Pilot Study Credit</td>
<td>($44,362)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$207,281</strong></td>
</tr>
</tbody>
</table>
Project Schedule

Completion of Final Design       June 2020
Contract Bid Award             August 2020
Anticipated Construction Completion  September 2022

Emergency Generator at Perris and Elder Booster Station
Recommendation

Approve and Authorize:

• Execution by the General Manager, or his designee, of the District’s standard form of contract amendment with Tetra Tech of Irvine, California, in the amount of $207,281 for final design of Wells 201, 201, 203, and 205 Equipping, Pipelines, and Treatment Facilities;

• Administrative award and execution by the General Manager, or his designee, of the District’s standard form of necessary contracts and agreements for final design of Wells 201, 201, 203, and 205 Equipping, Pipelines, and Treatment Facilities; and

• Appropriation of $264,800 to fund the project through the completion of the final design and bid phases.
Contact Information

Greg Kowalski, P.E.
Principal Civil Engineer
(951) 928-3777 Ext. 4466

Email: kowalskg@emwd.org
SUBJECT:

Approve and Authorize Reimbursement Agreement with Pulte Homes ($178,900) for the French Valley Recycled Water Pipeline Phase IIIA and Appropriation in the Amount of $198,900

BACKGROUND:

The recently completed French Valley Recycled Water Pipeline Phase I project along a portion of Benton and Pourroy Roads supports landscape irrigation demands for Valley Wide Recreation and Parks District and Temecula Valley Unified School District (TVUSD).

On November 6, 2019, EMWD’s Board authorized staff to initiate final design of the French Valley Recycled Water Pipeline Project Phase II project which comprises approximately 12,300 feet of pipeline extensions along Benton and Pourroy Roads. Phase II project completion is anticipated by November 2021.

The French Valley Recycled Water Pipeline Project Phase III is currently in the planning stages and will further extend recycled water pipeline facilities east on Benton Road, then north on Washington Street. Ultimately, Phase III will provide recycled water supply to two future TVUSD schools, the Temecula Valley Charter School, as well as future development areas.

Currently, Pulte Homes is advancing street improvements along Washington Street between Abelia Street and Yates Road and has agreed to construct 1,700-feet of the French Valley Recycled Water Pipeline Phase III facilities (denoted as Phase IIIA). With Pulte Homes advancing the Phase IIIA pipeline construction prior to completion of street improvements, EMWD would realize significant cost savings.

EMWD will fund all related design costs, and will reimburse Pulte Homes for all associated construction costs for the Phase IIIA recycled water pipeline. The Phase IIIA recycled water pipeline will be temporarily connected to the potable water system until the remaining Phase IIIIB pipeline is constructed (reference Exhibit A).

Pulte Homes’ contractor, Murrieta Development, has provided a proposal for installation of this Phase IIIA pipeline segment, prior to final paving, in the amount of $178,900. Staff has reviewed the proposal and determined it is commensurate with the necessary construction effort. Staff recommends execution of a reimbursement agreement with Pulte Homes and appropriation of $198,900 to fund the pipeline segment and project-related costs.

FINANCIAL IMPACT:

This project will be financed from the Restricted Recycled Expansion Fund.
STRATEGIC PLANNING GOAL/OBJECTIVE:
Water Recycling: Implement on-going treatment, storage and distribution system projects and programs to allow 100 percent utilization of treated effluent for the highest beneficial and sustainable uses possible.

ENVIRONMENTAL IMPACT:
This item is not a project as defined in the California Environmental Quality Act Code of Regulations, Title 14, Chapter 3, Section 15378

RECOMMENDATION:
Approve and authorize the following:

1. Execution by the General Manager, or his designee, of the District’s standard form reimbursement agreement with Pulte Homes, upon completion and acceptance of French Valley Recycled Water Pipeline, Phase IIIA in the amount of $178,900;

2. Administrative Award and Execution by the General Manager of the District’s standard form of contracts with the necessary consultants and suppliers for engineering support during construction and implementation of French Valley Recycled Water Pipeline, Phase IIIA Improvements; and

3. Appropriation of $198,900 to fund the pipeline segment construction and project-related costs.

SUBMITTED BY:

Paul B. Jones II  P.E., General Manager  12/13/2019

Joe Mouawad, Assistant General Manager  12/10/2019

Attachment(s):
Exhibit A - Map
Exhibit B - Cost Estimate
Presentation

History:
12/18/19 Board Operations and Engineering Committee RECOMMENDED FOR APPROVAL
01/08/20 Board Meeting

Staff Contact: John Wuerth
French Valley Recycled Water Pipeline PH-3A
PROJECT COST ESTIMATE

<table>
<thead>
<tr>
<th>Phase</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACILITIES PLANNING PHASE</td>
<td>$0</td>
</tr>
<tr>
<td>Planning Consultant</td>
<td>$0</td>
</tr>
<tr>
<td>Eng. Branch Labor</td>
<td>$0</td>
</tr>
<tr>
<td>PRELIMINARY DESIGN PHASE</td>
<td>$0</td>
</tr>
<tr>
<td>Preliminary Survey</td>
<td>$0</td>
</tr>
<tr>
<td>Geotechnical</td>
<td>$0</td>
</tr>
<tr>
<td>Right-of-Way</td>
<td>$0</td>
</tr>
<tr>
<td>Eng. Branch Labor</td>
<td>$0</td>
</tr>
<tr>
<td>FINAL DESIGN PHASE</td>
<td>$0</td>
</tr>
<tr>
<td>Site Acquisition / Permits</td>
<td>$0</td>
</tr>
<tr>
<td>Design Consultant</td>
<td>$0</td>
</tr>
<tr>
<td>Pothole Consultant</td>
<td>$0</td>
</tr>
<tr>
<td>Eng. Branch Labor</td>
<td>$0</td>
</tr>
<tr>
<td>SPEC REVIEW</td>
<td>$0</td>
</tr>
<tr>
<td>Final prep of plans &amp; specs</td>
<td>$0</td>
</tr>
<tr>
<td>BID/AWARD PHASE</td>
<td>$0</td>
</tr>
<tr>
<td>Includes Labor, Advertisement, and Materials</td>
<td>$0</td>
</tr>
<tr>
<td>CONSTRUCTION PHASE</td>
<td>$198,900</td>
</tr>
<tr>
<td>Contract Services (Soils &amp; Staking)</td>
<td>$4,500</td>
</tr>
<tr>
<td>Construction Contract</td>
<td>$178,900</td>
</tr>
<tr>
<td>Inspection</td>
<td>$2,000</td>
</tr>
<tr>
<td>Agreement Administration</td>
<td>$1,000</td>
</tr>
<tr>
<td>(Includes: Development Services, Engineering)</td>
<td></td>
</tr>
<tr>
<td>EMWD Construction Crew Labor</td>
<td>$6,500</td>
</tr>
<tr>
<td>Contingencies</td>
<td>$6,000</td>
</tr>
<tr>
<td>ADMINISTRATIVE CLOSE OUT PHASE</td>
<td>TBD</td>
</tr>
<tr>
<td>Eng Branch Labor</td>
<td>$0</td>
</tr>
<tr>
<td>TOTAL ESTIMATED PROJECT COST</td>
<td>$198,900</td>
</tr>
</tbody>
</table>

* $0 Previously Appropriated

Reviewed ____________
French Valley Recycled Water Pipeline Phase IIIA Reimbursement Agreement

John Wuerth
December 18, 2019
Overview

• Multiple phase project supporting retrofit and new development landscape
  • Phase I
    – 3,100’ of 18-inch & 12-inch
    – Online
  • Phase II
    – 12,300’ of 12-inch and 8-inch
    – In final design
  • Phase III
    – 6,500’ of 12-inch and 8-inch
    – In planning stages
Current Development Activity and Opportunities

- Active development includes Pulte Homes tract and TVUSD K-8 school
- Includes 1,600’ of street improvements between Abelia and Yates
- Pulte Homes has agreed to advance construction of portion of Phase III (Phase IIIA) prior to final street pavement
- Includes 1,700’ of 8-inch recycled water pipeline
- Temporary supplied by potable water
Benefits

- Significant cost savings for construction
  - $178,900 for installation 1,700 feet of 8-inch diameter pipeline
- Continued partnership with TVUSD who will connect to new pipeline
- Future developments will contribute or construct Phase IIIB in accordance with District's frontage policy
Recommendation

Approve and authorize the following:

• Execution by the General Manager, or his designee, of the District’s standard form reimbursement agreement with Pulte Homes, for construction of French Valley Recycled Water Pipeline Phase IIIA in the amount of $178,900;

• Administrative Award and Execution by the General Manager of the District’s standard form of contracts with the necessary consultants and suppliers for engineering support during construction and implementation of French Valley Recycled Water Pipeline, Phase IIIA Improvements; and

• Appropriation of $198,900, to fund project costs.
Contact Information

John Wuerth
Senior Recycled Water Program Analyst
(951) 928-3777 Ext. 4334

Email: wuerthj@emwd.org
SUBJECT:

Approve and Authorize an Agreement with Carollo Engineers ($998,000) for the Final Design of the Moreno Valley Regional Water Reclamation Facility Plant 2B Equipping Project, and Appropriation in the Amount of $1,144,000

BACKGROUND:

Staff is advancing the final design of the Moreno Valley Regional Water Reclamation Facility (MVRWRF) Plant 2B Equipping project to support secondary treatment capacity (Exhibit A). In December 2018, the Board awarded a contract to Carollo Engineers (Carollo) to perform the preliminary design of the MVRWRF Plant 2B Equipping project and approved an appropriation in the amount of $400,910. Carollo was competitively selected to perform the preliminary design of the MVRWRF Plant 2B Equipping project.

Upon completion of the project preliminary design, the cost estimate for equipping Plant 2B exceeded preliminary cost estimates. Estimated project cost increased as a result of new structures not considered in the initial condition assessments. Staff requested the Board approve an amendment to the contract with Carollo to evaluate the alternative of rehabilitating MVRWRF Plant 1 to support secondary treatment capacity. In August 2019, the Board approved the contract amendment with Carollo for an additional amount of $59,921.

Carollo successfully completed a detailed assessment of rehabilitating Plant 1. The assessment identified constructability challenges with rehabilitating a treatment system in operation. Several process by-passes and diversions would be required in addition to provisions for temporary power and control systems. These activities increase the cost and complexity of rehabilitating Plant 1 while in operation. Equipping Plant 2B will allow deferment of the rehabilitation of Plant 1 to a later date. This will allow rehabilitation to occur at a lower cost while Plant 1 is shutdown. Thus, equipping Plant 2B is the recommended project.

Staff negotiated a fee with Carollo Engineers in the amount of $998,000 to perform final design and support services through bidding. Staff finds Carollo’s fee to be commensurate with the proposed scope of services. Carollo’s proposal is attached as Exhibit B. Carollo has successfully completed the preliminary design for equipping Plant 2B and has consistently demonstrated value through the course of the project.

Staff anticipates field investigations to be performed in support of the final design including geotechnical studies, survey, potholing, and testing for heavy metals in coatings. These field investigations will be conducted using on-call consultants. The estimated cost for each of these services is presented in the Project Cost Estimate attached as Exhibit C.
FINANCIAL IMPACT:

This project will be financed from the Sewer Capital Replacement and System Betterment Reserve Fund.

STRATEGIC PLANNING GOAL/OBJECTIVE:

Implement cost-effective projects and programs to manage wastewater and biosolids to achieve long-term, environmentally sustainable reuse.

ENVIRONMENTAL IMPACT:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15301, which provides exemption for the operation, repair, maintenance, or minor alteration of existing facilities, involving negligible or no expansion of an existing use, of publicly owned utilities used to provide public utility services.

RECOMMENDATION:

Approve and authorize the following:

1. Execution by the General Manager, or his designee, of EMWD’s standard form of contract with Carollo Engineers for final design and support services for the MVRWRF Plant 2B Equipping Project in the amount of $998,000;

2. Administrative award and execution by the General Manager, or his designee, of the District’s standard form of contract with the necessary consultants, contractors, and suppliers for the completion of the project; and

3. Appropriation of $1,144,000 to fund project costs through the bid and award phase.

SUBMITTED BY:

Paul B. Jones II  P.E., General Manager  12/13/2019
Joe Mouawad, Assistant General Manager  12/9/2019

Attachment(s):

Exhibit A - Site Map
Exhibit B - Consultant Proposal
Exhibit C - Cost Estimate
Presentation

History:
12/18/19       Board Operations and Engineering Committee       RECOMMENDED FOR APPROVAL
01/08/20       Board Meeting

Staff Contact: Erik Jorgensen
December 3, 2019

Mr. Erik Jorgensen, P.E.
Senior Civil Engineer
Eastern Municipal Water District
P.O. Box 8300
Perris, CA 92572-8300

Subject: Moreno Valley Regional Water Reclamation Facility (MVRWRF) Plant 2B Equipping Project Final Design

Dear Mr. Jorgensen:

Per your request, for the subject project please find the following attached for your review and approval:

1. Exhibit A - Scope of Services.
2. Exhibit B - Labor Hours and Effort Estimate.
3. Exhibit C – Projected Drawing List.

Please let us know if you have any questions or require any further information. We look forward to your approval of the above.

Thank you.

Sincerely,

CAROLLO ENGINEERS, INC.

[Signatures]

Graham J.G. Juby, Ph.D., P.E.
Vice President/Principal-in-Charge

Rajesh Doppalapudi, P.E.
Project Manager

GJJ/ADW

Enclosures: Exhibit A - Scope of Services
Exhibit B - Labor Hours and Effort Estimate
Exhibit C - Projected Drawing List
EXHIBIT A
SCOPE OF SERVICES
EASTERN MUNICIPAL WATER DISTRICT
MVRWRF PLANT 2B EQUIPPING FINAL DESIGN
(DECEMBER 3, 2019)

The following Scope of Services details engineering work to be performed by Carollo Engineers, Inc., (Carollo) for the final design for the Plant 2B Equipping Project Moreno Valley Regional Water Reclamation Facility (RWRF).

In December 2019, a Preliminary Design Report (PDR) was completed to establish design criteria, evaluate alternatives and develop preliminary drawings for the project. The project includes the following major elements:

1. Install a new Plant 2 Influent Splitter Box to split Plant 2 influent to the two Aeration Basins. The Plant 2 Influent Splitter Box will include provisions for connection to the Perris Valley RWRF diversion line.

2. Complete structural modifications to the existing Plant 2B structure to convert the structure to a step feed aeration basin. Equip the Plant 2B Aeration Basin with new large diameter piping, isolation gates, submersible mixers, new diffusers, and new aeration air piping. New tipping troughs will be provided for scum collection and transferred to the headworks.

3. Install a new Plant 2B Step Feed Splitter Box.

4. Install a new centrate equalization tank and Centrate and RAS Reaeration Basin (CaRRB). The Centrate Equalization Tank Pump Station will include provisions to connect centrate to the Perris Valley RWRF diversion line. The CaRRB will be equipped with a new WAS pumping station by relocating the Plant 2 WAS pumps to allow surface wasting. The CaRRB tank will be designed so that a portion of the tank can be modified to accommodate a technology such as ANITA™ Mox.

5. Associated electrical, instrumentation, and controls modifications.

6. Associated civil paving, grading, and piping modifications.

The purpose of this Scope of Services is to develop Final Design Drawings and Specifications for the project based on the PDR completed in December 2019.

TASK 1 - PROJECT MANAGEMENT AND MEETINGS

Provide general project management services throughout the course of the project including preparation of monthly progress reports, invoices, and agendas and meeting notes for all progress meetings. Conduct a project kickoff at Eastern Municipal Water District (EMWD) offices to discuss and confirm the Scope of Services. Prepare for and conduct three progress meetings. Hold weekly conference calls with EMWD’s Project Manager (PM). Conduct a Final Design Peer Review Meeting. It is assumed that the project will have a duration of approximately 12 months.
TASK 2 - FINAL DESIGN

2.1 Prepare technical specifications (in Microsoft® Word), drawings (in MicroStation), and typical details (in MicroStation) for construction of the following project elements:

A. A new Plant 2 Influent Splitter Box to split Plant 2 influent to the two Aeration Basins. The Plant 2 Influent Splitter Box will include provisions for connection to the Perris Valley RWRF diversion line.

B. Structural modifications to the existing Plant 2B structure to convert the structure to a step feed aeration basin. Equip the Plant 2B Aeration Basin with new large-diameter piping, isolation gates, submersible mixers, new diffusers, and new aeration air piping.

C. A new Plant 2B Step Feed Splitter Box.

D. A new centrate equalization tank and CaRRB. The Centrate Equalization Tank Pump Station will include provisions to connect centrate to the Perris Valley RWRF diversion line. The CaRRB tank will be designed so that a portion of the tank can be modified to accommodate a technology such as ANITA™ Mox.

E. Associated electrical, instrumentation, and controls modifications.

F. Associated civil paving, grading, and piping modifications.

G. An opinion of probable construction cost will be developed for the 50 percent, 90 percent, and 100 percent Design Submittals.

2.2 As part of the Final Submittal, typical details will be put on the drawings. EMWD will provide the front-end documents.

Deliverables

All deliverables will be provided in print-ready, searchable, electronic PDF format only. Drawings will be provided in both half-size (11-inch-by-17-inch) and full-size (22-inch-by-34-inch) format. No hard copies will be provided.

1. Meeting Agendas.
3. Meeting Notes.
4. Monthly Progress Reports.
5. Final Design:
   a. 50 Percent Design Submittal.
   b. 90 Percent Design Submittal.
   c. 100 Percent Design Submittal.
   d. Bid Set.
ASSUMPTIONS

Preparation of the above Scope of Services and associated engineering effort presented in Exhibit B was based on the following assumptions:

1. Project duration will be approximately 12 months from the Notice to Proceed.
2. Level of effort for the plans and technical specifications is based on the Projected Drawing List (attached as Exhibit C), which shows a total of 141 sheets.
3. EMWD will prepare the front-end documents (Division 0 and Division 1) and provide an electronic version to Carollo for inclusion with the remaining technical specifications.
4. Geotechnical work will not be required for this project. Recommendations from the Geotechnical Investigation Report completed for the Plant 2 Expansion (February 16, 2007) will be used.
5. EMWD will provide potholing data based on a pothole plan developed by Carollo.
6. The scope of work does not include any changes resulting from an independent value engineering (VE) effort by EMWD.
7. EMWD will prepare and print bidding documents.
8. The scope of work does not include engineering services during Bid period.
9. Preparation of conformed drawings and engineering services during construction are excluded.
10. All other work not specifically identified in Tasks 1 and 2 above is excluded.
## ESTIMATED CAROLLO LABOR COSTS

<table>
<thead>
<tr>
<th>Task</th>
<th>Senior Professional</th>
<th>Lead Professional</th>
<th>Professional</th>
<th>Assistant Professional</th>
<th>Sr. CAD Designer</th>
<th>Asst. CAD Designer</th>
<th>Support Staff</th>
<th>Total Hours</th>
<th>Carollo Labor excl PECE</th>
<th>PECE</th>
<th>Other Direct Costs</th>
<th>Total Carollo Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task 1 - Project Management and Meetings</strong></td>
<td>$284</td>
<td>$265</td>
<td>$222</td>
<td>$167</td>
<td>$176</td>
<td>$125</td>
<td>$115</td>
<td>$12.30</td>
<td>$5,538</td>
<td>$320</td>
<td>$150</td>
<td>$6,088</td>
</tr>
<tr>
<td>1.1 Kickoff Meeting</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>26</td>
<td>$16,614</td>
<td>$959</td>
<td>$900</td>
<td>$18,473</td>
</tr>
<tr>
<td>1.2 Progress Meetings (7)</td>
<td>12</td>
<td>12</td>
<td>24</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>$30,708</td>
<td>$1,574</td>
<td>$0</td>
<td>$32,282</td>
</tr>
<tr>
<td>1.3 Project Management</td>
<td>12</td>
<td>36</td>
<td>80</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>128</td>
<td>6</td>
<td>$11,896</td>
<td>$590</td>
<td>$800</td>
<td>$13,086</td>
</tr>
<tr>
<td>1.4 Final Design Peer Review Meeting</td>
<td>16</td>
<td>16</td>
<td>8</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>48</td>
<td>0</td>
<td>$16,614</td>
<td>$3,444</td>
<td>$0</td>
<td>$19,058</td>
</tr>
<tr>
<td><strong>Subtotal - Task 1</strong></td>
<td>44</td>
<td>68</td>
<td>120</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>280</td>
<td>$64,756</td>
<td>$3,444</td>
<td>$1,574</td>
<td>$69,850</td>
</tr>
<tr>
<td><strong>Task 2 - Final Design</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 General Drawings</td>
<td>4</td>
<td>10</td>
<td>14</td>
<td>42</td>
<td>14</td>
<td>14</td>
<td>141</td>
<td>141</td>
<td>$23,369</td>
<td>$1,732</td>
<td>$0</td>
<td>$25,100</td>
</tr>
<tr>
<td>2.2 Civil Drawings</td>
<td>21</td>
<td>50</td>
<td>71</td>
<td>213</td>
<td>71</td>
<td>71</td>
<td>708</td>
<td>708</td>
<td>$117,573</td>
<td>$8,713</td>
<td>$0</td>
<td>$126,286</td>
</tr>
<tr>
<td>2.3 Demo Drawings</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>21</td>
<td>7</td>
<td>21</td>
<td>7</td>
<td>70</td>
<td>$11,684</td>
<td>$866</td>
<td>$0</td>
<td>$12,550</td>
</tr>
<tr>
<td>2.4 Structural Drawings</td>
<td>44</td>
<td>103</td>
<td>148</td>
<td>444</td>
<td>148</td>
<td>148</td>
<td>148</td>
<td>1478</td>
<td>$245,370</td>
<td>$18,184</td>
<td>$0</td>
<td>$263,554</td>
</tr>
<tr>
<td>2.5 Mechanical Drawings</td>
<td>40</td>
<td>94</td>
<td>134</td>
<td>401</td>
<td>134</td>
<td>134</td>
<td>1338</td>
<td>1338</td>
<td>$222,001</td>
<td>$16,452</td>
<td>$0</td>
<td>$238,454</td>
</tr>
<tr>
<td>2.6 Electrical Drawings</td>
<td>3</td>
<td>6</td>
<td>40</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>89</td>
<td>89</td>
<td>$18,002</td>
<td>$1,095</td>
<td>$80,000</td>
<td>$99,097</td>
</tr>
<tr>
<td>2.7 Typical Details</td>
<td>3</td>
<td>6</td>
<td>32</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>81</td>
<td>$16,226</td>
<td>$996</td>
<td>$25,000</td>
<td>$42,222</td>
</tr>
<tr>
<td>2.8 Front End Specifications</td>
<td>4</td>
<td>10</td>
<td>16</td>
<td>32</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>80</td>
<td>$14,812</td>
<td>$984</td>
<td>$0</td>
<td>$15,796</td>
</tr>
<tr>
<td>2.9 Construction Cost Estimates</td>
<td>5</td>
<td>11</td>
<td>16</td>
<td>48</td>
<td>16</td>
<td>16</td>
<td>160</td>
<td>160</td>
<td>$26,555</td>
<td>$1,968</td>
<td>$0</td>
<td>$28,523</td>
</tr>
<tr>
<td>2.10 50% Submittal</td>
<td>0</td>
<td>9</td>
<td>21</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>60</td>
<td>$11,745</td>
<td>$738</td>
<td>$0</td>
<td>$12,483</td>
</tr>
<tr>
<td>2.11 90% Submittal</td>
<td>0</td>
<td>9</td>
<td>21</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>60</td>
<td>$11,745</td>
<td>$738</td>
<td>$0</td>
<td>$12,483</td>
</tr>
<tr>
<td>2.12 100% Submittal</td>
<td>0</td>
<td>9</td>
<td>21</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>60</td>
<td>$11,745</td>
<td>$738</td>
<td>$0</td>
<td>$12,483</td>
</tr>
<tr>
<td>2.13 Bid Set (preparing PDFs)</td>
<td>0</td>
<td>9</td>
<td>21</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>60</td>
<td>$11,745</td>
<td>$738</td>
<td>$279</td>
<td>$12,722</td>
</tr>
<tr>
<td><strong>Subtotal - Task 2</strong></td>
<td>131</td>
<td>341</td>
<td>576</td>
<td>1,421</td>
<td>404</td>
<td>1,213</td>
<td>446</td>
<td>4,533</td>
<td>$767,110</td>
<td>$55,761</td>
<td>$105,279</td>
<td>$928,150</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>175</td>
<td>409</td>
<td>696</td>
<td>1,461</td>
<td>404</td>
<td>1,213</td>
<td>454</td>
<td>4,813</td>
<td>$831,866</td>
<td>59,205</td>
<td>106,929</td>
<td>998,000</td>
</tr>
</tbody>
</table>

**East Coast Municipal Water District - Moreno Valley**

**RWRF Plant 2B Equipping Final Design**

**EXHIBIT B**

**FEE ESTIMATE (12/02/2019)**

**EASTERN MUNICIPAL WATER DISTRICT**

**MVRWRF PLANT 2B EQUIPPING FINAL DESIGN**

---

**Attachment:** Exhibit B - Consultant Proposal (4195 : MVRWRF Plant 2B Equipping Project Final Design)
## EXHIBIT C
### PROJECTED DRAWING LIST
**EASTERN MUNICIPAL WATER DISTRICT**
**MVRWRF PLANT 2B EQUIPPING FINAL DESIGN**

### GENERAL
<table>
<thead>
<tr>
<th>No.</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01G01</td>
<td>COVER SHEET</td>
</tr>
<tr>
<td>2</td>
<td>01G02</td>
<td>SHEET INDEX AND DESIGN CRITERIA</td>
</tr>
<tr>
<td>3</td>
<td>01G03</td>
<td>ABBREVIATIONS</td>
</tr>
<tr>
<td>4</td>
<td>01G04</td>
<td>MORENO VALLEY RWRF SITE PLAN</td>
</tr>
<tr>
<td>5</td>
<td>01G05</td>
<td>PROCESS SCHEMATIC</td>
</tr>
<tr>
<td>6</td>
<td>01G06</td>
<td>HYDRAULIC PROFILE</td>
</tr>
<tr>
<td>7</td>
<td>01G07</td>
<td>GENERAL NOTES, LEGEND, AND SYMBOLS</td>
</tr>
<tr>
<td>8</td>
<td>01G08</td>
<td>GENERAL STRUCTURAL NOTES</td>
</tr>
<tr>
<td>9</td>
<td>01G09</td>
<td>GENERAL CIVIL NOTES, LEGEND, AND SYMBOLS</td>
</tr>
<tr>
<td>10</td>
<td>01G10</td>
<td>GENERAL MECHANICAL LEGEND AND SYMBOLS</td>
</tr>
<tr>
<td>11</td>
<td>01G11</td>
<td>GENERAL MECHANICAL &amp; HVAC NOTES</td>
</tr>
</tbody>
</table>

### YARD
<table>
<thead>
<tr>
<th>No.</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>01Y01</td>
<td>YARD AREA INDEX AND GENERAL YARD NOTES</td>
</tr>
<tr>
<td>13</td>
<td>01Y02</td>
<td>YARD DEMOLITION PLAN</td>
</tr>
<tr>
<td>14</td>
<td>01Y03</td>
<td>PAVING AND GRADING AREA 1</td>
</tr>
<tr>
<td>15</td>
<td>01Y04</td>
<td>PAVING AND GRADING AREA 2</td>
</tr>
<tr>
<td>16</td>
<td>01Y05</td>
<td>PAVING AND GRADING AREA 3</td>
</tr>
<tr>
<td>17</td>
<td>01Y06</td>
<td>PAVING AND GRADING AREA 4</td>
</tr>
<tr>
<td>18</td>
<td>01Y07</td>
<td>YARD PIPING AREA 1</td>
</tr>
<tr>
<td>19</td>
<td>01Y08</td>
<td>YARD PIPING AREA 2</td>
</tr>
<tr>
<td>20</td>
<td>01Y09</td>
<td>YARD PIPING AREA 3</td>
</tr>
<tr>
<td>21</td>
<td>01Y10</td>
<td>YARD PIPING AREA 4</td>
</tr>
<tr>
<td>22</td>
<td>01Y11</td>
<td>YARD PIPING PROFILE</td>
</tr>
<tr>
<td>23</td>
<td>01Y12</td>
<td>YARD PIPING PROFILE</td>
</tr>
<tr>
<td>24</td>
<td>01Y13</td>
<td>YARD PIPING PROFILE</td>
</tr>
<tr>
<td>25</td>
<td>01Y14</td>
<td>YARD PIPING PROFILE</td>
</tr>
<tr>
<td>26</td>
<td>01Y15</td>
<td>YARD PIPING PROFILE</td>
</tr>
<tr>
<td>27</td>
<td>01Y16</td>
<td>SCUM PUMP STATION PLANS AND SECTIONS</td>
</tr>
<tr>
<td>28</td>
<td>01Y17</td>
<td>SCUM PUMP STATION DETAILS</td>
</tr>
<tr>
<td>29</td>
<td>01Y18</td>
<td>YARD DETAILS</td>
</tr>
<tr>
<td>30</td>
<td>01Y19</td>
<td>YARD DETAILS</td>
</tr>
<tr>
<td>31</td>
<td>01Y20</td>
<td>YARD DETAILS</td>
</tr>
<tr>
<td>32</td>
<td>01Y21</td>
<td>YARD DETAILS</td>
</tr>
</tbody>
</table>
PLANT 2 INFLUENT SPLITTER BOX

STRUCTURAL
33 19S01 PLANT 2 SPLITTER BOX PLANS
34 19S02 PLANT 2 SPLITTER BOX PLAN AND SECTION
35 19S03 PLANT 2 SPLITTER BOX SECTIONS AND DETAILS
36 19S04 PLANT 2 SPLITTER BOX DETAILS

MECHANICAL
37 19M01 PLANT 2 SPLITTER BOX PLANS
38 19M02 PLANT 2 SPLITTER BOX SECTIONS

BARDENPHO PLANT MODIFICATIONS

DEMOLITION
39 20D01 BARDENPHO PROCESS DEMOLITION PLAN 1
40 20D02 BARDENPHO PROCESS DEMOLITION PLAN 2

STRUCTURAL
41 20S01 BASIN PARTIAL BOTTOM PLAN 1
42 20S02 BASIN PARTIAL BOTTOM PLAN 2
43 20S03 BASIN PARTIAL TOP PLAN 1
44 20S04 BASIN PARTIAL TOP PLAN 2
45 20S05 PARTIAL FOUNDATION/FLOOR PLAN
46 20S06 SECTIONS AND DETAILS
47 20S07 SECTIONS AND DETAILS
48 20S08 SECTIONS AND DETAILS
49 20S09 WALL ELEVATION, SECTION, AND DETAILS
50 20S10 WALL ELEVATION, SECTION, AND DETAILS
51 20S11 SPLITTER BOX PLAN AND SECTIONS
52 20S12 SPLITTER BOX DETAILS

MECHANICAL
53 20M01 BASIN PARTIAL PLAN 1
54 20M02 BASIN PARTIAL PLAN 2
55 20M03 SECTIONS
56 20M04 SECTIONS
57 20M05 SECTIONS
58 20M06 PLANT 2B SPLITTER BOX PLANS AND SECTIONS
59 20M07 SECTIONS
60 20M08 FROTH SPRAY WATER ISOMETRIC
61 20M09 DIFFUSER PLAN
62 20M10 DETAILS
63 20M11 DETAILS
## CARRB FACILITY

**STRUCTURAL**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>22S01 BOTTOM PLAN</td>
</tr>
<tr>
<td>65</td>
<td>22S02 INTERMEDIATE PLAN</td>
</tr>
<tr>
<td>66</td>
<td>22S03 TOP PLAN</td>
</tr>
<tr>
<td>67</td>
<td>22S04 SECTIONS</td>
</tr>
<tr>
<td>68</td>
<td>22S05 SECTIONS</td>
</tr>
<tr>
<td>69</td>
<td>22S06 SECTIONS AND DETAILS</td>
</tr>
<tr>
<td>70</td>
<td>22S07 DETAILS - I</td>
</tr>
<tr>
<td>71</td>
<td>22S08 DETAILS - II</td>
</tr>
</tbody>
</table>

**MECHANICAL**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>22M01 BOTTOM PLAN</td>
</tr>
<tr>
<td>73</td>
<td>22M02 TOP PLAN</td>
</tr>
<tr>
<td>74</td>
<td>22M03 SECTIONS</td>
</tr>
<tr>
<td>75</td>
<td>22M04 SECTIONS</td>
</tr>
<tr>
<td>76</td>
<td>22M05 DETAILS - I</td>
</tr>
<tr>
<td>77</td>
<td>22M06 DETAILS - II</td>
</tr>
<tr>
<td>78</td>
<td>22M07 DETAILS - III</td>
</tr>
<tr>
<td>79</td>
<td>22M08 DIFFUSER LAYOUT</td>
</tr>
</tbody>
</table>

## SECONDARY CLARIFIERS

**MECHANICAL**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>24M01 PLAN</td>
</tr>
<tr>
<td>81</td>
<td>24M02 SECTIONS</td>
</tr>
<tr>
<td>82</td>
<td>24M03 DETAILS</td>
</tr>
</tbody>
</table>

## ELECTRICAL

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>83</td>
<td>E01 LEGEND ABBREVIATIONS AND GENERAL NOTES</td>
</tr>
<tr>
<td>84</td>
<td>E02 SITE PLAN</td>
</tr>
<tr>
<td>85</td>
<td>E03 MAIN SINGLE LINE DIAGRAM</td>
</tr>
<tr>
<td>86</td>
<td>E04 SINGLE LINE DIAGRAM EXISTING MCC-3MA</td>
</tr>
<tr>
<td>87</td>
<td>E05 SINGLE LINE DIAGRAM MCC-8 &amp; MCC-8M</td>
</tr>
<tr>
<td>88</td>
<td>E06 SINGLE LINE DIAGRAM EXISTING MCC-5</td>
</tr>
<tr>
<td>89</td>
<td>E07 ELEVATIONS</td>
</tr>
<tr>
<td>90</td>
<td>E08 SCHEMATICS</td>
</tr>
<tr>
<td>91</td>
<td>E09 SCHEMATICS</td>
</tr>
<tr>
<td>92</td>
<td>E10 PANEL SCHEDULE</td>
</tr>
<tr>
<td>93</td>
<td>E11 RACEWAY SCHEDULE</td>
</tr>
<tr>
<td>94</td>
<td>E12 RACEWAY SCHEDULE</td>
</tr>
<tr>
<td>95</td>
<td>E13 RACEWAY SCHEDULE</td>
</tr>
<tr>
<td>96</td>
<td>19E01 PLANT 2 INFLUENT SPLITTER BOX PLAN 1</td>
</tr>
<tr>
<td>No</td>
<td>Description</td>
</tr>
<tr>
<td>----</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>97</td>
<td>19E02 PLANT 2 INFLUENT SPLITTER BOX PLAN 2</td>
</tr>
<tr>
<td>98</td>
<td>19E03 PLANT 2 INFLUENT SPLITTER BOX LIGHTING AND GROUNDING PLAN</td>
</tr>
<tr>
<td>99</td>
<td>20E01 BARDENPHO PROCESS MODIFICATION PLAN PLANT-2 PARTIAL PLAN</td>
</tr>
<tr>
<td>100</td>
<td>20E02 BARDENPHO PROCESS MODIFICATION PLAN PLANT-2 PARTIAL PLAN</td>
</tr>
<tr>
<td>101</td>
<td>20E03 BARDENPHO PROCESS LIGHTING AND GROUNDING PLAN</td>
</tr>
<tr>
<td>102</td>
<td>22E01 CARRB FACILITY PLAN 1</td>
</tr>
<tr>
<td>103</td>
<td>22E02 CARRB FACILITY PLAN 2</td>
</tr>
<tr>
<td>104</td>
<td>22E03 CARRB FACILITY LIGHTING AND GROUNDING PLAN</td>
</tr>
</tbody>
</table>

**INSTRUMENTATION**

<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>105</td>
<td>N01 LEGEND, NOTES &amp; ABBREVIATIONS</td>
</tr>
<tr>
<td>106</td>
<td>N02 SYMBOLS 1</td>
</tr>
<tr>
<td>107</td>
<td>N03 SCADA SYSTEM BLOCK DIAGRAM</td>
</tr>
<tr>
<td>108</td>
<td>N04 CONTROL SCHEMATIC</td>
</tr>
<tr>
<td>109</td>
<td>N05 CONTROL SCHEMATIC</td>
</tr>
<tr>
<td>110</td>
<td>N06 CONTROL SCHEMATIC</td>
</tr>
<tr>
<td>111</td>
<td>19N01 PLANT 2 INFLUENT SPLITTER BOX P&amp;ID</td>
</tr>
<tr>
<td>112</td>
<td>20N01 PLANT 2B, ZONE 1 P&amp;ID</td>
</tr>
<tr>
<td>113</td>
<td>20N02 PLANT 2B, ZONE 2 P&amp;ID</td>
</tr>
<tr>
<td>114</td>
<td>20N03 PLANT 2B, ZONE 3 P&amp;ID</td>
</tr>
<tr>
<td>115</td>
<td>22N01 CARRB FACILITY P&amp;ID</td>
</tr>
<tr>
<td>116</td>
<td>22N02 CARRB FACILITY P&amp;ID</td>
</tr>
<tr>
<td>117</td>
<td>22N03 WAS PUMPS P&amp;ID</td>
</tr>
<tr>
<td>118</td>
<td>22N04 WAS PUMPS P&amp;ID</td>
</tr>
<tr>
<td>119</td>
<td>25N01 RAS PUMPS P&amp;ID</td>
</tr>
<tr>
<td>120</td>
<td>25N02 RAS PUMPS P&amp;ID</td>
</tr>
</tbody>
</table>
TYPICAL DETAILS

121 TA01 ARCHITECTURAL TYPICAL DETAILS 1
122 TA02 ARCHITECTURAL TYPICAL DETAILS 2
123 TA03 ARCHITECTURAL TYPICAL DETAILS 3
124 TA04 ARCHITECTURAL TYPICAL DETAILS 4
125 TC01 CIVIL TYPICAL DETAILS 1
126 TC02 CIVIL TYPICAL DETAILS 2
127 TH01 HVAC TYPICAL DETAILS 1
128 TM01 MECHANICAL TYPICAL DETAILS 1
129 TM02 MECHANICAL TYPICAL DETAILS 2
130 TP01 PIPING TYPICAL DETAILS 1
131 TP02 PIPING TYPICAL DETAILS 2
132 TP03 PIPING TYPICAL DETAILS 3
133 TP04 PIPING TYPICAL DETAILS 4
134 TP05 PIPING TYPICAL DETAILS 5
135 TP06 PIPING TYPICAL DETAILS 6
136 TP07 PIPING TYPICAL DETAILS 7
137 TS01 STRUCTURAL TYPICAL DETAILS 1
138 TS02 STRUCTURAL TYPICAL DETAILS 2
139 TS03 STRUCTURAL TYPICAL DETAILS 3
140 TS04 STRUCTURAL TYPICAL DETAILS 4
141 TS05 STRUCTURAL TYPICAL DETAILS 5
# MVRWRF Plant 2B Equipping Project
## PROJECT COST ESTIMATE

### FACILITIES PLANNING PHASE
- Field Investigations: $60,000
- Eng. Branch Labor: $20,000

### PRELIMINARY DESIGN PHASE
- Design Consultant: $330,831
- Field Investigations: $65,000
- Eng. Branch Labor: $65,000

### FINAL DESIGN PHASE
- Site Acquisition / Permits: $0
- Design Consultant: $998,000
- Geotechnical Consultant: $18,000
- Field Investigations (potholing/coatings): $45,000
- Eng. Branch Labor: $65,000

### SPEC REVIEW
- Final prep of plans & specs: $10,000

### BID/AWARD PHASE
- Includes Labor, Advertisement, and Materials: $8,000

### CONSTRUCTION PHASE
- Contract Services (Soils & Staking): $0
- Construction Contract: $0
- Inspection: $0
- Contract Administration: $0
- Operations Labor: $0
- Contingencies: $0

### ADMINISTRATIVE CLOSE OUT PHASE
- Eng Branch Labor: $0

### TOTAL ESTIMATED PROJECT COST
- $1,684,831

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAR 2017-045</td>
<td>$80,000</td>
</tr>
<tr>
<td>PAR 2017-045A</td>
<td>$400,910</td>
</tr>
<tr>
<td>PAR 2017-045B</td>
<td>$59,921</td>
</tr>
<tr>
<td>Requested at this time</td>
<td>$1,144,000</td>
</tr>
</tbody>
</table>

*Previously Appropriated:
- PAR 2017-045: $540,831.00

Reviewed ____________
Moreno Valley RWRF Plant 2B Equipping Final Design Services

Erik Jorgensen, P.E.
December 18, 2019
Agenda

• Background
• Scope of work
• Schedule
• Recommendations
Background

- MVRWRF has two Secondary Treatment Plants; Plants 1 and 2
- In 2017, a structural condition assessment of Plant 1 was performed
- In 2018, evaluated equipping the second half of Plant 2 (Plant 2B)
- In 2019, the preliminary design for the equipping of Plant 2B was completed
- In 2019, additional assessment of Plant 1 Rehabilitation option identified constructability challenges
Plant 2B Equipping Alternative

- New structures are necessary for the equipping of Plant 2B
- The new structures serve both Plant 2A and 2B
- These proposed structures and other upgrades provide consistent nutrient control. However, they increase the cost of this alternative.
Plant 1 Rehabilitation Alternative

Detailed assessment of Plant 1 identified major mechanical and electrical rehabilitation needs and constructability challenges.

Leaks in Pipe Galleries

Electrical Equipment at End of Useful Life

Inoperable Gates
Alternatives Evaluation

- Both alternatives will eventually be implemented. The evaluation now focuses on the sequence of implementation.
- Plant 1 has constructability challenges because it is currently in operation. Rehabilitation now will be more costly than in the future when Plant 1 can be offline.
- Staff recommends proceeding with equipping Plant 2B which will allow Plant 1 to be rehabilitated at a later date.
Consultant Agreement

• In December of 2018, the Board awarded a contract to Carollo Engineers after competitive selection for preliminary design
• Based on successful completion of the preliminary design, proven value added approach, and knowledge of the project requirements, staff recommends Carollo be selected to perform final design services
• Staff negotiated a fee with Carollo Engineers to perform final design and support services during bidding
Consultant’s Scope of Work

- Final design for the equipping of Plant 2B
- Construction sequence and phasing recommendations
- Safety pre-use analysis
- Bid document preparation
- Construction cost estimate
- Construction schedule
- Bid services

Staff negotiated a fee with Carollo Engineers in the amount of $998,000 to perform final design and support services during bidding. Staff finds the fee commensurate with the scope of services.
Schedule

- Board award: January 2020
- Notice to proceed: January 2020
- Final design: November 2020
- Construction advertisement: December 2020
- Construction award: March 2021
- Contract NTP: April 2021
- Substantial completion: January 2023
Recommendation

Approve and authorize the following:

- Execution by the General Manager, or his designee, of EMWD’s standard form of contract with Carollo Engineers for final design and support services for the MVRWRF Plant 2B Equipping Project in the amount of $998,000;
- Administrative award and execution by the General Manager, or his designee, of the District’s standard form of contract with the necessary consultants, contractors, and suppliers for the completion of the project; and
- Appropriation of $1,144,000 to fund project costs through the bid and award phase.
Contact Information

Erik Jorgensen, P.E.
Principal Engineer
(951) 928-3777, Ext. 4461

Email: jorgense@emwd.org
SUBJECT:

Approve and Authorize Award of Contract with Carollo Engineers ($674,202) for the Warm Springs Sewage Lift Station Rehabilitation Preliminary Design and Condition Assessment of the Upstream Trunk Sewers, and Appropriation of $1,116,200

BACKGROUND:

The Warm Springs Lift Station (WSLS) was constructed in 1991 as a regional sewage lift station to serve the cities of Murrieta and Temecula. In March 2019, the District retained the team of Kleinfelder/Howard Ridley to perform a condition assessment of the facility’s wet well. The assessment found significant deterioration of concrete surfaces. Staff is advancing a project to rehabilitate the WSLS. In tandem with the rehabilitation, a condition assessment of the upstream sewers will be performed. The locations of the WSLS and upstream trunk sewers are identified on attached Exhibit A.

In October 2019, the District issued a Request for Proposals for the Warm Springs Sewage Lift Station Rehabilitation Preliminary Design and Condition Assessment of the Upstream Trunk Sewer project to eleven consulting firms. The requested scope of services includes field investigations, preliminary design, and, a sewer condition assessment.

On December 2, 2019, the District received four proposals. After evaluating the proposals through a detailed selection process, the review panel comprised of staffs from operations, engineering, and planning selected Carollo Engineers (Carollo) as the preferred consultant to perform the work based on their detailed understanding of the project, the qualifications of their team, and their efficient schedule for delivering the project. The consultant ranking selection matrix is attached as Exhibit B.

Carollo’s proposed fee in the amount of $674,202 was reviewed by staff and determined to be commensurate with the proposed scope of services. Carollo has successfully completed similar work for the District. Carollo’s proposal is attached as Exhibit C.

Under a separate scope of work, the District will competitively select a contractor to provide a short-term lift station bypass to support Carollo’s detailed field investigation of the wet well. Staff has developed a budget for contract services to perform the lift station bypass in the amount of $246,500. At this time, staff seeks administrative award of contract services and inclusion of the budgeted cost for the bypass services within the appropriation.
Staff requests an appropriation in the amount of $1,116,200 to fund the preliminary design, bypass services, and sewer condition assessment as presented in the cost estimate attached as Exhibit D.

**FINANCIAL IMPACT:**

This project will be financed from the Sewer Capital Replacement and System Betterment Reserve Fund.

**STRATEGIC PLANNING GOAL/OBJECTIVE:**

Implement cost-effective projects and programs to manage wastewater and biosolids to achieve long-term, environmentally sustainable reuse.

**ENVIRONMENTAL IMPACT:**

This project is subject to the California Environmental Quality Act (CEQA). In conformance with the California Code of Regulations Title 14, Chapter 3, Section 15004, the appropriate environmental document will be prepared when “meaningful information” becomes available.

**RECOMMENDATION:**

Approve and authorize the following:

1. Execution by the General Manager of the District's standard form of contract with Carollo Engineers, in the amount of $674,202;

2. Administrative award and execution by the General Manager, or his designee, of the District’s standard form of construction contract to perform WSLS bypass to support field investigation, in the amount of $246,500;

3. Administrative award and execution by the General Manager, or his designee, of the District's standard form of contract with the necessary consultants, contractors, and suppliers to complete the rehabilitation preliminary design and sewer condition assessment; and

4. Appropriation in the amount of $1,116,200.
SUBMITTED BY:

Paul D. Jones II, P.E., General Manager  12/13/2019
Joe Mouawad, Assistant General Manager  12/9/2019

Attachment(s):
Exhibit A - Location Map
Exhibit B - Consultant Selection Matrix
Exhibit C - Consultant Proposal
Exhibit D - Cost Estimate Presentation

History:
12/18/19  Board Operations and Engineering Committee  RECOMMENDED FOR APPROVAL
01/08/20  Board Meeting

Staff Contact:  Erik Jorgensen
**Warm Springs Lift Station Rehabilitation Preliminary Design and Trunk Sewer Condition Assessment**

**Consultant Selection Matrix**

<table>
<thead>
<tr>
<th>Consultant</th>
<th>Proposal Rating</th>
<th>Fee Proposal</th>
<th>Proposal Review Comments</th>
</tr>
</thead>
</table>
| Carollo Engineers  | 8.7             | $674,202     | Excellent proposal with a clear understanding of project  
Firm/team demonstrated wide breadth of experience  
Proposal included multiple detailed concepts for lift station by-pass |
| Hazen & Sawyer     | 8.6             | $928,397     | Excellent proposal with a clear understanding of project  
Firm/team demonstrated wide breadth of experience  
Proposal included concept for lift station by-pass |
| HDR                | 8.2             | $677,600     | Very good proposal with clear understanding of project  
Firm/team demonstrated extensive experience  
Proposal emphasized the teams condition assessment expertise |
| Krieger & Stewart  | 8.2             | $675,000     | Very good proposal with clear understanding of project  
Firm/team demonstrated experience  
Proposal included concept for lift station by-pass |

Note: Carollo's proposed fee in the amount of $699,442 was negotiated to an amount of $674,202.

**Selection Criteria:**
1. Project understanding and approach (30%)
2. Relevant experience of the firm and team members (35%)
3. Capacity and availability of firm to handle all aspects of the project and deliver in a timely manner (20%)
4. Past experience/performance of the firm and team (15%)

**Review Panel:**
- Dave Brown, Director of Maintenance
- Matt Melendrez, Director of Reclamation
- Bill Nealeigh, Electrical Services Manager
- Laura Barraza, Principal Civil Engineer- Planning
- Erik Jorgensen, Principal Civil Engineer - Wastewater
EASTERN MUNICIPAL WATER DISTRICT

WARM SPRINGS SEWAGE LIFT STATION REHABILITATION

Preliminary Design and Condition Assessment of Upstream Trunk Sewers

Attachment: Exhibit C - Consultant Proposal (4151 : Warm Springs Sewage Lift Station Preliminary Design and Upstream Sewers Condition)
December 2, 2019

Mr. Erik Jorgensen, PE, Project Manager
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92572-8300

Subject: Proposal for the Warm Springs Sewage Lift Station Rehabilitation Preliminary Design and Condition Assessment of Upstream Trunk Sewers

Dear Mr. Jorgensen:

Eastern Municipal Water District (EMWD/District) is seeking to hire a consultant to perform the preliminary design of the Warm Springs Lift Station (WSLS) rehabilitation and perform a detailed condition assessment of the upstream gravity trunk sewers. Carollo Engineers, Inc. (Carollo) has the team and experience to fulfill your needs.

Carollo has been fortunate to provide design solutions for complex bypass pumping, lift station condition assessments and rehabilitation, and collection system condition assessments. This experience—together with our more than 20 years of designing complex infrastructure projects for EMWD—means we are well up the learning curve. The condition assessment will result in the recommendations and preliminary design development of long-term, cost-effective solutions for the defects found, and allow us to generate accurate and defensible budgetary costs. We have assembled a team that provides EMWD with the experience and availability of key staff that are essential for delivering this project.

**A team with the right experience and qualifications.** This project requires a team with diverse, multi-faceted expertise in the wastewater, lift station/pipeline condition assessment, rehabilitation, bypass pumping systems, hydraulic modeling/analysis, geotechnical engineering, structural engineering, surveying, and cost estimating. Our team experience covers all the bases, including large-diameter pipelines and manhole structures.

**We’ve done this before.** The WSLS presents multiple challenges. However, none that we have not seen and successfully dealt with in the past. Our project manager, Greg Gould, is highly experienced with this type of project and is ready and available to take on this role and provide EMWD with the peace of mind that he’s done this before. You know and have worked with several of our other local team members and know what they are capable of.

**A firm that can do it all.** Carollo provides the depth of resources that allows us to successfully manage and administer highly complex projects. We continually look to find ways to improve quality through identifying and addressing issues early on so they do not become a problem in the field. Our approach reduces significant risks so that major project objectives can be achieved. The additional legwork gathering the necessary condition data of the lift station wet well and trunk sewer system will result in a better long-term rehabilitation design. We will leverage our recent experience of similar projects and understanding of the key challenges to reduce construction timelines as well as reduce project costs.

We acknowledge receipt of Amendments 1, 2, and 3. Thank you for considering us.

Sincerely,

CAROLLO ENGINEERS, INC.

Graham J.G. Juby, PhD, PE  Greg A. Gould, PE
Vice President/Principal-in-Charge  Project Manager

Enclosures: 8 hard copies / 1 electronic copy 1 fee proposal
Carollo does not take any exceptions to the Sample Agreement. If selected for the work under this contract, we would like to request that EMWD consider using the language in Agreement No. 120673 for the San Jacinto Valley Regional Water Reclamation Facility Plant 1 Rehabilitation project.
WE’VE DONE THIS BEFORE

The Carollo team is prepared to deliver a preliminary design for the Warm Springs Sewage Lift Station (WSLS) rehabilitation that is practical, cost effective, and meets Eastern Municipal Water District’s (EMWD) goal of reliable operation for the next 30 years.

EMWD’s WSLS is a critical regional sewage lift station constructed in 1991 that pumps sewage from portions of the cities of Murrieta and Temecula to the Temecula Valley Regional Water Reclamation Facility (TVRWRF). The lift station is in urgent need of rehabilitation and presents many challenges. However, the Carollo team has successfully rehabilitated lift stations with far more serious issues. We’ve done this before!

OVERALL GOAL

The overall goal of this project is clear: Develop a comprehensive solution to rehabilitation needs of both the WSLS and the two upstream sewers. This section explains how we will approach the key aspects of the preliminary design effort for the WSLS, as well as the key aspects of the sewer condition assessment, in order to meet this goal. Each approach is addressed separately.

DEVELOPING A COMPREHENSIVE SOLUTION TO THE REHABILITATION NEEDS OF THE WSLS

Constructed in 1991, the WSLS is a critical piece of EMWD infrastructure serving the communities from Murrieta and Temecula. The flows are conveyed from the WSLS to the TVRWRF. The lift station incorporates a wet well/dry well configuration. During construction of the WSLS, an epoxy coating system was applied to the interior surface of the wet well. In 2019, EMWD contracted with Kleinfelder to perform a condition assessment of the WSLS wet well. Results of the inspection revealed the advanced stages of concrete deterioration resulting from hydrogen sulfide gas/acid attack with a loss of strength in at least 2 inches of the top concrete layer, which called the remaining structural capacity of the wet well structure into question.

The Carollo team recognizes that the ultimate project goal is to develop a lift station preliminary rehabilitation design that provides for a 30-year-plus service life and to assess the condition and determine rehabilitation recommendations for the gravity trunk sewers.

The RFP identifies seven key aspects of the preliminary design effort for the WSLS. Each forms a building block to provide the comprehensive solution that EMWD is looking for. Our approach to each is discussed in this section.

All of these key aspects are addressed below in the order presented by Task 2 detailed in the RFP.

Figure 1 – Carollo’s approach to addressing each of the seven key issues will provide a comprehensive solution to the rehabilitation of the WSLS and a 30-year-plus service life.
Key Aspect 1: Additional Soil Boring

Based on available soil boring data provided by EMWD for the WSLS, the loose and high moisture content soils in the project area are weak and collapsible/compressible, and are susceptible to settlement when dewatered or subjected to seismic events and construction vibrations. The water elevation based on the boring data was found at 5 to 10 feet below grade, well above the invert of the WSLS. High groundwater levels historically have been approximately 10 feet below grade and can fluctuate with rain events and regional pumping wells.

As part of the consultant’s condition assessment work, a new soil boring will be made in close proximity to the WSLS wet well to confirm groundwater elevation. Any pit or trench excavations will require watertight shoring eliminating the need for an elaborate dewatering system. Our team’s experience with similar projects will bring benefits to EMWD such as implementation of water-tight shoring that will minimize impacts on surrounding adjacent infrastructure.

Our team includes Converse Consultants, who we’ve worked with extensively on previous EMWD projects. Converse will carry out the boring and soil analysis and confirm the groundwater elevation in the immediate vicinity of the WSLS. This work will start immediately following the Notice to Proceed (NTP) to provide information needed to prepare the preliminary design report (PDR).

Key Aspect 2: Safety Plan to Access Wet Well Chambers

Entry into the wet well chambers will be needed twice: once as part of this project to assess the condition of the structure, and then later in order to complete the repair work.

Providing safe access to the wet well is a critical element to the success of this project. The unknown severity of the structural defects in the wet well, especially the concrete lid containing the access points, requires special care when staging personnel and equipment to enter the structure.

For the safety of personnel and the integrity of the structure, the Carollo team has developed two approaches that will be employed during each required stage of entry into the wet well. The first required entry will be to complete additional condition assessment on the structure, including core sampling, concrete testing, and manned inspection. During this stage of the project, we anticipate a crane will be used to fly personnel and equipment into the wet well, allowing the staging areas to be set up far from the hatch entrances to eliminate loading on the wet well lid. Ladders, tools, lights, and other equipment will also be flown in, to provide for a complete working environment during the inspection.

The second required entry will be to perform the actual repairs and/or rehabilitation to the wet well, which will be longer in duration compared to the first entry. We plan to accomplish this entry by constructing a temporary falsework platform above the existing lid, which will allow all loading to be taken by the formwork, and spread to areas of the site outside the limits of the wet well.

For both entries a specific entry plan will be prepared listing protocols for all anticipated events and their contingency. This plan will be reviewed and signed by all field participants to provide the safest environment possible during wet well entry.

Figure 2 – To eliminate loads on the wet well lid during the first entry, we propose to use an external crane to hoist personnel and equipment into and out of the wet well.
Key Aspect 3: Bypass Pumping

One of the most challenging and critical aspects of this project is a safe and reliable bypass system. Bypass pumping will be required twice in order to allow continuous sewerage services: once as part of this project (for 24-48 hours) to enable the wet well to be drained to allow access for inspection and condition assessment, and then later to allow the repair work to be done.

Sewer bypassing is a 24-hour/day process that is continuously monitored until the work is complete. Provisions will be added to the contract documents for handling any emergencies that may arise during the bypassing operation.

Preparation of the bypass pumping bid package will begin soon after the Notice-to-Proceed (NTP). Some key elements in designing the bypass system include, but are not limited to:

- **Flow monitoring.** Designing the bypass system first requires understanding the flow dynamics with the two sewers contributing to the WSLS. Flow monitoring will provide this and is discussed later.

- **Identify any in-system diversions (i.e. junction vault, weirs structures, etc.) and/or adjacent sewer systems that could be used to divert flows or create a small bypass to scalp flows, reducing the flow capacity to be bypassed near the WSLS.**

- **Flow monitoring.** Designing the bypass system first requires understanding the flow dynamics with the two sewers contributing to the WSLS. Flow monitoring will provide this and is discussed later.

- **Identify suction and discharge locations and all constraints associated with bypassing locations and all adjacent equipment (i.e. pump locations and associated appurtenances, discharge pipe routing, temporary easement acquisition, permits, etc.).**

- **Perform a hydraulic analysis.**

Carollo has prepared initial bypass plans shown on the subsequent two pages, which address the potential risks. A measure of success for this project will be reflected in the contractor’s ability to perform the rehabilitation work while limiting the effects on the surrounding community from traffic, noise, and odor.

WE’VE SUCCESSFULLY USED SIMILAR BYPASSING APPROACHES ON MULTIPLE PROJECTS

- **BC-2 Lift Station Rehabilitation project for the Bay County Utilities Services, Florida.**

- **Lake Las Vegas Lift Station Rehabilitation project for the City of Henderson, Nevada.**

- **Lincoln Lift Station Rehabilitation project for the Clark County Water Reclamation District, Nevada.**

- **Laughlin Lift Station No. 3 project for the Clark County Water Reclamation District, Nevada.**
**APPROACH TO SHORT-TERM (24-48 HOUR) BYPASS PUMPING**

The Warm Springs Creek Interceptor (WSCl) and Santa Gertrudis Trunk (SGT) sewers act as inline reservoirs when surcharged (Figure 3). For the 24-48-hour bypass plan, it would be advantageous to utilize any in-system diversion or adjacent sewer system to scalp (bypass) flow off the sewers contributing to the WSLS. There is a possible opportunity to do this with an existing 15-inch VCP sewer (1) that conveys flows eastbound to the Diaz Lift Station and crosses the WSCI and SGT sewers.

The sources of flow for the 15-inch sewer come from the commercial areas upstream. During low flow, this sewer could potentially provide extra capacity and an opportunity to scalp flow from the WSCI and/or the SGT. This can be accomplished by installing a flow-through plug in the upstream pipe of the suction manhole to suppress flow leaving the manhole (2). A skid-mounted pump can be connected to the flow-through plug in WSCI MH ID 65191135 and discharged into MH No. 513. A similar arrangement could be provided for the SGT (3).

Once the upstream bypass to the 15-inch sewer has been installed, tested, and initiated, the remaining flow within the WSCI and SGT can be bypassed at the confluent manhole (4) and additional upstream manholes, as necessary, to dewater the sewers and WSLS wet well. This can be accomplished by installing a double bladder plug into the exit pipe of the confluence manhole, blocking flow from entering the WSLS wet well and creating a sump for bypassing.

The suction pipe(s) from the skid-mounted pump(s) can then be inserted into the confluence manhole to convey the flow from the WSCI and SGT sewers to the existing discharge connection point on the existing 24-inch force main (Figure 4) using the existing line-stop hot tap installed previously for on-site bypassing performed for the WSLS in 2015. Alternatively, if the previous line-stop hot tap is not available, it might be possible to use the existing 30-inch tee (installed with plug valve with blind flange) on the 30-inch force main or one can be installed on the existing 24- or 30-inch force main on this project. Discharge piping can be placed at grade but can also be depressed below grade (as necessary) at all construction access crossings.

The complete bypass system will incorporate 100 percent redundancy for pumps and will be tested prior to shutdown of the WSLS for condition assessment work.


**Figure 3** – The hydraulic profile of the Warm Springs Creek Interceptor shows that it is surcharged to over 4,000 feet upstream, and acts like a reservoir in this condition. A similar situation exists for the SGT sewer.

**Figure 4** – Previous on-site bypass discharge connection into the 30-inch force main (2015) could be used again.

**Packet Pg. 105**
In order to bypass the WSLS long-term during the rehabilitation effort, a bypass suction trench may need to be temporarily or permanently constructed on both WSCI and SGT sewer pipelines (Figure 5, 1, 2). The length of the bypass suction trench will be determined by the construction contractor based on their desired usage of the available footprint and installation configuration of the bypass pumps. Installation of the bypass suction trench will require:

- Excavating and exposing the existing pipe.
- Installing a watertight trench support system (sheet piles, shields, etc.) around the perimeter of the trench, with the bottom grouted in, so that if the bypass suction trench surges, the wastewater will be contained in the trench.
- Saw cutting and temporarily removing the top of the pipe to create an opening (suction window) for installation of the bypass equipment (plug system, pumps and/or pump suction piping, etc.). An example of this type of bypass suction trench is shown on Figure 6.

Alternatively, for a more permanent bypass suction trench (for future use), shoring would be installed as previously mentioned, and a reinforced cast-in-place base would be installed around the pipe up to the springline. Then, watertight reinforced precast sections (with inside wall lined, coated, or made of polymer concrete) can be stacked to grade. The existing pipe within the bypass suction trench can be removed via a wire saw at both ends of the trench creating an open channel for the installation of the bypass equipment (plug system, pumps and/or pump suction piping, etc.). The bypass trench can be finished with a precast lid incorporating hatches and lifting lugs.

2 With the installation of the bypass suction trench, there will not be a need for upstream bypass to the existing 15-inch sewer. The bypass suction trench will completely dewater up to 1.3 mgd from the WSCI and SGT sewers and allows the contractor to stage the pumps and associated equipment on both sides of the bypass suction trench, reducing the construction footprint. The suction pipe(s) from the skid-mounted pump(s) can then be inserted into the bypass suction trench to convey the flow from the WSCI and SGT sewers to the discharge point on the existing 24-inch force main.

The bypass discharge connection to the force mains can be accomplished by utilizing the existing line-stop hot tap installed previously, for onsite bypassing performed for the WSLS in 2015, see Figure 4. Or an alternative connection as previously mentioned for short-term bypassing. Discharge piping can be placed at grade but can also be depressed below grade (as necessary) at all construction access crossings.

There are other alternative configurations that we have used successfully that can be discussed with EMWD before a final approach is selected. It’s worth noting that a number of different pumping configurations are available from multiple vendors. Final selection of the pumping configuration will be determined by the construction contractor based on the performance criteria described in the Contract Documents. The pumping concepts represented in this bypass plan represent configurations that are constructible and commonly available to achieve long-term bypassing. Emergency bypass pumping equipment would be set up for any flow that might enter the confluence manhole (3).

Figure 5 – Bypass suction trenches can be used to bypass flows from Warm Spring Creek Interceptor and Santa Gertrudis Trunk sewers.

Figure 6 – Carollo designed a bypass suction trench with suction windows for a project for King County, WA.
**Pump Configurations for Bypassing**

Two pump configurations are available for bypass pumping: surface pumps and submersible pumps. Horizontal (solids-handling) pumps are commonly used for bypass systems, and are installed at grade (surface), adjacent to the bypass suction point. The pump is hard-piped from grade through the suction window, drawing wastewater from the gravity sewer. The surface pumps are available in both trailer-mounted and skid-mounted configurations. Trailer mounted configurations are typically limited to smaller units, whereas larger units are skid-mounted. The skid-mounted configurations are available with electric and diesel engine drives. To accommodate 13 mgd, the bypass pumping system may consist of up to six skid-mounted pumps, including redundant backup pumps.

Submersible (solids-handling) pumps are outside the industry standard for bypass systems and therefore may not be readily available for such temporary applications. Although submersible pumps can be purchased and/or vendor provided, they are generally more expensive than the skid-mounted surface pumps. Submersible pumps are installed below grade and are submerged directly within the sewer.

Table 2 presents a comparison between the surface and submersible pumps configurations. Due to the disadvantages associated with submersible pumps, Carollo recommends using surface pumps (horizontally skid-mounted) installed at ground surface.

<table>
<thead>
<tr>
<th>Surface Pumps</th>
<th>Submersible Pumps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td>• Readily available.</td>
<td>• Noise would be more contained with the bypass trench.</td>
</tr>
<tr>
<td>• Easily configured.</td>
<td>• Potential for reduced footprint.</td>
</tr>
<tr>
<td>• Readily accessible for monitoring, inspection, and maintenance.</td>
<td>• Does not require suction piping.</td>
</tr>
<tr>
<td>• Better facilitates putting pipeline back into service during high flow events.</td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>• Noise attenuation may be required to meet noise criteria.</td>
<td>• Not readily accessible for monitoring, inspection, and maintenance.</td>
</tr>
<tr>
<td>• Larger footprint.</td>
<td>• Higher risk of ragging and clogging due to solids deposition within the bypass trench (since the pumps sit directly on the pipe invert).</td>
</tr>
<tr>
<td></td>
<td>• Generally more expensive.</td>
</tr>
</tbody>
</table>

Table 2 — Although submersible pumps are a possibility, Carollo recommends the use of surface pumps for this bypass application.

**Minimizing Risk**

Based on our preliminary assessment, Carollo’s approach is formulated to minimize many of the risks associated with a project of this nature. Though significantly minimized, there is some still some risk associated with the proposed construction activities. Potential risks include:

- Sewer spills (from bypass pumping failures)
- Odor issues (from suction pits)
- Noise issues (from bypass pumping operations and nighttime work associated with the rehabilitation installation activities)

It is important to note that each of the stated risks are manageable and our team has the expertise to mitigate them.

**Key Aspects 4 and 5: Identify Concrete Structure Repair Methods and Wet Well Liner Method**

Once the wet well condition assessment report is complete, the results will play a pivotal role in determining whether the wet well requires structural or non-structural rehabilitation. Non-structural rehabilitation may incorporate an HDPE (Studliner) or PVC (Linabond) liner system made for wastewater service. The lining system will cover all exposed concrete within the wet well providing a corrosion barrier extending the service life of the structure to 30 years or more. Our team has experience with these rehab technologies and will work with EMWD to select the best alternative with a proven service history to achieve EMWD’s goals.

If it is determined that the wet well is structurally deficient requiring a structural repair, our structural rehabilitation experts will work with EMWD to determine the most cost effective alternative to repair the wet well. Repair alternatives may include rebar and concrete repair/replacement followed by a lining or coating system, including a carbon fiber lining system (Fibrwrap) or a combination of alternatives including replacing the wet well lid. The repair method selected will have a proven history and be able to extend the service life to 30 years or more.
Developing a Comprehensive Solution to the Rehabilitation Needs of the Upstream Sewers

Your collection system is the backbone of your sewer system, so understanding its condition, strengths, and shortcomings is critical to the overall success of EMWD’s sewer system. System upgrades and maintenance are unavoidable and necessary, but can be focused, direct, and cost effective when the owner is armed with accurate condition information. EMWD needs a clear and concise assessment of the manholes and trunk sewers feeding the WSLS in order to form a comprehensive picture of the overall system. This will be critical to determining the appropriate method of pipeline rehabilitation.

Our approach described in this section addresses the scope of work for Task 3 in the RFP.

### Key Aspect 6: Preparation of Detailed Construction Sequence

A detailed and thought-out construction sequence can be the difference between a smooth or rocky construction phase. Understanding how different trades, tasks, or steps will link together is critical to the accurate compilation of the overall construction schedule. The Carollo team takes a proactive approach to this issue, bringing in industry professionals at each appropriate stage of the process. This will lead to accurate duration estimates, refined costs, and little to no missed steps in the overall sequence of the construction phase.

### Key Aspect 7: Preparation of Construction Cost Estimate and Schedule

Having a detailed construction cost estimate and schedule prior to bid is essential for EMWD. Having an accurate picture of these two metrics will allow for accurate planning and budgeting, as well as garner faith in the design team and the overall project approach. The Carollo team knows how critical these elements are, and takes special care to produce each one. The construction cost estimate will be prepared with Carollo’s proprietary cost estimating tool, which collects and analyzes costs from past projects, industry standards, and manufactures quotes from all over the country. The tool allows Carollo to reference past projects and up to date pricing for virtually any component of a project. This tool will be supplemented with project specific quotes from vendors and/or contractors where appropriate, in order to estimate the construction cost as close to bid price as possible.

In addition to cost, construction schedule is also a critical component. Carollo will employ Microsoft Project software in order to develop a realistic project schedule to estimate the project’s actual duration from advertisement to acceptance.

### Developing a Comprehensive Solution to the Rehabilitation Needs of the Upstream Sewers

The sewers included in the condition assessment phase are comprised of three segments, totaling approximately 15,600 linear feet and 52 manholes, that feed the WSLS and are included in Table 3. All three segments are surcharged between the confluence manhole and MH#12 (Segment 1 and 2) and MH#4 (Segment 1 and 3). Prior to conducting the field inspection work, EMWD will perform sewer cleaning.

#### Table 3 – Sewer Segments for Condition Assessment of Pipeline and Manholes

<table>
<thead>
<tr>
<th>Sewer Segment</th>
<th>Size (in.)</th>
<th>Length (LF)</th>
<th>Material</th>
<th>Manhole Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment 1 - WSLS</td>
<td>42</td>
<td>156</td>
<td>Profile-wall HDPE (Spirolite)</td>
<td>Confluence MH to #2 (Surcharged Confluence to #2)</td>
</tr>
<tr>
<td>Segment 2 - WSCI</td>
<td>36</td>
<td>11,700</td>
<td>Profile-wall HDPE (Spirolite)</td>
<td>#2 to #36 (Surcharged #2 to #12)</td>
</tr>
<tr>
<td>Segment 3 - SGT</td>
<td>36</td>
<td>3,900</td>
<td>VCP</td>
<td>Confluence to #12 (Surcharge Confluence to #4)</td>
</tr>
</tbody>
</table>

Figure 7 – Carollo’s approach to addressing each of the eight key aspects of the upstream gravity sewers will provide a comprehensive solution for sewer rehabilitation.

---

Table: Exhibit C - Consultant Proposal (4151: Warm Springs Sewage Lift Station Preliminary Design and Upstream Sewers Condition Assessment)
Key Aspect 1: Sewer Flow Monitoring

Carollo’s subconsultant, V&A Engineering, will carry out the flow monitoring required for this project. Carollo has worked extensively with V&A in the past, for example for the City of Riverside Master Plan update we worked with V&A to install over 60 flowmeters for collection system sewer monitoring.

For this project our approach will be to review available drawings and existing documentation for the upstream trunk sewers and manholes to determine the requirements for safe confined space entries. We will work with V&A to determine the best locations for the flowmeters. A draft Safety Work Plan setting out the planned procedures for installing and extracting the flow meters will be prepare and submitted to EMWD. Once the approach is approved by EMWD, V&A will obtain encroachment permits from the cities of Temecula and Murrieta (as required) prior to any work performed within city rights-of-way for flow monitoring. We have assumed that traffic control plans will not be required, and traffic control set-ups will be performed per the Watch Manual.

Once all the paperwork is in place the flow meters will be deployed and calibrated and flow monitoring will begin. We have assumed a total of four flow meters to record the required flow data for the WSCI and SGT sewers. Flow meters will be area-velocity meters capable of collecting flow level and velocity measurements in free-flow and surcharged hydraulic conditions. Flow monitoring will last two weeks, after which the meters will be retrieved and the flow data will be assessed.

Flow data will be obtained in 15-minute intervals for data analysis. A flow monitoring technical memorandum will be produced that will then be used to confirm the bypass pumping requirements discussed earlier in our proposal.

Figure 8 – Flow and velocity data will be collected from up to four meters in the WSCI and SGT sewers for a two-week period.

Key Aspect 2: Visual Inspection and Photo Documentation of Manholes

Carollo has worked successfully on multiple manhole and CCTV pipeline condition assessment projects with Pro-Pipe. Pro-Pipe will be our subconsultant on this project too, and will field locate each of the manholes included in the inspection based on the GIS records and record drawings. During this inspection, they will identify traffic control and access issues that may be a challenge during the pipe inspection. Pro-Pipe will take surface photos of each manhole that include the rim and cover. H2S readings at the manhole surface, midway down the manhole, and at the bench will be collected at each manhole. Pro-Pipe will provide a manhole inspection log for each manhole in a database format, with appropriate photographs.

The Panoramo SI 3D Optical Manhole Scanner technology (Figure 9) will be used to deliver high quality digital inspection data. This will provide a high resolution, 360-degree view of the manhole interior. The manhole defects identified will be coded per NASSCO MACP.

Some benefits of using Panoramo SI technology include:

- Scans 100% of the manhole interior in fraction of the time compared with manned entry.
- Minimal community impact during the field inspection work by being able to gather more data faster and being able to review, code, and assess the data, independent of the inspection, in the comfort of the office, increasing accuracy and reliability in the coding.
- The ability to view the manhole using a flat-view technology that allows accurate measurements to be taken and provides a view of the complete pipeline profile.

Figure 9 – Carollo will use the Panoramo SI 3D optical manhole scanner to provide quick and accurate assessment of each manhole.
- Uses a virtual 3D reader (PIPELOGIX Software), where you can pan/tilt/zoom anywhere, anytime.
- Integration of GIS and CCTV scoring sets the foundation for risk analysis and realistic R&R program costs.

For manholes, our team will evaluate the rehabilitation methods required and costs to provide a high-performance coating system, install a structural insert, or replace the manhole.

**Key Aspect 3: Gravity Sewer Multi-Sensor Inspection**

The CCTV inspection will identify any visible defects along the existing pipe alignment, although it will be limited to surface area above the water surface. The inspection typically takes place during low flow times, however if flow cannot be pulled ahead of the CCTV camera by a water jet, or bypassed, the condition of the sewer below the flow line or in surcharged segments could be missed. Therefore, sonar will be used for areas below the waterline and in surcharged areas. Due to the use of profile-wall HDPE (flexible pipe) in a portion of the sewers to be inspected, LiDAR (laser profiling) will also be utilized to check the deformation (ovality) of the pipe. There are multiple platforms that can be used to complete the multi-sensor inspection. The Carollo Team’s approach is to use the Solid FX Multi-Sensor technology LiDAR/Sonar/HDCCTV (Figure 10) for some good reasons:

- 2D SolidFX-Sonar/LiDAR Profiling System has LiDAR and HDCCTV camera module mounted to the top of Cues Mud Master tractor transporter and a sonar unit mounted below, which cross-sections the pipe as it travels the partially full pipe. The upper module (LiDAR) scans the host pipe crown to determine wall loss, anomalies, pipe ovality, and capacity analysis. The system can also be mounted to a floating platform to float down the pipe. If the pipe is surcharged and unable to complete the inspections with the transporter, a skid unit will be utilized with a rope trailer.
- It is equipped to measure the inside diameter of a pipe at the same time as recording an HD video image and measuring debris buildup on the bottom.
- The upper module has a high-definition camera and LiDAR that scans the host pipe crown for comparison to the original diameter, determines wall loss, pipe ovality, and capacity analysis.
- The sonar module enables the evaluation of debris volumes and major anomalies and deflection depicted by shape.
- A comprehensive viewer and report are provided overlaying the sonar, lidar and visual results (Figure 11).
- Inspections up to 2,000 (standard) to 5,400 linear feet (extended) from a single access point.
- Integration of GIS and CCTV scoring sets the foundation for risk analysis and realistic R&R program costs (Figure 12).

**Traffic Control**

The proposed condition assessment work for the WSCI and SGT is expected to have a minor impact on the local traffic including vehicles and pedestrians. Traffic control will be required to separate vehicles and pedestrians...
from the above ground inspection equipment that is stationed over the access manhole along the sewer alignments. However, our team’s approach will minimize traffic and disruption during inspection work.

**Key Aspects 4 and 5: Gravity Sewer Condition Assessment and Identification of Breaches**

Pro-Pipe will provide a database with videos and NASSCO PACP/MACP inspection logs with defect codes for each pipe segment and manhole. Laser and sonar results will also be provided in a database format. Using data obtained from the field inspections, our team of NASSCO PACP and MACP trained technicians and engineers will evaluate the defect coding and condition of each pipe segment and manhole according to the nationally accepted NASSCO PACP/MACP grading system. Any necessary adjustments to the defect coding will be made to the database provided to Carollo by Pro-Pipe.

Based on the final results of the field inspection, a condition assessment report will be presented to EMWD that will identify each segment and manhole with a condition grade (1 through 5) for structural and operation and maintenance defects and a NASSCO Quick Rating will be assigned to each pipe segment. Prioritization of segments and manholes will be based on the NASSCO PACP/MACP score, 5 (requiring immediate action) to 1 (minor defect).

Depending on the severity of the defect, the method of repair will also be considered including full length rehabilitation and/or point repair. Defects in VCP generally occur at the time of installation, impact of other construction, or other external factors related to poor installation and settlement over time—and not the result of the VCP deterioration itself. The defects in VCP are generally point defects requiring only a point repair, which can be significantly less costly than a full-length rehabilitation.

For profile-wall HDPE (Spirolite) pipe, the percent of deformation (ovality) is important since flexible pipes depend upon proper trench installation providing the necessary haunch support to resist deflection over time. The Carollo team will review each location for applicability of the proposed repair method prior to making a recommendation. The rehabilitation recommendations will include construction cost estimates and schedule.

Upon completion of the condition assessment, Carollo will provide EMWD with a complete database of the pipe and manhole inspection, defect coding, and condition scoring to integrate with their GIS.

**Key Aspect 6: Manhole Visual Inspection Guideline**

“When will my assets fail?” is one of the most critical questions faced by any utility. Understanding the condition of your assets and knowing when a manhole needs rehabilitation or replacement can not only enhance planning and project development, but will help direct valuable resources to where they are needed most. Therefore, a comprehensive defect and repair guideline will be developed, based on NASSCO MACP, that includes defect pictures, description of the condition grades, and how to proceed with repairs providing example typical drawings. The guidelines will provide EMWD Operations staff with the proper tools necessary to determine defect level, what prescriptive repair procedures are required, and when repair procedures should commence.
Key Aspect 7: Standard Specifications and Details for Minor Rehabilitation

Based on the guidelines Carollo develops for EMWD, specifications and typical drawings will be created for non-structural manhole rehabilitation including procedures for cleaning, surface preparation/repair, application of an epoxy coating system, and testing procedures. Specifications will contain tried and true methods incorporating lessons-learned, and industry best practices based on years of experience and knowledge in the rehabilitation industry, extending the service life of the manhole structure.

Key Aspect 8: Development of Sewer Condition Assessment Protocol for EMWD

Obtaining good information on your pipelines is key to establishing quality condition assessments. That said, inspection technology is continuously advancing, and many new tools are just now entering the marketplace. Some condition assessments can be time consuming and costly. It is important to select the tool that provides the information you need, not one that provides more detailed information than you really need, driving up costs. Using a combination of tools that are best suited to the size, type, and criticality of each pipeline, our customized phased approach (based on lessons learned) provides an organized path forward to build a comprehensive inspection and condition assessment program for EMWD. Figure 14 provides a generic example of an inspection protocol for a past project for City of Phoenix, Arizona.

Our team consists of NASSCO-certified PACP and MACP professionals who have experience with the latest inspection technologies including, LiDAR, laser, sonar, HDCCTV, and side scanning capabilities. We will work with EMWD to identify the most cost-effective combination of inspection technologies to provide EMWD with the answers you need.

Figure 14 – A sample of an inspection protocol from a previous project.
Local and National Resources

Carollo has provided engineering services to EMWD for more than 20 years. With 46 offices throughout the country and a staff of more than 1,000 employees all focused on water/wastewater work, we have the depth of resources to provide a national perspective to all our projects. We recruit nationwide and hire technical staff with extensive background and training specific to our projects. We recruit nationwide and hire technical staff with extensive background and training specific to our projects.

FINANCIAL STABILITY

Carollo is a mid-sized firm with annual revenues exceeding $250 million. Our financial stability is demonstrated through 86 years of successfully providing professional engineering services to our clients. We have maintained a high level of fiscal responsibility throughout the years, demonstrated by our revenue growth, personnel, and geographical growth. In fact, our growth outpaced our revenue, personnel, and geographical growth. In fact, our growth outpaced our personnel.

THE RIGHT TEAM FOR EMWD

The WSLS Rehabilitation Preliminary Design and Condition Assessment of the Upstream Trunk Sewer (Project) requires a team with multifaceted expertise in sewage conveyance and pumping systems, condition assessment and rehabilitation of structures, pipelines, and associated manholes, lift station and pipe hydraulics, structural design, geotechnical analysis, and construction cost estimating among other disciplines.

Carollo has assembled the best and most qualified team of professionals bringing both solid expertise and insight in all the required disciplines, and unmatched direct experience with all the project elements. With experts in condition assessment technologies, rehabilitation systems, sewage bypassing, constructability, as well as EMWD work history and operations, the Carollo team provides the breadth and depth of knowledge that other teams cannot provide.

The organization chart above illustrates how our team will be structured. The qualifications and experience of our team members follow. Abbreviated resumes are included in the appendix.
Graham Juby, PhD, PE
Principal-in-Charge

Graham brings 36 years of proven experience in the planning and design for wastewater treatment facilities, with emphasis on reuse, nutrient removal, and alternative treatment technologies. He has focused on advanced treatment processes to provide cost-effective and environmentally conscious solutions to a variety of water quality issues. His experience includes MBR and low- and high-pressure membrane systems (microfiltration and reverse osmosis), nutrient removal, and the application of ozone, GAC, biological filtration, ion exchange, and UV. As a hands-on principal-in-charge, Graham will be responsible for providing technical input when needed, maintaining the project resource levels, overall QA/QC, and making sure EMWD’s needs are met.

Andrew Frost, PE
Assistant Project Manager

Andrew has more than 12 years of experience in civil engineering design including pipelines, sewer mains, storm drains, potable/recycled water, dry utilities, roadway, grading, and site design. He has experience with potable water and wastewater lift stations, and has recently completed the design and construction support services for three sewer lift stations totaling more than 3.5 mgd. In addition, he is well versed in rehabilitation projects, and has recently completed two collection system rehabilitation projects in San Diego County. He has spent the last seven years working primarily in the Hi-Desert region on the design of a new collection system.

Tim Taylor, PE
Technical Advisor

Tim is Carollo’s Director of Infrastructure Practice and has served as project manager for numerous wastewater infrastructure and treatment projects. With more than 33 years of experience in engineering design, construction, and project management for water distribution systems, gravity sewer collection systems, pump stations, wastewater treatment facilities, GIS and modeling projects, Tim is proficient in all aspects of technical engineering, modeling, GIS, and design software. He has designed pipelines ranging from small collector sewers to major interceptor lines up to 148 inches in diameter, as well as pump stations ranging in size from a few hundred gpm up to 60 mgd.

James Doering, PE, SE
Technical Advisor

James is Carollo’s structural lead engineer in Southern California and manages the production of construction documents for large and small projects. He has experience in structural analysis, design, retrofit, rehabilitation, review, and assessment for a variety of building types and structures in wastewater facilities. He is a recognized expert in structural design and strategies aimed at maintaining reliable operations during and after construction.

John Briones, PE
Technical Advisor

John has 33 years of experience in the design and construction management of power, instrumentation, control, communication, and security systems for water and wastewater facilities. He has designed projects to meet required state and national standards including California Title 8 - Industrial Relations – Electrical Safety Orders: Hazardous Locations, California Title 24 - Energy Efficiency Standards, and NFPA 820 - Fire Protection in Wastewater Treatment and Collection Facilities.

Juan Loera, PE
Technical Advisor

Juan is a principal mechanical engineer at Carollo with more than 19 years of experience designing mechanical systems for municipal wastewater treatment facilities. He is one of our senior mechanical engineers and has extensive knowledge in the design of pumping systems associated with wastewater treatment facilities and the HVAC systems necessary for process and electrical buildings.

Jim Wesley, PE
Technical Advisor

Jim has more than 40 years of mechanical engineering experience for water, wastewater, reclaimed water, and related infrastructure. His areas of focus include treatment facilities, pipelines, pump station involving HVAC, standby power, air and gas compressors and blowers, energy efficiency, and optimization.
Joel Smason, PE, SE  
Lift Station Condition Assessment / Rehabilitation  

Joel Smason is a senior structural engineer with 43 years of experience in wastewater infrastructure design, including preliminary structural design, detailed drawings and specifications, and alternative project delivery methods including design-build and construction manager at risk (CMAR) experience. He works closely with multi-disciplined teams, assures structural integrity of infrastructure assets, prepares budgets and accurate cost estimates, and develops detailed specifications and drawings.

Rajesh Doppalapudi, PE  
Bypass Pumping  

Rajesh has more than 18 years of project management and process engineering experience on numerous wastewater treatment, solids handling, and disposal projects. He has an excellent knowledge of your facilities and your organization, and has been supporting EMWD throughout his career on all types of projects, including master plans, feasibility studies, condition assessments, process improvements, designs, and services during construction. Recent bypass pumping experience includes the Inland Empire Utilities Agency’s (IEUA) RP-4 Primary Clarifier and Process Rehabilitation project involving bypass pumping rehabilitation and treatment, and the San Bernardino Municipal Water Department’s (SBMWD) Arrowhead Pump Station Backup Pumping System project, which required a full bypass pumping plan.

Willie James, PE  
Bypass Pumping  

Willie is a licensed civil engineer with a background in the construction and design of treatment facilities. He began his career working as a construction engineer for large-scale treatment facility improvement projects. This provides him with a strong understanding of engineering and construction, especially as the two pertain to scheduling, sequencing/phasing, commissioning, startup, and operations. Willie assisted Rajesh in the design of the IEUA RP-4 Primary Clarifier and Process Rehabilitation project.

Mike Fleury, PE  
Rehabilitation  

Mike brings 45 years of experience and is considered a national expert in pipelines and related hydraulics having served on over 30 large value engineering studies across the United States. Mike is our national condition assessment lead and has performed more than 40 condition assessment/rehabilitation designs. In addition, he served as technical advisor on rehabilitation designs for wastewater infrastructure projects.

**SUBCONSULTANTS**

V&A Consulting Engineers  
Lift Station Condition Assessment / Flow Monitoring  

Since 1998, V&A has supported municipalities and agencies in managing their wastewater collection systems and mitigating sanitary system overflows. The firm’s flow monitoring division incorporates the latest data collection and metering technologies and conducts a wide range of inflow and infiltration (I/I) analysis for municipalities and master planning consultants. V&A specializes in rain-dependent, groundwater and/or tidal I/I, and also performs reconnaissance to get a clearer picture of system condition. V&A consults on regulatory matters including U.S. Environmental Protection Agency (EPA) Consent Decrees, Stipulated Orders, or Administrative Orders.

Carollo has worked with V&A on more than 50 collection system projects within the last 15 years, including the Riverside RWQCP Master Plan Update and Collection System Condition Assessment.
Converse Consultants

Geotechnical

Established in 1946, Converse Consultants provides geotechnical engineering and geological services to its clients with a multi-disciplinary staff of highly trained and experienced engineers, geologists, hydrogeologists, environmental scientists, and technical program managers.

The firm’s laboratories are certified by the Division of the State Architect (DSA), California Department of Transportation (Caltrans), US Army Corps of Engineers, American Association of State Highway and Transportation Officials (AASHTO), and the Cement and Concrete Reference Laboratory (CCRL). A registered civil engineer supervises each lab to verify all of the equipment is calibrated regularly, and quality control is available 24/7.

Converse has worked with Carollo for the last 48 years, providing geotechnical services during the design and construction phases on wastewater treatment plants, lift and pump stations, well buildings, and pipelines.

Pro-Pipe

Pipes and Manhole Condition Assessment

Pro-Pipe has been providing cleaning and video inspection of sewer lines in various sizes from 4 to 108 inches using state-of-the-art Pan and Tilt cameras and Panoramo® SI technology since 1992. The firm regularly inspects more than 5,000 miles of pipeline annually throughout the United States, including inspection of more than 1 million laterals.

Pro-Pipe’s operators are NASSCO PACP and MACP certified, allowing them to perform complete system inspection of all associated collection system components. They offer laser and sonar profiling to determine pipe ovality, interior wall deterioration, debris volume, and condition of surcharge pipes.

Pro-Pipe and Carollo have worked together on design, rehabilitation, and construction of several projects, including the City of Chandler Sewer Assessment and Rehabilitation Program and the Water Authority Large Diameter Interceptor Sewer System Assessment and Rehabilitation Program.

The Prizm Group

Surveying

The Prizm Group (TPG) is a privately owned firm of civil engineers and land surveyors providing quality civil engineering, land surveying, and laser scanning services to local agencies, municipalities, real estate developers, property managers, architects, and other design professionals.

TPG currently maintains up to three survey crews on a daily basis. The firm’s staff has extensive experience in providing engineering services for water, wastewater, stormwater, and street improvement projects.

Since its inception, TPG has provided services including complete subdivision planning, engineering design and construction surveying, water, reservoir, sewer, street, and storm drain engineering design and construction surveys, plant 3-D modeling design and construction surveys, volume studies, records of survey, and legal description exhibit preparation.

The firm’s full compliment of survey equipment includes robotic total stations, rtk gps equipment, and Leica hds 3d laser scanners. This arsenal of equipment allows TPG to be flexible in their approach and to take the right equipment to the job and execute the required tasks in a safe and reliable manner.
Our preliminary project schedule, shown on the following page, proposes a little more than 7-month duration for completion of the preliminary design and condition assessment work for the WSLS and the upstream WSCI and SGT sewers. We propose to have stakeholder involvement at regular intervals throughout the duration of the project, as shown.

**SCHEDULE ASSUMPTIONS**

The RFP calls for a minimum of seven meetings/workshops. We have included these meetings and are proposing to add one additional meeting, which will focus on review of the Guidelines and Specifications for the future manhole and pipeline inspections/repairs.

As indicated on our preliminary schedule, work will begin in parallel on Tasks 2 and 3 directly after the kick-off meeting. For Task 2, work will focus on development of the Field Investigation Protocol. As part of this, we also propose to do an early external visual structural review of the wet well lid, including review of any photographs that EMWD may have of the underside of the lid taken during the previous inspection. The purpose here is to assess whether the lid is capable of being used as a staging area during the wet well inspection work. At this point we have assumed that it can’t be used, and this structural assessment will help to confirm that. The geotechnical boring will get underway early on, so that the findings do not delay preparation of the bypass pumping plan and PDR.

For Task 3, the early work will be the flow monitoring. It is expected to take a little over a month to develop and finalize a Safety Work Plan for the flow monitoring and prepare for the installation of the flow meters. Flow monitoring will last two weeks. Information from the flow monitoring will feed into development of the Field Investigation Protocol, specifically finalization of the draft bypass pumping plan. We will meet with EMWD in March to discuss the draft bypass plan.

The schedule shows the WSLS wet well inspection in June 2020, followed by development of the condition assessment report and the draft and final WSLS PDR. We have included three weeks for EMWD’s review of the draft PDR, with a workshop at submission of the PDR to walk the District through the document, and then review of comments at the next workshop.

Manhole and sewer condition assessment will take place following the flow monitoring. Processing the data and developing the inspection logs and report will take some time and will occur in parallel with the wet well inspection work. This will feed into the draft and final condition assessment reports. We have included three weeks for EMWD’s review here too. Draft and final manhole and pipeline inspection guidelines and typical plans and specifications for simple repairs will be the final deliverable for Task 3.

Based on our preliminary schedule, we anticipate the work to be complete by the end of September, 2020. We have assumed that right-of-way permits will be provided by the appropriate jurisdictions within a reasonable time. We can work with EMWD to shorten the schedule should this be necessary.
RELEVANT FIRM EXPERIENCE

Your satisfaction means everything. It defines who we are and determines our future. You won’t find a higher level of service in the industry. In fact, just ask our clients. Carollo is known for maintaining long-term relationships across the country. Our references will attest to our management approach, level of service, responsiveness, and commitment to client satisfaction.

INTRODUCTION

Conveyance and storage systems represent more than 80 percent of water and wastewater infrastructure. These assets are critical to collecting wastewater for treatment and discharge or reuse. Throughout our history, Carollo has applied sound, proven engineering principles to advance the application of water technologies and engineering excellence. Our focus on water, wastewater, stormwater, and reuse results in a level of understanding of key conveyance, treatment, and pumping issues that few can match. This focus has allowed us to work closely with our clients to develop innovative and cost effective solutions for their biggest wastewater challenges.

Wastewater Lift Stations

As indicated on the map below, Carollo brings extensive nationwide experience evaluating, troubleshooting and designing lift stations and force main systems. Carollo has planned, designed, rehabilitated, and/or assisted in the construction of more than 600 wastewater lift stations. These pumping facilities serve a number of specific functions, including influent, effluent, raw sewage, combined sewer overflow (CSO), in plant flows, and stormwater.

Pipeline and Manhole Condition Assessment and Rehabilitation

Carollo has significant experience in performing condition assessments for large diameter sanitary sewers consisting of vitrified clay (VCP), ductile iron (DIP), fiberglass, and polyethylene pipes. Our staff includes NASSCO-certified PACP, MACP, and LACP professionals who have direct, relevant experience with field investigations using the latest pipeline condition assessment technologies. We use a cost-effective combination of proven inspection technologies to evaluate the existing condition of pipelines and underground infrastructure.

Carollo has led the development of or played a significant role in the condition assessment and risk analysis of pipelines ranging from 4 to 134 inches in diameter.

Carollo’s National Wastewater Lift Station Experience

- 2M+ Linear feet of wastewater pipeline & sewer assessments
- 600+ Lift station evaluations/designs completed by Carollo
- 10,000+ Manhole inspections
- 86+ Years in business providing value-added services to public-sector clients
- 70+ Customized sewer assessments in the last 15 years
SIMILAR WORK

The table below summarizes a portion of our team’s projects related to your project elements, including sewer lift stations, rehabilitation and repair, bypass systems, condition assessment, and permitting. Following the table, we have summarized projects that demonstrate our team’s ability to produce high quality work and uphold our unwavering commitment to excellence in the planning, design, and implementation of projects. The key team members involved on these projects are the same team members that will be participating on this project. Your project is challenging, but we have faced and overcome larger challenges on previous projects.

<table>
<thead>
<tr>
<th>Project/Client</th>
<th>Project Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laughlin Lift Station No. 3, City of Las Vegas, NV</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Lake Las Vegas Lift Station Rehab, City of Henderson, NV</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>BC-2 Lift Station Emergency Wet Well Rehab, Bay County Utility, FL</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>River Trunk Gravity Sewer Improvements, City of Modesto, CA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Stockton Westside Sewer Improvements, CA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Santa Fe Pump Station CSO Improvement, Kansas City, MO</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Sewer Force Main Emergency Repair/Rehab, City of Riverside, CA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Santa Cruz Brommer/Hidden Beach Pump Station, CA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Main St. Pump Station, Sausalito-Marin City Sanitation District, CA</td>
<td>✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Large Diameter Interceptor Rehabilitation, Albuquerque Bernalillo County Water Utility Authority, NM</td>
<td>✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Eastside Interceptor Rehab, King County, WA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Sewer Assessment and Rehabilitation, Ph1-7, City of Chandler, AZ</td>
<td>✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Mountain Creek Interceptor 30MC-1 Rehab, Trinity River Authority, TX</td>
<td>✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Downtown Interceptor Sewer Condition Assessment and Rehabilitation, Phases 1 and 2, City of Las Vegas, NV</td>
<td>✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Carpenter/Emerald Road Trunk Relief, City of Modesto, CA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Large Force Main Emergency Repair, King County, WA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Sanitation Sewer Trunk Rehab, City of Simi Valley, CA</td>
<td>✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Fruit Ave &amp; Illinois/Recreation Ave Sewer Rehab, City of Fresno, CA</td>
<td>✅ ✅</td>
</tr>
<tr>
<td>River Trunk Rehabilitation, City of Modesto, CA</td>
<td>✅ ✅ ✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>A-Line Relief Interceptor Phase 2A, Central Contra Costa, CA</td>
<td>✅ ✅ ✅ ✅</td>
</tr>
<tr>
<td>Primary Effluent Conveyance System Rehab Design, Encina Wastewater Authority, CA</td>
<td>✅ ✅</td>
</tr>
<tr>
<td>Seal Beach Pump Station Pumping Upgrade and Rehabilitation, Orange County Sanitation District, CA</td>
<td>✅ ✅ ✅</td>
</tr>
</tbody>
</table>
EASTSIDE INTERCEPTOR REHABILITATION
King County, WA

Carollo was retained to rehabilitate approximately 3,900 feet of severely corroded 96-inch-diameter reinforced concrete pipe (RCP) located in a densely populated commercial area in Renton which includes Boeing’s 737 commercial airline facility and the mixed use Renton Landing development. Spot repairs were done on this section of interceptor sewer in the past where hydrogen sulfide damage was the worst. Repair methods included hydro-blasting damaged areas and then applying shotcrete over steel mesh.

The County had previously completed an alternatives analysis and had selected Linabond as the preferred rehabilitation technology. To construct the project during summer 2019, Carollo expedited preliminary and final design over a 14-month period. Carollo’s design included:

• Preparation of a flow bypass study to analyze existing flows in the interceptor and to develop a plan to bypass up to 45 mgd during low-flow summer months to allow for the rehabilitation of the existing sewer. The bypass plan included provision in the design that would allow for working under the live flow conditions while also providing the capability to remove all essential personnel and equipment during emergency high flow conditions should flows exceed 45 mgd. In addition, the bypass plan included the preparation of a flow management plan that included coordination efforts of three wastewater treatment plants and two offsite operations groups, in addition to the project team to manage flows entering the project area.

• Geologic and hydrogeological study of the project area to determine the existing conditions. Since the project included the excavation of a bypass suction pit within unstable, liquefiable soils, the Carollo team designed the shoring system required to protect the existing pile-supported pipeline and the adjacent BNSF railway.

• Preparation of the traffic impact study and corresponding traffic control plans to address traffic concerns during both the installation of the bypass system and the rehabilitation of the existing sewer. The Carollo team developed traffic control strategies using standard traffic control barriers, variable message boards, long-term detour routes, and temporary road closers to limit the impact on Boeing’s 737 facility and Renton Landing.

Challenges and Solutions

1. Impacts to Community. Carollo coordinated with multiple local stakeholders including Boeing, neighboring businesses and residential during design and construction to limit the impacts.

2. Construction Constraints. Carollo developed a bypass plan to accommodate 45 mgd w/bypass trench with small footprint on Boeing property rather than street, weir structure flow control for emergencies, use of electric motor pumps vs. diesel to reduce noise/ emissions, odor control plan to reduce foul odors, reduced schedule to by allowing contractor ability of multiple work crews to lessen impact on traffic control duration.

Client Reference
Ms. Matoya Darby,
206-477-4532,
matoya.darby@kingcounty.gov

Key Team Involvement
Greg Gould, Tim Taylor

Flow Capacity
70 mgd (WWPF) / 45 mgd (DWPF)

Completion
On time and within budget

• Completion of a construction footprint study to determine the most effective way to bypass flow from the north end of the project around the proposed work area. The study analyzed the optimal location for the bypass suction pit, researched alternative routes for the bypass route including the use of public right-of-way and private property, and conducted potholing if existing utilities to determine the optimal route for trenching bypass pipes through existing intersections.

• Preparation of a noise study to analyze noise impacts on the surrounding community and mitigation measures to limit those impacts. Mitigation measures included the use of electric bypass pumps and requiring the Contractor to meet stringent noise levels during non-normal working hours.

The culmination of the design included the preparation of final design documents for civil, structural, electrical, and landscape restoration.
MASTER PLAN UPDATE FOR THE REGIONAL WATER QUALITY CONTROL PLANT & COLLECTION SYSTEM
City of Riverside, Public Works Department, CA

Carollo was hired in 2016 to update the City’s 2008 Master Plan. Part of the scope included flow monitoring, flow and process modeling, condition assessment of both the collection system and the Regional Water Quality Control Plant (RWQCP), review of CCTV data for portions of the collection system, and development of a CIP for the collection system and the treatment plant.

The visual condition assessment of the City’s collection system focused on the selected lift stations and review of CCTV data for sewers in close proximity to waters of the United States. The collection system has more than 800 miles of sewers and 20 lift stations. Carollo placed more than 60 flow meters in the system after developing a flow monitoring plan in conjunction with the City. The flow meters were able to capture data from a large storm in early 2017, which helped to calibrate the hydraulic model and identify system deficiencies.

Challenges and Solutions

The City’s collection system includes 20 lift stations of varying capacity and complexity. To avoid the expense of visually assessing every lift station, Carollo worked with the City to develop a plan to assess just six that would be representative of all the lift stations. Using this approach, the results from the six stations were extrapolated to include all 20 lift stations and to develop a representative CIP. The assessment included all mechanical, structural, and electrical facilities. City staff were provided scoring sheets and training so that the remaining lift stations can be assessed by City staff, after which the CIP can be adjusted if needed.

BC-2 LIFT STATION EMERGENCY WET WELL
Bay County Utility Services, FL

Approximately 1.7 mgd of the Military Point Advanced Wastewater Treatment Facility’s (MPAWTF) influent flow is generated from the City of Callaway, Florida. The City feeds the MPAWTF from two master lift station locations, with the majority of flow entering BC-2 through a 16 to 20-inch diameter ductile iron influent force main.

The wet well hydrogen sulfide readings range from 400 to over 1,000 ppm. These readings are dangerously high for human exposure and quite corrosive as evidenced by the condition of the concrete wet well and force main discharge piping.

Carollo prepared a condition assessment report, which led to an Emergency Rehabilitation Design. An innovative design solution of structural epoxy vs FRP lining was chosen based on the required short construction time frame, as well as to provide the most cost-effective solution. In addition, Carollo furnished construction management services during construction.

Challenges and Solutions

1. Condition assessment revealed peak levels of hydrogen sulfide of 1,000 ppm, causing significant concrete loss within the wet well. In addition, the first layer of structural reinforcement had deteriorated and, in some areas, was missing. Carollo prepared an emergency design to cover the rehabilitation, including flow bypass plan, interior cleaning, removal of exposed corroded reinforcement, doweling in new rebar reinforcement, and a structural epoxy coating system with fiberglass mesh reinforcement, odor control, and safety plan.

2. Construction required maintaining flows to the Regional WWTP. As a result, the contract documents included a bypass specification and plan, which was developed to intercept flows from the incoming 21-inch force main and bypass them to the discharge force main.

Client Reference
Mr. Craig Justice
951-826-5341
cjustice@riversideca.gov

Flow Capacity
72 mgd
Completion
On time and within budget

Key Team Involvement
Graham Juby, Rajesh Doppalapudi, Mike Fleury, James Doering, John Briones, Willie James, V&A Consulting

Client Reference
Mr. Larry Moyer
850-286-3509
fmoyer@baycountyfl.gov

Flow Capacity
5 mgd
Completion
On time and within budget

Key Team Involvement
Greg Gould, Mike Fleury
LAUGHLIN LIFT STATION NO. 3 REHABILITATION
Clark County Water Reclamation District, NV

Three of CCWRD’s lift stations (LS No. 1, LS No. 2, and LS No. 3) required rehabilitation to meet capacity requirements and to address operations and maintenance concerns. Carollo was selected for design of the project to: rehabilitate and increase the capacity of LS No. 3 from 4.5 to 8.5 mgd; provide a one-mile long dual redundant force main from LS No. 3 to the Laughlin Water Reclamation Facility (LWRF) Screening Building; and decommission LS No. 1, construct an electrical building to house new variable frequency drives (VFDs), and upgrade the onsite odor control system.

All of the tasks needed to be performed while temporarily bypassing the existing flow during construction — the combination of these tasks with the restraints of bypass presented several unique design and coordination issues.

LS No. 3 is a packaged Smith & Loveless pump station constructed in 1990. Rehabilitation of this station included the replacement of the existing pumps, motors, discharge header, and associated valves and piping. Designing within the space constraints of the existing dry pit posed numerous limitations and challenges to nearly doubling the capacity of LS No. 3 to 8.5 mgd. Extensive equipment research, coordination, site examination, and ingenuity allowed for these issues to be effectively resolved while meeting the Client’s requests.

**Client Reference**
Mr. Bryan Osborne
702-668-8149
bosborne@cleanwaterteam.com

**Key Team Involvement**
Greg Gould, Joel Smason

**Flow Capacity**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 mgd</td>
<td>On time and within budget</td>
</tr>
</tbody>
</table>

**Challenges and Solutions**

1. The existing force mains from LS No. 1 and LS No. 3 are 16-inch ductile iron and 18-inch PVC respectively. The 18-inch force main was the subject of several maintenance issues and recently had failed beneath a roadway causing a significant spill. Replacing these lines was a paramount concern and the District wanted to be sure that they had a redundant system in case a failure occurs in the future. To accommodate this request, Carollo designed a dual 20-inch force main totaling over 10,000 lineal feet. Concerns over surge due to a 150-foot elevation change were alleviated with the installation of combination air valves strategically located along the force mains — the original system provided no surge mitigation.

2. This design posed significant coordination issues with respect to construction. To accommodate some of these issues, the wet well of LS No. 1 was utilized for temporary bypass. To resolve operation concerns at the Laughlin WRF, a method for routing the bypass piping to the Screening Building prior to lift station shutdown was designed as the WRF staff had to de-rag pumps daily during a previous short-term bypass that was not screened.

3. Both LS No. 1 and LS No. 3 were located on a combined, space-confined site that utilized a soil bed filter for odor control. By increasing capacity of LS No. 3, LS No. 1 was no longer required and was decommissioned. Replacement of the soil bed filter with a two-stage odor control system provided additional space and improved odor treatment. The additional space was used to construct an electrical building to house the new motor control center and VFDs that provided operation strategy flexibility and allowed for improved SCADA system coordination.
Carollo was retained to assist EWA in planning and design of major rehabilitation to the Primary Effluent (PE) Conveyance System. Preliminary design included alternative development for rehabilitation of the 72-inch PE pipe. Alternatives included point repairs, spray-on lining, lay-up lining with composite fibers, and cured-in-place pipe (CIPP). The evaluation selected the preferred alternative based on a best-value approach that considered the overall strength of the repair, the useful remaining life of the pipe after the repair, and the cost of the repair and pump bypass needed to construct the repair. Based on these factors, a fully structural CIPP installation was selected.

The preliminary and final design also developed an in-depth pump bypass plan. The plan considered where and how to place bypass pump and piping to allow access for construction and to minimize effects to plant processes. The final plan included two temporary pump stations, with each station using a portion of the primary effluent channel for suction. Each pump station used VFD-driven electric pumps with automated level control. A spare primary sedimentation basin was used for emergency storage, and diesel driven pumps were installed for full pump redundancy. Bypass piping was laid out with a completely redundant line and the pipe was trenched across roads to allow for vehicle access. The plan was specified, installed, tested and operated with a zero-leakage policy.

Construction of the CIPP occurred over a 3-day period. Due to size and weight, it was necessary to perform the resin injection wet-out at the Encina Water Pollution Control Facility (EWPCF). The wet-out facility was constructed adjacent to the junction box used to install the liner. As wet-out was completed, water was used to invert the liner into the pipe and then heat-cure the liner into a hardened pipe.

Significant concrete repair and coating occurred throughout the PE Conveyance System. Quick-set, high early strength concrete was used in areas of new concrete with a goal to achieve strength in three days or less to allow liner application. Epoxy polyurethane coating was specified to help protect the repaired areas for decades to come.

The project was completed within the scheduled 18 months with the pump bypass duration completed in 30 days. The project successfully completed construction with a net change order history of less than $50,000.

Challenges and Solutions

1. **Bypass Pumping in a Restricted Site.** The EWPCF is located in a dense urban setting and has little free space. The bypass system was designed to allow contractor and plant operators access at all times while allowing no spills. The design provided redundancy to account for pump failures and possible pipe leakage.

2. **CIPP Wet-Out On Site.** The on-site wet-out was a concern due to visibility, noise, and possible odors for nearby neighbors and the adjacent interstate. Significant effort was put into minimizing noise and odors and the project was completed without any stakeholder complaints.

3. **Unforeseen Conditions.** The age and criticality of the infrastructure meant that some components and surfaces had not been inspected in decades. Certain areas marked for repair were found to be beyond repair. Carollo, as designer and CM, worked to develop new design details for immediate implementation, often responding the same day. This prevented prolonging the bypass and incurring additional charges.
SEAL BEACH PUMP STATION UPGRADE AND REHABILITATION (PROJECT 3-62)
Orange County Sanitation District, CA

V&A Consulting Engineers (V&A) was retained for condition assessment (CA) services to support the Orange County Sanitation District (OCSD) for the Seal Beach Pump Station (SBPS) Pumping Upgrade and Rehabilitation, Project No. 3-62. The purpose of the project is to rehabilitate and upgrade the SBPS and the two force mains so that they meet current codes, rectify deficiencies (for example, the lack of capacity, the lack of corrosion protection, deterioriation of concrete and steel and lack of reliability), modernize and standardize equipment, and to address odor and corrosion related problems so that the SBPS will function reliably and efficiently for the next 30 to 40 years. V&A performed confined space entries to assess the pump station wet wells, pipe vaults and the force main discharge structure. The force mains and their supporting structures were also assessed at the Bolsa Chica Channel crossing.

V&A reviewed existing data and documentation provided by OCSD to develop a field assessment plan to evaluate the existing condition of the facilities. V&A prepared a health and safety plan submittal for review in accordance with Cal OSHA and OCSD requirements.

V&A presented three condition assessment reports: OCSD Project 3-62 Seal Beach Pump Station Bolsa Chica Bridge Force Mains, OCSD Project 3-62 Seal Beach Pump Station Piping and Mechanical Equipment, and OCSD 3-62 Seal Beach Pump Station Reinforced Concrete Structures. The reports documented the condition assessment findings and the associated recommendations for improvements; including recommendations for preventive maintenance and rehabilitation using VANDA® Concrete and Metal Condition Indices rating systems and other qualitative and quantitative data obtained during the assessment.

Challenges and Solutions
Condition assessment methods and techniques included visual assessment documented with digital photographs; concrete testing and half cell potential and galvanostatic pulse testing on the steel reinforcing bars embedded in the concrete members. The half cell potential and galvanostatic test results obtained during the confined space entry indicated some level of corrosion activity in the reinforcing steel. V&A worked with a contractor and excavated the exterior walls of each wet well and performed half cell potential and galvanostatic on the exterior reinforcing steel above the groundwater level. V&A recommended the installation of a cathodic protection system to suppress corrosion of the concrete reinforcing bars.

Client Reference
Mr. Vince Farone, MWH
949-328-2411
vince.farone@mwhglobal.com

Key Team Involvement
V&A Consulting

Flow Capacity
30 mgd

Completion
On time and within budget
Appendix - Resumes

We have provided abbreviated resumes of our team members, including subconsultants, on the following pages.

RESUMES

Carollo
- Greg Gould, PE
- Graham Juby, PhD, PE
- Andrew Frost, PE
- Tim Taylor, PE
- James Doering, PE, SE
- John Briones, PE
- Juan Loera, PE
- Jim Wesley, PE
- Joel Smason, PE, SE
- Rajesh Doppalapudi, PE
- Willie James, PE
- Mike Fleury, PE

V&A Consulting
- Brian Briones, PE
- Jessica Bolaños, PE
- Noy Phannavong, PE

Converse Consultants
- Hashmi Quazi, PhD, PE, GE
- Zahangir Alam, PhD

Pro-Pipe
- Steve Powers
- Dean Monk
- Nick Lanoue
- Chris Clauser
- Brian Young

The Prizm Group
- Vincent Kleppe, PE, PLS, QSD
Greg A. Gould, P.E.

Greg Gould, an Associate Vice President with Carollo, joined the firm in 2007 and has over 24 years of experience in civil engineering design, construction, and project management for water distribution systems, gravity sewer and storm collection systems, force main systems, industrial infrastructure, lift stations, pumping stations, condition assessment, trenchless technology applications, and rehabilitation projects. Greg specializes in infrastructure projects with experience covering a wide range of water, wastewater and storm drain infrastructure applications for general, public, and city agencies. His experience includes hydraulic and master plan modeling and design related software. He has designed pipelines ranging from small collector sewers and water distribution lines to major pipelines up to 134 inches in diameter. He is also a certified NASSCO PACP/MACP Trainer.

Education
BS Civil Engineering, California State University, Long Beach, 1995

Licenses
Professional Engineer, Colorado, Texas,
Civil Engineer, Arizona, Nevada, Washington, Washington D.C.

Certification
Certified, PAC Program Trainer of PACP Users to include Manhole Module, National Association of Sewer Service Companies (NASSCO), May 2010
Certified, ITC Program for CIPP Inspector, (NASSCO), August 2010
Certified, ITC Program for Manhole Rehabilitation Technologies Inspector, NASSCO, January 2013

Professional Affiliations
National Society of Professional Engineers
American Society of Civil Engineers
American Public Works Association
Society of American Military Engineers

Relevant Experience
→ Project manager for the Laughlin Lift Station No. 3 Rehabilitation Project for the Clark County Water Reclamation District, Las Vegas, Nevada. This project includes the design of over 5,000 LF of dual 20-inch ductile iron pipe (DIP) force mains; the bypass of current flows (up to 8 mgd) from the project site to the Water Reclamation Facility; the design of a new Flow Splitter Structure; complete rehabilitation of the existing lift station including: new pumps, piping, valves and control equipment; and the design of a new two-stage odor control system.

→ Project engineer review for the Eastside Interceptor Section 2 Rehabilitation, Phase 1, for King County, Washington. Project includes the preliminary engineering for the trenchless rehabilitation of approximately 5,000 feet of 96-inch diameter concrete sewer in Renton, WA located between the Boeing Renton Plant and Renton Landing. The preliminary engineering will include the analysis of a sewer bypass system capable of handling up to 70 mgd, cultural resources, environmental studies, including noise analysis, odor control, risk analysis, and project permitting.

→ Project engineer for the Laughlin Lift Station No. 2 Force Main Rehabilitation project condition assessment and rehabilitation design for Clark County Water Reclamation District. This project will install a proposed second parallel force main and also rehabilitate the existing 16-inch force main (11,320 feet) from Lift Station No. 2 to the transition structure. A hydraulic analysis of the system (lift station, force main, gravity system, and appurtenances) will be performed to focus on opportunities to increase and improve the hydraulic flow capacity in the system. With the bypass in place, a condition assessment inspection of the existing force main will be performed. Intermediate access points will be constructed along the existing force main for the condition assessment and rehabilitation services. A new transition structure will be installed to maintain the gravity pipe service during construction, avoiding temporary bypass pumping, and to accommodate both the existing and proposed force main in a single structure.

→ Project engineer for the BC-2 Lift Station Emergency Wet Well for the Bay County Utility Services, Florida. The majority of flow enters BC-2 through a 16- to 20-inch diameter ductile iron influent force main. The wet well hydrogen sulfide readings range from 400 to more than 1,000 ppm. These readings are dangerously high for human exposure and quite corrosive as evidenced by the condition of the concrete wet well and force main discharge piping. Carollo prepared a condition assessment report, which led to an emergency rehabilitation design.

→ Engineer for the Primary Effluent Conveyance System Rehabilitation Design for the Encina Wastewater Authority, California. Carollo provided planning, preliminary and final design of the major rehabilitation to the conveyance system. Preliminary design included alternative development for rehabilitation. The evaluation selected a fully structural CIPP installation. The design also developed an in-depth pump bypass plan considering where and how to place bypass pump and piping to allow access for construction and to minimize effects to plant processes.
Greg A. Gould, P.E.

- Technical advisor for the Lake Las Vegas Lift Station Rehabilitation for the City of Henderson, Nevada. The project included design of the replacement of pumps, motors, and VFDs. Two alternative approaches were considered including installing isolation valves on the suction and discharge headers and constructing a fully operational third pump train, and a full bypass option with redundant pumps and piping.

- Project engineer for the Los Coches Creek Sewer Improvements Manholes 10 to 17 for the County of San Diego Department of Public Works, California. This project included a study-design for the Los Coches Creek Sewer for the replacement of approximately 2,770 linear feet of existing 12- and 15-inch diameter VCP sewer line with 18-inch PVC sewer pipe. The existing 48-inch diameter manholes were replaced with new 60-inch diameter manholes. A sewage bypass plan and traffic control plan were also part of this project.

- Project engineer for the City of Las Vegas, Nevada – Downtown Sewer Rehabilitation (Phase 2). The project included condition assessment, rehabilitation design, and engineering services during construction for approximately 6,600 linear feet of interceptor pipe ranging in diameter from 36- to 54-inches. Primary trenchless technology method for rehabilitation was CIPP. In addition, the scope included the rehabilitation of approximately 96 sewer manholes. Additional work in 50 of the manholes was required to provide a clean transition between the existing CIPP liner and the new manhole coating system. The design also included flow monitoring and a practical scheme for diversion and/or temporary bypass pumping of wastewater during construction.

- Technical advisor for the North Texas Municipal Water District, Texas. The Richardson Spring Creek Lift Station Improvements included the preliminary design of improvements to the 11 mgd lift station to increase service life and reliability by performing the hydraulic modeling of the force main/lift station, condition assessment of the existing structure, construction cost estimate, and an alternative analysis.

- Project engineer for the TIMET, Nevada, Other Process Water (OPW) Pump Vault fast track design. The project was a replacement and upgrade of the acidic process wastewater lift station. The design included installation of 1,200 LF of 18 inch double-walled HDPE wastewater conveyance pipe, manholes, double walled FRP tanks with vertical mixers, and caustic feed system for PH adjustment. The process challenges including providing sufficient lift station capacity and redundancy, overcoming hydraulic limitations of gravity collection system, preventing solids deposition, and maintaining operation of the current wastewater lift station during installation.

- Project manager for the TRA Mountain Creek 30MC-1 Interceptor Project – Grand Prairie, Texas. This project included a condition assessment using simultaneous laser, sonar, and CCTV digital image capture, estimation of remaining useful life of existing 54-inch and 78-inch unlined RCP pipelines. This project also included the final design and evaluation for the existing 54-inch interceptor, removing and replacing the existing interceptors with 7,000 lineal feet of 90-inch diameter FRPMP gravity sewer interceptor and manholes, and alternatives analysis including cost/benefit ratios. The project also incorporated approximately 250 lineal feet of trenchless crossing, design of a flow diversion structure, associated bypass pumping, SWPPP, dewatering, repair of fences and gates, erosion control, traffic control provisions, trench safety system, and permitting.

- Technical advisor for the Second Creek-Interceptor Segment 1E Design, City of Aurora, Colorado. The project includes about 5,000 linear feet of 30-inch pipe, two lift station tie-ins, and a meter vault.

- Technical advisor for the City of Simi Valley, California, Sanitation Sewer Trunk Rehabilitation Capital Improvements. The project included four separate projects totaling over 9,000 feet of sewer line rehabilitation. Duties included bypass pumping layout and design with 18-inch HDPE pipe, CIPP design drawings and specs, CCTV review, utility coordination, and coordination with traffic control.
Graham J.G. Juby, Ph.D., P.E.

Dr. Graham Juby, a vice president with Carollo Engineers, has 36 years of experience in planning, testing, and process design for water and wastewater treatment facilities, with an emphasis on water reuse. He has focused on advanced treatment processes such as low- and high-pressure membrane systems (microfiltration and reverse osmosis), nutrient removal, and the application of ozone, granular activated carbon (GAC), biological filtration, ion exchange, and ultraviolet (UV). His background in these technologies includes both pilot plant and full-scale design experience. His experience also includes a number of planning projects. He has also been involved with several fast-track and alternative delivery projects.

Relevant Experience

→ Principal-in-charge for the Comprehensive Wastewater Master Plan for the City of Riverside, California. Carollo was retained to develop a master plan for all wastewater facilities owned and operated by the City. The master plan included projections of the impacts of regulatory changes, and recommendations for future projects to address those regulatory changes as well as the increasing loads experienced at the City’s treatment facility. The plan covered both liquid and solids treatment processes.

→ Principal-in-charge for the ongoing 2016 Wastewater Facilities Master Plan Update for EMWD, California. This ongoing assignment involves demand projections, analysis, development of trigger curves based on plant organic loading, and evaluation of new facilities needs at all four of EMWD’s regional wastewater treatment facilities. Capital costs were developed to take all facilities to their ultimate capacities in the year 2060.

→ Principal-in-charge for the ongoing 2014 Water System Master Plan for Mesa Water District, California. This ongoing assignment involves demand projections, water supply analysis, hydraulic model update and calibration, extensive field condition assessment, and development of an optimization model. As part of the field condition assessment, all water system facilities (8 groundwater wells, 1 treatment plant, 2 reservoirs, 2 booster stations, and imported water connections) were visited. In addition, 2 miles of non-destructive pipeline testing was done. The findings of the modeling and condition assessment analysis were combined into a comprehensive CIP and water master plan report.

→ Project leader for the start-up and optimization of the Perris Valley Plant 3 secondary treatment process for EMWD, California. This project is ongoing and involves optimization of a new 16-mgd BNR aeration basin and secondary clarification system for the Perris Valley Regional Water Reclamation Facility. The step-feed reactor is being optimized to reduce the TIN in the final effluent. The project includes optimization of chlorine dose for disinfection in order to reduce chemical costs.

→ Project leader for the optimization of the Temecula Valley Plant 2 secondary treatment plant for EMWD, California. This is an ongoing project to optimize the performance of the 4-mgd activated sludge system in one of the parallel plants at the Temecula Valley Regional Water Reclamation Facility. The purpose is to optimize TIN removal and produce a fully nitrified effluent to avoid downstream disinfection issues and high chlorine doses. Ultimately, the optimized plant will have lower operating costs and result in reduced disinfection costs.

→ Principal-in-charge for EMWD, California, Moreno Valley RWRF Plant 2B Equipping Preliminary Design. The project consists of preliminary design for facilities needed to equip the Plant 2B aeration basin at MVRWRF. Carollo also completed a condition assessment of Plant 2A and Plant 1, and developed construction sequence and phasing recommendations to reduce impacts to facility operations. Carollo identified improvements to the future operation of Plant 2A and other affected facilities, including secondary clarifiers and RAS pump station, as well as the timing of those improvements.

→ Principal-in-charge for Carollo’s portion of the work for the 2015 Wastewater Facili-
Graham J.G. Juby, Ph.D., P.E.

ties Master Plan Update Report for the Inland Empire Utilities Agency (IEUA), California. This assignment involved demand projections, analysis, hydraulic modeling, and evaluation of technology needs and cost estimates for five IEUA treatment facilities, through the planning horizon of 2060.

 Principal-in-charge for a study for the City of Corona, California, to assess the impact of residential water softeners on the City’s sewer system.

 Process engineer responsible for the mechanical design of 2.5-mgd potable water and sewage pump stations, Sun City, South Africa. This included sizing of pipelines and pumps, the establishment of system curves, as well as preparation of plans and specifications.

 Project engineer for the preliminary and final design, construction, and start-up of a new 3-mgd potable water pump station for Sun City, South Africa. The pump station incorporated four multi-stage centrifugal high lift pumps. Other projects for the same client included sewage and recycled water pump station design.

 Principal-in-charge for the SBWRP Primary Influent Flow Equalization for San Bernardino Municipal Water Department, California. The project is currently in design and includes installation of two new primary influent equalization basins, pump station, and ancillary facilities.

 Principal-in-charge for a study for the Evaluation of the Capacity at Plant 1 for the City of Corona, California. Plant 1 has a common headworks that feeds parallel treatment processes; a conventional biological nutrient removal (BNR) plant with primary and secondary treatment, and a activated sludge ditch process. The project evaluated the capacity of both plants and suggested modifications to the ditch plant to increase capacity; including the addition of primary clarifiers and converting the ditch to a fine-bubble aeration basin to improve efficiency and add capacity.

 Technical advisor for the Overhaul of Unit 1 Primary and Aeration System Project Development Report for the San Bernardino Municipal Water Department, California. The project developed an approach to rehabilitate the existing 50-year old facilities including innovative concepts to remain within the limited hydraulic grade line, convert the secondary process to nitrogen removal, and maximize the capacity.

 Technical advisor and chemical treatment lead for the Primary Treatment Optimization Study (Job No. P1-116) for the Orange County Sanitation District, California. The project involved a primary clarifier evaluation to determine the cause(s) of less-than-anticipated solids thickening occurring in 16 primary clarifiers with a capacity of 100 mgd. The investigation also developed a simulation to evaluate the impact of ferric chloride, peroxide, and polymer used in the chemically enhanced primary effluent (CEPT) process on sludge thickening and the performance differences between circular and rectangular primary clarifiers.

 Project specialist for filtration / disinfection test work at the Sacramento Regional Wastewater Treatment Plant, California. The 180-mgd treatment facility was investigating alternatives for disinfection of their secondary effluent. The effluent is produced from a low sludge-age pure oxygen activated sludge process and is to be disinfected with UV. About 800 gpm of secondary effluent is treated by various pilot plants. A sand filter and a disk filter operated in parallel upstream of two low pressure/high intensity UV systems. Pressure driven and suction-type MF processes were installed and tested in parallel with the sand and disk filter.

 Project manager for the evaluation of membrane bioreactor (MBR) technology as an alternative for expanding the capacity of Plant 3A for the South Orange County Wastewater Authority, California. A technical and economic evaluation was performed to investigate how all or part of the plant could be retrofitted with membranes to increase the capacity to 8 mgd. Both combined aeration/membrane tanks and separate membrane tanks were evaluated and compared with a conventional plant expansion and tertiary filtration, and an expansion involving the IMANS® approach.
Andrew J. Frost, P.E.

Andrew Frost has more than 10 years of experience in civil engineering design including pipelines, sewer mains, storm drains, potable/recycled water, dry utilities, roadway, grading, and site design. He has provided support for water quality management plans (WQMP) to comply with Municipal Separate Storm Sewer System (MS4) permitting and prepared storm water pollution prevention plans (SWPPP) and incorporated post-construction best management practices (BMP) into project design to meet local and statewide requirements. He is highly versed in three dimensions design and drafting including the use of Civil 3D, Navisworks, and Building Information Modeling.

Relevant Experience

→ Engineer for the Primary Effluent Conveyance System Rehabilitation Design for the Encina Wastewater Authority, California. Carollo provided planning, preliminary and final design of the major rehabilitation to the conveyance system. Preliminary design included alternative development for rehabilitation. The evaluation selected a fully structural CIPP installation. The design also developed an in-depth pump bypass plan considering where and how to place bypass pump and piping to allow access for construction and to minimize effects to plant processes.

→ Senior engineer for the County of San Diego, California, Los Coches Streambed Stabilization at Vulnerable Sewer Locations. Responsible for the development of the preliminary engineering report to assess the cover over the existing sewer facilities, and provide an analysis of the existing conditions including recommendations for long term improvements to increase the stability of the sewer system. Project considered existing CCTV data, as built record drawings, site survey, and potholing to develop recommended improvements across ten different risk areas determined by the County of San Diego Public Works Department.

→ Project manager for the County of San Diego, California, Spring Valley Trunk Sewer Rehabilitation. Responsible for the preliminary and final design to develop a prioritized plan to address rehabilitation or replacement of 73 manholes along the Spring Valley trunk sewer main. Project included review of existing data, development of a preliminary engineering report, and final design drawings and specifications for all improvements.

→ Project manager for the Encina Wastewater Authority, California, Effluent Equalization Basin Settlement. Responsible for the creation of a technical memorandum to develop recommendations to alleviate settlement issues occurring along the north edge of the existing effluent equalization basins at the Carlsbad Water Recycling Facility. Project included site investigations, geotechnical borings, and survey to verify existing conditions.

→ Senior engineer for the Encina Wastewater Authority, California, 84-inch Land Outfall Improvements. Responsible for the design of improvements to the land outfall system for Encina Wastewater Plant. Improvements include repairs to the existing 84-inch outfall pipe, recoating of existing 60-inch primary effluent line, 24-inch 3W waterlines, and miscellaneous drainage piping at surge chamber, and relining of the existing 60-inch secondary effluent line from the effluent pumping station.

→ Project manager for the Hi-Desert Water District, California, Phase I Collection System. Responsible for engineering services during construction for the Phase I collection system construction. Project included 77 miles of pipeline, including gravity and force main construction, twelve jack and bore crossings under Cal Trans right-of-way, over 5000 private property connections, and three lift stations. Engineering services include on-site support, RFI and submittal responses, technical reports and memo, cost estimating, and final record drawings.

Previous Experience

→ Project manager for the Wastewater Collection System Phase 1 project for the Hi-Desert Water District, California. Responsible for the design of gravity sewer, force main,
Andrew J. Frost, P.E.

and lift stations as part of a septic to sewer conversion project. The project is the first of three phases to convert existing septic systems to public sewer in order to protect groundwater quality. Approximately 5,000 homes will be converted with 77 miles of pipeline and three lift stations. Project includes all aspects of design from plan and profile drawings, cost estimating, specifications, bid support, and construction support.

→ Project manager for the Waterline Capital Replacement Program for the Hi-Desert Water District, California. Responsible for overseeing design of 24 miles of waterline ranging in size from 6 inches to 12 inches. The project included the relocation of distribution mains from alley areas to public right-of-way, relocation of private water meters, and construction of new fire hydrants.

→ Senior engineer for a theme park project for the City of Los Angeles, California. Responsible for civil site design including grading, utilities, roadway, and civil control as part of a new attraction. The project included major site demolition, grading, site improvements, and utility designs. The new theme park included seven new buildings on the existing site. New utilities included sewer, water, hot/chilled water supply, gas, and compressed air were all constructed as part of the project.

→ Engineer of record and lead civil engineer for the Glendale Narrows Riverwalk for the City of Glendale, California. Responsible for the design of a new one-mile bike trail and two park areas as part of the Glendale Riverwalk Phase 2. The project included design of a new Class I bikeway, ADA upgrades, site walls and grading design, drainage improvements, and truss bridge over an existing culvert.

→ Engineer of record and project manager for the Camino Del Mar Sewer Force Main for the City of Del Mar, California. Responsible for the design of 6,200 linear feet of 10-inch sewer force main from the 21st Street pump station to the City of Solana Beach. The project involved the crossing of two separate bridges over sensitive habitat and railroad right-of-way. The project involved a phased operation allowing existing flows to be pumped in two directions, either north or south as required by the City of Del Mar.

→ Senior engineer for the 2013-2014 Street and Drainage Improvements for the City of Del Mar, California. Responsible for the design of approximately 3,500 linear feet of curb, gutter and sidewalk along Camino Del Mar. The project also included the replacement of several pedestrian ramps and storm drainage improvements.
Tim F. Taylor, P.E.

Tim Taylor, Carollo’s Director of Infrastructure Practice, has served as project manager for numerous water and wastewater infrastructure and treatment projects. With more than 33 years of experience in engineering design, construction, and project management for water distribution systems, gravity sewer collection systems, pump stations, water and wastewater treatment facilities, geographic information system (GIS) and modeling projects, Mr. Taylor is proficient in all aspects of management, technical engineering, modeling, GIS, and design software. He has designed pipelines ranging from small collector sewers to major interceptor lines up to 148 inches in diameter, as well as pump stations ranging in size from a few hundred gpm up to 60 mgd.

Relevant Experience

- Project manager for the City of Fresno, California, Fruit Avenue Sewer Rehabilitation. The project included installation of 3,576 feet of 48-inch-diameter cured-in-place pipe liner, rehabilitation of four existing manholes, and development of a bypass pumping/flow diversion concept. Carollo also utilized soil data from a geotechnical investigation to optimize the design and minimize the liner thickness. This approach ultimately saved the City more than $100,000 in construction costs.

- Project manager for the City of Redding, California, Wastewater Utility Master Plan 2000. The project included modeling the existing wastewater collection and pumping system with the HYDRA program. Projections for 2005, 2010, and ultimate buildout were based on interim growth projections, measured in household equivalents, and buildout of areas within the City’s sphere of influence. Work included evaluating the existing conditions and facility needs for both wastewater treatment plants and a dozen existing lift stations. Work also included defining the capital improvement projects needed to expand the collection system and maintain the existing facilities.

- Project manager for the Denver Metro Water Reclamation District in Denver, Colorado, for Brantner Gulch Lift Station Capacity Analysis and Pump Replacement. The client was experiencing vibration and cavitation issues in one of its larger raw sewage pump stations. The project team provided field investigations into the causes of the pump problems and recommended solutions to eliminate any future pump failures. These recommendations included suction piping modifications and net positive suction head evaluations. The project also included a capacity analysis of the overall pumping facilities and provided the client with recommendations to increase capacity.

- Project manager for the City of Santa Clara, California, Trimble Road Trunk Sanitary Sewer Condition Assessment. The project included identification of specific rehabilitation and replacement needs of over 13,000 feet of sanitary sewer pipes. The sewer included 15-inch and 24-inch diameter siphons, 33-inch and 48-inch diameter four lift stations, and four force mains. This system consists of approximately 236 miles of sewer pipe ranging in size from 8 to 90 inches in diameter, 65 primary metering facilities, 41 diversion structures, and approximately 3,750 manholes. The plan included development of a real-time InfoWorks model of the distribution system, maintainable by District staff. The comprehensive model was used to evaluate the capacity and condition of the collection system to handle service area flows and loads. In addition, the team evaluated the current inspection models and conducted a condition assessment of the entire collection system.

- Project manager for the City of Reno, Nevada, for Brantner Gulch Lift Station Capacity Analysis and Pump Replacement. The client was experiencing vibration and cavitation issues in one of its larger raw sewage pump stations. The project team provided field investigations into the causes of the pump problems and recommended solutions to eliminate any future pump failures. These recommendations included suction piping modifications and net positive suction head evaluations. The project also included a capacity analysis of the overall pumping facilities and provided the client with recommendations to increase capacity.

Education
MS Civil and Environmental Engineering, San Jose State University, 1994
BS Civil and Environmental Engineering, California Polytechnic State University, San Luis Obispo, 1986
Management Action Program (MAP), Pleasanton, CA
Truckee North Tahoe Leadership Training Course, Truckee/North Tahoe Area

Licenses
Civil Engineer, California, Idaho, Nevada
Professional Engineer, Oregon, Washington, Hawaii

Professional Affiliations
Water Environment Federation
Water Environment Federation Collection Systems Committee (Previous Member)
California Water Environment Association, Sierra Section, Board of Directors (2008 President)
Truckee Donner Public Utility District Board of Directors (2007 and 2008 President)
Tim F. Taylor, P.E.

Awards
Special District Leadership and Management, Special District and Local Government Institute, 2007

gravity sewers, and 49 manholes and junction structures. The process included review of the existing sanitary sewer system map and available historical data, sewer line and manhole inspection and evaluation, hydrogen sulfide monitoring, and preparation of a condition assessment report.

→ Project manager for the Sacramento Area Sewer District, California, Rosemont Pump Station Replacement. The project includes design and permitting of a replacement pump station facility for an existing pump station that is at its end of useful life. The pump station is being designed to provide a capacity of 3.3 mgd and will include emergency standby power and bypass pumping capabilities. The project is extremely constrained to a small property parcel with residences on three sides, and the existing pump station must be kept operational during the construction process. The project team is working closely with District staff to develop a construction phasing that would address stakeholder concerns.

→ Project manager for the Sacramento Area Sewer District, California, 2015 Pump Station Condition and Performance Assessment. The District owns and operates 106 pump stations throughout the Sacramento region. In 2015, six pump stations were chosen for detailed evaluation due to safety, reliability, maintenance cost, good neighbor, and efficiency concerns. Carollo performed in-field condition assessments and performance tests to identify deficiencies at each pump station. Subsequently, an alternatives evaluation was performed to analyze four repair categories (refurbish/replace, reconfigure, construct new, or abandon). Results from the alternatives evaluation determined that one pump station would be abandoned for a gravity sewer and another would be relocated outside of road travel way.

→ Project manager for the South Tahoe Public Utility District, California, C-Line Condition Assessment. The project included a condition assessment of the existing C-Line pipeline and an evaluation of the economic viability of designing and constructing a hydroelectric power facility. The condition assessment results were used to recommend targeted rehabilitation and/or replacement of the C-Line pipeline.

→ Technical advisor for the Weber Basin Water Conservancy District, Utah, Condition Assessment and Rehabilitation Predesign. The project included a condition assessment and rehabilitation predesign for 26 miles of 21-inch to 84-inch aqueduct pipeline. Risk of failure was evaluated in terms of criticality and vulnerability using multiple technologies for internal and external pipe inspection methods.

→ Project manager for the City of Modesto, California, River Trunk Pump Station. The project includes design of a 90-foot-deep and 60-foot-diameter pump station for a peak wet weather capacity of 40 mgd. The pump station includes five submersible pumps and a self-cleaning trench-style wet well. Carollo utilized both computational fluid dynamics and physical hydraulic modeling to test for hydraulic inefficiencies, vortices, and other adverse flow phenomena to optimize wet well and pump performance prior to finalizing the design because of the unique configuration of the pump station.

→ Project manager for the City of Modesto, California, River Trunk Pipeline. This project included design and permitting for 8,500 feet of 48- to 54-inch gravity pipeline. The pipeline alignment runs down a residential street and is 40 feet deep in some sections. The project team evaluated the use of microtunneling as an option to open-cut construction.

→ Project manager for the City of Modesto, California, River Trunk Rehabilitation, which evaluated rehabilitation methods for 2,600 feet of 45- and 48-inch-diameter reinforced concrete pipe. Due to severe corrosion and lack of access to the pipe, the pipeline failed in one section. An emergency repair was performed to temporarily support the failing pipeline. The rehabilitation design uses the sliplining process as the best suited technology. The final design included a geotechnical investigation, survey with aerial photography, and preparation of plans, specifications, and cost estimates.
James Doering, P.E., S.E.

James Doering, a registered structural and civil engineer, is Carollo’s structural lead engineer in Southern California. He manages the production of construction documents for large and small projects. He has experience in structural analysis, design, seismic retrofit, rehabilitation, review, and assessment for a variety of structures, such as wastewater and water treatment facilities, pump stations, reservoirs, tanks, clarifiers, large pipe supports, retaining walls, operations and maintenance facilities, office buildings, parking structures, post tensioned concrete structures, retail shopping centers, and warehouses.

Relevant Experience

→ Structural engineer for the South Lift Station project for Carson City, Nevada.

→ Structural engineer for the Pump Station Improvements project for the Padre Dam Municipal Water District, California. Tasks included the seismic retrofit of the roof-to-wall connections at Pump Stations 1, 4, and 7.

→ Structural engineer for Quality Assurance services for the Agua Hedionda Lift Station Project for the City of Vista and Carlsbad, California. The project included the replacement of an existing sewer lift station with a 40-ft deep pump station and a single-span bridge supporting the force main over the Agua Hedionda Lagoon. The bridge design included weathering steel members, concrete abutment and retaining walls, and prestressed precast concrete piles.

→ Structural engineer for the Moreno Valley Regional Water Reclamation Facility Preliminary Treatment and Acid-Phase Anaerobic Digestion project for the Eastern Municipal Water District, California. Design included headworks and influent pump station modifications, grit basin, acid-phase digester, methane-phase digester, boiler facility (concrete masonry unit (CMU) building), electrical buildings, and other process-related structures and modifications.

→ Structural engineer for the Perris Valley Regional Water Reclamation Facility Plant 3 Expansion for the Eastern Municipal Water District, California. The project included design of primary and secondary clarifiers, aeration basins, digesters, electrical buildings, a cogeneration facility, a sludge thickening building, and support structures. The project also included the design of elevated multi-level pipe racks throughout the plant, and man-way bridges at digesters.

→ Structural engineer and value engineer team member for the San Jacinto Regional Water Reclamation Facility, Title 22 Tertiary Upgrade and Plant 2 Expansion for the Eastern Municipal Water District, California. The project included primary and secondary clarifiers, aeration basins, a blower building, a waste activated sludge (WAS) thickening building with four rotary drum thickeners supported on elevated concrete piers, biofilters, chlorine contact basins, digesters, filter canopies, 10,000-square-foot operations and administration building, electrical buildings, flocculation basins, and other process-related structures. The project also included design of elevated multi-level pipe racks throughout the plant and man-way bridges at digesters.

→ Structural engineer and value engineering team member for the Moreno Valley Regional Water Reclamation Facility Secondary Clarifiers and Tertiary Treatment (SCATT) Expansion for the Eastern Municipal Water District, California. The project included design of secondary clarifiers, chlorine contact basins, pump stations, splitter boxes, electrical buildings, and support structures.

→ Structural engineer for the 2017 Facilities Master Plan for Orange County Sanitation District, California. This Master Plan develops a 20-year capital improvement plan for the District’s treatment plant and collection system sewers and pump stations. Over the 20-year planning period, numerous District treatment facilities and collection system sewers and pumping facilities will need rehabilitation or replacement, with a total capital expenditure of approximately $5 billion. This Master Plan identifies the rehabilitation/replacement needs and develops a...
James A. Doering, P.E., S.E.

preliminary scope of work and planning level cost estimate for each project.

- Structural engineer for the Integrated Master Plan for the City of Riverside, California. The master plan identified expansion and replacement needs for the City’s wastewater collection system and expansion of the Regional Water Quality Control Plant from 40 mgd to 52 mgd. The wastewater collection system is comprised of more than 1,100 miles of gravity sewers and 18 wastewater pump stations. The plant processes consist of a headworks, primary clarifiers, a biological nitrogen removal activated sludge process, secondary clarifiers, tertiary filtration, and chlorination/dechlorination. Solids processes include solids thickening, anaerobic digestion, and centrifuge dewatering. The project included the structural condition assessment of the existing facilities at the Regional Water Quality Control Plant.

- Structural engineer for the J.B. Latham Treatment Plant Strategic Plan for South Orange County Wastewater Authority, California. The scope of work included a visual concrete condition assessment and a seismic risk evaluation of the existing plant structures that included aeration basins, primary and secondary clarifiers, solids-handling building, and digesters. Finite element analysis was used to evaluate the aeration basins walls at areas of high-stress concentration. Findings and recommendations were presented to the client in a workshop and a comprehensive technical memorandum.

- Structural engineer for the Water and Sewer Infrastructure Asset Management Plan (AMP) for the Yorba Linda Water District (YLWD), California. The AMP was developed to assist the YLWD in maximizing the useful life of its assets, minimizing capital and operations and maintenance costs, and maintaining acceptable levels of service to its customers. Tasks included the visual assessment of the structural condition of YLWD assets.

- Structural engineer for the City of San Clemente, California, Recycled Water System Expansion. The project included construction of an effluent pump station, four new pulsed-bed media filters, new chlorine contact basin, replacement of the treatment plant chlorine gas system with a sodium hypochlorite system, and additional equipment upgrades. The project also provided complete upgrade of the electrical and control systems to connect to the City’s recently installed SCADA system. The upgrades allow control of the plant production facilities, effluent pumping system, and automated off-site storage and delivery facilities.

- Structural engineer for the Veolia Water West Operating Services/City of Palm Springs, California, Wastewater Treatment Plant Upgrade. The project included a new 22 mgd capacity headworks with Parshall flume and influent pump station, two new 100-ft diameter primary clarifiers with FRP launders, a primary sludge pump station, an elevated sludge degritting facility, odor control, replacement of the existing Digester No. 2 floating steel dome with a new fixed steel dome, and an electrical building.

- Structural engineer for the South Secondary Improvements for the Metro Wastewater Reclamation District, Denver, Colorado. The project included final design of a new 100-mgd secondary treatment complex with a peak flow capacity of 240 mgd. The complex includes a primary effluent splitter structure, wet wells, pump station, blower building, electrical/controls building, aeration basins, utility galleries, centrate re aeration basins, and a return activated sludge/waste activated sludge (RAS/WAS) pump station. His responsibilities included leading a structural design team in the preparation of construction documents.

- Structural engineer for the Plant Expansion for the Timpanogos Special Service District, Utah. The project included additional interceptors, a pump station, a new headworks, oxidation ditch treatment, and an administration building. The project also included the design of a support system for an elevated cable tray system run throughout the plant.

Client Testimonial

“Without a doubt James Doering added a tremendous value to the Carollo team and was absolutely a contributing factor to the overall success of these critical projects at the EWPCF.”

- James Kearns, Capital Projects Manager, Encina Wastewater Authority, referring to the EWPCF Influent Junction Structure Rehab and Ocean Outfall Landfall Inspection projects.
John G. Briones, P.E.

John Briones, is a principal electrical and instrumentation & controls engineer with Carollo and supervises the electrical, instrumentation, and controls (EI&C) staff in the Orange County office. He has 32 years of experience in the design and construction management of power, instrumentation, control, communication, and security systems for water and wastewater facilities. He has designed projects to meet required state and national standards including California Code of Regulations (CCR) Title 8: Electrical Safety Orders, Hazardous Locations; CCR Title 24: Energy Efficiency Standards, and National Fire Protection Association (NFPA) 820: Standard Fire Protection in Wastewater Treatment and Collection Facilities.

Education
BS Electrical Engineering, California State University, Sacramento, 1986

Licenses
Electrical Engineer, California, Utah

Professional Affiliations
Institute of Electrical and Electronics Engineers
- PES/IAS Orange County Joint Chapter, 2012-2013 Chairman
National Fire Protection Association
International Society of Automation

Relevant Experience

→ Project manager for the San Jacinto Valley Regional Water Reclamation Facility Electrical Rehabilitation for the Eastern Municipal Water District, California. The project involved the electrical safety upgrades to replace marginal branch circuits to the existing primary and secondary basin equipment.

→ Project electrical engineer for the San Jacinto Valley Regional Water Reclamation Facility Title 22 Tertiary Treatment Upgrade and Plant 2 Facilities project for the Eastern Municipal Water District, California. The project involved the replacement of the existing headworks facility including the addition of a second set of primary clarifiers, aeration basins, and secondary clarifiers. In addition, a waste activated sludge (WAS) thickening facility with rotary drum thickeners was provided to capture more solids. The project also upgraded odor control, tertiary treatment, and standby power.

→ Construction services and lead electrical inspector for the Temecula Valley Regional Water Reclamation Facility Expansion Capacity project for the Eastern Municipal Water District, California. The project involved the installation of new aeration and secondary sedimentation basins.

→ Project electrical engineer for the Diversion Structure and Pump Stations Conejo Creek Diversion project for the Camrosa Water District, California. The project added two pumping facilities with a combined pumping load of 1,700 horsepower. The design will allow remote control of the facility via the client's existing supervisory control and data acquisition (SCADA) system.

→ Lead electrical design engineer for the Rim Forest Pump Station No. 15 Replacement project for the Lake Arrowhead Community Services District, California. The project replaced the existing residential sewer pumping facility.

→ Lead electrical design engineer for the Wasatch County Water Efficiency project for the Central Utah Water Conservancy District, Utah. The project involved the design of seven pump stations, including over 2,400 horsepower of pump loads. In addition, the project included a radio telemetry system to allow remote monitoring of each pump station.

→ Lead electrical design engineer and construction services for the 16th Street Pump Station project for the City of Newport Beach, California. The project added a pumping facility to pump water from a new water reservoir. In addition, an aqua ammonia and sodium hypochlorite chemical feeding facility was added for water treatment. The facility involved the installation of a programmable logic controller (PLC) to support the future addition of a supervisory control and data acquisition (SCADA) system.

→ Lead electrical engineer for the San Eliajo Asset Management Study for the San Eliajo Joint Powers Authority, California. The study included a complete review of the electrical system configuration of the main wastewater facility as well as two off-site reservoir/pump station facilities. The study involved the identification of potential electrical single points of failure, as well as upgrade recommendations to improve power reliability.
John G. Briones, P.E.

→ Construction services and lead electrical inspector for the 330 Zone Booster Pump Station and Pipeline project for the City of San Buenaventura, California. The project involved the installation of over 1,000 horsepower of pump loads, as well as the installation of a 500-kW standby generator.

→ Project electrical engineer overseeing the Electrical and I&C design for the Headworks Rehabilitation at Plant No. 1 project for the Orange County Sanitation District, California. The project involves the complete replacement of the 12-kV and 480-V distribution system serving the existing Headworks facility, in addition to five separate process PLCs and their associated RIO systems. The project will also provide a new 12-kV standby generator - housing at least three 2000-kW diesel gensets, a new centralized UPS distribution facility, and a new headworks odor control facility. Besides revamping the headworks process equipment and instrumentation, the project will also be replacing the existing facilities support systems, including lighting, receptacles, fire alarms, gas monitoring, and communications.

→ Project electrical engineer for the Trunkline Odor Control Improvements project for the Orange County Sanitation District, California. The project will replace two existing chemical scrubber systems with new low profile bioscrubber systems, including the addition of two VFDs - needed to control the bioscrubbers supply fans. Incorporating a new RIO cabinet, the new bioscrubbers will interface with the existing scrubbers system PLC, to continuously treat foul air from the incoming plant trunk lines.

→ Project electrical engineer for the Plant No. 1 Primary Treatment Upgrades project for the Orange County Sanitation District, California. The project replaced the existing sludge pumps and associated control systems for the District’s Primary Clarifiers 16-31 facility. The project involved the modification of switchgear and motor control centers (MCCs), as well as, the addition of new MCC and RIO cabinets.

→ Project electrical engineer for the Headworks and Primary Clarifier Upgrade project for the City of Palm Springs, California. The project will replace the existing headworks facility, and add a new influent pump station, two new primary clarifiers, a new degritting facility, and a new odor control facility. To support the increased process loads, two pre-fabricated electrical buildings, including two new motor control centers and one new PLC, will be provided.

→ Project engineer for the Electrical Equipment Replacement at the Advanced Wastewater Treatment (AWT) Plant for the Clark County Water Reclamation District, Nevada. The project replaced two 480-V, double-ended substations and 16 motor control centers (MCCs). In addition, the project modified the existing 12.47-kV switchgear and replaced branch circuits to the MCC loads.

→ Project electrical engineer for the Plant No. 2 Headworks Replacement project for the Orange County Sanitation District, California. The project involved the replacement of two existing headworks facilities, implementation of scrubber/biotower odor control, upgrade of the 12-kV standby power system, and modification of the Central Generation System 12-kV switchgear. This project replaced the existing ferric chloride facility with a new, larger facility designed to contain chemical spills, as well as shield the tank and chemical feed pumps from falling rain via an overhead canopy.

→ Project electrical engineer for the 3A waste activated sludge (WAS) Thickening Expansion and Unit 2 Title 22 Capacity projects at the Water Reclamation Plant for the San Bernardino Municipal Water Department, California. The project added a dissolved air flotation basin and associated pumping equipment to the existing facility. In addition, two existing dissolved air flotation facilities were modified to upgrade and automate their existing controls.

→ Electrical design engineer for the Phase IV Expansion for the Encina Wastewater Authority, Carlsbad, California. He provided initial design support for the addition of two new digesters. He reviewed existing field conditions to determine the proper interfaces for the new digester equipment.
Juan R. Loera, P.E.

Juan Loera is a principal mechanical engineer with Carollo with more than 22 years of experience designing mechanical systems for municipal wastewater treatment facilities. He has worked on a number of different wastewater projects in various aspects of analysis, design, and construction of digester gas system projects. Juan has extensive knowledge in the design of large blowers, compressors, and pumping systems associated with water and wastewater treatment facilities and the HVAC systems necessary for process and electrical buildings. He has evaluated, analyzed, and developed approaches for combining existing digester gas systems with new plant expansions; combined multiple blower facilities to operate as a common system; and designed new digester gas piping systems to replace old poorly performing corroded piping systems.

**Education**

BS Mechanical Engineering, University of California, Irvine, 1998

**Licenses**

Mechanical Engineer, California

**Professional Affiliations**

American Society of Mechanical Engineers

**Relevant Experience**

- Design engineer for the Primary Effluent Pump Station as part of the South Secondary Improvements for the Metro Wastewater Reclamation District, Colorado. The pump station was designed to convey a peak wet weather flow of 269 mgd with five pumps in service and one pump as standby. The pump station consisted of two wet wells, vertical non-clog centrifugal pumps with composite drive shafts, 450-hp vertical motors with variable frequency drives, and a 15-ton overhead bridge crane system. The design also included a physical hydraulic model study of the wet wells and pump intake piping to ensure acceptable hydraulic conditions existed at the pumps and a computational fluid dynamics (CFD) model study of the pump station wet wells and pump intake piping.

- Design engineer for the Influent Pump Station as part of the Phase I Improvements Project for the Willow Lake Water Pollution Control Facility for the City of Salem, Oregon. The project included construction of a 155-mgd headworks facility, primary clarifiers, and chemical and disinfection facilities. His responsibilities included design of the Influent Pump Station, Recycle Pump Station, headworks ventilation system, and foul air collection system.

- Design engineer for the Influent Pump Station as part of the Plant No. 2 Headworks Replacement for the Orange County Sanitation District, California. The pump station was designed to convey a peak wet weather flow of 340 mgd with five pumps in service and two pumps as standby. The pump station consisted of a split wet well, vertical non-clog centrifugal pumps with composite drive shafts, 700-hp medium voltage vertical motors with variable frequency drives, and a 20-ton overhead bridge crane system. The design also included a physical hydraulic model study of the wet well and pump intake piping to ensure acceptable hydraulic conditions existed at the pumps and a computational fluid dynamics (CFD) model study of the pump station discharge channel. He also designed the ventilation and foul air collection systems for the 11 structures (including layout, air changes, flow rates, pressure loss, louvers, registers, balancing/backdraft tampers, building/yard ducting, condensate drains, booster fans, and pressure gauges). The project received the 2005 Engineering Research Achievement Award from the California Water Environment Association.

- Mechanical engineer for the preliminary design of the return activated sludge (RAS) and waste activated sludge (WAS) pump stations for the South Secondary Treatment Facilities for the Clark County Water Reclamation District, Nevada. Design goals for the secondary treatment expansion included minimizing re-aeration of the RAS to optimize the bio-P process and simplify the piping and controls to provide stable and reliable operation. His duties included preparation of design criteria, schematics, process control strategies, and pump station layouts.

- Mechanical engineer for the preliminary design of upgrades to existing facilities for the Recycled Water project for the City of Redlands, California. The project included modifications and upgrades to existing me-
Juan R. Loera, P.E.

Mechanical and electrical equipment that had reached the end of their useful life. His responsibilities included evaluation of existing pumps, motors, and drives for the following pump stations: influent raw sewage, peak pond, and final effluent. As a result of his evaluation, all existing motors and hydraulic clutch variable drives, peak pond, and final effluent pumps were replaced in final design.

> Design engineer for design of the San Jacinto Valley Regional Water Reclamation Facility Plant 2 Facilities and Title 22 Tertiary Treatment Upgrade for the Eastern Municipal Water District, California. The project included planning, preliminary design, final design, and construction services for a comprehensive plant expansion to 14 mgd. In addition to solids handling facilities, the project included a new headworks; primary, secondary, and tertiary treatment; and effluent pumping. Solids processes included a new WAS thickening building, two new anaerobic digesters with provisions for two-phase digestion, a sludge storage tank, digester gas storage and compression facilities, evaluation of cogeneration, and de-watered sludge truck loading hopper. His responsibilities included designing the new 18-mgd headworks facility, aeration blowers, digester gas handling system, and utility water and effluent pump stations.

> Mechanical engineer for design of the Tertiary Valley Regional Water Reclamation Facility Expansion to 12 mgd for the Eastern Municipal Water District, California. The expansion included construction of a new 32-mgd headworks, 4-mgd primary/secondary treatment, and increased tertiary facility and solids handling (thickening and anaerobic digestion) capacity. His responsibilities included designing piping for the aeration air distribution system.

> Project engineer for the Orange County Sanitation District, California, 2017 Facilities Master Plan. This Master Plan develops a 20-year capital improvement plan for OCSD’s treatment plant and collection system sewers and pump stations. Over the 20-year planning period, numerous OCSD treatment facilities and collection system sewers and pumping facilities will need rehabilitation or replacement, with a total capital expenditure of approximately $5 billion. This Master Plan identifies the rehabilitation/replacement needs and develops a preliminary Scope of Work and planning level cost estimate for each project.

> Project engineer for the $138 million Orange County Sanitation District, Headworks Rehabilitation and Expansion at Plant 1 (P1-105). This project will expand the capacity at Plant 1 from 280 mgd to 320-mgd. The project includes comprehensive rehabilitation and expansion of influent flow metering and diversion; bar screens; screenings handling; influent pumping; grit handling; primary flow splitting and metering; odor scrubbers; and electrical buildings. Construction sequencing to maintain headworks in service during construction.

> Design engineer for a high-speed turbo blower system design engineer for the Post Point Wastewater Treatment Plant Expansion project for the City of Bellingham, Washington. The project increased the plant capacity from 25,000 pounds per day influent biochemical oxygen demand (BOD) to 40,000 pounds per day and 22 mgd. The project included the addition of chemically enhanced primary treatment, primary effluent pump station modifications, an anaerobic selector basin, new aerations basins, and rehabilitation and conversion of existing aerations basins from high-purity oxygen to diffused air, new blower building with standby generator, secondary clarifier, return activated sludge (RAS)/waste activated sludge (WAS) pump station and plant water pump station modifications.

> Mechanical discipline lead for design of the Central Plant South Secondary Treatment Facilities Phase 2 for the Clark County Water Reclamation District, Nevada. Facilities included aerations basins, secondary clarifiers, return-activated sludge/waste-activated sludge (RAS/WAS) pump station, blower building, electrical building, chemical feed facilities, yard facilities, miscellaneous piping, and HVAC systems.

Awards
OCSD Plant No. 2 Headworks Replacement Project, P2-66
- Engineering Research Achievement Award, California Water Environment Association, 2005
- Engineering Research Achievement Award, Santa Ana River Basin Section of the California Water Environment Association, 2005

Client Testimonial
“Mr. Loera is always the professional and has exceptional problem solving skills. His approach to problem solving is conducted with mutual respect for those he is dealing with, including operations, maintenance and engineering staff. He is accurate and truthful in his assessment of issues and listens to suggestions for a solution. He understands the importance of a prompt response and values concise answers.”
- Bruce Mitzel, CM Manager, Eastern Municipal Water District.

Juan R. Loera, P.E.
James P. Wesley, P.E.

Jim Wesley joined Carollo Engineers in 2002 has more than 17 years of experience in engineering design and construction for water and wastewater infrastructure projects and facilities. This experience comes after a distinguished 20-year career as an officer in the United States Navy in nuclear and mechanical engineering including operation, maintenance, instruction, and quality assurance of U.S. Navy nuclear power plants and submarine and aircraft carrier safety systems, steam boiler systems, aircraft catapult systems, desalination equipment, water purification systems, diesel electric power systems, and power distribution systems. Jim’s areas of focus include treatment facilities, pipelines, pump station involving HVAC, standby power, air and gas compressors and blowers, energy efficiency, and optimization.

Relevant Experience

→ Project manager for the City of Henderson, Nevada – Lake Las Vegas Lift Station Pump Replacement. This project includes the design of the replacement of the pumps, motors and VFDs. Additional changes to the lift station include replacing the existing pump control valve’s pneumatic actuator with an electric actuator, and adding a check valve immediately downstream of the second stage pump and instrumentation upgrades. The design also considers maintaining system operability during construction as a top priority. Two alternative approaches were considered including installing isolation valves on the suction and discharge headers and constructing a fully operational third pump train, allowing one of the two remaining trains to be taken out of service for upgrades while the system still operates under a duty/standby configuration, and a full bypass option with redundant pumps and piping.

→ Mechanical engineer for the Clark County Water Reclamation Facility, Nevada - Lincoln Lift Station Modifications. The existing pumps at the District’s Lincoln Lift Station facility required regular and frequent maintenance involving dismantling, cleaning, and reassembling of pipelines, due to blockages. Additionally, the existing wet well had limited storage capacity, thereby requiring the pumps to cycle on and off frequently. The District pre-purchased two new pumps with improved impeller design and variable speed controls to improve the operational reliability of the station. The installation of these pumps required structural and electrical modifications to the station. Carollo’s responsibilities included detailed design services and bid period services. Detailed design elements included demolition of existing pumps, motors, piping, and equipment; installation of two pre-purchased variable frequency drives (VFDs); a new pump with VFD, force main, wet well coating, suction piping, discharge piping, and bridge crane; modifications to existing catwalk supports and existing heating, ventilation, and air conditioning, and fiber optic communication and appurtenant site work; new feeders from Load Center No. 26 and appurtenant work; and temporary centrte pumping and pipeline additions.

→ Mechanical engineer for the Clark County Water Reclamation District, Nevada - Metro Lift Station I and II Lift Station Rehabilitation projects. The purpose of this project was to analyze the rehabilitation/upgrade options for the Metro I and Metro II lift station dry well, wet well, electrical, mechanical, and structural components for a useful remaining life of at least 25 years as well as analyze the option of decommissioning the existing lift stations which would require the design of a new gravity pipeline. The report will provide background information, technical data, recommendations and costs comparisons that will be used to assist CCWRD on which option they would like to proceed with for the design phase, rehabilitation, replacement or decommissioning.

→ Mechanical engineer for the design of the Lindsey Road 4-MG Reservoir and Pump Station Design-Build project, Town of Gilbert, Arizona. The primary focus of the project is to provide increased reliability and capacity to the Town of Gilbert’s water delivery system. Area of design includes a new...
James P. Wesley, P.E.

10-mgd vertical turbine pump station, wet well, reservoir and wet well drainage systems, under drain pumping station, chemical injection, surge protection, and HVAC.

Mechanical engineer for the design of the Turner Ranch 3-MG Reservoir and Pump Station. Town of Gilbert, Arizona. The primary focus of the project is to establish a new pressure zone within the Town of Gilbert’s water delivery system. Features include a new 12.5-mgd vertical turbine pump station, arsenic treatment system, 2 mgd well, and HVAC. The project was delivered as a design build partnership.

Mechanical engineer for the design of the P-8A Pumping Station and transmission line, City of Henderson, Nevada. The primary focus of the project was to increase the reliability and capacity of the City’s water delivery system. The project included an 11.3 mgd vertical turbine pumping station, complex hydraulic analysis, over 6000 ft. of 30-inch pipeline, HVAC, and plumbing.

Project engineer for the design and construction of the P-8A Pumping Station and transmission line, City of Henderson, Nevada. The primary focus of the project was to increase the reliability and capacity of the City’s water delivery system. The project required extensive coordination between several federal, state, and city agencies. The project included an 11.3 mgd vertical turbine pumping station, over 6000 ft. of 30-inch pipe line, including a 4000-square foot building, and extensive electrical service modifications.

Mechanical engineer for the Booster Pumping Station 2A Discharge Header for Lake Havasu City, Arizona. The primary focus of the project was an emergent replacement of a critical vertical pumping station discharge header that was in imminent danger of catastrophic failure. The project required design of a replacement discharge header piping system and hot tap design, while maintaining the existing system operational.

Project Engineer for the City of Henderson, Nevada – Sites 17 and 18 Pump Station and Reservoir Upgrades and Transmission Main Project. This project included design and construction for capacity upgrades of sites 17 and 18, which are storage and pumping facilities within the city’s potable water distribution systems serving 2,240, 2,370, and 2,500 elevation pressure zones. Upgrades included:

- Site 17: Upgrade to pumping capacity of 19,000 gpm; addition of three new 200-hp vertical turbine pumps to existing pump cans, rated at 3,533 gpm and 184 TDH; associated electrical upgrades for the new pumps; a new 1,200-cf surge tank; mechanical, electrical, and instrumentation improvements, as noted in the Condition Assessment and Performance Evaluation Study.

- Site 18: Upgrade to pumping capacity of 29,300 gpm; replacement of existing Pump Station 18 (P-18) with five new 400-hp vertical turbine pumps, rated at 5,860 gpm and 200 TDH; a new 4,420-cf surge tank; associated electrical upgrades for the new pump station (pump station building houses both the new P-18 and existing RP-18, including a restroom facility); a new 3,620-cf surge tank; and relocation of existing reclaimed pump station surge tank.

Mechanical engineer for the Algonquin Water Services (AWS) and operated by the Litchfield Park Service Company (LPSCO) Palm Valley Water Reclamation Facility Odor Control Improvements study and design. Preliminary design included data collection, process modeling, vendor coordination, and regulatory coordination. The study also includes generation of a technical memorandum that outline recommendations for short-term and long-term odor control system solutions. Detailed design services included coordination of the pre-selected system supplier and contractor for the installation of the unit and related appurtenances, including a 14-foot diameter FRP carbon vessel, blower, foul air ductwork, dampers, controls, and supports. Carollo also provided coordination with the Maricopa County Environmental Services Department (MCESD) for permit approval of this fast-track "turn-key" procurement and installation project.
Joel D. Smason, P.E., S.E.

Joel Smason has 43 years of experience as a structural design engineer for water and wastewater treatment plants and nuclear power plant design. As a senior structural design engineer, Mr. Smason’s responsibilities include preparation of preliminary structural designs, client assistance, supervision of personnel, preparation of budgets and estimates, and the development of detailed drawings and specifications. He also has experience with alternative project delivery methods including design-build and construction manager at risk (CMAR).

**Relevant Experience**

- Structural design engineer for the Laughlin Lift Station Rehabilitation Project, Phase 1 for the Clark County Water Reclamation District (CCWRD), Nevada. After performing a Lift Station Rehabilitation Study for the CCWRD, it was determined that the three lift stations (LS No. 1, LS No. 2, and LS No. 3) in the area required rehabilitation to meet capacity requirements and to address operations and maintenance concerns. This project consisted of design to rehabilitate and increase the capacity of LS No. 3 from 4.5 to 8.5 mgd; provide a one-mile long redundant force main from LS No. 3 to the Laughlin Water Reclamation Facility screening building; and decommission LS No. 1, construct an electrical building to house new VFDs, and upgrade the onsite odor control system.

- Technical review for the City of Prescott Zone 12 Reservoir, Pump Station, and Lift Station Design. This project consisted of designing and constructing an above-ground water storage reservoir, a building-housed pump station, a standby generator, and other appurtenant features. These facilities will provide water storage and pumping to serve the City of Prescott’s existing and future water demands, including domestic, commercial/industrial, and emergency uses.

- Structural design engineer for the City of Las Vegas, Nevada Lone Mountain Sewer Lift Station Modifications Project. The project included removal of the two existing pumps, electrical and controls, adding an electrical room, installation of three new 1,350 gpm pumps, power, controls, a standby generator, increasing wet well capacity, and 2,100 LF of 14-inch force main along Lone Mountain Road.

- Structural engineer for the City of Garland, Texas Duck Creek Wastewater Treatment Center Expansion project. Project included design of new 170-mgd submersible raw wastewater pump station and headworks, addition of mixers to the equalization basin, modification and upgrade of existing trickling filters, and addition of two 24-mgd vertical dry-pit centrifugal pumps in the existing final lift station. Headworks included submersible mixers, fine step screens, and vortex grit removal systems.

- Structural engineer for the Town of Gilbert, Arizona 2 MG Reservoir and Booster Pump Station at Ray and Recker Roads. The project consists of a 0.5 MG wet well, a 1.5 MG reservoir, and a 6.3 MGD booster pump station. The wall between the reservoir and wet well is equipped with a valve that can isolate the reservoir from the wet well and allow the pump station to continue operation with the reservoir out of service. The reservoir is an in-ground structure with a reinforced concrete hopper bottom and a continuous seam aluminum roofing system.

- Structural engineer for the City of Phoenix 2,300 gpm Well No. 299 ASR Well Equipping Infrastructure Design, Permitting, and Construction Administration, Phoenix, Arizona. Project included design of the well pump and motor, recharge/recovery piping, valves and accessories, a pump-to-waste storage tank that is hydraulically connected to the sewer, and an addition to the existing chemical building for the chlorine gas dosing system. The existing chemical building was also renovated to make room for a sodium bisulfite dosing system, and all electrical and instrumentation work associated with automation of the well pump, valve control, and chemical feed process.

- Structural engineer for the City of Phoenix, Arizona Aquifer Storage and Recovery (ASR) Well 281 (9A-Well 300) CA&I project. Construction includes a new aquifer storage
and recovery well, a new site wall, installation and equipping of the well, new chemical feed systems, and a new belowground temporary pump-to-waste reservoir.

→ Structural engineer for the Town of Gilbert, Arizona Riggs Road 2-MG Reservoir, Booster Pump Station, and Well Design Build. This project consisted of a 5,400-gpm booster pump station with a 2.0-MG reservoir and a 1,100-gpm on-site potable water well. The reservoir is an in-ground reinforced concrete hopper bottom with a continuous seam aluminum roof. Other features include a tablet feed calcium hypochlorite disinfection system, standby emergency power, and interface with the Town’s SCADA system.

→ Structural engineer for the design of the Town of Gilbert, Arizona Turner Ranch 3-MG Reservoir, Booster Pump Station, Well, and Arsenic Mitigation Design-Build. Carollo worked in association with Hunter Contracting Company under a design build contract. The project consisted of a 5,300-gpm booster pump station with a 0.6-MG wet well and a 2.4-MG-reservoir, and an on-site potable water well with a capacity of approximately 1500 gpm. The reservoir is an in-ground structure with a reinforced concrete hopper bottom and a continuous seam aluminum roof. The project also included a tablet feed calcium hypochlorite disinfection system, instrumentation and controls that interface with the Town’s SCADA system, a standby emergency power system, and additional security measures. The project is the primary source of water for the recently created Zone 4 of the Town’s water system.

→ Structural design engineer for the design of the Town of Gilbert, Arizona Lindsay Road 4-MG Reservoir and Pump Station Design-Build. This project consisted of a 5,400-gpm booster pump station with a 1-MG wet well and a 3-MG reservoir. The reservoir is configured as an in-ground structure with a reinforced concrete hopper bottom and a continuous seam aluminum roofing system. The project also included a tablet feed calcium hypochlorite disinfection system, instrumentation and controls that interface with the Town’s SCADA system, standby emergency power system, and additional security measures. The project is the primary source of water for the recently created Zone 4 of the Town’s water system.

→ Structural design engineer for the design of the Town of Gilbert, Arizona Hayden Road Crossover Pump Station Design and Construction Management project, City of Phoenix, Arizona. The pump station consists of three 400-hp horizontal pumps with room for a future fourth pump, an electrical equipment building, SRP electrical service equipment, masonry block perimeter wall, and gates. The small site was designed to include all of the required equipment for the pump station, while providing maintenance access.

→ Structural engineer for the City of Mesa, Arizona Apache Junction Reservoir and Pump Stations. This project consisted of the 1.0-MG Apache Junction Reservoir No. 2, a pump station located at the County Line North Reservoir site that discharges to the Apache Junction Reservoir No. 2, and two pump stations. Design and construction services were provided.

→ Structural design engineer for the City of Peoria, Arizona 107th Avenue Well, Reservoir and Pump Station. Responsibilities included structural design for a 1.5-MG welded steel reservoir and a 5,300-gpm vertical turbine pump station with both constant speed and variable-frequency drivers.

→ Structural design engineer for the Las Vegas Valley Water District, Nevada Bermuda 2538 Zone Pumping Station. The facility included four (4) 300 horsepower, 5,800 gpm horizontal centrifugal pumps with provisions for 2 future pumps for a total capacity of 37 mgd. The pumping station included a 9,800 sq. ft., 2-level station, electrical, instrumentation, surge tanks, suction/discharge pipe, and modifications to the existing hypochlorite facility at the Bermuda 2420 Zone Reservoir.
Rajesh B. Doppalapudi, P.E., BCEE

Rajesh Doppalapudi is a civil engineer providing analysis and design on water and wastewater projects. He has more than 18 years of project management and process engineering experience on numerous wastewater treatment, solids handling, and disposal projects. He is well known to EMWD, having worked on many of your projects throughout his career.

Relevant Experience

→ Engineer for the Inland Empire Utilities Agency (IEUA), California, RP-4 Primary Clarifier and Process Rehabilitation Project Management Design and Construction Management project. Carollo is providing planning and design services for various rehabilitation projects at RP-4. This includes modifications to the influent pumping system, rehabilitation of grit removal, primary treatment, odor control, aeration system blowers, solids wasting, tertiary filtration, and improvements to the emergency lagoon pumping system.

→ Project manager for the SBWRP Arrowhead Pump Station Backup Pumping System project for San Bernardino Municipal Water Department, California. The project included installation of a new influent pump in the existing pump station.

→ Project engineer for the Comprehensive Wastewater Master Plan for the City of Riverside, California. Carollo provided an update to the City’s 2008 Master Plan, including a visual condition assessment of the collection system and Regional Water Quality Control Plant. The new plan included flow monitoring, flow and process modeling, a Waste Discharge Requirements GAP analysis, development of a CIP for the collection system and treatment plant, and a financial plan.

→ Project Manager for the Regional Water Reclamation Facilities Master Plan Update for Easter Municipal Water District, California. The project includes developing trigger curves to identify future facilities expansion requirements and developing annual capital expenditures for the next 30 years for the four RWRFs owned and operated by EMWD.

→ Project manager for the Eastern Municipal Water District, California, Moreno Valley RWRF Plant 2B Equipping Preliminary Design. The project consists of preliminary design for facilities needed to equip the Plant 2B aeration basin at MVRWRF. Carollo also completed a condition assessment of Plant 2A and Plant 1, and developed construction sequence and phasing recommendations to reduce impacts to facility operations. Carollo identified improvements to the future operation of Plant 2A and other affected facilities, including secondary clarifiers and RAS pump station, as well as the timing of those improvements.

→ Project Manager for the SBWRP Primary Influent Flow Equalization for San Bernardino Municipal Water Department, California. The project is currently in design and includes installation of two new primary influent equalization basins, pump station, and ancillary facilities.

→ Project Manager for the Truckee Meadows WRF Energy Conservation Measures for City of Reno/Sparks, Nevada. The project included replacement of existing centrifuges and cake pumps with new high-efficient centrifuges and cake pumps. This project is currently under construction and is being done as part of an Energy Savings Contract in collaboration with Ameresco and PCL.

→ Project Manager for the MVRWRF De-watering Odor Control and Conveyance Replacement project for EMWD, California. The project included replacement of existing odor control chemical scrubber with new biofilter and replacement of existing belt conveyor with new shaftless screw conveyor for the dewatering facilities at MVR-WRF.

→ Project manager for the Temecula Valley Regional Water Reclamation Facility 18-mgd Upgrades project for the Eastern Municipal Water District, California. The project included design of one new secondary clarifier, two new 80-foot digesters, and heating system upgrades.

→ Design engineer for the San Bernardino Water Reclamation Plant Primary Influent...
Rajesh B. Doppalapudi, P.E., BCE

Parallel Line project for the San Bernardino Municipal Water Department, California. The project included construction of a new parallel pipe to transfer influent from the headworks splitter box to the Unit 1 primary clarifier.

→ Project engineer for the Perris Valley Regional Water Reclamation Facility Dewatering Expansion for the Eastern Municipal Water District, California. The project included design of one new centrifuge, two polymer units, and a cake conveying system.

→ Process engineer for the Perris Valley Regional Water Reclamation Facility Tertiary/Plant 3 Expansion project for the Eastern Municipal Water District, California.

→ Project engineer for the Perris Valley Regional Water Reclamation Facility Plant 1 upgrade for the Eastern Municipal Water District, California. The project included design of a 4-mgd cloth filter and temporary chlorine contact basins within two months to resolve an emergency disposal issue.

→ Project engineer for the Moreno Valley RWRF and Temecula Valley RWRF WAS Thickening Expansion project for the Eastern Municipal Water District, California. The project included installation of rotary drum thickeners in existing and new buildings to thicken WAS in two plants.

→ Project engineer for the Year 2025 Regional Water Reclamation Facilities Capital Improvement Plan for the Eastern Municipal Water District (EMWD), California. The project included developing 25-year capital requirements for EMWD based on project requirements and flow projection at four regional water reclamation facilities.

→ Civil engineer for the Dewatering Comparison project for the Orange County Water District, California. The project involved comparing various alternatives for the expansion of dewatering capacity. Performed a qualitative and life-cycle cost comparison between belt filter presses and centrifuges.

→ Project engineer for the centrifuge pilot testing prequalification on prepurchase design for three Eastern Municipal Water District, California, water reclamation facilities.

Responsibilities included developing specifications for the evaluated bid package and shop drawing submittal review during construction.

→ Civil engineer providing commissioning and start-up assistance for the Moreno Valley Regional Water Reclamation Facility Acid-Phase Anaerobic Digestion project for the Eastern Municipal Water District, California. His responsibilities included submittal reviews, equipment testing, start up, and training for acid-phase anaerobic digestion process.

→ Civil engineer providing commissioning and start-up assistance for the Moreno Valley Regional Water Reclamation Facility Secondary Clarifier and Tertiary Treatment project for the Eastern Municipal Water District, California. Responsibilities included submittal reviews, equipment testing, start-up, and training for tertiary treatment including cloth filters and chlorine contact basins.

→ Construction support and civil engineer for the Perris Valley Regional Water Reclamation Facility Dewatering Expansion for the Eastern Municipal Water District, California. Construction support responsibilities included submittal review, response to Requests for Information, and start-up and training assistance.

→ Construction support and civil engineer for the Temecula Valley Regional Water Reclamation Facility 16-mgd Expansion for the Eastern Municipal Water District, California. Construction support responsibilities included submittal review and response to contractor RFIs. Design responsibilities included design of a sludge storage tank, digester gas holder, and truck scale.

→ Construction support and civil engineer for the Bardenpho Ditch Modifications at the Moreno Valley Regional Water Reclamation Facility for the Eastern Municipal Water District, California. Construction support responsibilities included submittal review and response to Requests for Information. Design responsibilities included developing the hydraulic profile and design of aeration basins.
Willie S. James, P.E.

Willie James is a licensed civil engineer with a background in the construction and design of wastewater treatment facilities. He began his career working as a construction engineer for multiple wastewater facility improvements, which allowed him to develop a background in working directly with plant staff and contractors.

Relevant Experience

- Design engineer for the Inland Empire Utilities Agency (IEUA), California, RP-4 Primary Clarifier and Process Rehabilitation Project Management Design and Construction Management project. Carollo is providing planning and design services for various rehabilitation projects at RP-4. This includes modifications to the influent pumping system, rehabilitation of grit removal, primary treatment, odor control, aeration system blowers, solids wasting, tertiary filtration, and improvements to the emergency lagoon pumping system.

- Design engineer for the Eastern Municipal Water District, California, Moreno Valley RWRF Plant 2B Equipping Preliminary Design. The project consists of preliminary design for facilities needed to equip the Plant 2B aeration basin at MVRWRF. Carollo also completed a condition assessment of Plant 2A and Plant 1, and developed construction sequence and phasing recommendations to reduce impacts to facility operations. Carollo identified improvements to the future operation of Plant 2A and other affected facilities, including secondary clarifiers and RAS pump station, as well as the timing of those improvements.

- Design engineer for the RP-1 Liquid and Solids Capacity Recover Project for the Inland Empire Utilities Agency, California. The project includes preliminary and final design to recover capacity to 40 mgd from the current 28 mgd. The evaluations include both hydraulic modeling and biological modeling. Expansion components include a new fine screen facility, new membrane facilities (conversion to MBR), new acid phase digesters, and rehabilitation of various existing unit processes.

- Lead design engineer for the Phase 1 Plant Upgrade Project for the Laguna County Sanitation District, California. His duties included the design of a 3.7-mgd activated sludge treatment system, which consisted of the design of aeration basins, aeration blower system, secondary clarifiers, a RAS/WAS pumping system, and scum pumping system. Other duties included preparing design phase memorandums and the construction cost estimate.

- Design engineer for the Headworks Rehabilitation Project (P1-105) at the Orange County Sanitation District, California. His duties included preparing design phase memorandums, overseeing and coordinating all work with the geotechnical, fire protection, hazardous material, and surveying subconsultants, and serving as the lead design engineer for demolition of existing facilities and rehabilitation of existing tunnels.

- Construction engineer for the Trunkline Odor Control Improvement Project (P1-123) at the Orange County Sanitation District, California. His duties included answering requests for information and submittals and leading the development of the operations and maintenance manual.

- Construction engineer for the Plant No. 1 Primary Treatment Upgrade Project at the Orange County Sanitation District, California. His duties included answering requests for information and submittals, overseeing completion of the record drawings, and leading the development of the operations and maintenance manual.

- Construction engineer for the Temecula Valley Regional Water Reclamation Facility for the Eastern Municipal Water District, California. His duties included leading the development of the electronic operations and maintenance manual and assisting with functional testing of equipment.

- Construction engineer for the Broadway Waste Water Treatment Plant for the City of Corpus Christi Utilities, Texas. His duties included assisting with development of the electronic operations and maintenance manual.
Willie S. James, P.E.

Construction engineer and inspector for the Riverside Regional Water Quality Control Plant for the City of Riverside Public Works, California. His duties included assisting with construction inspection, answering requests for information and submittals, assisting with change order negotiations, overseeing functional testing and startup, managing all spare part turnovers to the City, coordinating weekly progress meeting agendas and minutes, and producing weekly and monthly reports for the City.

Construction engineer for the Perris Valley Regional Water Reclamation Facility for the Eastern Municipal Water District, California. His duties included assisting with development of the electronic operations and maintenance manual, reviewing vendor operation manuals, and producing monthly reports for the District.

Construction engineer for the Moreno Valley Regional Water Reclamation Facility Secondary Clarifiers and Tertiary Treatment (SCATT) project for the Eastern Municipal Water District, California. His duties included assisting with development of the electronic operations and maintenance manual and producing monthly reports for the District.

Construction engineer for the Moreno Valley Regional Water Reclamation Facility Preliminary Treatment and Acid-Phase Anaerobic Digestion (APAD) project for the Eastern Municipal Water District, California. His duties included assisting with development of the electronic operations and maintenance manual and producing monthly reports for the District.

Construction engineer for the San Jacinto Valley Regional Water Reclamation Facility for the Eastern Municipal Water District, California. His duties included answering request for information and submittals, leading the development of the electronic operations and maintenance manual, editing contract drawings with project changes, assisting with functional testing of equipment, and assisting with operator training.

Intern field engineer for the Perris Valley Regional Water Reclamation Facility for the Eastern Municipal Water District, California. His duties included managing and organizing electronic project files, performing job walks to monitor progress on project change orders, editing contract drawings with project changes, and assisted in the start-up commissioning.

Previous Experience

Team member for a civil engineering senior project for the annual California State Polytechnic University engineering showcase. He was responsible for stormwater best management practices (BMP) and drainage design for a grade separation for the City of Ontario, California.

Intern field engineer for the Perris Valley Regional Water Reclamation Facility for the Eastern Municipal Water District, California. His duties included answering request for information and submittals, leading the development of the electronic operations and maintenance manual, editing contract drawings with project changes, assisting with functional testing of equipment, and assisting with operator training.
Michael A. Fleury, P.E., BCEE

Mike Fleury, in his 47 years of experience, directed facility planning, preparation of studies and designs, value engineering and services during and after construction on a number of civil engineering projects, including new facilities, additions, condition assessments/rehabilitation of aqueducts and interceptors, renovations to existing wastewater treatment plants and water reclamation facilities, interceptor and transmission main systems, water storage and pumping facilities. He is considered a national expert in pipelines and related hydraulics having served on over 30 large value engineering studies across the United States.

**Education**

BSCE Civil Engineering,
University of Vermont, 1972

**Licenses**

Civil Engineer, Nevada
Professional Engineer, Texas, Florida, Colorado, Arizona

**Certification**

Certified, Confined Space Entry and Inspection

**Professional Affiliations**

American Public Works Association Member
American Society of Civil Engineers Member
American Academy of Environmental Engineers, Board Certified
Environmental Engineer
American Water Works Association Member
California Water Environment Association Wastewater Collections Committee
SAVE International
Water Environment Federation (Reuse Committee Member)
Western Coalition of Arid States

**Relevant Experience**

- Project Manager for the Laughlin Lift Station No. 2 Force Main Rehabilitation project condition assessment and rehabilitation design for Clark County Water Reclamation District, Nevada. This project will install a proposed second parallel force main and also rehabilitate the existing 16-inch force main (11,320 feet) from Lift Station No. 2 to the transition structure. The Clark County Water Reclamation District (District) has determined that a proposed force main is required to provide added capacity during peak flow events as well as provide redundancy to the system. The District has also determined that a closed circuit television (CCTV) internal inspection and possible rehabilitation is required for this station’s existing force main and 21-inch gravity sewer (5,000 feet) in order for it to continue operating efficiently. The rehabilitation of the existing force main will include the installation of access points, cleanouts, and interior lining and/or replacement. A hydraulic analysis of the system (lift station, force main, gravity system, and appurtenances) will be performed to focus on opportunities to increase and improve the hydraulic flow capacity in the system. Additionally, the system analysis will identify the required design elements to meet the District’s conveyance goals with this project. In order to reduce the need for temporary bypass pumping, the proposed new force main will be installed first, to accommodate bypassing during the rehabilitation of the existing force main. With the bypass in place, a condition assessment inspection of the existing force main will be performed. Intermediate access points will be constructed along the existing force main for the condition assessment and rehabilitation services. A new transition structure will be installed to maintain the gravity pipe service during construction, avoiding temporary bypass pumping, and to accommodate both the existing and proposed force main in a single structure.

- Technical advisor/QA/QC for the Mountain Creek Interceptor Segment 30MC-1 Condition Assessment and Pre-Design for Trinity River Authority in Dallas, Texas. The project includes 7,000 LF of 54-inch and 7,000 feet of 78-inch unlined RCP including a Union Pacific Railroad crossing.

- Technical advisor for the Large Diameter Interceptor Rehabilitation Program for the Albuquerque Bernalillo Water Utility Authority (ABCWUA), Albuquerque, New Mexico. The project involved developing a 10-year plan to prioritize the rehabilitation and replacement of the ABCWUA’s large diameter (15 inches or greater) interceptors, based on risk versus benefit. Scope of work included preparing an Asset Management Plan, a Project Management Plan, a Design Analysis Report, preliminary design, final design, bidding phase services, and basic construction phase services. Responsibilities include providing a practical perspective for operational planning, risk management, quality assurance/quality control (QA/QC) of the design documents, and safety.

- Technical advisor for the C-Line Condition Assessment for the South Tahoe Public Utility District, California. The project included a condition assessment of the existing 68,000-foot long, 18-inch to 21-inch diameter, mortar lined and coal tar epoxy coated steel C-line pipeline and an evaluation of the economic viability of designing and constructing a hydroelectric power facility. The condition assessment work included CCTV videotaping, soil resistivity testing, ultrasonic wall thickness testing, and labora-
Michael A. Fleury, P.E., BCEE

Awards
Select Society of Sanitary Sludge Shovelers, Arizona Water & Pollution Control Association, 1992
Distinguished Service Award, Western Coalition of Arid States.

Technical Advisor/QA/QC for the Den- 
ton Creek Regional Wastewater System 25HC-3 Relief Interceptor Condition As- 
sessment and Pre-Design for Trinity River Authority in Dallas, Texas. The project in- 
cludes 12,910 LF of 24-inch unlined RCP.

Technical Advisor/QA/QC for Elm Fork Interceptor Segment EF-R1 Condition As- 
sessment and Preliminary Design for Trinity River Authority in Dallas, Texas. The project 
includes 8,000 LF of 72-inch unlined RCP.

Project manager for the Condition As- 
sessment and Emergency Rehabilitation Design and Construction Project for Victor 
Valley Wastewater Reclamation Authority, Victorville, California. Carollo investigated 
30,000 linear feet of a 27-inch interceptor consisting of vitrified clay pipe (VCP) and 
steel pipe using CCT and sonar technology. The investigation revealed a failed lining 
within a steel pipe beneath a three-track railroad spur that was installed without a 
casing sleeve. Carollo prepared a fast-tracked cured-in-place pipe (CIPP) design 
based on E-80 loading, and the project was successfully constructed with an ultraviolet 
(UV) cured CIPP installation.

Project manager for the Downtown Inter- 
captor Sewer Condition Assessment and Rehabilitation Project for the City of Las Ve-
gas, Nevada. The $9 million construction cost rehabilitation design, construction of 
pipe engineering and condition assessment project included 11,000 feet of 54-inch to 
48-inch unlined RCP, rehabilitation of a di-
version structure, and 25 manholes. Reha-
bulation design methods included slip lin-
ing beneath the UPRR and cured in place 
pipe (CIPP).

Lead quality manager/technical advisor 
for the Clark County Water Reclamation District’s Paradise Whitney Interceptor (PWI), 
Package No. 2 final design project in Las 
Vegas, Nevada. The PWI project will relieve 
existing capacity deficiencies and improve 
hydraulic operating conditions for sections of the existing interceptors as well as pro-
vide a new 13-mile cross town interceptor capable of conveying flows from the south-
estern portion of the Las Vegas Valley Service Area to the District’s wastewater 
treatment plant on East Flamingo road.

PWI Package No. 2 consists of approximately 26,600 lineal feet of gravity sewer ranging 
in size from 66 to 72 inch. The project in-
cludes traditional cut-and-cover methods of installation as well as bore-and-jack and 
 micro-tunneling trenchless methods under freeways, environmentally sensitive areas, 
and areas with the potential to cause traffic congestion or disruption to businesses, resi-
dences, and the community from construc-
tion activities.

Project manager for the Upper Narrows Emergency Evaluation Project for Victor 
Valley Wastewater Reclamation Authority (VVWRA) located in Hesperia, California. 
The project involved rehabilitation/ re-
placement/realignment of the 36-inch Vic-
tor Valley Interceptor in the Upper Narrows area due to a rupture in the Mojave River. 
The line was damaged as a result of a flood 
event in the river. The study evaluated four 
alternatives that included repairing break(s), 
lining with CIPP or slip lining, removing and 
replacing with a design to withstand river 
scour, and realignment with tunnels out of 
the riverbed. This project forms the basis for 
VVWRA seeking FEMA financial assistance 
and the replacement design.

Project manager for the Los Coches 
Creek Sewer Improvements Manholes 10 to 
17 for the County of San Diego Department of Public Works, California. This project in-
cluded a study-design for the Los Coches Creek Sewer for the replacement of approxi-
ately 2,770 linear feet of existing 12- and 
15-inch diameter vitrified clay pipe (VCP) 
sewer line with 18-inch polyvinyl chloride 
(PVC) sewer pipe. The existing 48-inch di-
ameter manholes were replaced with new 
60-inch diameter manholes. A sewage by-
pass plan and traffic control plan were also 
part of this project.
### Relevant Experience

**Orange County Sanitation District Project No. 3-62 Seal Beach Pumping Upgrade and Rehabilitation. Huntington Beach, CA**
Provided technical assistance for the condition assessment of the Seal Beach Pumping Upgrade and Rehabilitation. V&A was retained for condition assessment services to support the District for the Seal Beach Pump Station Upgrade and Rehabilitation, Project 3-62. The project intent is to meet Orange County Sanitation District (OCSD) standards and codes, maximize efficiency, minimize operating costs, prolong the asset life, reduce safety and health hazards, improve accessibility, and simplify processes. Confined space entries were required to enter pump station wet wells, pipe vaults, and the force main discharge structure. Additional safety support was required to evaluate the force mains and their supporting bridge structure at the Bolsa Chica Channel crossing. Structures intended to be assessed as part of the condition assessment are as follows: Wet Wells No. 1 (East) and No. 2 (West), Pump Station Building - Electrical Room (at grade) and Pump Room (subgrade), Pipe Vaults No. 1 (East) and No. 2 (West), Pump Station Site Drainage and Force Main Outlet Structure.

**Orange County Sanitation District Rehabilitation of Western Regional Sewers, Project No. 3-64. Orange County, CA**
V&A was retained for condition assessment services to support the Orange County Sanitation District (OCSD) Rehabilitation of Western Regional Sewers, Project No. 3-64. For the pipeline assets, V&A performed review of 80,000 linear feet (LF) of existing CCTV footage, documented 15,000 LF of new CCTV footage, pipeline cleaning demonstrations, flow monitoring, and advanced pipe condition assessments including Laser Imaging Detection and Ranging (LiDAR), Pipe Penetrating Radar, and Accurate Mapping Probe. V&A also performed condition assessments of concrete structures and metallic components including 54 manholes and the Westside Pump Station wet well. Observations and testing on the concrete structures included visual assessment supplemented by digital photographs and video, concrete sounding, surface penetrating radar, half-cell potential, linear polarization, compressive and tensile strength, powder

### Professional Summary

Brian is licensed as a civil engineer with more than 17 years of experience working in condition assessment and design of water and wastewater facilities including cathodic protection systems. He has completed projects throughout Southern California including planning, design, and condition assessments of large-diameter pipelines, pump stations, water treatment, water storage, and pressure control/hydroelectric facilities.

**Education**
B.S., Civil and Environmental Engineering, San Diego State University, 2002

**Registration**
Civil Engineer, CA (C68474)

**Joined V&A**
2016

**Total Years of Experience**
17 years

**Training and Certifications**
- NACE – Cathodic Protection Technician (CP-2)
- National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification (PACP) U-216-07002781
- National Association of Sewer Service Companies (NASSCO) Manhole Assessment Certification (MACP) U-216-07002781
- National Association of Sewer Service Companies (NASSCO) Lateral Assessment Certification (LACP) U-216-07002781
- Confined Space Entry Certified
- Basic CPR/First Aid

**Publications**
"Condition Assessment Methods for Lock-bar Steel Pipe", ASCE Pipelines Conference 2015
sampling for pH at depth in half-inch increments, and chemical testing.

**Orange County Sanitation District P15-02 Edinger Pump Station Condition Assessment. Huntington Beach, CA**

V&A Consulting Engineers, Inc. (V&A) was retained by Lockwood, Andrews & Newnam, Inc. (LAN) to perform a condition assessment of the Edinger Pump Station to support the Orange County Sanitation District (OCSD) for the Edinger Pump Station Rehabilitation Study in Huntington Beach, CA. The pump station consists of two separate reinforced concrete structures, a circular wet well and a rectangular dry well. It is located beneath the travel way of Edinger Avenue near the intersection of Graham Street. The purpose of the condition assessment was to provide an opinion of the physical condition and determine remaining service life. Condition assessment methods included visual assessment, concrete surface testing, surface penetrating radar, half-cell potential, galvanostatic pulse testing, and concrete core samples and laboratory testing.

**Inland Empire Utilities Agency RP-1 1158 Pump Station Upgrades Condition Assessment. Ontario, CA**

V&A was retained by Stantec for the IEUA Regional Plant-1 1158 Recycled Water Pump Station (RWPS) Upgrades project, EN14042. V&A conducted a condition assessment to provide an estimate of damage, and recommend repair and rehabilitation strategies, including preliminary budget estimates. V&A performed permit required confined space entries to assess the interior of the RWPS, which consists of three chambers, 1) the Influent Well, 2) 930 Wet Well, and 3) Combined 1050 and 1158 Wet Well. Condition assessment methods included visual assessment, concrete surface testing, surface penetrating radar, half-cell potential, galvanostatic pulse testing, and concrete core samples and laboratory testing.

**Irvine Ranch Water District Newport Coast Lift Station and Force Main Assessment and Rehabilitation Design. Newport Beach, CA**

V&A performed a confined space entry condition assessment of the lift station wet well and a video assessment of the 12-inch diameter, 3,000-foot long force main at the IRWD Newport Coast Lift Station. The condition assessment also included an assessment of a concrete wet well, which consisted of visual observations, depth to reinforcing steel measurements on the concrete walls, and penetrations to sound concrete, and pH measurements. The assessment of the force main was performed with CCTV and the video was reviewed and scored per NASSCO PACP standard rating guidelines. V&A prepared the technical specifications for the new lining in the wet well, new manholes with force main inspection ports, and a Cured-In-Place-Pipe lining for the force main. Construction is estimated to start in late 2017.

**SAWPA Inland Empire Brine Line Reach 4D Condition Assessment. Chino, CA**

V&A Consulting Engineers (V&A) performed a condition assessment of approximately 36,000 linear feet of 42-inch brine pipeline owned and operated by Santa Ana Watershed Project Authority (SAWPA) in Chino, CA. The brine pipeline is reinforced concrete pipe (RCP) with a T-Lock lining at the upper 270 degrees of the pipe. The lower 90 degrees is unlined. Low flows during the initial years of operation caused corrosion of the unprotected invert, resulting in a loss of concrete and uplifting of the T-Lock liner. V&A was retained by Woodard & Curran to perform a condition assessment of the pipeline. V&A planned and conducted closed-circuit television (CCTV) of approximately 14,000 linear feet of the pipeline and five confined space entries during a 24-hour shutdown of the pipeline. Confined space entries at the manholes focused on visual assessment of the manhole, condition of the RCP behind the T-Lock lining, and condition of the unlined RCP and uplifting of T-Lock lining at the termination. The T-Lock lining was removed at two locations (crown and spring line of the pipe) for RCP assessments and was repaired after testing was completed.

**Encina Wastewater Authority Water Pollution Control Facility 2019 Condition Assessments. Carlsbad, CA**

V&A Consulting Engineers (V&A) was retained by Encina Wastewater Authority (EWA) to perform a condition assessment of various facilities at the Encina Water Pollution Control Facility (EWPCF) in Carlsbad, CA. The EWPCF is a conventional activated sludge wastewater treatment plant with a liquid capacity of 40.5 MGD. The goal of the project is to provide recommendations for facility rehabilitation and/or replacement to allow EWA to plan for capital improvement projects.
Jessica Bolaños, PE  
**V&A Role:** Project Engineer

**Education**  
B.S., Civil Engineering,  
Santa Clara University, 2014

**Registration**  
Civil Engineer, CA (C88347)

**Joined V&A**  
2019 – Fulltime

**Total Years of Experience**  
7 years (2012)

**Training and Certifications**  
- NACE Coating Inspector Level I - 8616808  
- Sant Clara Valley Water District (SCVWD) Emerging Leaders Certification Program  
- Confined Space Entry-Certified  
- Basic CPR/First Aid

**Professional Summary**  
Ms. Bolaños has a BS in Civil Engineering earned from Santa Clara University in 2014. She is a registered Civil Engineer in the state of California and a NACE Level 1 Coatings Inspector. With more than 7 years of experience in the industry, Jessica has recently joined the V&A team. Jessica previously worked at the Santa Clara Valley Water District, where she was involved in the planning and design for major pipeline inspection and rehabilitation projects, pipeline repairs, and emergency response projects. Jessica managed and participated in multiple condition assessment projects for large diameter prestressed concrete cylinder pipe.

**Relevant Experience**

**EMWD Cawston Lift Station Condition Assessment. Hemet, CA**  
V&A Consulting Engineers, Inc. (V&A) was retained by West Yost Associates for condition assessment services to support the Eastern Municipal Water District (District) in a condition assessment of the Cawston Lift Station (LS). Located in Hemet, California, the Cawston LS was built in 1976 and is currently out of service. The design pumping capacity is 4.6 million gallons per day. The areas included in the assessment of the Cawston LS were the engine and generator room, the pump room, the wet well, and the exterior of the building. Condition assessment methods included visual assessment, concrete surface testing (sounding, penetration, crack widths, pH), surface penetrating radar to remotely determine reinforcement placement, coating thickness measurements, and ultrasonic thickness testing of metal components. V&A developed a condition assessment Technical Memorandum presenting the findings and recommendations.

**Encina Wastewater Authority Water Pollution Control Facility 2019 Condition Assessments. Carlsbad, CA**  
V&A Consulting Engineers (V&A) was retained by Encina Wastewater Authority (EWA) to perform a condition assessment of various facilities at the Encina Water Pollution Control Facility (EWPFC) in Carlsbad, CA. The EWPFC is a conventional activated sludge wastewater treatment plant with a liquid capacity of 40.5 MGD. The goal of the project is to provide recommendations for facility rehabilitation and/or replacement to allow EWA to plan for capital improvement projects. Condition assessments were performed on the primary sedimentation basins (confined-space permit required), CEPT chemical feed and storage area, air handling units, screw conveyors, heat exchangers, odor reduction facilities biotowers, return activated sludge box structures, and the secondary drainage and scum storage pit. V&A will develop remaining useful life (RUL) estimates, recommendations to extend RUL, recommendations for replacement, and cost estimates in a comprehensive Condition Assessment Report.
Los Angeles Community College District (LACCD) District-Wide Energy Efficiency/Utility Infrastructure Condition Assessment. Los Angeles, CA
V&A Consulting Engineers (V&A) was retained by Cardno, Inc. for Condition Assessment (CA) services to support the Los Angeles Community College District (LACCD) across all nine of their campuses. The purpose of the project was to assist LACCD with the future improvement project planning, including budget and estimation of life expectancy as well as the cost of repair or replacement of various utilities throughout the district. The scope of work consisted of multiple utility systems, including potable water, reclaimed water, hydronic water, sanitary sewer, and natural gas. An array of utility testing and tasks performed were visual assessments of above/belowground components and manholes, the ultrasonic thickness of accessible metallic components, leak detections, and confined space entry into the manholes and underground tunnel systems. Also, concrete testing through concrete sounding, concrete penetration, concrete surface pH, surface penetrating radars (SPR), and coating evaluations. The desktop review and assessment of the sanitary sewer pipe conditions are per the NASSCO standards. Also, performed were soil resistivity testing through evaluations for corrosive impact potentials the native soil may have on buried metallic components. We delivered a technical report detailing the results of the condition assessment findings and recommendations for improvements, including recommendations for preventive maintenance and rehabilitation using qualitative and quantitative data obtained during the assessments.

Santa Clara Valley Water District Cross Valley Pipeline and Calero Pipeline Inspection and Rehabilitation Project. Morgan Hill, CA
Project engineer for the inspection and rehabilitation of approximately 11 miles of 78-inch prestressed concrete cylinder pipe. The purpose of the project was to inspect the raw water transmission pipeline to determine if repairs were needed, rehabilitate various appurtenance vault sites, and install an acoustic fiber optic (AFO) monitoring system on the pipeline. Specific responsibilities included the planning and coordination of lockout-tagout, pipeline dewatering, AFO monitoring system installation, the electromagnetic and visual inspection, and the carbon fiber reinforced polymer (CFRP) repair method. [2018]

Santa Clara Valley Water District CFI-CFO Levee/Access Road Repair. Morgan Hill, CA
Project manager for the replacement of seven culverts that are embedded in the Calaveras Fault levee/access road, which allow water to pass through the levee without impounding. Due to degrading and aged infrastructure, the corrugated metal culverts would be replaced with HDPE pipe. Specific responsibilities included developing design drawings, acquiring environmental permits, determining material quantities, and developing a cost estimate and schedule.

Santa Clara Valley Water District Penitencia Water Treatment Plant Expansion Joint Replacement. San Jose, CA
Project manager for the replacement of a 66-inch seismic joint located on a transition riser at the District’s water treatment plant. The existing joint was leaking due to corrosion at the flange-bellow connection. Specific responsibilities included performing an on-site field assessment of the failure, preparing design specifications for a new joint, procuring materials, coordinating repair work, and developing a root-cause analysis report.

Santa Clara Valley Water District Cross Valley Pipeline Inspection. Morgan Hill, CA
Project manager for the electromagnetic and visual inspection of approximately 3 miles of a 78-inch raw water pipeline. The purpose of the inspection was to assess the condition of the prestressed concrete cylinder pipe (PCCP) and determine if any repairs were needed. Specific responsibilities included developing a dewatering plan, coordinating lockout-tagout and dewatering operations, acquiring environmental permits, developing an inspection plan, coordinating with external consultants for confined space rescue support and electromagnetic inspection services, and performing the visual inspection.
Noy Phannavong, PE
V&A Role: Condition Assessment Technical Leader

Education
B.S., Civil Engineering, University of California-Davis, 2007

Registration
Civil Engineer, CA (79592)

Joined V&A
2007

Total Years of Experience
12 years

Training and Certifications
- National Association of Sewer Service Companies (NASSCO) PACP Pipeline Assessment Certification Program (U-208-6264)
- NASSCO MACP Manhole Assessment Certification Program (U-815-07000854)
- NASSCO ITCP Inspector Training Certification Program (MR-713-0046)
- NASSCO CIPP Cured-in-Place Pipe Inspector (CIPP-1008-0103)
- Occupational Safety & Health Administration (OSHA) 10-hour Construction Safety
- Basic CPR/First Aid
- Confined Space Entry-Certified

Professional Summary
Over the past 12 years, Noy has been involved in water and wastewater infrastructure condition assessment projects. His duties include planning and executing projects, collecting and analyzing data, conducting engineering evaluations, and preparing engineering reports and rehabilitation design documents. He is well versed with various condition assessment tools for collecting data in the field as well as the data analysis aspects in the office. With his unique field experience in evaluating water transmission systems, sanitary sewer and storm water collection systems, pump stations, and treatment facilities, Noy assists clients in solving unique challenges of preserving water and wastewater infrastructure.

Relevant Experience

Orange County Sanitation District
Rehabilitation of Western Regional Sewers, Project No. 3-64, Orange County, CA
V&A was retained for condition assessment services to support the Orange County Sanitation District (OCSD) Rehabilitation of Western Regional Sewers, Project No. 3-64. For the pipeline assets, V&A performed review of 80,000 linear feet (LF) of existing CCTV footage, documented 15,000 LF of new CCTV footage, pipeline cleaning demonstrations, flow monitoring, and advanced pipe condition assessments including Laser Imaging Detection and Ranging (LiDAR), Pipe Penetrating Radar, and Accurate Mapping Probe. V&A also performed condition assessments of concrete structures and metallic components including 54 manholes and the Westside Pump Station wet well. Observations and testing on the concrete structures included visual assessment supplemented by digital photographs and video, concrete sounding, surface penetrating radar, half-cell potential, linear polarization, compressive and tensile strength, powder sampling for pH at depth in half-inch increments, and chemical testing.

Port of Oakland Sanitary Sewer Lift Station & Pipeline Rehab Wet Well Visual Assessment.
Oakland, CA
V&A performed a condition assessment of Lift Station No. 6 (LS06) and Lift Station No. 8 (LS08) located at the Oakland International Airport. The lift stations are owned and operated by the Port of Oakland (Port). V&A conducted visual assessment of the lift station wet wells, valve vaults, and above grade discharge piping, and provided recommendations for rehabilitation. The well structure was in good condition, but metallic components such as ductile iron piping and mounting brackets were recommended for replacement with corrosion resistant materials.

Sacramento Regional County Sanitation District
N15 and N16 Condition Assessment and Rehabilitation, Sacramento, CA
Managed, assessed, designed, provided technical assistance during construction, for the N15 and N16 sewer structures that were built in 1977. The structures convey up to 18 MGD of raw sewage. The N15 and N16 structures are the inlet and outlet structures, respectively, for the
Northeast Interceptor (N24 Interceptor) siphon crossing underneath the American River. Inlet and outlet structures on the north and south sides of the river allow the 66-inch N24 Interceptor to diverge into the triple-barrel 48-inch diameter siphon pipes and converge back to the N24 Interceptor, which becomes a 72-inch diameter pipe downstream of the outlet structure. Performed a confined space entry into the three chambers of each structure in order to assess the condition. Three Parshall flumes in the N16 structure measure flow from the N24 interceptor siphons and were found to be severely deteriorated. Actively designing the replacement of the flumes and the repairs to the PVC lining. Construction is estimated to begin in the summer of 2019.

Sacramento Regional County Sanitation District (Regional San) Interceptor Pipe Corrosion Investigation, Sacramento, CA
Facilitated the condition assessment of 20 manholes throughout the interceptor system. The intent of the condition assessment was to evaluate the condition of the selected manholes and associated reinforced concrete calcareous pipes, and other pipes with a high priority rating, based on Regional San’s Interceptor Condition Assessment Plan. Many of the reinforced calcareous concrete interceptor pipes within Regional San’s system were installed with 1-inch by 3-inch vitrified clay (VC) plugs as a way to measure the deterioration rate of the pipes exposed to the wastewater environment. The data collected from the assessment was used to estimate the deterioration rate of the reinforced calcareous pipes and to estimate their remaining useful life. The assessment will help guide further assessment activities and aid in future rehabilitation, maintenance and improvement efforts on the interceptor system.

Encina Wastewater Authority Water Pollution Control Facility 2019 Condition Assessments, Carlsbad, CA
V&A Consulting Engineers (V&A) was retained by Encina Wastewater Authority (EWA) to perform a condition assessment of various facilities at the Encina Water Pollution Control Facility (EWPCF) in Carlsbad, CA. The EWPCF is a conventional activated sludge wastewater treatment plant with a liquid capacity of 40.5 MGD. The goal of the project is to provide recommendations for facility rehabilitation and/or replacement to allow EWA to plan for capital improvement projects.

Condition assessments were performed on the primary sedimentation basins, CEPT chemical feed and storage area, air handling units, screw conveyors, heat exchangers, odor reduction facilities biotowers, return activated sludge box structures, and the secondary drainage and scum storage pit. V&A will develop remaining useful life (RUL) estimates, recommendations to extend RUL, recommendations for replacement, and cost estimates.

City of Sunnyvale Water Pollution Control Plant Facility Condition Assessments. Sunnyvale, CA
V&A, as a subconsultant to AECOM, was engaged to conduct condition assessment services and design support at the Water Pollution Control Plant (WPCP) to quantify and qualify several WPCP assets. The WPCP is located within a highly corrosive marine/brackish atmosphere and soil environment. The purpose of the project was to determine the existing condition of key elements of the influent piping, secondary treatment and tertiary treatment process facilities. The City requested physical assessments, recommendations for repairs, preliminary cost estimates, preliminary schedules, and a prioritized list of rehabilitation or repairs. V&A provided the City with thorough field investigation and various testing methods—both destructive and non-destructive—to create the Condition Optimization Analysis. After field activities are concluded, V&A will prepare and submit a detailed assessment of all pipelines and facilities tested.

San Francisco Public Utilities Commission 5th, 6th, and Division Street Combined Sewer Discharge Structures Condition Assessment. San Francisco, CA
V&A conducted a detailed condition assessment of the 5th Street (Combined Sewer Overflow [CSO] #24), 6th Street (CSO #25), and Division Street (CSO #26) combined sewer discharge (CSD) structures located in San Francisco, California. The condition assessment consisted of visual observations supplemented with photographic/video documentation, subsurface investigations of concrete features using surface penetrating radar, concrete surface corrosion testing, and concrete core testing. Based on the collected data, the overall condition of the structures and their estimated remaining service life were evaluated, and recommendations for repair/rehabilitation were developed to maximize the remaining useful life of the facilities.
Dr. Quazi has over 31 years of experience providing geotechnical engineering services and has earned a reputation for providing quality work in an honest and ethical manner, on time and within budget. Dr. Quazi provides quality control, budget oversight, and technical assistance on various types of projects, including pipelines, water treatment plants, wells, reservoirs, booster pump station and other related projects.

**Relevant Experience**

**Bogert Trail Sewer Lift Station**, Palm Springs, CA. Principal in Charge. Provided technical and budget oversight, resource allocation and contract management for the geotechnical investigation. The project consisted of installing a new lift station and a force main that will pump and convey sewer flow from the eastern upstream manhole to the western downstream manhole. The existing sewer siphon will be protected in place as a future bypass of the new lift station or be abandoned in place. The new lift station includes a precast concrete 4’ or 5’ diameter circular wet well structure. There will be a concrete, steel or fiber-reinforced plastic (FRP) dry pit next to the wet well where pumps will be installed.

**Pettit Pressure Reducing Station & Pipeline**, Moreno Valley, CA. Principal in Charge. Provided technical and budget oversight, resource allocation and contract management for the geotechnical investigation. The project consisted of approximately 29,700 linear feet of pipeline to be installed at Cactus Avenue, Indian Street, Alessandro Boulevard, and Perris Boulevard in the City of Moreno Valley, California. The Pettit Regulated Pressure Zone (RPZ) consisted of 4 pressure regulating stations with the size of 9.5’x17.5’, 9’x17’, 6’x17.5’ and 5.5’x17.5’. The pressure reducing station enclosures will be 8”x8”x16” CMU walls or wrought iron with removable roof. The enclosures will be founded on shallow foundations and 8” thick concrete slabs-on-grade.

**Diamond Regional Sewer Lift Station**, Lake Elsinore, CA. Principal in Charge. Provided technical and budget oversight, resource allocation and contract management for the geotechnical investigation. The proposed project is a finish grade lift station approximately 47’ x 87’ reinforced concrete structure with two below grade wet wells about 54 feet deep, diesel generator, odor control system, chemical feed equipment (if required), electrical building, pigging station, flow metering vault and all associated site yard piping and site grading. In addition, dual force mains totaling 3,400 linear feet of 54-inch sewer gravity line will flow directly from the structure.

**Perris Valley Interceptor Sewer**, Eastern Riverside County, CA. Principal in Charge. Provided technical and budget oversight, resource allocation and contract management for the geotechnical investigation. The project included design of lift station, gravity sewer and force main.

**Ahwahnee Lift Station**, San Bernardino County, CA. Principal in Charge. Provided technical oversight and budget control. The Ahwahnee Lift Station Wet Well Expansion included installation of two 10’ x 40’ x 8’ pre-cast concrete tanks and some miscellaneous piping, valving, and manholes construction. The concrete tanks were located about five (5) feet from the existing lift station which is approximately 17’ x 20’ in plan area. The approximate elevation of the base of the proposed tanks will be 6,498 feet above MSL. The proposed tanks were connected by 24-inch diameter CL-235 PVC pipe at the base of the tanks. Tank No. 1 and wet well were connected by 12-inch diameter overflow pipe and 8-inch diameter drain pipe.
Zahangir Alam, PhD, EIT
Senior Staff Engineer / Project Manager

Mr. Alam has over 7 years of experience involving investigation and engineering analysis. His field experience includes soil investigation and sampling. In his experience, Mr. Alam has prepared various detailed reports based on field data and observations, laboratory testing and geotechnical engineering principles.

Relevant Experience

**Bogert Trail Sewer Lift Station, Palm Springs, CA.** Senior Staff Engineer. Managed fieldwork and paperwork and prepared reports for the project during the geotechnical investigation. The project consisted of installing a new lift station and a force main that will pump and convey sewer flow from the eastern upstream manhole to the western downstream manhole. The existing sewer siphon will be protected in place as a future bypass of the new lift station or be abandoned in place. The new lift station includes a precast concrete 4’ or 5’ diameter circular wet well structure. There will be a concrete, steel or fiber-reinforced plastic (FRP) dry pit next to the wet well where pumps will be installed.

**Pettit Pressure Reducing Station & Pipeline, Moreno Valley, CA.** Senior Staff Engineer. Managed fieldwork and paperwork and prepared reports for the project during the geotechnical investigation. The project consisted of approximately 29,700 linear feet of pipeline to be installed at Cactus Avenue, Indian Street, Alessandro Boulevard, and Perris Boulevard in the City of Moreno Valley, California. The Pettit Regulated Pressure Zone (RPZ) consisted of 4 pressure regulating stations with the size of 9.5’x17.5’, 9’x17’, 6’x17.5’ and 5.5’x17.5’. The pressure reducing station enclosures will be 8”x8”x16” CMU walls or wrought iron with removable roof. The enclosures will be founded on shallow foundations and 8” thick concrete slabs-on-grade.

**Diamond Regional Sewer Lift Station, Lake Elsinore, CA.** Senior Staff Engineer. Managed fieldwork and paperwork and prepared reports for the project during the geotechnical investigation. The proposed project is a finish grade lift station approximately 47’ x 87’ reinforced concrete structure with two below grade wet wells about 54 feet deep, diesel generator, odor control system, chemical feed equipment (if required), electrical building, pigging station, flow metering vault and all associated site yard piping and site grading. In addition, dual force mains totaling 3,400 linear feet of 54-inch sewer gravity line will flow directly from the structure.

**Hemlock & Redlands Booster Pump Station & Pipeline, Redlands, CA.** Senior Staff Engineer. Managed fieldwork and paperwork and prepared the geotechnical investigation. The project included the installation of 3,000 gpm capacity vertical pump cans, a 30 foot x 20 foot control and equipment building, and a 1,400 l.f. of pipeline exiting the new booster pump station (BPS) site and running north along Redlands Boulevard in Moreno Valley, California. The pipeline was 24 inches in diameter with an invert depth of approximately 6 to 8 feet bgs. Open cut and cover technique was used to install the pipeline.

**EDUCATION**
- Ph.D., Geotechnical Engineering, University of Texas at Arlington, 2016
- B.S., Bangladesh University of Engineering and Technology, 2009

**CERTIFICATIONS**
- EIT No. 58596, Texas Board of Professional Engineers

**AFFILIATIONS**
- American Society of Civil Engineers (ASCE)
STEVEN POWERS
BRANCH MANAGER

EXPERTISE
- CCTV Inspection Robotics
- Pipe Condition & Rating Software Systems
- Panoramo and Structure Modeling
- Sonar Profiling
- Laser Profiling
- CIPP
- Lateral CIPP

CERTIFICATIONS
- OSHA Confined Space Entry
- OSHA 10-Hour
- NASSCO PACP, MACP, LACP
- Traffic Control
- CPR/First Aid

CONTACT
PHONE: 949.598.9743 Ext. 6301
WEBSITE: www.pro-pipe.com
EMAIL: spowers@hswcorp.com

SUMMARY
Steve Powers started with Hoffman Southwest Corporation in 1993 managing large plumbing projects and service contracts. Steve accepted the role of manager for Hoffman’s infrastructure division, Professional Pipe Services, in 2006 to oversee California operations. Steve has successfully completed more than $30M in wastewater infrastructure contracts in Southern California. Steve’s responsibilities include branch operations management, field crew assignment, quality-control oversight, and revenue performance.

EXPERIENCE
City of Los Angeles, CA | Pro-Pipe provides condition assessment services contracted directly with the City, assessing more than 500 miles annually for 13 consecutive years. Total value to date exceeds $24M. This is the largest condition assessment effort launched in the Western United States.

City of Las Vegas, NV | Pro-Pipe provides condition assessment services contracted with City consultants, with over 600 miles of digital Panoramo pipe scanning and thousands of manholes to date. The project was commenced in 2010 and Pro-Pipe is currently in its second 5-year term.

Oceanside, CA | Pro-Pipe is currently in its 4th year providing Panoramo CCTV inspection services city-wide in conjunction with oversight performed by IEC.

Chula Vista, CA | In 2015, Pro-Pipe engaged in a 3-year manhole condition assessment project with the City to digitally scan several thousand manholes annually utilizing Panoramo technology.

REFERENCES
Bureau of Sanitation, City of Los Angeles, CA
Carmelo Martinez  323.342.6040  carmelo.martinez@lacity.org

Orange County Sanitation District (OCSD), Orange County, CA
Justin Fenton  714.593.7386  jfenton@ocsd.org
PAST PROJECTS
City of Los Angeles – Pro-Pipe provides condition assessment services contracted directly with the City, assessing more than 500 miles annually since 2002.

Los Angeles County Sanitation District – Pro-Pipe provided pipe condition assessment services for approximately 462,000 LF during a one-year contract.

CURRENT PROJECTS
Pro-Pipe schedules projects and works with the project Owner and other contractors in order to provide quality work that meets the predetermined deadlines.

City of Los Angeles – Pro-Pipe provides condition assessment services contracted directly with the City, assessing more than 500 miles annually since 2002.
DEAN MONK
VICE PRESIDENT OF OPERATIONS

SUMMARY
Dean Monk is one of the founders and innovators of Professional Pipe Services, owned by Hoffman Southwest Corporation. Dean began operation of Pro-Pipe in 1992 in Arizona, and today is leading the industry in Arizona, California, Oregon, Utah, Nevada, and New Mexico. Dean has extensive experience in managing condition assessment projects and maintenance/rehabilitation services for large, complex infrastructure systems and is dedicated to improving the industry with new technology.

EXPERIENCE
City of Los Angeles Cleaning/CCTV: 2002-Current
Oversee quality control and sourcing advanced technology for cleaning and CCTV crews through various work orders spanning over 6,000 miles of gravity wastewater infrastructure including sewer mains, truck mains, siphons, clarifiers, pits, tanks, and lift stations.

Pima County Wastewater, Tucson, AZ: 2010 – Current
Dean oversees quality control implementation and senior staff assignment for servicing a 750-mile wastewater system. Services include deployment of multiple CCTV inspection trucks operating with GNET licenses and hydro-vac combination cleaning trucks. Dean was instrumental in deploying an advanced CIPP spot repair system utilizing ultra-violet light technology which has become one of Pima’s favored rehabilitation methods.

Sanitation Districts, Los Angeles County: 2012 – Current
Dean oversees resource allocation and senior staff assignment for servicing a 250-mile wastewater trunk system. Services include deployment of multiple CCTV inspection trucks.

REFERENCES
City of Los Angeles, CA Bureau of Sanitation
Barry Berggren 323.342.6002 barry.berggren@lacity.org

Pima County Wastewater, Tucson, AZ
Bob Machen 520.390.8371 bob.machen@pima.gov
PAST PROJECTS

City of Los Angeles – Pro-Pipe provides condition assessment services contracted directly with the City, assessing more than 500 miles annually since 2002.

Pima County Wastewater – Pro-Pipe provides condition assessment services contracted with city consultants supporting a highly aggressive rehabilitation program since 2010.

Los Angeles County Sanitation District – Pro-Pipe provided pipe condition assessment services for approximately 462,000 LF during a one-year contract.

CURRENT PROJECTS

Pro-Pipe schedules projects and works with the project Owner and other contractors in order to provide quality work that meets the predetermined deadlines.

City of Los Angeles – Pro-Pipe provides condition assessment services contracted directly with the City, assessing more than 500 miles annually since 2002.

Pima County Wastewater – Pro-Pipe provides condition assessment services contracted with city consultants supporting a highly aggressive rehabilitation program since 2010.

City of Las Vegas – Pro-Pipe provides condition assessment services contracted with consultants, currently in its 6th year of service, with over 600 miles of high-definition Panorama pipe scanning to date.
CERTIFICATIONS

- OSHA Confined Space Training
- NASSCO PACP, MACP, & LACP
- ATSSA Certified
- AZDEQ Grade 1 Wastewater Collection System Operator

CONTACT

PHONE: 949.380.4161 Ext. 1052
WEBSITE: www.pro-pipe.com
EMAIL: nick.lanoue@pro-pipe.com

REFERENCES

Pima County Wastewater, Tucson, AZ
Bob Machen
520.443.6533
bob.machen@pima.gov

SouthWest Gas, AZ
Bob Johnson
520.794.6019
bobby.johnson@swgas.com

SUMMARY

Nick Lanoue started working with Hoffman Southwest Corp. in 2010, quickly rising to the Operations Manager of Pro-Pipe. Nick has extensive experience in managing small to large size wastewater pipeline rehabilitation, gas line cross-bore projects, cleaning and inspections of sewer lines, storm drains, dry wells, irrigation lines and catch basins, using CCTV, sonar, and laser technologies. He has a wide knowledge of potable water, sewer, storm drain systems, treatment plants, job site requirements, and safety/training. Nick is well trained for quick and accurate pipe-condition assessment and implementing decisive action for rehabilitation.

Nick was responsible for the successful deployment of the CCTV fleet, operating the Granite Net (GNET) software systems for Pima County, including sourcing a project manager. The contract is within its second 5-year term. Nick also oversees resource allocation for California based projects.

EXPERIENCE

Seven (7) years with Hoffman Southwest Corp., dba Professional Pipe Services. Nick has over 14-million feet of GIS integrated wastewater mainline inspections on a single project for Pima County Wastewater. Nick’s responsibilities include setting procedures and monitoring standards to ensure seamless GIS integration. He is highly experienced with the removal procedures of protruding laterals, fixed deposits, grease and heavy roots for insertion of CIPP using various types of mechanical methods.

Nick is experienced with cross-bore preventative programs, mechanical chain flails, carbine & diamond-tip saw blades for removal of protruding laterals and fixed deposits, grease removal, siphon dewatering, bypass pumping, Hydrovac equipment operations and CCTV inspections, including CUES, Aries, Ibak, WinCan, Pipelogix, Granite and IT Pipes.
PAST PROJECTS

City of Los Angeles – Pro-Pipe provides condition assessment services contracted directly with the City, assessing more than 500 miles annually since 2002.

Pima County Wastewater – Pro-Pipe provides condition assessment services contracted with city consultants supporting a highly aggressive rehabilitation program since 2010.

Los Angeles County Sanitation District – Pro-Pipe provided pipe condition assessment services for approximately 462,000 LF during a one-year contract.

CURRENT PROJECTS

Pro-Pipe schedules projects and works with the project Owner and other contractors in order to provide quality work that meets the predetermined deadlines.

City of Los Angeles – Pro-Pipe provides condition assessment services contracted directly with the City, assessing more than 500 miles annually since 2002.

Pima County Wastewater – Pro-Pipe provides condition assessment services contracted with city consultants supporting a highly aggressive rehabilitation program since 2010. Nick was responsible for the successful deployment of the CCTV fleet, operating the Granite Net (GNET) software systems for Pima County, including sourcing a project manager. The contract is within its second 5-year term.

Southwest Gas – Pro-Pipe provides cross bore inspection services in Arizona with emphasis in Tucson.
CERTIFICATIONS

- OSHA Confined Space Training
- OSHA 10-Hour
- NASSCO PACP, MACP, & LACP Certified
- NASSCO PACP, MACP, & LACP Certified Trainer

CONTACT
PHONE:
949.380.4161 Ext. 6207

WEBSITE:
www.pro-pipe.com

EMAIL:
chris.clauser@pro-pipe.com

SUMMARY

Chris Clauser started with Hoffman Southwest Corp. Pro-Pipe division in February 2013 to fulfill a lead role in the quality control department and today is the Quality Control Manager for all Arizona-based projects and special projects in the Western United States. Chris has more than 5 years in technical oversight, pipeline condition assessment and communications and more than 16-years heavy equipment operations. Chris has extensive experience with multiple software platforms including Granite XP, Granite Net Pipelogix, WinCan v8, WinCan VX, POSM, Pinnacle Studio 18, Adobe, Microsoft Excel, Microsoft Office Access, and ESRI Arc Map Version 10.5. Additionally, Chris has implemented numerous data-scripts in analyzing PACP/MACP databases for integration into various software platforms and to function as condition assessment tools. Chris has developed an advanced, interim rating system for manhole assessments until NASSCO releases their final MACP rating protocol.

EXPERIENCE

Bi-monthly quality control review and distribution of a Hanson database and video library for a 100-mile project in San Antonio, TX (including GIS asset review for integration of missing manholes). Quality control review and final deliverable processing for Sedona Panorama, City of Scottsdale Panorama with InfoMaster integration, City of Scottsdale Lateral-Launch Verify Program, City of Phoenix mainline assessment and maintenance programs, City of Oceanside Panorama and GIS processing with Lucity Integration, Las Vegas Panorama Data Management oversight.

REFERENCES

City of Scottsdale, AZ
Bill Wilson  602.316.4584  bwilson@scottsdaleaz.gov
PAST PROJECTS

Chris Clauser plays an integral part in all projects in Arizona and special projects across the Western US. Additionally, Chris has implemented numerous data-scripts in analyzing PACP/MACP databases for integration into various software platforms and to function as condition assessment tools.

CURRENT PROJECTS

Bi-monthly quality control review and distribution of a Hanson database and video library for a 100-mile project in San Antonio, TX (including GIS asset review for integration of missing manholes). Quality control review and final deliverable processing for Sedona Panoramo, City of Scottsdale Panoramo with InfoMaster integration, City of Scottsdale Lateral-Launch Verify Program, City of Phoenix mainline assessment and maintenance programs, City of Oceanside Panoramo and GIS processing with Lucity Integration, Las Vegas Panoramo Data Management oversight.
SUMMARY

Brian Young began his career as a Field Tech for Professional Pipe Services in Phoenix, AZ in 2003. Over the next fifteen years, he has held positions as a CCTV Operator, Safety Supervisor, Superintendent, and has continued to climb the ladder to his current position as the Branch Manager in Dallas, TX. In his role as a CCTV Operator, Brian gained extensive knowledge and was certified with NASSCO to conduct pipeline condition assessments of municipalities in multiple states. From 2004 to present, Brian has worked with Southwest Gas developing their Cross-Bore project along with other various Cross-Bore projects in the states of Arizona, Nevada, and Texas. In addition, Brian is highly experienced in managing condition assessment projects while leading a team of highly motivated and knowledgeable personnel.

EXPERIENCE

Southwest Gas CCTV: 2004 – 2010
Cross-Bore projects in the Phoenix and Las Vegas Metroplex. Proficient in camera robotics which includes push, main line, and lateral line cameras. Developed and implemented a system to track the progress and completion of the surveyed sewer lines and laterals in various cities.

Pima County Wastewater, Tucson AZ: 2010 - 2014
Operator of CCTV inspection systems and hydro-vac combination cleaning trucks. Knowledgeable in deploying Pima’s favored rehabilitation method, an advanced CIPP spot repair system utilizing ultra-violet light technology.

ATMOS Energy: 2017 – Present
Cross-bore projects covering Dallas/Ft. Worth and Waco regions of North Texas. For tracking we utilize Cm+, GIS and smartsheets to do real time updates of these projects for cross-bore. Using GIS can forecast what areas will need more investigating in the cross-bore inspection projects. Using Push, Mainline, and Lateral cameras, we are able to cover many types and sizes of pipes.

REFERENCES

Pima County Wastewater, Tucson, AZ
Bob Machen  520.390.8371  bob.machen@pima.gov

AEGION, Ft. Worth, TX
Ben Hawkins  214.245.6089  bhawkins@aegion.com
PAST PROJECTS

ATMOS Energy – Clean and CCTV 375,000 LF of sanitary sewer within 26 municipalities throughout Central and North Central Texas to assist in statewide cross-bore effort.

DFW Airport – Clean and CCTV storm drains to assist mapping effort undertaken by DFW Airport.

SAWS – Assist Garver in Small Diameter assessment through cleaning and CCTV of approximately 2,200 LF of 8”-12” diameter sanitary sewer line.

CURRENT PROJECTS

Pro-Pipe schedules projects and works with the project Owner and other contractors in order to provide quality work that meets the predetermined deadlines.

ATMOS Energy – Clean and CCTV 375,000 LF of sanitary sewer within 26 municipalities throughout Central and North Central Texas to assist in statewide cross-bore effort.

DFW Airport – Clean and CCTV storm drains to assist mapping effort undertaken by DFW Airport.
Vincent G. Kleppe

Education:
Bachelor of Science in Civil Engineering (Survey Emphasis)
California State Polytechnic University, Pomona, 1993
Master of Science in Engineering (Structural Emphasis)
California State Polytechnic University, Pomona, 1999

Registrations:
Professional Land Surveyor No. 7181, California
Registered Civil Engineer No. 55750, California
QSD #22260

Affiliations:
California Land Surveyors Association
American Society of Civil Engineers
Chi Epsilon

Vincent Kleppe has worked in the Civil Engineering field for over twenty nine years. Mr. Kleppe attended Cal-Poly Pomona where he earned his Bachelor of Science degree in Civil Engineering - Survey Option. Mr. Kleppe is a member of Chi-Epsilon, the Civil Engineering Honor Society.

Mr. Kleppe has served as Project Manager for public and private sector civil engineering and surveying projects. His experience includes design and preparation of contract documents (construction drawings and specifications) for various private and public works projects, including water mains, pressure regulating stations, sewers and sewage force mains. Preparation of grading plans for single residential and multi lot tracts, including hydrology analysis, storm drain design, preparation of storm water pollution prevention plans, landfill site drainage maintenance plans and reports, and street improvement design. Construction observation of public works construction projects, including water storage reservoirs, water and sewer mains, well drilling, aquifer development, and expert witness field investigations.

Surveying using robotic total station, RTK gps, and HDS 3-D laser scanning equipment, topographic surveys, cross section surveys, construction staking (including pipeline and building layout, slope staking, curb and gutter, and site finish grade staking), abandoned well location, and boundary surveying and monumentation. Preparation of tract and parcel maps, lot line adjustments, legal descriptions and plats for grant deeds and grants of easements, including research of land ownership and past transfers of title.

Mr. Kleppe has experience in software including: AutoCAD, Eagle Point engineering software, Bentley V8, Cyclone 3-d modeling software, ESRI Arcview, and Leica Ski Pro gps processing software, and NGS OPUS CORS station gps network processing software.

Mr. Kleppe is currently in charge of managing and directing daily field and office services which include overseeing design of multi lot subdivisions, processing of construction and topographic survey field data for private and public works projects, maintaining survey data from landfill sites, and scheduling of field survey crews, preparing SWPPP’s and site storm monitoring inspections.

Mr. Kleppe has extensive experience with state of the art surveying equipment including robotic total stations, global positioning surveying (gps), and the latest Leica High Defenition Surveying 3-D laser imaging system. Mr. Kleppe has instructed a 3-D laser scanning and modeling class at California Polytechnic University at Pomona.
Appendix - Required Documentation

On the following pages we have provided the required documentation regarding confined space entry, including training records and certifications. Our field inspection team for confined space entry will be led by our subconsultant, V&A Consultants. With more than 40 years in business, V&A has safely performed approximately 25,000 confined space entries for condition assessment and flow monitoring projects.
Recognition

This is to certify that

Brian Briones

has successfully completed Safety Services Company's

Confined Spaces

Competent Person training program in compliance
with the current training requirements.

January 28, 2016
Date of Training

January 28, 2016
Date of Evaluation

Kirk
Trainer

Attachment: Exhibit C - Consultant Proposal (4151 : Warm Springs Sewage Lift Station Preliminary Design and Upstream Sewers Condition)
Lee & Associates Rescue
Training Division

As Authorized and Upon the Recommendation of The Faculty, Hereby Confers Upon

Noy Phannavong

Confined Space Entry & Rescue Ops Refresher Training
Self-Contained Breathing Apparatus (SCBA) Training

V & A Consulting Engineers

Certificate of Completion – 16 Hours

April 9, 2019

Carl Levon Kustin
Instructor
Lee & Associates Rescue
Training Division

As Authorized and Upon the Recommendation of The Faculty, Hereby Confers Upon

Jessica Bolanos

Confined Space Entry & Rescue Ops Training
Self-Contained Breathing Apparatus (SCBA) Training

V & A Consulting Engineers

Certificate of Completion – 16 Hours

April 9, 2019

Carl Levon Kustin
Instructor
Lee & Associates Rescue
Training Division

As Authorized and Upon the Recommendation of The Faculty, Hereby Confers Upon

Farshad Malek

Confined Space Entry & Rescue Ops Training
Self-Contained Breathing Apparatus (SCBA) Training

V & A Consulting Engineers

Certificate of Completion – 16 Hours

April 9, 2019

Carl Levon Kustin
Instructor
Recognition

This is to certify that

Mike Sherman

has successfully completed Safety Services Company's

Confined Spaces

Competent Person Training Program in compliance with the current training requirements.

January 28, 2016
Date of Training

January 28, 2016
Date of Evaluation

Kath Lymnott
Trainer
THIS CERTIFIES

THOMAS A. VOSS

Attended Permit Entry Confined Space Training
and is hereby recognized as an authorized Attendant, Entrant, and Entry Supervisor.

Subjects Included:
Recognition of Entry Hazards
Recognition of Symptoms of exposure
Use of Safe Entry Equipment and Procedures
Emergency Procedures

_______________________________    Date: ______________________

Thomas A. Voss
Senior Safety Coordinator
Voss Laboratories, Inc.

January 11, 2019
CERTIFIED PACP/LACP & MACP USER

Brian Briones

Is certified in:
- Pipeline Assessment
- Lateral Assessment
- Manhole Assessment

Certification number: U-216-07002781
Expiration date: 03/11/2022

National Association of Sewer Service Companies
NASSCO, Inc.
# Warm Springs Lift Station Rehab & Trunk Sewers Assessment

## PROJECT COST ESTIMATE

<table>
<thead>
<tr>
<th>PHASE</th>
<th>ESTIMATED COST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FACILITIES PLANNING PHASE</strong></td>
<td>$0</td>
</tr>
<tr>
<td>Planning/Feasibility</td>
<td>$0</td>
</tr>
<tr>
<td>Eng. Branch Labor</td>
<td>$0</td>
</tr>
<tr>
<td><strong>PRELIMINARY DESIGN PHASE</strong></td>
<td><strong>$1,116,200</strong></td>
</tr>
<tr>
<td>Preliminary Design Consultant</td>
<td>$674,202</td>
</tr>
<tr>
<td>Additional design support</td>
<td>$51,700</td>
</tr>
<tr>
<td>WSLS Bypass Contract</td>
<td>$246,500</td>
</tr>
<tr>
<td>Operations Labor</td>
<td>$51,298</td>
</tr>
<tr>
<td>Eng/Field Eng Labor</td>
<td>$92,500</td>
</tr>
<tr>
<td><strong>FINAL DESIGN PHASE</strong></td>
<td>$0</td>
</tr>
<tr>
<td>Site Acquisition / Permits</td>
<td>$0</td>
</tr>
<tr>
<td>Design Consultant</td>
<td>$0</td>
</tr>
<tr>
<td>Surveying Consultant</td>
<td>$0</td>
</tr>
<tr>
<td>Geotechnical Consultant</td>
<td>$0</td>
</tr>
<tr>
<td>Environmental Consultant</td>
<td>$0</td>
</tr>
<tr>
<td>Eng. Branch Labor</td>
<td>$0</td>
</tr>
<tr>
<td><strong>SPEC REVIEW</strong></td>
<td>$0</td>
</tr>
<tr>
<td>Final prep of plans &amp; specs</td>
<td>$0</td>
</tr>
<tr>
<td><strong>BID/AWARD PHASE</strong></td>
<td>$0</td>
</tr>
<tr>
<td>Includes Labor, Advertisement, and Materials</td>
<td></td>
</tr>
<tr>
<td><strong>CONSTRUCTION PHASE</strong></td>
<td>$0</td>
</tr>
<tr>
<td>Contract Services (Soils &amp; Staking)</td>
<td>$0</td>
</tr>
<tr>
<td>Construction Contract</td>
<td>$0</td>
</tr>
<tr>
<td>Inspection</td>
<td>$0</td>
</tr>
<tr>
<td>Contract Administration</td>
<td>$0</td>
</tr>
<tr>
<td>(Includes: Const Adm, Const Adm Rep, Review of Submittals, etc.)</td>
<td></td>
</tr>
<tr>
<td>Operations Labor</td>
<td>$0</td>
</tr>
<tr>
<td>Contingencies</td>
<td>$0</td>
</tr>
<tr>
<td><strong>ADMINISTRATIVE CLOSE OUT PHASE</strong></td>
<td>$0</td>
</tr>
<tr>
<td>Eng Branch Labor</td>
<td>$0</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED PROJECT COST</strong></td>
<td><strong>$1,116,200</strong></td>
</tr>
</tbody>
</table>

PAR No. 2019/127 * $0 Previously Appropriated

Reviewed ____________
Warm Springs Lift Station

- Significant deterioration of concrete surfaces observed within wet well footprint.
- Location of recent sinkhole.
- Warm Springs Creek Interceptor Trunk Sewer.
- Santa Gertrudis Trunk Sewer.
Background

- Deteriorated concrete surfaces
- Corroded surfaces
- Wet well partially below grade
- Influent manhole
- Dry well
- Wet well
- Corroded surface

Attachment: Presentation (4151) : Warm Springs Sewage Lift Station Preliminary Design

Packet Pg. 183
Background (continued)

Deterioration observed under wet well cover

Underside of hatch shows sign of concrete damage
Warm Springs Lift Station and Sewers

- Warm Springs Creek Interceptor
- Trunk Sewer
- Santa Gertrudis Trunk Sewer
- Warm Springs Lift Station
Consultant Selection Process

• Issued RFP for Warm Springs Sewage Lift Station Rehabilitation Preliminary Design and Condition Assessment of Upstream Trunk Sewers on October 9, 2019 to eleven consultants

• The District received four proposals on December 2, 2019

• A selection committee comprised of Operations and Engineering performed a ranking of proposals using the following criteria:
  – Project understanding and approach (30%)
  – Relevant experience (35%)
  – Capacity and availability of firm (20%)
  – Past experience/performance (15%)
# Consultant Selection Matrix

<table>
<thead>
<tr>
<th>Consultant</th>
<th>Technical Proposal Rating</th>
<th>Fee Proposal</th>
<th>Proposal Review Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carollo Engineers</td>
<td>8.7</td>
<td>$674,202</td>
<td>Excellent proposal with a clear understanding of project. Proposal included multiple detailed concepts for lift station by-pass. Firm/team demonstrated wide breadth of experience.</td>
</tr>
<tr>
<td>Hazen &amp; Sawyer</td>
<td>8.6</td>
<td>$928,397</td>
<td>Excellent proposal with a clear understanding of project. Proposal included concept for lift station by-pass. Firm/team demonstrated wide breadth of experience.</td>
</tr>
<tr>
<td>HDR</td>
<td>8.2</td>
<td>$677,600</td>
<td>Very good proposal with clear understanding of project. Proposal emphasized the team's condition assessment expertise. Firm/team demonstrated extensive experience.</td>
</tr>
<tr>
<td>Krieger &amp; Stewart</td>
<td>8.2</td>
<td>$675,000</td>
<td>Very good proposal with clear understanding of project. Proposal included concept for lift station by-pass. Firm/team demonstrated experience.</td>
</tr>
</tbody>
</table>

Note: Carollo's proposed fee of $699,042 was negotiated to an amount of $674,202.

**Selection Criteria:**
1. Project understanding and approach (30%)
2. Relevant experience of the firm and team members (35%)
3. Capacity and availability of firm to handle all aspects of the project and deliver in a timely manner (20%)
4. Past experience/performance of the firm and team (15%)

**Review Panel:**
- Dave Brown, Director of Maintenance
- Matt Melendrez, Director of Reclamation
- Bill Nealeigh, Electrical Services Manager
- Laura Barraza, Principal Civil Engineer - Planning
- Erik Jorgensen, Principal Civil Engineer - Wastewater
Consultant Scope of Work

- Project management and quality assurance/quality control
- Preliminary Design for Warm Springs Lift Station Rehabilitation, including field investigations of the wet well
- Condition Assessments of Upstream Trunk Sewers and Manholes

The consultant will perform field investigations of the Warm Springs Lift Station wet well during a shut down and by-pass of the lift station performed by a separate contractor.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board award - PDR</td>
<td>January 2020</td>
</tr>
<tr>
<td>Field investigation</td>
<td>July 2020</td>
</tr>
<tr>
<td>Preliminary design</td>
<td>November 2020</td>
</tr>
<tr>
<td>Board award - Final design</td>
<td>January 2021</td>
</tr>
<tr>
<td>Final design</td>
<td>October 2021</td>
</tr>
<tr>
<td>Advertisement</td>
<td>December 2021</td>
</tr>
<tr>
<td>Board award - Construction</td>
<td>February 2022</td>
</tr>
<tr>
<td>Tentative completion</td>
<td>December 2022</td>
</tr>
</tbody>
</table>
Recommendation

• Execution by the General Manager of the District's standard form of contract with the Carollo Engineers, in the amount of $674,202;

• Administrative award and execution by the General Manager, or his designee, of the District’s standard form of construction contract to perform WSLS bypass to support field investigation, in the amount of $246,500;

• Administrative award and execution by the General Manager, or his designee, of the District’s standard form of contract with the necessary consultants, contractors, and suppliers to complete the rehabilitation preliminary design and sewer condition assessment; and

• Appropriation in the amount of $1,116,200.
Contact Information

Erik Jorgensen, P.E.
Principal Civil Engineer
(951) 928-3777 Ext. 4471

Email: jorgense@emwd.org
Board of Directors
January 8, 2020

SUBJECT:

Approve and Authorize the Award of Contracts with J.R. Filanc Construction Company, Incorporated, ($438,962) for the Moreno Valley and Temecula Valley Regional Water Reclamation Facilities Aeration Panel Membrane Replacements, and Hemet Manufacturing Company, Incorporated, dba Genesis Construction, ($484,228) for the Perris Valley Regional Water Reclamation Facility Aeration Panel Membrane Replacements, and Parkson Corporation, for Aeration Membrane Materials ($406,068) for a Total Project Cost Not to Exceed $1,642,000

BACKGROUND:

Currently, the District’s water reclamation facilities are equipped with fine bubble diffusion aeration panels manufactured by Parkson Corporation. The membrane material that generates the fine bubbles must be routinely replaced. At this time, the Moreno Valley, Perris Valley, and Temecula Valley Regional Water Reclamation Facilities have aeration trains that require membrane replacements. This effort includes replacing a total of 766 membranes in 12 aeration basins or zones.

These membranes are proprietary and can only be purchased through the manufacturer and their local distributor. As shown on the attached quotation from Parkson Corporation (Exhibit A), the total cost for membrane and hardware is $406,228, excluding tax and shipping.

On October 10, 2019, the District issued Request for Proposal (RFP) No. 3220 to the District’s pre-approved, on-call maintenance contractors to replace the air diffuser membranes. A total of four bids were received. The proposals were evaluated on a variety of criteria including price and previous experience. As shown on the attached summary (Exhibit B), J.R. Filanc Construction Company, Incorporated, (JR Filanc) and Hemet Manufacturing Company, Incorporated, dba Genesis Construction (Genesis Construction) were the highest rated proposals and also the lowest proposed cost. JR Filanc submitted the highest rated proposal for the Temecula and Moreno Valley facilities with Genesis Construction providing the highest rated proposal for the Perris facility.

The total project cost is estimated at $1,642,000 (Exhibit C) including staff labor and contingencies. This is within the budgeted amount of $2,140,000 included in the approved Fiscal Year 2019/2020 Operating Fixed Assets Budget.

FINANCIAL IMPACT:

Funding for this item is provided for in the Biennial Budget for Fiscal Years 2019-20 and 2020-21.
**STRATEGIC PLANNING GOAL/OBJECTIVE:**

**Maintenance:** Implement and manage preventative and predictive maintenance programs that enable a highly reliable operation of EMWD’s facilities and extend the useful life of assets.

**ENVIRONMENTAL IMPACT:**

None

**RECOMMENDATION:**

Approve and authorize the following:

1. Execution by the General Manager, or his designee, of a contract with J.R. Filanc Construction Company, Incorporated, for the Moreno Valley and Temecula Valley Regional Water Reclamation Facilities Aeration Panel Membrane Replacements in the amount of $438,962;

2. Execution by the General Manager, or his designee, of a contract with Hemet Manufacturing Company, Incorporated, dba Genesis Construction for the Perris Valley Regional Water Reclamation Facility Aeration Panel Membrane Replacements in the amount of $484,228; and

3. Execution by the General Manager, or his designee, of a contract with Parkson Corporation, for the Aeration Panel Membrane Replacements in the amount of $406,068 plus tax and shipping.

**SUBMITTED BY:**

Paul D. Jones II  P.E., General Manager  12/13/2019

Jeff D. Wall  P.E., Assistant General Manager  11/8/2019

**Attachment(s):**

- Exhibit A - Quote
- Exhibit B - Proposal Summary
- Exhibit C - Cost Estimate
- Presentation

**History:**

12/18/19  Board Operations and Engineering Committee  RECOMMENDED FOR APPROVAL
01/08/20 Board Meeting

Staff Contact: Matthew Melendrez
**Aftermarket - Quotation**

1401 W. Cypress Creek Road - Suite 100, Fort Lauderdale, FL 33309
1-888 PARKSON
562 Bunker Court, Vernon Hills, IL 60061
1-800-249-2140

* The Quotation is submitted pursuant to Parkson Corporation’s Aftermarket Terms and Conditions, which are attached hereto

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Product Description</th>
<th>Line Item Description</th>
<th>Quantity</th>
<th>Sales Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1007941</td>
<td>Membrane, 4.2mmPunch, Insp., 4x12</td>
<td>(For Perris RWRF - 600175) Discounted price - standard price is $520.00 each.</td>
<td>464.00</td>
<td>$494.00</td>
<td>$229,216.00</td>
</tr>
<tr>
<td>1007941</td>
<td>Membrane, 4.2mmPunch, Insp., 4x12</td>
<td>(For Temecula RWRF - 600110) Discounted price - standard price is $520.00 each.</td>
<td>132.00</td>
<td>$494.00</td>
<td>$65,208.00</td>
</tr>
<tr>
<td>1007941</td>
<td>Membrane, 4.2mmPunch, Insp., 4x12</td>
<td>(For Moreno RWRF - 600011) Discounted price - standard price is $520.00 each.</td>
<td>226.00</td>
<td>$494.00</td>
<td>$111,644.00</td>
</tr>
<tr>
<td>0900000-</td>
<td>x- Freight</td>
<td>To Be Determined</td>
<td>1.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

Please complete information below:

**BILL TO Name:** ________________________________

**Address:** _____________________________________

**City, State, Zip:** ______________________________

**PO #:** ________________________________

**Bill to - Email:** ______________________________

**SHIP TO Name:** ______________________________

**Address:** _____________________________________

**City, State, Zip:** ______________________________

**SHIP TO Attn of:** ______________________________

**Phone:** ______________________________

**All amounts expressed in US Dollars**

**Quote Acceptance Information**

Signature ________________________________
<table>
<thead>
<tr>
<th></th>
<th>Don Peterson Contracting</th>
<th>Genesis Construction</th>
<th>JR Filanc</th>
<th>SS Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price</strong></td>
<td>$186,618</td>
<td>$217,438</td>
<td>$179,786</td>
<td>$221,486</td>
</tr>
<tr>
<td><strong>Total Score:</strong></td>
<td>6.24</td>
<td>7.73</td>
<td>8.61</td>
<td>7.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Don Peterson Contracting</th>
<th>Genesis Construction</th>
<th>JR Filanc</th>
<th>SS Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price</strong></td>
<td>$627,997</td>
<td>$484,228</td>
<td>$494,448</td>
<td>$508,335</td>
</tr>
<tr>
<td><strong>Total Score:</strong></td>
<td>5.57</td>
<td>8.56</td>
<td>8.54</td>
<td>8.29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Don Peterson Contracting</th>
<th>Genesis Construction</th>
<th>JR Filanc</th>
<th>SS Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price</strong></td>
<td>$320,276</td>
<td>$310,378</td>
<td>$259,176</td>
<td>$312,105</td>
</tr>
<tr>
<td><strong>Total Score:</strong></td>
<td>5.70</td>
<td>7.76</td>
<td>8.61</td>
<td>7.81</td>
</tr>
</tbody>
</table>
# MVRWRF, PVRWRF, and TVRWRF Aeration Membrane Replacement Project

## PROJECT COST ESTIMATE

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MVRWRF</strong></td>
<td></td>
</tr>
<tr>
<td>1 Installation (JR Filanc)</td>
<td>$259,176</td>
</tr>
<tr>
<td>2 Membrane Material Cost (Parkson Corporation)</td>
<td>$111,644</td>
</tr>
<tr>
<td>3 Staff Support</td>
<td>$15,000</td>
</tr>
<tr>
<td>4 Estimated Shipping and Tax</td>
<td>$16,152</td>
</tr>
<tr>
<td>5 Contingencies (~15 percent)</td>
<td>$60,028</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED SITE COST</strong></td>
<td><strong>$462,000</strong></td>
</tr>
<tr>
<td><strong>TVRWRF</strong></td>
<td></td>
</tr>
<tr>
<td>1 Installation (JR Filanc)</td>
<td>$179,786</td>
</tr>
<tr>
<td>2 Membrane Material Cost (Parkson Corporation)</td>
<td>$65,208</td>
</tr>
<tr>
<td>3 Staff Support</td>
<td>$15,000</td>
</tr>
<tr>
<td>4 Estimated Shipping and Tax</td>
<td>$12,553</td>
</tr>
<tr>
<td>5 Contingencies (~15 percent)</td>
<td>$40,453</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED SITE COST</strong></td>
<td><strong>$313,000</strong></td>
</tr>
<tr>
<td><strong>PVRWRF</strong></td>
<td></td>
</tr>
<tr>
<td>1 Installation (Genesis Construction)</td>
<td>$484,228</td>
</tr>
<tr>
<td>2 Membrane Material Cost (Parkson Corporation)</td>
<td>$229,216</td>
</tr>
<tr>
<td>3 Staff Support</td>
<td>$15,000</td>
</tr>
<tr>
<td>4 Estimated Shipping and Tax</td>
<td>$25,264</td>
</tr>
<tr>
<td>5 Contingencies (~15 percent)</td>
<td>$113,292</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED SITE COST</strong></td>
<td><strong>$867,000</strong></td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED PROJECT COST</strong></td>
<td><strong>$1,642,000</strong></td>
</tr>
</tbody>
</table>

Attachment: Exhibit C - Cost Estimate (4147 : Aeration Panel Membrane Replacements)
Aeration Panel Membrane Replacements

Matthew Melendrez, P.E.
December 18, 2019
Overview

- Background
- Project Funding
- Schedule
- Recommendation
Aeration System
Fine Bubble Diffuser Panel

- PVC or stainless steel backing plate covered by diffuser membrane
- Higher maintenance cost due to membrane replacement
- Lower electrical cost due to higher oxygen transfer efficiency
Fine Bubble Diffuser Panel Degradation

- As the membrane ages, airflow decreases
- Membranes can fail and cause large boils vs. fine bubbles
- Combined loss of efficiency causes decrease in effluent water quality
Fine Bubble Diffuser Panel Degradation

Failed membrane

Biofilm and mineral scaling reduce flux of air through the membrane
Membrane Replacement Scope

• A total of 766 membranes will be replaced at Moreno Valley, Perris, and Temecula facilities

• Aeration basins must be taken offline, drained, and cleaned before work can begin on the panels. This will be completed by District staff

• Membrane and aeration panel installation will be performed by the contractor

• Membrane materials are proprietary and only available from the manufacturer
## Proposal Evaluation Summary

### TVRWRF

<table>
<thead>
<tr>
<th></th>
<th>JR Filanc</th>
<th>Don Peterson Contracting</th>
<th>Genesis Construction</th>
<th>SS Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>$179,786</td>
<td>$186,618</td>
<td>$217,438</td>
<td>$221,486</td>
</tr>
</tbody>
</table>

### PVRWRF

<table>
<thead>
<tr>
<th></th>
<th>Genesis Construction</th>
<th>JR Filanc</th>
<th>SS Mechanical</th>
<th>Don Peterson Contracting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>$484,228</td>
<td>$494,448</td>
<td>$508,335</td>
<td>$627,997</td>
</tr>
</tbody>
</table>

### MVRWRF

<table>
<thead>
<tr>
<th></th>
<th>JR Filanc</th>
<th>Genesis Construction</th>
<th>SS Mechanical</th>
<th>Don Peterson Contracting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>$259,176</td>
<td>$310,378</td>
<td>$312,105</td>
<td>$320,276</td>
</tr>
</tbody>
</table>
# Project Cost

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVRWRF</td>
<td>Installation ( JR Filanc)</td>
<td>$259,176</td>
</tr>
<tr>
<td>2</td>
<td>Membrane Material Cost (Parkson Corporation)</td>
<td>$111,644</td>
</tr>
<tr>
<td>3</td>
<td>Staff Support</td>
<td>$15,000</td>
</tr>
<tr>
<td>4</td>
<td>Estimated Shipping and Tax</td>
<td>$16,152</td>
</tr>
<tr>
<td>5</td>
<td>Contingencies (~15 percent)</td>
<td>$60,028</td>
</tr>
<tr>
<td>TOTAL</td>
<td>ESTIMATED SITE COST</td>
<td><strong>$462,000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVRWRF</td>
<td>Installation ( JR Filanc)</td>
<td>$179,786</td>
</tr>
<tr>
<td>2</td>
<td>Membrane Material Cost (Parkson Corporation)</td>
<td>$65,208</td>
</tr>
<tr>
<td>3</td>
<td>Staff Support</td>
<td>$15,000</td>
</tr>
<tr>
<td>4</td>
<td>Estimated Shipping and Tax</td>
<td>$12,553</td>
</tr>
<tr>
<td>5</td>
<td>Contingencies (~15 percent)</td>
<td>$40,453</td>
</tr>
<tr>
<td>TOTAL</td>
<td>ESTIMATED SITE COST</td>
<td><strong>$313,000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVRWRF</td>
<td>Installation ( Genesis Construction)</td>
<td>$484,228</td>
</tr>
<tr>
<td>2</td>
<td>Membrane Material Cost (Parkson Corporation)</td>
<td>$229,216</td>
</tr>
<tr>
<td>3</td>
<td>Staff Support</td>
<td>$15,000</td>
</tr>
<tr>
<td>4</td>
<td>Estimated Shipping and Tax</td>
<td>$25,264</td>
</tr>
<tr>
<td>5</td>
<td>Contingencies (~15 percent)</td>
<td>$113,292</td>
</tr>
<tr>
<td>TOTAL</td>
<td>ESTIMATED SITE COST</td>
<td><strong>$867,000</strong></td>
</tr>
</tbody>
</table>

**TOTAL ESTIMATED PROJECT COST**  
**$1,642,000**
Schedule

• Work will begin at Moreno Valley and Perris facilities in January

• All work will be completed by July 2020
Recommendation

Approve and authorize the following:

• Execution by the General Manager, or his designee, for the award of contract with J.R. Filanc Construction Company, Incorporated, for the Moreno Valley and Temecula Valley Regional Water Reclamation Facilities Aeration Panel Membrane Replacements in the amount of $438,962;

• Execution by the General Manager, or his designee, for the award of contract with Genesis Construction, Incorporation, for the Perris Valley Regional Water Reclamation Facility Aeration Panel Membrane Replacements in the amount of $484,228; and

• Execution by the General Manager, or his designee, for the award of contract with Parkson Corporation, for the Aeration Panel Membrane Replacements in the amount of $406,068.
Contact Information

Matthew Melendrez, P.E.
Director of Water Reclamation
(951) 928-3777 Ext. 4303

Email: melendrm@emwd.org
SUBJECT:

Change Orders to Specifications

BACKGROUND:

Three change orders were executed this period in a cumulative amount representing $106,320.93. The largest change order is summarized below.

The Temecula Valley Regional Water Reclamation Facility 23 MGD Expansion Project had an additive change order in the amount of $88,363 for the Tertiary Effluent Pump Station flooding issue that occurred on February 14, 2019. An insurance claim for the damage has been created to capture all costs related to the issue. The contractor has submitted the fourth request for compensation that covers extended overhead for the general contractor (Archer Western) and electrical subcontractor (Southern Electrical) from August 19, 2019 to September 20, 2019. Additionally, the total requested amount also includes minor costs for removing and replacing the battery pack within the new Tertiary Effluent Pump Station Electrical Building. Total costs submitted to date total $1,372,297.

FINANCIAL IMPACT:

None

STRATEGIC PLANNING GOAL/OBJECTIVE:

Deliver the highest quality products and services in a cost-effective and efficient manner by leveraging workforce, technology, and business partnerships to implement industry-leading processes and practices.

ENVIRONMENTAL IMPACT:

None

RECOMMENDATION:

Receive and file.
SUBMITTED BY:

[Signatures]

Paul D. Jones II, P.E., General Manager 12/13/2019

Joe Mouawad, Assistant General Manager 12/10/2019

Attachment(s):
Exhibit A - Report

History:
12/18/19    Board Operations and Engineering Committee    REVIEWED AT COMMITTEE

01/08/20    Board Meeting

Staff Contact: Jennifer Morgenstern
## REPORT OF GENERAL MANAGER
### OF CHANGE ORDERS TO SPECIFICATIONS

**January 8, 2020**

<table>
<thead>
<tr>
<th>SPECIFICATION NUMBER</th>
<th>CHANGE ORDER NUMBER</th>
<th>DAYS ADDED</th>
<th>AMOUNT</th>
<th>JOB DESCRIPTION / CONTRACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1197S</td>
<td>#029</td>
<td>0 DAYS</td>
<td>$88,362.93</td>
<td>TVRWRF 23 MGD Expansion Archer Western Construction, LLC</td>
</tr>
<tr>
<td>1304S</td>
<td>#012</td>
<td>0 DAYS</td>
<td>($3,025.00)</td>
<td>Sun City Lift Station Electrical Upgrades Schuler Constructors, Inc.</td>
</tr>
<tr>
<td>1346W</td>
<td>#003</td>
<td>0 DAYS</td>
<td>$20,983.00</td>
<td>Moreno I – Iris Valve Relocation Project Utah Pacific Construction Company</td>
</tr>
</tbody>
</table>

* Field Order
Eastern Municipal Water District  
Spec No. 1197S - TVR WRF 23 MGD Expansion  
Change Order – No. 00029

To: Archer Western Construction, LLC  
9915 Mira Mesa Blvd., Suite 230  
San Diego, CA 92131

From: Eastern Municipal Water District  
P O Box 8300  
Perris, CA 92572-8300

W.O./C.O.: 469069  
Date: Monday, October 28, 2019

Attn: Blayne Goodman

THIS CHANGE ORDER IS TO AUTHORIZE THE FOLLOWING CHANGES:

29A CLAIMS RESOLUTION  
ADD $88,362.93

Due to the TEPS Flooding issue that occurred on 14Feb19, an insurance claim for the damage has been created to capture all costs related to the issue. The Contractor has submitted the fourth request for compensation that covers extended overhead for the general contractor (Archer Western), extended overhead for the electrical subcontractor (Southern Contracting Co.) from August 19th to September 20th. Additionally the total requested also includes minor costs for removing and replacing the battery pack within the new TEPS Electrical Building.

The District has worked closely with the District’s insurance adjuster in a review of the costs and through negotiations with the Contractor, all parties agree to compensation in the amount of $88,362.93.

Total costs submitted to date are $1,372,296.92. One final payment request will be submitted by the Contractor when work has been completed which will conclude all reimbursements for this issue.

REF: COR/COE No. 192.3

PAYMENT TO BE AT A PRE-NEGOTIATED PRICE OF $88,362.93

SML:ta

TOTAL $88,362.93

EASTERN MUNICIPAL WATER DISTRICT

Signed  
By: Joe Mouawad, P.E.  
Asst. General Manager, Planning, Engineering and Construction

Date: 10/28/19

The Original Contract Sum was ................................................................. $71,967,659.00
Net Change by Previously Authorized PCO's and Change Order’s is .......................... $5,991,853.89
The Contract Sum Prior to This Change Order was ........................................ $77,959,512.89
The Contract Sum will be Increased by this Change Order .............................. $88,362.93
The New Contract Sum including this Change Order is .................................. $78,047,875.82
This Change Order Does Not Change the Contract Time ................................. 6/8/2019
The Completion Date as of this Change Order therefore is ..............................

Additive CO/PCO/BCO line items to date ....................................................... $6,989,322.57
Deductive CO/PCO/BCO line items to date: .................................................. ($909,105.75)
Eastern Municipal Water District

Spec No. 1197S - TVRWRF 23 MGD Expansion

Change Order – No. 00029

Net Percent Change of All CO/PCO/BCO's to Date: 8.45%

Archer Western Construction, LLC

☑️ I certify agreement with this Change Order

☐ I dispute this Change Order and have attached the required itemization of any disputed claims associated with this Change Order

Signed: ____________________________

By: Kyle D. Jones, Vice President

Date: 11/3/19

Approved: EASTERN MUNICIPAL WATER DISTRICT

Signed: ____________________________

By: Paul D. Jones II, P. E., General Manager

Date: 11/13/17

Funding Source: CO # 469069

CA: 11-5
PM: 11-5
DFE: 11-5
DE: 11-5
DGM: 11-5
GM: 11-5

Date: 10/30/19
Date: 10/30/19
Date: 10/30/19
Date: 10/31/19
Date: 10/31/19

Attachment: Exhibit A - Report (4194 : Change Order Report)
Eastern Municipal Water District
Spec No. 1304S - Sun City LS Electrical Upgrades
Change Order – No. 00012

To: Schuler Constructors, Inc
1760 Chicago Avenue, Unit J-15
Riverside, CA 92507

From: Eastern Municipal Water District-CA
P O Box 8300
Perris, CA 92572

W.O./C.O.: 470947
Date: Monday, November 4, 2019

Attn: Brian D. Sohl

THIS CHANGE ORDER IS TO AUTHORIZE THE FOLLOWING CHANGES:

12A REQUESTED BY DISTRICT

DEDUCT ($3,025.00)

Per contract drawings E-3, 6 & 9, a new 12 fiber single mode fiber optic cable was to be installed in the Electrical Room between an existing patch panel and the newly installed IDF/Demarc cabinet. Per Electrical Services it was recently determined that this cable could be omitted since this technology is not being utilized on site. The new IDF/Demarc cabinet installation will remain per contract and only the cost of fiber optic cable installation (labor, material & equipment) has been credited.

Per COR/COE No. 24, the total credit of $3,025.00 shall be issued to the District.

REF: COR/COE No. 24
CREDIT TO BE A PRE-NEGOTIATED PRICE OF $3,025.00.

AV:Id

TOTAL ($3,025.00)

EASTERN MUNICIPAL WATER DISTRICT

Signed
By: Joc Mouawad, P.E.
Asst. General Manager, Planning, Engineering and Construction

Date: 11-7-19

The Original Contract Sum was .......................................................... $2,438,535.00
Net Change by Previously Authorized PCO's and Change Order's is .................... $68,115.36
The Contract Sum Prior to This Change Order was ..................................... $2,506,650.36
The Contract Sum will be Increased by this Change Order ......................... ($3,025.00)
The New Contract Sum including this Change Order is ............................... $2,503,625.36
This Change Order Does Not Change the Contract Time ............................
The Completion Date as of this Change Order therefore is ......................... 10/31/2019
Additive CO/PCO/BCO line items to date ............................................ $108,115.36
Deductive CO/PCO/BCO line items to date: ........................................ ($43,025.00)
Net Percent Change of All CO/PCO/BCO's to Date: .............................. 2.67%
Eastern Municipal Water District
Spec No. 1304S - Sun City LS Electrical Upgrades
Change Order – No. 00012

Schuler Constructors, Inc

I certify agreement with this Change Order
I dispute this Change Order and have attached the required itemization of any disputed claims associated with this Change Order

Signed: ________________________________  Date: 11/1/19
By: ________________________________

Approved: EASTERN MUNICIPAL WATER DISTRICT

Signed: ________________________________  Date: 11/13/19
By: Paul D. Jones II, P. E., General Manager

Funding Source  CO #  470947

CA: ________________________________  Date: 11/1/19
PM: ________________________________  Date: 11/4/19
DFE: ________________________________  Date: 11/6/19
DE: ________________________________  Date: 
DGM: ________________________________  Date: 
GM: ________________________________  Date: 

Attachment: Exhibit A – Report (4194 : Change Order Report)
Eastern Municipal Water District
Spec No. 1346W - Moreno I - Iris Valve Relocation
Change Order – No. 00003

To: Utah Pacific Construction Co.
40940 Eleanora Way
Murrieta, CA 92562-5946

From: Eastern Municipal Water District
P O Box 8300
Perris, CA 92572-8300

W.O./C.O.: 472073
Date: Friday, September 13, 2019

Attn: Jason Bent

THIS CHANGE ORDER IS TO AUTHORIZE THE FOLLOWING CHANGES:

<table>
<thead>
<tr>
<th>Description</th>
<th>Action</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A</td>
<td>REQUESTED BY DISTRICT</td>
<td>ADD $20,983.00</td>
</tr>
</tbody>
</table>

Payment to furnish and install modulating valve actuator to replace open-close actuator installed per contract. Schedule impacts to be processed under separate cover.
Ref. COR/COE No. 0003

PAYMENT TO BE AT THE PRE-NEGOTIATED COST OF $20,983.00.

KR:ma

TOTAL $20,983.00

EASTERN MUNICIPAL WATER DISTRICT

Signed _______________________________ Date: 9-17-19
By: Joe Mouawad, P.E.
Asst General Manager, Planning, Engineering and Construction

The Original Contract Sum was ................................................................. $542,000.00
Net Change by Previously Authorized PCO's and Change Order's is ................................. $23,370.20
The Contract Sum Prior to This Change Order was ........................................... $565,370.20
The Contract Sum will be Increased by this Change Order ............................... $20,983.00
The New Contract Sum including this Change Order is ........................................ $586,353.20
This Change Order Does Not Change the Contract Time ..................................
The Completion Date as of this Change Order therefore is ................................. 8/20/2019

Additive CO/PCO/BCO line items to date .................................................... $44,353.20
Deductive CO/PCO/BCO line items to date: .................................................. $0.00
Net Percent Change of All CO/PCO/BCO's to Date: ...................................... 8.18%
Utah Pacific Construction Co.

☑ I certify agreement with this Change Order
☐ I dispute this Change Order and have attached the required itemization of any disputed claims associated with this Change Order

Signed: ___________________________  Date: 10/1/19
By: [Signature]  Account Manager

Approved: EASTERN MUNICIPAL WATER DISTRICT

Signed: ___________________________  Date: 10-3-17
By: Paul D. Jones II, P. E., General Manager

Funding Source  CO #  472073

CA:  
PM: [Signature]  Date: 09/13/19
DFE: [Signature]  Date: 09/17/2019
DE:  
DGM:  
GM:  

Packet Pg. 219
MINUTES
BOARD OPERATIONS AND ENGINEERING COMMITTEE
REGULAR MEETING
DECEMBER 18, 2019
3:30 PM
CONF. RM. 217

COMMITTEE MEMBERS: Ronald W. Sullivan, Board President; David J. Slawson, Board Member

STAFF: Paul D. Jones II, P.E., General Manager; Nick Kanetis, Deputy General Manager; Laura Nomura, Deputy General Manager; Joe Mouawad, Assistant General Manager of Planning, Engineering, and Construction; Jeff Wall, Assistant General Manager of Operations and Maintenance

CALL TO ORDER
David J. Slawson  Board Member
Ronald W. Sullivan  President
Paul D. Jones II  P.E.  General Manager
Nick Kanetis  Deputy General Manager
Laura Nomura  Deputy General Manager
Joe Mouawad  Assistant General Manager
Jeff D. Wall  P.E.  Assistant General Manager
John Wuerth  Sr. Recycled Water Program Analyst
David Ahles  Sr. Civil Engineer
Greg Henson  Water Reclamation Plant Manager
Erik Jorgensen  Sr. Civil Engineer

I. PUBLIC COMMENTS
Any subject within the jurisdiction of EMWD. However, no action can be taken on any item discussed unless such action has been authorized under §54954.2(b)(2) of the Government Code. Speakers are required to limit comments to 3 minutes.

None

II. PROPOSED BOARD ITEMS - ACTION CALENDAR
A. Approve and Authorize an Agreement with Carollo Engineers ($998,000) for the Final Design of the Moreno Valley Regional Water Reclamation Facility Plant 2B Equipping Project, and Appropriation in the Amount of $1,144,000 (Mouawad/Jorgensen)

RESULT: RECOMMENDED FOR APPROVAL   Next: 1/8/2020 9:00 AM

B. Approve and Authorize Award of Contract with Carollo Engineers ($674,202) for the Warm Springs Sewage Lift Station Rehabilitation Preliminary Design and Condition Assessment of the Upstream Trunk Sewers, and Appropriation of $1,116,200 (Mouawad/Jorgensen)

RESULT: RECOMMENDED FOR APPROVAL   Next: 1/8/2020 9:00 AM

C. Approve and Authorize the Award of Contracts with J.R. Filanc Construction Company, Incorporated, ($438,962) for the Moreno Valley and Temecula Valley Regional Water Reclamation Facilities Aeration Panel Membrane Replacements, and Hemet Manufacturing Company, Incorporated, dba Genesis Construction, ($484,228) for the Perris Valley Regional Water Reclamation Facility Aeration Panel Membrane Replacements, and Parkson Corporation, for Aeration Membrane Materials ($406,068) for a Total Project Cost Not to Exceed $1,642,000 (Wall/Melendrez)

RESULT: RECOMMENDED FOR APPROVAL   Next: 1/8/2020 9:00 AM

D. Approve and Authorize an Amendment to Agreement with Tetra Tech ($207,281) for Final Design of Wells 201, 202, 203, and 205 Equipping, Pipelines, and Centralized Treatment Facilities, and Additional Appropriation in the Amount of $264,800 (Mouawad/Kowalski)

RESULT: RECOMMENDED FOR APPROVAL   Next: 1/8/2020 9:00 AM

E. Approve and Authorize Reimbursement Agreement with Pulte Homes ($178,900) for the French Valley Recycled Water Pipeline Phase IIIA and Appropriation in the Amount of $198,900 (Mouawad/Wuerth)

RESULT: RECOMMENDED FOR APPROVAL   Next: 1/8/2020 9:00 AM

III. INFORMATION ITEMS / PRESENTATIONS

None

IV. RECEIVE AND FILE

A. Change Orders to Specifications (Mouawad)
V. DIRECTOR'S COMMENTS / FUTURE AGENDA ITEM(S)

Director Slawson asked for staff to provide an update on proposed/new development in Moreno Valley at a future meeting.

VI. CLOSED SESSION

None

VII. NEXT MEETING

Thursday, January 23, 2020, 3:30 p.m.
MINUTES
BOARD EXECUTIVE COMMITTEE
REGULAR MEETING
DECEMBER 19, 2019
7:30 AM
CONF. RM. 217

COMMITTEE MEMBERS: Ronald W. Sullivan, Board President; David J. Slawson, Board
Member

STAFF: Paul D. Jones II, General Manager; Nick Kanetis, Deputy General Manager; Laura
Nomura, Deputy General Manager

CALL TO ORDER
Ronald W. Sullivan  President
David J. Slawson  Board Member
Paul D. Jones II  P.E.  General Manager
Nick Kanetis  Deputy General Manager
Laura Nomura  Deputy General Manager

Other attendees included: Megan Couch, San Diego County Water Authority (SDCWA)

I. PUBLIC COMMENTS

Any subject within the jurisdiction of EMWD. However, no action can be taken on any
item discussed unless such action has been authorized under §54954.2(b)(2) of the
Government Code. Speakers are required to limit comments to 3 minutes.

None

II. PROPOSED BOARD ITEMS - ACTION CALENDAR

A. November Meeting Summary and Expense Reports of the Board of Directors and
General Manager (Jones)

RESULT:  RECOMMENDED FOR APPROVAL  Next: 1/8/2020 9:00 AM

B. Adopt Proposed Resolution Authorizing 2020 Board, Committee and Other
Assignments, Including Approval of Memberships and Agency and Outside
Organization Representation at Meetings/Events (Jones)
RESULT: RECOMMENDED FOR APPROVAL Next: 1/8/2020 9:00 AM

III. INFORMATION ITEMS / PRESENTATIONS

A. General District Legal Matters (Jones) - Oral Report
   RESULT: DISCUSSED AT COMMITTEE

B. Update on Inter-Agency Issues (Jones) - Oral Report
   RESULT: DISCUSSED AT COMMITTEE

IV. RECEIVE AND FILE
None

V. DIRECTOR’S COMMENTS / FUTURE AGENDA ITEM(S)
   None

VI. CLOSED SESSION
None

VII. NEXT MEETING
Thursday, January 16, 2020, 7:30 a.m.
The Metropolitan Water District of Southern California (MWD) held its monthly Board and committee meetings on December 9 and 10, 2019. At these meetings, the MWD Board:

- Directed staff to incorporate the use of the 2019/20 fiscal-year end balance of the Water Stewardship Fund to fund all demand management costs in the proposed Fiscal Years 2020/21 and 2021/22 Biennial Budget. The Board also directed staff to not incorporate the Water Stewardship Rate, or any other rates or charges to recover demand management costs, with the proposed rates and charges for calendar years 2021 and 2022. Approximately $120 million remains in the water stewardship fund that will be utilized over this two year period.

- Authorized the General Manager to enter into a Local Resources Program Agreement with the San Diego County Water Authority and the City of San Diego for San Diego Pure Water North City Project Phase 1. The Project would provide up to 33,600 acre-feet per year of recycled water for surface water augmentation. Source water for the Project is tertiary treated recycled water from the North City Water Reclamation Plant. The City of San Diego will own and operate the Project and plans to deliver water by 2023. Key terms of the proposed LRP agreement include, sliding scale incentives up to $340 per AF, and termination for nonperformance if construction does not commence within two years of agreement execution or if recycled water deliveries are not realized within four years of agreement execution. Metropolitan’s maximum financial obligation would be up to $285.6 million for a project yield of 840,000 AF over 25 years.

- Authorized the General Manager to enter into agreements with Bard Water District and farmers within Bard Unit, to provide incentives for land fallowing related to the Bard Seasonal Fallowing Program, for up to $1.4 million in 2020 and escalated annually through 2026. This item authorized the General Manager to enter into agreements with Bard Water District for seasonal land fallowing. The program will incentivize farmers to fallow their land for four months at $452 per irrigable acre. MWD estimates a saving between 1.5- and 2.0-acre feet per irrigable acre. This could generate up to 6,000-acre feet per fallowing season. This program has the potential to be a very cost-effective water supply program for MWD.

- Authorized amendments to agreements with Desert Water Agency and Coachella Valley Water District regarding the exchange and delivery of water. This item is to amend water exchange and delivery agreements among MWD, Desert and Coachella Valley Water District to provide participation in potential future SWP supply opportunities, improved operational flexibility, including more equitable sharing of benefits and risks from participation in the State Water Project. There are six specific proposed amendments in the board item, all of which appear to provide benefit to MWD, or are
at least neutral for MWD. This action will only strengthen the excellent relationship shared among MWD, CVWD and Desert Water Agency.

- Authorized an agreement with Industrial Electric Machinery in an amount not-to-exceed $350,000 to provide condition assessments for the main pump motors at the Colorado River Aqueduct pumping plants. Metropolitan has initiated a long-term comprehensive program to rehabilitate all main pumps, motors and support systems in order to extend service life and maintain reliability.

- Approved amendments to the Metropolitan Water District Administrative Code to conform to current law, practices and regulations. This item updated several items in MWD’s administrative code, including updating the process for nominating executive committee members, and delineation of certain duties between the treasurer and the controller.

- Approved write-off of $1,446,292.60 in uncollectible costs from decades old projects.

- Authorized filing claims with the federal government for the recovery of costs resulting from damages to Metropolitan’s electrical infrastructure due to the crash of a military helicopter in the amount of approximately $315,000.

- Expressed support for establishing the California Water Data Consortium and approved funding of $200,000 to make The Metropolitan Water District of Southern California a founding member.

- Adopted Twenty-Third Supplemental Resolution to the Master Revenue Bond Resolution authorizing the issuance of up to $270 million of Water Revenue Bonds, 2020 Series; and approved expenditures to fund the costs of issuance of the Bonds of approximately $2 million.

- Awarded $5,316,900 contract to Gracon LLC to rehabilitate the discharge structure at Gene Wash Reservoir, following more than 80 years of continuous service and regular maintenance, the discharge structure valves at Gene Wash Reservoir are leaking and have become unreliable during operation.

- Awarded two procurement contracts for the seismic upgrade of the Casa Loma Siphon Barrel No. 1: (1) $9,237,782 procurement contract to Kubota Corporation to provide Earthquake Resistant Ductile Iron Pipe; and (2) $6,134,207.50 procurement contract to Northwest Pipe Company to provide steel pipe. The Board also authorized a $300,000 increase to an agreement with Carollo Engineers, Inc. The Casa Loma Siphon Barrel No. 1, constructed in 1935, has experienced recurring leaks since the 1960s where it crosses the Casa Loma Fault. Numerous repairs have not been successful in eliminating leaks,
and the pipeline remains vulnerable to seismically induced ground movements and subsidence until this pipe is installed that can accommodate ground displacements.

• Adopted State Legislative Priorities and Principles for 2020, with four additions from the Board. Of greatest importance to EMWD is a bullet at the end of the Water System Governance section to “Support administrative/legislative actions that ensure that limited resources of the Safe and Affordable Drinking Water Fund are allocated to advance project, infrastructure improvements, and consolidation actions that will achieve long-term sustainability for the systems and the communities that rely on the systems.”

• Adopted Federal Legislative Priorities and Principles for 2020 with additions as suggested by the Board.

Attachment(s):
Exhibit A - Hydrology Report
This report is produced by the Water Resource Management Group and contains information from various federal, state, and local agencies. The Metropolitan Water District of Southern California cannot guarantee the accuracy or completeness of this information. Readers should refer to the relevant state, federal, and local agencies for additional or the most up to date water supply information.

Reservoirs, lakes, aqueducts, maps, watersheds, and all other visual representations on this report are not drawn to scale.

http://www.mwdh2o.com/WSCR

This report is best printed double sided on legal size paper (8.5" x 14") and folded in quarters.
**State Water Project Resources**

**Northern Sierra Snowpack**
- 2019-2019 Normal
- 2019-2020 Normal
- 2018-2019 Normal

**Oroville Reservoir Storage**
- 900 TAF more in storage than this time last year

**San Luis Reservoir Storage**
- 13 TAF less in SWP storage than this time last year

**Sacramento River Runoff**
- 138% of normal (Preliminary)

**Colorado River Resources**

**Upper Colorado Basin Precip**
- 24 in. Water Year to Date

**Upper Colorado Basin Snowpack**
- 2019-2020 Normal
- 2018-2019 Normal

**Southern Sierra Snowpack**
- 24 in. Water Year to Date

**Oroville Reservoir Storage**
- Capacity: 3.5 MAF

**San Luis Reservoir Storage**
- Capacity: 2.04 MAF

**Powell Unregulated Inflow**
- 2019 Water Year
- 81% of normal forecast

**Lake Powell Storage**
- 2.35 MAF more in storage than this time last year

**Lake Mead Storage**
- 366 TAF more in storage than this time last year

**Lake Mead Shortage/Surplus Outlook**
- 2020 Shortage 0%
- 2021 Surplus 0%
- 2022 Surplus 7%
- 2023 Surplus 12%
- 2024 Surplus 19%

**2019 Colorado River Ag Use**
- 2.75 Million Acre-Feet
- 2.85 Million Acre-Feet
- 2.95 Million Acre-Feet
- 3.05 Million Acre-Feet
- 3.15 Million Acre-Feet

**Date of Forecast**
- IID/CVWD (QSA Priority 3a)
- PVID/Yuma (QSA Priority 1 & 2)
- ID/CYWD (QSA Priority 3a)

**Article 21**
- Carryover

**Article 14b**
- TBD

**Other SWP Contract Supplies for 2020 (AF)**
- Article 21 TBD
- Carryover TBD
- Article 14b TBD

**Date of Forecast**
- Preliminary Forecast (as of November 2019)