



TAHOE-TRUCKEE SANITATION AGENCY
REGULAR BOARD MEETING
MARCH 20, 2024



TAHOE-TRUCKEE SANITATION AGENCY

A Public Agency
13720 Butterfield Drive
TRUCKEE, CALIFORNIA 96161
(530) 587-2525 • FAX (530) 587-5840
www.ttsa.ca.gov

Directors
Blake Tresan: President
Scott Wilson: Vice President
Dale Cox
Dan Wilkins
David Smelser
General Manager
Richard Pallante

BOARD OF DIRECTORS REGULAR MEETING NOTICE AND AGENDA

Date: March 20, 2024

Time: 9:00 AM

Place: Board Room, Tahoe-Truckee Sanitation Agency, 13720 Butterfield Drive, Truckee, California

All or portions of this meeting will be conducted by teleconferencing in accordance with Government Code section 54953(b). The following is the teleconferencing location: 647 Broadway, Dunedin, FL. 34698. This location is accessible to the public, and members of the public may listen to the meeting and address the Board of Directors from the teleconference location.

The Board will accept public comments which should be submitted to Roshelle Chavez, Board Clerk, at rchavez@ttsa.ca.gov, by mail at 13720 Butterfield Drive, Truckee, CA 96161 (the final mail collection before the meeting will be the Tuesday before the meeting at 3:00 p.m.), and via teleconference on any item on the agenda until the close of public comment on the item. Members of the public will have the opportunity to directly address the Agency Board of Directors concerning any item listed on the Agenda below before or during consideration of that item. To better accommodate members of the public and staff, some Agenda items may be considered in an order different than those listed below.

I. Call to Order, Roll Call, and Pledge of Allegiance

II. Public Comment Discussion items only, no action to be taken. Any person may address the Board at this time upon any subject that is within the jurisdiction of Tahoe-Truckee Sanitation Agency and that does not appear on the agenda. Any matter that requires action may be referred to staff for a report and action at a subsequent Board meeting. Please note that there is a five (5) minute limit per person. In addition to or in lieu of public comment, any person may submit a written statement concerning Agency business to be included in the record of proceedings and filed with the meeting minutes. Any such statement must be provided to the recording secretary at the meeting.

III. Consent Agenda Consent Agenda items are routine items that may be approved without discussion. If an item requires discussion, it may be removed from the Consent Agenda prior to action.

1. Approval of the Regular Board meeting minutes on February 21, 2024.
2. Ratify payment of General Fund Warrants.

IV. Regular Agenda

1. Discussion, Review, and Ratification of Financial Statements.
2. Discussion and Approval of Selected Comparable Agencies and a Selection of Classic or PEPPRA as a Comparable for the Classification and Compensation Study with Gallagher Consulting Company (Formerly Koff & Associates).
3. Approval to Enter into an Agreement with Brown and Caldwell to Perform the Final Design of the River Crossing, Gravity Main between MH 33 and MH 35 Rehab Project.
4. Discussion, Review, and Approval of Nutrient Removal Alternative Evaluation Process Study.
5. Approval to enter into an Agreement with Brown and Caldwell to perform the Final Design of the Digestion Improvements Project.
6. Discussion/Staff Direction Regarding California Special Districts Association Call for Support.
7. Placer County LAFCO Ballot Selection Voting for Regular and Alternate Special District Representative.

V. Management Team Reports

1. Department Reports.
2. General Manager Report.

VI. Board of Director Comment: There is an opportunity for directors to ask questions for clarification, make brief announcements and reports, provide information to staff, request staff to report back on a matter, or direct staff to place a matter on a subsequent agenda.

VII. Adjournment

Posted and Mailed. 03/14/2024.

Roshelle Chavez
Roshelle Chavez
Executive Assistant/Board Clerk

In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, then please contact Roshelle Chavez at 530-587-2525, 530-587-5840 (fax), or email rchavez@ttsa.ca.gov. Requests must be made as early as possible and at least one full business day before the start of the meeting.

Documents and material relating to an open session agenda item which are provided to the T-TSA Board of Directors less than 72 hours before a regular meeting will be available for public inspection and copying at the Agency's office located at 13720 Butterfield Drive, Truckee, CA.



TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: I
Subject: Call to Order, Roll Call, and Pledge of Allegiance

Background

Call to Order, Roll Call, and Pledge of Allegiance.



TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: II
Subject: Public Comment

Background

Discussion items only, no action to be taken. Any person may address the Board at this time upon any subject that is within the jurisdiction of Tahoe Truckee Sanitation Agency and that does not appear on the agenda. Any matter that requires action may be referred to staff for a report and action at a subsequent Board meeting. There is a five (5) minute limit per person.



TAHOE-TRUCKEE SANITATION AGENCY MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Roshelle Chavez, Executive Assistant/Board Clerk
Item: III-1
Subject: Approval of the Regular Board meeting minutes on February 21, 2024

Background

Draft minutes from previous meeting(s) are presented to the Board of Directors for review and approval.

Fiscal Impact

None.

Attachments

Minutes of the Regular Board meeting on February 21, 2024.

Recommendation

Management and staff recommend approval of the Minutes of the regular Board meeting on February 21, 2024.

Review Tracking

Submitted By: *Roshelle Chavez*
Roshelle Chavez
Executive Assistant/Board Clerk

Approved By: *Richard Pallante*
Richard Pallante
General Manager

BOARD OF DIRECTORS REGULAR MEETING MINUTES

February 21, 2024

I. Call to Order

President Tresan called the special meeting of the Tahoe-Truckee Sanitation Agency Board of Directors to order at 9:00 A.M. Roll call, and Pledge of Allegiance followed.

Directors Present: Blake Tresan, TSD
 Scott Wilson, NTPUD
 Dan Wilkins, TCPUD (arrived at 9:13 a.m.)
 Dale Cox, OVPSD (via teleconference)
 David Smelser, ASCWD

Staff Present: Richard Pallante, General Manager
 Roshelle Chavez, Executive Assistant/Board Clerk
 Vicky Lufrano, Human Resources Administrator
 Michael Peak, Operations Manager
 Paul Shouse, Maintenance Manager
 Jason Hays, Technical Services Manager
 Michelle Mackey-Adams, Accounting Supervisor
 Andrew Ramos, Agency Counsel (via teleconference)
 Greg O'Hair, Chief Plant Operator
 Brandon Dimond, Operations Supervisor
 Collin Fisher, Operations Department
 Luke Swann, IT Supervisor
 Scott Fleming, Engineering Department
 Trevor Shamblin, Engineering Department
 Ryan Schultz, Maintenance Department
 Kevin Demm, Administrative Department

Public Present: Lizz Cook, Boucher Law
 Tim Loper, Carollo Engineers

II. Public Comment

There was no public comment. No action was taken by the Board.

III. Professional Achievements, Awards, Anniversaries, and Acknowledgements

Ms. Lufrano introduced new hire Kevin Demm, Purchasing Agent, to the Board of Directors. Mr. Demm also spoke and introduced himself to the Board and thanked those who have welcomed him and aided in his training efforts thus far.

Ms. Lufrano also acknowledged Mark Messerschmidt. On February 13, 2024, while returning from a work-related errand to the plant, Mark noticed an unusual black smoke billowing out of the boiler smokestack. After further investigation, Mark reported the anomaly to his supervisor.

It was subsequently discovered that a part of the air control damper had failed, and the diesel fuel was not burning efficiently. While we will never know what events were prevented, it is worth acknowledging Mark for his awareness and quick action. Had Mark not noticed and reported the situation, it is possible that the built-up fuel could have resulted in an explosion severely damaging equipment and possibly injuring staff.

Mr. Pallante introduced Lizz Cook of Boucher Law, who is overseeing the administrative staff on an interim basis while recruiting is ongoing for the Finance and Administration Manager. Ms. Cook also briefly introduced herself to the Board, explaining that she had previously been submitted to the Finance Committee and is assisting them with a cash flow analysis.

The Board welcomed Mr. Demm and thanked Mr. Messerschmidt for his efforts.

IV. Consent Agenda

1. Approval of the minutes of the Special Board meeting on January 17th, 2023
2. Ratification of approval of General Fund Warrants
3. Ratification of Financial Statements

MOTION by Director Smelser **SECOND** by Director Cox to approve the Consent Agenda; unanimously approved.

The Board approved the motion by the following roll call vote:

AYES: Directors Cox, Wilson, Smelser, Wilkins, and President Tresan.
NOES: None.
ABSENT: None.
ABSTAIN: None.

Motion approved.

V. Regular Agenda

1. Placer County LAFCO Notice of Upcoming Vacancies and Call for Nominations

Director Wilkins arrived at 9:13 a.m.

MOTION by Director Smelser **SECOND** by Director Wilkins to nominate Director Scott Wilson for the Alternate Seat of the Placer County LAFCO; unanimously approved.

The Board approved the motion by the following roll call vote:

AYES: Directors Cox, Wilson, Smelser, Wilkins, and President Tresan.
NOES: None.
ABSENT: None.
ABSTAIN: None.

Motion approved.

2. Presentation and Discussion of Proposed Nutrient Removal Alternatives Study

Mr. Hays provided a PowerPoint presentation and discussion to staff and the Board of Directors, beginning with a review of the 2022 TTSA Master Sewer Plan. The plan identified infrastructure needs at the facility and defined rough timeframes and scopes for projects designed to address those needs. The Agency CIP list was built on these needs along with other internally identified projects. As projects became more clearly defined in preparation for implementation, staff noticed a common post COVID-19 trend. Project costs are increasing, and resource availability is increasingly becoming an issue.

Staff took assumptions from the 2022 Master Plan and made best estimates on what these projects might entail when viewed through the lens of new realities after the global pandemic. Not surprisingly, costs are expected to be substantially more than initially assumed. While it was previously estimated at \$144 Million for projects established over the next 25 years, internal staff cost estimates now show costs could be as high as \$270 million. Facing these potential realities, staff are asking whether it makes sense to continue repairing aging facilities or to investigate new technologies developed and proven in the last few decades.

Mr. Hays reviewed a list of these potential nutrient removal alternatives: A Membrane Bioreactor (MBR), the Bardenpho Process, the “Universe of Alternatives,” and a reevaluation and assessment of the current plan for facilities. Hays then reviewed the Agency WRP Process Flow Diagram, which highlighted facilities the study would impact and pointed out that the study would not impact several areas. Reviewing an overall plant map, Mr. Hays pointed out several areas of infrastructure that are over 20 and 49 years of age.

To identify these potential alternatives and to determine their viability compared to current systems and repair costs, staff would like to employ a consultant (Carollo Engineering) to revisit the previous study with additional direction and revised scope. Mr. Hays reviewed a proposed project scope schedule where TTSA staff would control project direction and essential decision-making processes. We would not get to task 3 without substantial input from staff on tasks 1 and 2. It is essentially the study of TTSA, not in complete control of Carollo.

Mr. Hays provided a study from Wastewater Digest that recognized a plant in Logan, Utah, operating at 18 MGD that needed an overhaul. Instead of repairing the facility, they built an entirely new plant in 2023 for \$139 Million using the Bardenpho process. Staff believes this process would also benefit the Agency and the community.

The benefits of a new infrastructure with more well-defined integrity and life expectancy would be reduced O&M and chemical costs, better positioned to deal with any tightening of WDR/NPDES restrictions, leverage technology to address obstacles, ensure we are in the best position to treat wastewater for the next five decades; demonstrate a commitment to our local natural resources by leading the industry; and civic pride in a truly state-of-the-art facility.

There was extensive discussion, questions, and answers between staff and the Board of Directors. Ultimately, the Board of Directors approved moving forward with the Nutrient Removal Alternative Process Evaluation Study. An Ad Hoc Committee will be selected at the next Board of Directors meeting to work with staff to define the scope moving forward with the project.

The Board took a five-minute recess and returned at 10:20 A.M.

3. Approval of Consultant Services to Develop Network Upgrade Preliminary Design Report for the SCADA/IT Master Plan

MOTION by Director Cox **SECOND** by Director Wilson for Approval of Consultant Services Agreement to Develop Network Upgrade Preliminary Design Report for the SCADA/IT Master Plan; unanimously approved.

The Board approved the motion by the following roll call vote:

AYES: Directors Cox, Wilson, Smelser, Wilkins, and President Tresan.
NOES: None.
ABSENT: None.
ABSTAIN: None.

Motion approved.

4. Presentation and Discussion of the SCADA/IT Master Plan Standards – Phase 1

In November 2022, the Board of Directors approved a proposal from Jacobs Engineering (CH2M Hill) to develop SCADA Design Standards as outlined in phase one of the approved SCADA/IT Master Plan. The scope of the service was to establish a design guide for supervisory control and data acquisition (SCADA) system equipment, SCADA system programming, and SCADA information technology (IT) interfaces. In January 2024, the final revision to the SCADA/IT Design Standards was approved by staff and management.

Mr. Luke Swann, IT Supervisor, provided a PowerPoint presentation to the Board of Directors and staff reviewing the SCADA Design Standards. Mr. Swann reviewed Database Naming, Control Objects, HMI (Graphical Interface), and Hardware in his presentation. There was discussion, questions, and answers from staff and the Board of Directors. No action was taken by the Board.

5. Approval to Award Procurement of SCADA/IT Server Upgrade & Replacement

MOTION by Director Wilkins **SECOND** by Director Smelser to award procurement of SCADA/IT Server Upgrade & Replacement; unanimously approved.

The Board approved the motion by the following roll call vote:

AYES: Directors Cox, Wilson, Smelser, Wilkins, and President Tresan.
NOES: None.
ABSENT: None.
ABSTAIN: None.

Motion approved.

VI. Management Team Reports

1. Department Reports

Mr. Peak provided an update on the Operations department.

Mr. Shouse provided an update on the Maintenance department.

Mr. Hays provided an update on the Technical Services department.

Mr. Pallante provided an update on the Administration department.

No action was taken by the Board.

2. General Manager Report

Mr. Pallante provided an update on the status of various ongoing projects, none of which required additional action by the Board.

VII. Board of Directors Comment

Director Cox stated it had been an interesting meeting with presentations on possibly updating our treatment process, SCADA, and IT systems. He stated he saw a lot of needs within the Agency but wanted to see where the Agency would get the funding for these needs. Mr. Pallante said staff was working on the cash flow analysis to provide answers to that question soon. President Tresan stated that staff was working hard to move that forward.

President Tresan commended staff, supervisors, and management for their work on the Nutrient Removal presentation. It was great to see everyone engaged on the topic.

VIII. Adjournment

There being no further business, the meeting was adjourned at 12:01 P.M.

By:

Richard Pallante, General Manager

Date:

Approved: _____



TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Michelle Mackey, Accounting Supervisor
Item: III-2
Subject: Ratification of the General Fund Warrants

Background

The report of the General Fund Warrants is attached as prepared by Agency staff. It should be noted that payroll summaries are excluded from the General Fund Warrants and are incorporated into the Financial Statements.

The Finance Committee reviewed and approved the payment of the General Fund Warrants at its March 12, 2024 meeting.

Fiscal Impact

Decrease in Agency funds per the warrant amounts.

Attachments

Report of General Fund Warrants.

Recommendation

Management and staff recommend that the Board Directors approve the Ratification of the payment of the General Fund Warrants.

Review Tracking

Submitted By: Michelle Mackey Approved By: Richard Pallante
Michelle Mackey Richard Pallante
Accounting Supervisor General Manager

Payee	Check Number	Check Issue Date	Description	Amount
AIRGAS USA LLC				
	90814	02/22/2024	AIR ULTRA ZERO SIZE 200	714.02
	90814	02/22/2024	CYLINDER RENTALS	127.96
	90814	02/22/2024	CYLINDER RENTALS	82.77
Total AIRGAS USA LLC:				924.75
ALESHIRE & WYNDER LLP				
	90815	02/22/2024	JANUARY 2024 LEGAL FEES	2,160.00
Total ALESHIRE & WYNDER LLP:				2,160.00
ANNIE'S CLEANING SERVICE				
	90816	02/22/2024	CLEANING SERVICE FOR JANUARY	4,766.67
Total ANNIE'S CLEANING SERVICE:				4,766.67
AT&T 530 582-0827 966 5				
	90756	02/08/2024	TELEPHONE BILL	150.08
	90756	02/08/2024	TELEPHONE BILL	1,350.72
Total AT&T 530 582-0827 966 5:				1,500.80
AT&T 831-000-9983 804				
	90817	02/22/2024	TELEPHONE BILL 10%	137.04
	90817	02/22/2024	TELEPHONE BILL 90%	1,233.36
Total AT&T 831-000-9983 804:				1,370.40
BARTKIEWICZ, KRONICK & SHANAHAN				
	90818	02/22/2024	JANUARY LEGAL FEES	3,232.50
Total BARTKIEWICZ, KRONICK & SHANAHAN:				3,232.50
BLUE WHITE				
	90757	02/08/2024	PERISTALIC PUMP	8,695.82
Total BLUE WHITE:				8,695.82
BOUCHER LAW, PC				
	90819	02/22/2024	FINANCE & ADMIN MGR RECRUITMENT	2,089.00
	90819	02/22/2024	FINANCE & ADMIN MGR RECRUITMENT	6,225.00
Total BOUCHER LAW, PC:				8,314.00
CALIFORNIA LAND MANAGEMENT				
	90758	02/08/2024	CONNECTION FEE REFUND	4,767.42
Total CALIFORNIA LAND MANAGEMENT:				4,767.42
CAROLLO				
	90759	02/08/2024	ADDITIONAL BOILER HEATING SERVICE	8,890.29
	90820	02/22/2024	LAND USE RISK ANALYSIS STUDY PROPOSAL	2,578.00
	90820	02/22/2024	ADDITIONAL BOILER HEATING SVC	1,869.50
Total CAROLLO:				13,337.79

Payee	Check Number	Check Issue Date	Description	Amount
CASELLE				
	90760	02/08/2024	SUPPORT & MAINTENANCE MARCH 2024	3,631.00
Total CASELLE:				3,631.00
CASHMAN EQUIPMENT CO.				
	90761	02/08/2024	PARTS FOR LOADER	2,040.47
	90821	02/22/2024	SEALS, BRACKETS, WINDOW	704.77-
	90821	02/22/2024	FILTERS & ELEMENTS	241.33
	90821	02/22/2024	FILTERS & ELEMENTS	216.29
	90821	02/22/2024	SOCKETS	228.77
	90821	02/22/2024	REPAIR RIDE CONTROL SYSTEM	2,051.53
	90821	02/22/2024	SODIUM HYPOCHLORITE TANK RENTAL	3,758.57
Total CASHMAN EQUIPMENT CO.:				7,832.19
CENTIMARK CORPORATION				
	90762	02/08/2024	PPE#5	2,000.00
	90762	02/08/2024	RETENTION	100.00-
	90808	02/12/2024	RETENTION #1	2,832.42
	90808	02/12/2024	RETENTION #2	19,359.32
	90808	02/12/2024	RETENTION #3	10,174.92
	90808	02/12/2024	RETENTION #4	11,433.75
	90808	02/12/2024	RETENTION #5	100.00
Total CENTIMARK CORPORATION:				45,800.41
CENTRAL SQUARE TECHNOLOGIES				
	90763	02/08/2024	ASSET MGMT ANNUAL FEE	10,768.91
Total CENTRAL SQUARE TECHNOLOGIES:				10,768.91
CHARD SNYDER & ASSOCIATES				
	90764	02/08/2024	COBRA FEE	16.72
	90764	02/08/2024	COBRA FEE	8.36
	90764	02/08/2024	COBRA FEE	2.09
	90764	02/08/2024	COBRA FEE	33.93
	90764	02/08/2024	COBRA FEE	6.27
	90764	02/08/2024	COBRA FEE	20.09
	90764	02/08/2024	COBRA FEE	6.27
	90764	02/08/2024	COBRA FEE	4.18
	90764	02/08/2024	COBRA FEE	2.09
	90764	02/08/2024	ADMIN FEE	39.10
	90764	02/08/2024	ADMIN FEE	28.65
	90764	02/08/2024	ADMIN FEE	7.55
	90764	02/08/2024	ADMIN FEE	85.60
	90764	02/08/2024	ADMIN FEE	13.55
	90764	02/08/2024	ADMIN FEE	43.55
	90764	02/08/2024	ADMIN FEE	6.00
	90764	02/08/2024	ADMIN FEE	12.00
	90764	02/08/2024	ADMIN FEE	3.00
Total CHARD SNYDER & ASSOCIATES:				339.00
CHRYSLER JEEP OF RENO				
	90822	02/22/2024	ANTIFR FLOOR	61.80
	90822	02/22/2024	PARTS TO REPAIR JEEP FROM MICE DAMAGE	2,379.40

Payee	Check Number	Check Issue Date	Description	Amount
	90822	02/22/2024	HEADLAMP, HOSE, CORE DEPOSIT	1,460.64
Total CHRYSLER JEEP OF RENO:				3,901.84
COLUMN SOFTWARE PBC				
	90823	02/22/2024	RFQ VEHICLE AD - 2/2 & 2/9	475.80
	90823	02/22/2024	RFQ VEHICLE AD	102.58
Total COLUMN SOFTWARE PBC:				578.38
CORELOGIC INFORMATION SOLUTIONS, IN				
	90824	02/22/2024	MONTHLY BILL FOR JANUARY	521.67
Total CORELOGIC INFORMATION SOLUTIONS, IN:				521.67
CORWIN FORD				
	90825	02/22/2024	MIRROR	356.13
	90825	02/22/2024	FILTER	58.95
Total CORWIN FORD:				415.08
CWEA				
	90765	02/08/2024	MEMBERSHIP	221.00
	90826	02/22/2024	CERTIFICATION RENEWAL	98.00
Total CWEA:				319.00
E&M ELECTRIC				
	90766	02/08/2024	CONNECTOR FRONT SCREW S7300 20PN SIMATIC NET, PB FC M12	89.33
	90766	02/08/2024	CABLE	389.70
	90766	02/08/2024	CONNECTOR FRONT SCREW S7300 20PN	281.45
	90766	02/08/2024	MODULE INPUT S7300 16DI 120/230VAC	890.38
Total E&M ELECTRIC:				1,650.86
FASTENAL				
	90827	02/22/2024	BOLTS	89.18
	90827	02/22/2024	NUTS & BOLTS	172.72
Total FASTENAL:				261.90
FEDERAL EXPRESS CORP.				
	90828	02/22/2024	SHIPPING CHARGES FOR PO 36712	26.03
	90828	02/22/2024	SHIPPING CHARGES	15.16
	90828	02/22/2024	NOVEMBER 2023 SHIPPING CHARGES	53.19
	90828	02/22/2024	NOVEMBER 2023 OTHER CHARGES	4.26
	90828	02/22/2024	JANUARY 2024 SHIPPING CHARGES	56.33
	90828	02/22/2024	SHIPPING CHARGES	44.67
Total FEDERAL EXPRESS CORP.:				199.64
FERGUSON ENTERPRISES LLC #3325				
	90829	02/22/2024	M18 FUEL COMP B/SAW	357.21
	90829	02/22/2024	8 DI 125# C110 FLG 90 BEND	1,794.57
	90829	02/22/2024	3/4-10X 3" HEX BOLT A307 A ZINC	103.92
	90829	02/22/2024	3/4-10 FIN HEX NUT STL ZN *Z	17.86
	90829	02/22/2024	8 NA 1/8 150# FF GSMT	123.23

Payee	Check Number	Check Issue Date	Description	Amount
Total FERGUSON ENTERPRISES LLC #3325:				2,396.79
GALLAGHER BENEFIT SERVICES INC				
	90830	02/22/2024	2023 CLASS AND COMP STUDY PHASE 1	5,291.00
Total GALLAGHER BENEFIT SERVICES INC:				5,291.00
GARLAND-STURGES COMPANY				
	90767	02/08/2024	2024 EMPLOYEE DISHONESTY BOND INSURANCE RENEWAL	1,503.00
Total GARLAND-STURGES COMPANY:				1,503.00
GFS CHEMICALS INC				
	90831	02/22/2024	SULFATE SOLUTION	342.53
	90831	02/22/2024	SODIUM CARBONATE SOLUTION	87.27
Total GFS CHEMICALS INC:				429.80
GOVERNMENT FINANCE OFFICERS ASSOCIATION				
	90832	02/22/2024	GFOA MEMBERSHIP	150.00
Total GOVERNMENT FINANCE OFFICERS ASSOCIATION:				150.00
GRAINGER INC., W.W.				
	90809	02/12/2024	AA BATTERIES	32.52
	90809	02/12/2024	AAA BATTERIES	10.65
	90809	02/12/2024	TIME DELAY FUSE	331.78
	90809	02/12/2024	FILTER CARTRIDGE	270.28
	90809	02/12/2024	LITHIUM BATTERY	29.12
	90809	02/12/2024	CARBON STEEL SHEET	223.18
	90809	02/12/2024	INTERIOR PANEL	333.88
	90809	02/12/2024	ENCLOSURE	1,520.35
	90809	02/12/2024	ENCLOSURE	1,520.35
Total GRAINGER INC., W.W.:				1,231.41
HACH CHEMICAL COMPANY				
	90768	02/08/2024	CLEANING SOLUTION	1,848.91
	90768	02/08/2024	STABLECAL VIALS	496.89
	90768	02/08/2024	STANDARD SOLUTION	915.80
	90768	02/08/2024	STANDARD SOLUTION	457.90
	90768	02/08/2024	ELECTROLYTE	324.75
	90768	02/08/2024	PLUG	97.91
	90833	02/22/2024	PUMP HEAD, AMTAX sc AIR PUMP	2,290.36
Total HACH CHEMICAL COMPANY:				6,432.52
HOME DEPOT CREDIT SERVICES				
	90769	02/08/2024	GRINDER KIT	388.62
	90834	02/22/2024	WOOD SHELF	177.19
	90834	02/22/2024	CONCRETE MIX	103.28
	90834	02/22/2024	SAW BLADE	67.92
	90834	02/22/2024	STRAIGHT BLADE PLUG	38.58
	90834	02/22/2024	POST MIX	159.65
	90834	02/22/2024	POST MIX	142.54
	90834	02/22/2024	POST MIX	142.56

Payee	Check Number	Check Issue Date	Description	Amount
	90834	02/22/2024	POST MIX, PLUGS,	214.88
Total HOME DEPOT CREDIT SERVICES:				1,435.22
INFOSEND				
	90770	02/08/2024	STATEMENT PREECESSING	384.95
Total INFOSEND:				384.95
J.W. WELDING SUPPLY				
	90771	02/08/2024	CABLE CONNECTOR	101.75
	90771	02/08/2024	MALE CONNECTOR	101.76
	90771	02/08/2024	3/32 6010 LINCOLN	25.49
	90835	02/22/2024	ZERO 1.0 AR,COMPRESSED 2.2	248.19
	90835	02/22/2024	CYLINDER RENTALS	148.95
	90835	02/22/2024	CYLINDER RENTALS	61.95
	90835	02/22/2024	CYLINDER RENTALS	16.95
Total J.W. WELDING SUPPLY:				705.04
JACOBS ENGINEERING GROUP INC				
	90836	02/22/2024	#39 FRONT ENTRY LANDSCAPE	3,185.23
Total JACOBS ENGINEERING GROUP INC:				3,185.23
JAIME GARCIA				
	90837	02/22/2024	REIMBURSE EMPLOYEE BOOTS	250.00
Total JAIME GARCIA:				250.00
JUSTIN PARRISH				
	90772	02/08/2024	REIMBURSEMENT CERTIFICATION	720.00
Total JUSTIN PARRISH:				720.00
LHOIST NORTH AMERICA				
	90773	02/08/2024	23.52 TONS HYDRATED LIME DEL 1/19/24	9,139.79
	90773	02/08/2024	23.89 TONS HYDRATED LIME DEL 1/11/24	9,283.56
	90838	02/22/2024	24.33 TONS HYDRATED LIME DEL 2/9/24	9,450.58
Total LHOIST NORTH AMERICA:				27,873.93
LIBERTY UTILITIES				
	90774	02/08/2024	ELECTRIC	32.26
	90774	02/08/2024	ELECTRIC	105.87
	90774	02/08/2024	ELECTRIC	69.09
	90774	02/08/2024	ELECTRIC	74.13
	90774	02/08/2024	ELECTRIC	27.92
	90839	02/22/2024	ELECTRIC	29.90
	90839	02/22/2024	ELECTRIC	24.50
Total LIBERTY UTILITIES:				363.67
LINDE GAS AND EQUIP INC				
	90775	02/08/2024	CYLINDER RENTALS	121.20

Payee	Check Number	Check Issue Date	Description	Amount
Total LINDE GAS AND EQUIP INC:				121.20
LOGICALLY				
	90840	02/22/2024	MONTHLY BILLING FOR JANUARY	3,231.31
Total LOGICALLY:				3,231.31
MCMASTER-CARR				
	90776	02/08/2024	V-BELT	33.17
	90776	02/08/2024	V-BELT	99.50
	90776	02/08/2024	V-BELT	173.30
Total MCMASTER-CARR:				305.97
MOTION INDUSTRIES				
	90841	02/22/2024	V-BELT	394.78
Total MOTION INDUSTRIES:				394.78
MOUNTAIN HARDWARE				
	90777	02/08/2024	SPACKLE, SINK TAILPIECE, TRAP	66.75
	90777	02/08/2024	MILWAUKEE TOOL	43.25
	90777	02/08/2024	THERMOSTAT	24.89
	90777	02/08/2024	HEPA FILTER AND CHAINSAW BATTERY	399.43
	90777	02/08/2024	RETURN HEPA FILTER AND CHAINSAW BATTERY	399.43
	90777	02/08/2024	HEPA FILTER	58.43
	90777	02/08/2024	CHAINSAW KIT	540.17
	90842	02/22/2024	DUST COLLECTOR AND VACUUM	324.73
	90842	02/22/2024	JOBSITE FAN	107.17
Total MOUNTAIN HARDWARE:				1,165.39
MOUSER ELECTRONICS				
	90778	02/08/2024	PUSHBUTTON SWITCH	61.18
Total MOUSER ELECTRONICS:				61.18
NAPA- SIERRA				
	90779	02/08/2024	HATCHBACK LIFT SUPPORT	40.46
	90779	02/08/2024	OIL FILTER, AIR FILTER, MOTOR OIL	175.69
	90779	02/08/2024	CORDLESS TOOL	327.99
	90843	02/22/2024	THERMOSTAT	26.88
	90843	02/22/2024	EXHAUST MANIFOLD, GASKET, BELT	504.35
Total NAPA- SIERRA:				1,075.37
NEWEGG INC				
	90669	02/15/2024	NETWORK ETHERNET	21.22- V
	90669	02/15/2024	POWER OVER ETHERNET SURGE	194.83- V
	90812	02/15/2024	NETWORK ETHERNET	21.22
	90812	02/15/2024	POWER OVER ETHERNET SURGE	194.83
Total NEWEGG INC:				.00
NORTHERN SIERRA AQMD				
	90780	02/08/2024	ANNUAL AIR QUALITY PERMIT FEES	1,875.50

Payee	Check Number	Check Issue Date	Description	Amount
Total NORTHERN SIERRA AQMD:				1,875.50
NV5 INC				
	90781	02/08/2024	PIPE LOADING ANALYSIS	1,267.25
Total NV5 INC:				1,267.25
OFFICE DEPOT				
	90782	02/08/2024	COPY PAPER	963.53
	90782	02/08/2024	DIGITAL WALL CLOCK	43.29
	90782	02/08/2024	BLUE PANS, PACK OF 12	5.14
	90782	02/08/2024	VIOLET PENS, PACK OF 12	5.14
	90782	02/08/2024	FINGERTIP GRIPS, PACK OF 10	8.01
	90782	02/08/2024	ANTI-FATIGUE MATS	352.85
	90844	02/22/2024	CLIPBOARD	32.45
	90844	02/22/2024	NOTEBOOKS	17.18
	90844	02/22/2024	HANGING FOLDERS	14.46
	90844	02/22/2024	LAMINATING SHEETS	10.27
	90844	02/22/2024	AVERY LABELS	25.79
	90844	02/22/2024	SCISSORS	13.53
Total OFFICE DEPOT:				1,491.64
O'REILLY AUTO PARTS				
	90783	02/08/2024	WORKLIGHT	89.29
	90783	02/08/2024	BATTERY	198.44
	90845	02/22/2024	CUTTERS, BLADE, COUPLER	119.03
	90845	02/22/2024	CORE RETURN	22.00-
	90845	02/22/2024	BRUSH, MINI LAMP, BEAM	54.77
	90845	02/22/2024	SCRUB WIPES	61.67
	90845	02/22/2024	DENT PULLER, WINDOW TOOL, WINDSHIELD	148.26
	90845	02/22/2024	WORKLIGHTS	277.23
Total O'REILLY AUTO PARTS:				926.69
PACIFIC OFFICE AUTOMATION				
	90784	02/08/2024	1/28/24-2/28/24 MONTHLY BILL	61.43
	90846	02/22/2024	2/3/24-3/3/24 MONTHLY BILLING	181.31
	90846	02/22/2024	11/2/23-2/2/24 QUARTERLY OVERAGE	380.36
Total PACIFIC OFFICE AUTOMATION:				623.10
PC-1 DEVELOPERS				
	90847	02/22/2024	CONNECTION FEE REFUND	66.34
Total PC-1 DEVELOPERS:				66.34
PDM STEEL SVC CNTRS INC-SPARKS NV				
	90785	02/08/2024	C 6 X 8.2 CHANNEL - 20 A36**	424.62
	90785	02/08/2024	C 3 X 5.0 CHANNEL - 20 A36**	240.96
	90785	02/08/2024	C 4 X 6.25 CHANNEL - 20 A36**	315.01
Total PDM STEEL SVC CNTRS INC-SPARKS NV:				980.59
PENHALL COMPANY				
	90786	02/08/2024	CORE DRILLING SERVICES	990.00

Payee	Check Number	Check Issue Date	Description	Amount
Total PENHALL COMPANY:				990.00
PINNACLE TOWERS INC.				
	90787	02/08/2024	MONTHLY RADIO TOWER RENTAL	852.75
Total PINNACLE TOWERS INC.:				852.75
PLATT ELECTRIC COMPANY				
	90788	02/08/2024	TWIRL NUT	274.13
	90788	02/08/2024	STRUT STRAP	32.05
	90788	02/08/2024	COUPLING	43.05
	90788	02/08/2024	TIME SWITCH	244.65
	90848	02/22/2024	STRAP	82.55
Total PLATT ELECTRIC COMPANY:				676.43
PROACTIVE ENVIRONMENTAL				
	90789	02/08/2024	SUBMERSIBLE PUMP	381.00
Total PROACTIVE ENVIRONMENTAL:				381.00
PSI POLLUTION SOLUTION INC				
	90849	02/22/2024	DRIP POUCH	390.80
Total PSI POLLUTION SOLUTION INC:				390.80
Q & D CONSTRUCTION LLC				
	90790	02/08/2024	PPE #1	19,500.00
Total Q & D CONSTRUCTION LLC:				19,500.00
RED WING BUSINESS ADVANTAGE ACCOUNT				
	90850	02/22/2024	EMPLOYEE SUMMER BOOTS	230.05
	90850	02/22/2024	EMPLOYEE SUMMER BOOTS	214.36
Total RED WING BUSINESS ADVANTAGE ACCOUNT:				444.41
RENO BUSINESS INTERIORS				
	90791	02/08/2024	HEIGHT ADJUSTABLE DESK	2,389.94
	90791	02/08/2024	INSTALLATION	420.00
Total RENO BUSINESS INTERIORS:				2,809.94
REXEL				
	90792	02/08/2024	HUB HBLDS3SS DISCONNECT 30A UNFUSED 4X SS	1,368.36
	90851	02/22/2024	AB 20-HIM-C6S PFLEX 20 IP66-UL NEMATYPER 4X-12 20HIM-C6	426.69
	90851	02/22/2024	AB 20-750-1132D-2R POWERFLEX 750 SERIES 115V AC EIO 11 KIT	362.36
	90851	02/22/2024	ALLEN BRADLEY PF755TL 75HP ND N12	41,784.38
	90851	02/22/2024	AUTOCAD DRAWINGS	324.75
	90851	02/22/2024	DATA PACKAGE	324.75
	90851	02/22/2024	AB 20-750-1132D-2R POWERFLEX 750 SERIES 115V AC EIO 11 KIT	362.36
	90851	02/22/2024	AB 20-750-2262D-2R POWERFLEX 750 115V AC IO OPTION MODULE	407.23
Total REXEL:				45,360.88

Payee	Check Number	Check Issue Date	Description	Amount
RHONDA ROSSI				
	90793	02/08/2024	CONNECTION FEE REFUND	500.00
Total RHONDA ROSSI:				500.00
ROCKWELL SOLUTIONS				
	90794	02/08/2024	BEARING	1,353.58
	90794	02/08/2024	CAP	544.50
	90794	02/08/2024	SHAFT	1,170.19
	90794	02/08/2024	CREDIT FOR STUFFING BOX	371.30-
	90794	02/08/2024	CREDIT FOR STUFFING BOX	371.30-
	90794	02/08/2024	CUTTER	1,416.42
	90794	02/08/2024	O-RING	29.23
	90794	02/08/2024	CUTTER	1,424.57
	90794	02/08/2024	O-RING	29.23
	90794	02/08/2024	O-RING	18.40
	90794	02/08/2024	WEARPLATE	1,727.67
	90794	02/08/2024	SEAL OIL	106.08
	90794	02/08/2024	SLINGER	68.20
	90794	02/08/2024	ANVIL	216.50
	90794	02/08/2024	CUTTER	946.11
	90794	02/08/2024	O-RING	29.23
	90794	02/08/2024	O-RING	16.24
	90794	02/08/2024	O-RING	23.81
	90794	02/08/2024	O-RING	23.81
Total ROCKWELL SOLUTIONS:				8,401.17
ROY SMITH COMPANY				
	90795	02/08/2024	4735 GAL LIQUID OXYGEN DEL 1/4/24	8,996.50
	90852	02/22/2024	4822 GAL LIQUID OXYGEN DEL 1/17/24	9,161.80
	90852	02/22/2024	4790 GAL LIQUID OXYGEN DEL 2/14/24	9,101.00
	90852	02/22/2024	4819 GAL LIQUID OXYGEN DEL 2/12/24	9,156.10
Total ROY SMITH COMPANY:				36,415.40
RS AMERICAS INC				
	90853	02/22/2024	FUSE TERMINAL BLOCK	8.60
	90853	02/22/2024	FUSE TERMINAL BLOCK	9.69
	90853	02/22/2024	END COVER	17.32
	90853	02/22/2024	FEED THROUGH	52.50
	90853	02/22/2024	CONN TERM BLOCK	67.76
	90853	02/22/2024	FUSE PLUG	266.57
Total RS AMERICAS INC:				422.44
RUPPERT INC				
	90810	02/12/2024	PPE#3 SODIUM HYPOCHLORITE FOUNDATION PROJECT	65,596.25
	90810	02/12/2024	RETENTION #3	3,279.81-
Total RUPPERT INC:				62,316.44
SAGE MODERN INC				
	90854	02/22/2024	CONNECTION FEE REFUND	46,500.00
Total SAGE MODERN INC:				46,500.00

Payee	Check Number	Check Issue Date	Description	Amount
SHERWOOD HR CONSULTING				
	90796	02/08/2024	STRATEGIC PLANNING: PHASE 1-6 (HR TRAINING) 32.5 HOURS	8,125.00
	90796	02/08/2024	STRATEGIC PLANNING: MATERIALS/SUPPLIES	300.00
	90796	02/08/2024	STRATEGIC PLANNING: TRAVEL/LODGING - PHASE 1&2	1,000.00
Total SHERWOOD HR CONSULTING:				9,425.00
SHRED-IT USA				
	90855	02/22/2024	12/27 & 1/10 & 1/24 SERVICE	295.50
Total SHRED-IT USA:				295.50
SIERRA ELECTRONICS				
	90856	02/22/2024	MOTOTRBO R7 UHF FKP GPS BT WIFI CAPABLE	4,113.59
	90856	02/22/2024	RADIO CARRY CASE	211.09
	90856	02/22/2024	RADIO REPEATER MONTHLY FEE	160.00
Total SIERRA ELECTRONICS:				4,484.68
SOLENIS				
	90857	02/22/2024	K133 L	4,685.17
Total SOLENIS:				4,685.17
SOUTHWEST GAS CORP.				
	90858	02/22/2024	1/4/24-2/1/24 MAIN 10%	458.23
	90858	02/22/2024	1/4/24-2/1/24 MAIN 90%	4,124.11
	90858	02/22/2024	1/4/24-2/1/24 PLANT 10%	864.60
	90858	02/22/2024	1/4/24-2/1/24 PLANT 90 %	7,781.44
Total SOUTHWEST GAS CORP.:				13,228.38
SOUTHWEST VALVE LLC				
	90797	02/08/2024	PLUG VLAVE	3,692.84
Total SOUTHWEST VALVE LLC:				3,692.84
STATE WATER RESOURCES CONTROL BOARD				
	90685	02/15/2024	LOW IMPACT CHARGES	399.00- V
	90685	02/20/2024	LOW IMPACT CHARGES	399.00
	90813	02/15/2024	LOW IMPACT CHARGES	399.00
	90813	02/20/2024	LOW IMPACT CHARGES	399.00- V
Total STATE WATER RESOURCES CONTROL BOARD:				.00
SWRCB ACCOUNTING OFFICE				
	90811	02/12/2024	ANNUAL PERMIT FEES	1,818.00
Total SWRCB ACCOUNTING OFFICE:				1,818.00
TAHOE FOREST HOSP. DIST./TAHOE WORX				
	90859	02/22/2024	ANNUAL SCREENINGS	125.00
Total TAHOE FOREST HOSP. DIST./TAHOE WORX:				125.00
TAHOE TRUCKEE DISPOSAL				
	90860	02/22/2024	CENTRIFUGE	17,335.60

Payee	Check Number	Check Issue Date	Description	Amount
	90860	02/22/2024	SLUDGE	6,941.42
Total TAHOE TRUCKEE DISPOSAL:				24,277.02
TELEDYNE INSTRUMENTS INC				
	90798	02/08/2024	NDIR DETECTOR	7,331.77
Total TELEDYNE INSTRUMENTS INC:				7,331.77
THATCHER COMPANY OF CA INC				
	90799	02/08/2024	4531.593 GAL SODIUM HYPOCHLORITE DEL 1/24	12,144.67
Total THATCHER COMPANY OF CA INC:				12,144.67
THOMAS AND ASSOCIATES				
	90800	02/08/2024	O-RING BUNA CTD	30.04
	90800	02/08/2024	4IN FV ASSY SC NEO SOLID	611.66
Total THOMAS AND ASSOCIATES:				641.70
TITAN WIRE & CABLE				
	90861	02/22/2024	WIRE	447.02
	90861	02/22/2024	RED WIRE	297.65
	90861	02/22/2024	WHITE WIRE	378.88
	90861	02/22/2024	GREEN WIRE	378.88
	90861	02/22/2024	BLACK WIRE	378.88
	90861	02/22/2024	BLACK WIRE	2,266.56
	90861	02/22/2024	GREEN WIRE	422.17
	90861	02/22/2024	BLACK WIRE	81.19
	90861	02/22/2024	BLUE WIRE	81.19
	90861	02/22/2024	RED WIRE	81.19
	90861	02/22/2024	WHITE WIRE	81.19
Total TITAN WIRE & CABLE:				4,894.80
TRAFFICBUILDERS INC SIGNS AND GRAPHICS				
	90801	02/08/2024	CUSTOM SIGNS & MATERIALS	7,410.13
	90801	02/08/2024	LABOR FOR SIGNS	5,210.00
Total TRAFFICBUILDERS INC SIGNS AND GRAPHICS:				12,620.13
TRUCKEE DONNER PUD				
	90802	02/08/2024	12/12/23-01/15/24 ELECTRIC	37.03
	90802	02/08/2024	12/12/23-1/15/24 ELECTRIC	72.74
	90802	02/08/2024	12/12/23-1/15/24 ELECTRIC	89.64
	90802	02/08/2024	12/12/23-1/15/24 ELECTRIC	12,514.33
	90802	02/08/2024	12/12/23-1/15/24 ELECTRIC	112,631.00
	90802	02/08/2024	12/12/23-1/15/24 WATER	16.14
	90802	02/08/2024	12/12/23-1/15/24 WATER	145.31
Total TRUCKEE DONNER PUD:				125,506.19
T-TIME ENTERPRISES				
	90803	02/08/2024	J321 BLACK/GREY MED W/ LOGO & "K. Demm" ON LEFT CHEST	120.54
	90803	02/08/2024	POLO SHIRT- MEDIUM- W/ LOGO ON LEFT CHEST	31.86
	90803	02/08/2024	POLO SHIRT- LARGE- W/ LOGO ON LEFT CHEST	31.86

Payee	Check Number	Check Issue Date	Description	Amount
Total T-TIME ENTERPRISES:				184.26
U.S. BANK CARD DIVISION				
	2292401	02/29/2024	CERTIFIED MAIL	12.25
	2292401	02/29/2024	MEMBERSHIP RENEWAL	150.00
	2292401	02/29/2024	BREAKROOM SUPPLIES	571.99
	2292401	02/29/2024	OPERATOR INTERVIEWS	109.22
	2292401	02/29/2024	JOB ADVERTISING	885.00
	2292401	02/29/2024	JOB ADVERTISING	900.00
	2292401	02/29/2024	JOB ADVERTISING	99.00
	2292401	02/29/2024	ANNUAL MEMBERSHIP	799.00
	2292401	02/29/2024	TAX FORMS	48.71
	2292401	02/29/2024	BOARD ROOM SNACKS	99.84
	2292401	02/29/2024	NAME BADGES	111.07
	2292401	02/29/2024	ZOOM VIDEO	110.00
	2292401	02/29/2024	MONTHLY BILL	166.13
	2292401	02/29/2024	MONTHLY BILL	343.37
	2292401	02/29/2024	LAND USE PERMIT WELL 31	76.37
	2292401	02/29/2024	GRADE 4/5 PREP COURSE	550.00
	2292401	02/29/2024	FLOW METER JOB TOOLS	661.53
	2292401	02/29/2024	WELDING CONSUMABLES	107.06
	2292401	02/29/2024	NO TRESPASS SIGNS	255.47
	2292401	02/29/2024	DISHWASHER	1,290.70
	2292401	02/29/2024	MONTLY BILL	112.02
	2292401	02/29/2024	MAIN BREAKER	564.22
	2292401	02/29/2024	ON/OFF SWITCH FOR PRIMARY 3 EXHAUST FAN	136.52
	2292401	02/29/2024	MOUSE PAD AND USB HUB	43.82
	2292401	02/29/2024	MONTHLY BILL	37.34
	2292401	02/29/2024	GOOGLE WORKSPACE BUSINESS PLAN MONTHLY BILL	1,178.12
	2292401	02/29/2024	AMAZON WEB MONTLY BILL	6.59
	2292401	02/29/2024	ANNUAL T-TSA WEBSITE BILL	708.00
	2292401	02/29/2024	MONTHLY BILL	199.76
	2292401	02/29/2024	AUTO LIMIT SWITCH	127.71
	2292401	02/29/2024	REFUND FILTERS	373.40-
	2292401	02/29/2024	FILTERS FOR HVAC	1,734.42
	2292401	02/29/2024	BATH TISSUE	127.14
	2292401	02/29/2024	LIQUID TIGHT CONNECTORS	136.81
	2292401	02/29/2024	SORBENT PADS/GLASSES WIPES	142.84
	2292401	02/29/2024	MONTHLY BILL	37.34
	2292401	02/29/2024	SIMPSON TIE STRONG	64.93
	2292401	02/29/2024	BIFOCAL SAFETY GLASSES	52.04
Total U.S. BANK CARD DIVISION:				12,382.93
ULINE				
	90862	02/22/2024	SAFETY GLASSES	90.95
Total ULINE:				90.95
UNIFIRST CORPORATION				
	90863	02/22/2024	UNIFORMS	39.83
	90863	02/22/2024	UNIFORMS	53.24
	90863	02/22/2024	UNIFORMS	178.48
	90863	02/22/2024	UNIFORMS	24.60
	90863	02/22/2024	UNIFORMS	275.07
	90863	02/22/2024	UNIFORMS	24.60

M = Manual Check, V = Void Check

Payee	Check Number	Check Issue Date	Description	Amount
	90863	02/22/2024	UNIFORMS	39.83
	90863	02/22/2024	TOWELS	13.06
	90863	02/22/2024	UNIFORMS	155.11
	90863	02/22/2024	MATS	100.68
	90863	02/22/2024	UNIFORMS	53.24
	90863	02/22/2024	UNIFORMS	24.60
	90863	02/22/2024	UNIFORMS	53.24
	90863	02/22/2024	UNIFORMS	39.83
	90863	02/22/2024	TOWELS	13.06
	90863	02/22/2024	UNIFORMS	178.48
	90863	02/22/2024	UNIFORMS	178.48
	90863	02/22/2024	UNIFORMS	39.83
	90863	02/22/2024	TOWELS	13.06
	90863	02/22/2024	UNIFORMS	53.24
	90863	02/22/2024	UNIFORMS	24.60
	90863	02/22/2024	UNIFORMS	181.17
	90863	02/22/2024	MATS	97.68
	90863	02/22/2024	UNIFORMS	115.74
Total UNIFIRST CORPORATION:				1,970.75
UNITED RENTALS				
	90864	02/22/2024	BARRIER WALL FOR SODIUM HYPOCHLORITE	190.00
Total UNITED RENTALS:				190.00
USA BLUE BOOK				
	90865	02/22/2024	PIPE CLAMP NON-METALLIC 1/2" FOR NON-METALLIC CHANNEL	227.00
	90865	02/22/2024	GRIFFCO PULSATION DAMPENER PVC/HYPALON, 15 CU IN, 1/2 IN	380.51
	90865	02/22/2024	FRP CHANNEL;NOTCHED;PRE-DRILL SOLD IN 5' LENGTHS	400.25
Total USA BLUE BOOK:				1,007.76
VWR SCIENTIFIC INC				
	90804	02/08/2024	COD REAGENT TUBES	1,712.82
	90804	02/08/2024	COD REAGENT TUBES	466.48
	90804	02/08/2024	PROSPORE AMPOULE LOG 5 PK10	289.36
	90804	02/08/2024	STANDARD SULFATE VERISPEC 500ML CHRMPY	215.67
	90804	02/08/2024	BDH IRON HNO3 1MG/ML NIST 125ML FOR ICP	113.00
	90804	02/08/2024	FILTER GR169 PREWASH PREWEIGH 47MM PK100	504.31
Total VWR SCIENTIFIC INC:				3,301.64
WESTERN ENV. TESTING LAB.				
	90805	02/08/2024	LAB TESTING	916.00
Total WESTERN ENV. TESTING LAB.:				916.00
WESTERN NEVADA SUPPLY				
	90806	02/08/2024	4 150 FF SPACER 3" THICK A105 CS	1,972.96
	90806	02/08/2024	4 150 FF SPACER 1-1/2" THICK A516-70CA	2,433.62
	90806	02/08/2024	SCH 80 PVC 1" PIPE	566.35
	90806	02/08/2024	3/4 CAP	56.51
	90806	02/08/2024	3/4 PLUG	18.08
	90806	02/08/2024	1/2 PLUG	12.67
	90806	02/08/2024	1-1/4 x 1 BUSHING	73.73
	90806	02/08/2024	1-1/4 x 3/4 BUSHING	21.07

Payee	Check Number	Check Issue Date	Description	Amount
	90806	02/08/2024	½ CLOSE NIPPLE	13.96
	90806	02/08/2024	1-1/4 x 3/4 BUSHING	73.73
Total WESTERN NEVADA SUPPLY:				5,242.68
ZORO				
	90807	02/08/2024	2" x 3/4" MNPT x FNPT 316 SS BUSHING	54.33
	90807	02/08/2024	2" x 1" MNPT x FNPT 316 SS BUSHING	56.06
	90866	02/22/2024	WALL MOUNT ENCLOSURE	76.16
	90866	02/27/2024	WALL MOUNT ENCLOSURE	76.16- V
	90866	02/27/2024	RATCHET AND SOCKET SET	258.73- V
	90866	02/22/2024	RATCHET AND SOCKET SET	258.73
	90866	02/22/2024	HEAT GUN	164.53
	90866	02/27/2024	HEAT GUN	164.53- V
	90866	02/22/2024	ELECTRICAL TAPE	15.78
	90866	02/27/2024	ELECTRICAL TAPE	15.78- V
	90866	02/27/2024	ELECTRICAL TAPE	15.18- V
	90866	02/22/2024	ELECTRICAL TAPE	15.18
	90866	02/22/2024	ELECTRICAL TAPE	15.78
	90866	02/27/2024	ELECTRICAL TAPE	15.78- V
	90866	02/27/2024	ELECTRICAL TAPE	15.78- V
	90866	02/22/2024	ELECTRICAL TAPE	15.78
	90866	02/22/2024	ELECTRICAL TAPE	15.78
	90866	02/27/2024	ELECTRICAL TAPE	15.78- V
	90866	02/27/2024	ELECTRICAL TAPE	15.78- V
	90866	02/22/2024	ELECTRICAL TAPE	15.78
	90866	02/22/2024	ELECTRICAL TAPE	15.78
	90866	02/27/2024	ELECTRICAL TAPE	15.78- V
	90866	02/22/2024	IBC TILT STAND	998.91
	90866	02/27/2024	IBC TILT STAND	998.91- V
Total ZORO:				110.39
Grand Totals:				667,758.77



TAHOE-TRUCKEE SANITATION AGENCY
MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Michelle Mackey, Accounting Supervisor
Item: IV-1
Subject: Discussion, Review, and Ratification of Financial Statements

Background

Attached are the Financial Statements for the previous calendar month(s), each of which includes (1) fund summaries and (2) end-of-month cash balances.

Summaries of the expenditure and revenue activity are provided for Fund 10: General Fund; Fund 02: Wastewater Capital Reserve Fund; and Fund 06: Replacement, Rehabilitation, and Upgrade Fund.

The end-of-month Combined Cash Investment table provides the end-of-month balances for all Agency cash accounts, reconciling with Agency end-of-month fund balances. Graphs have been added for review by the Board of Directors.

The Finance Committee reviewed and approved the Financial Statements at its March 12, 2024 meeting.

Fiscal Impact

None.

Attachments

Report of Financial Statements.

Recommendation

Management and staff recommend that the Board Directors approve the Ratification of Financial Statements.

Review Tracking

Submitted By: Michelle Mackey
Michelle Mackey
Accounting Supervisor

Approved By: Richard Pallante
Richard Pallante
General Manager



Tahoe-Truckee Sanitation Agency
 Fund 10: General Fund
 Fiscal Year 2023 - 2024
 Period Ending February 29, 2024

	Budget \$	Month \$	Month %	YTD \$	YTD %	Notes
REVENUE						
Income from Service Charge	17,026,000.00	(316,274.71)	(1.9)	11,152,651.69	65.5	1,2,3,9
Tax Revenue - Ad Valorem	5,078,000.00	5,189.35	0.1	2,990,140.35	58.9	2
Fund Interest	254,000.00	59,342.81	23.4	406,186.82	159.9	4
Other Revenue	73,000.00	1,040.11	1.4	11,610.78	15.9	5
Temporary Discharge	25,000.00	0.00	0.0	12,577.83	50.3	
TOTAL REVENUE	22,456,000.00	(250,702.44)	(1.1)	14,573,167.47	64.9	
EXPENDITURE						
Salaries & Wages	6,567,000.00	462,509.84	7.0	4,116,175.58	62.7	
Employee Benefits	3,602,500.00	351,640.34	9.8	2,586,085.36	71.8	
OPEB Retiree Health Reimbursement	0.00	0.00	0.0	(450,000.00)	0.0	6
Director Fees	9,500.00	700.00	7.4	5,200.00	54.7	
Vehicle	83,000.00	14,818.09	17.9	60,077.54	72.4	
CSRMA Insurance	415,000.00	1,503.00	0.4	464,373.45	111.9	7
Professional Memberships	53,500.00	2,288.00	4.3	38,440.00	71.9	
Agency Permits & Licenses	225,000.00	76.37	0.0	212,051.44	94.2	8
Office Expense	336,500.00	22,599.77	6.7	132,322.84	39.3	
Contractual Services	2,740,500.00	146,691.86	5.4	1,452,562.98	53.0	
Professional Services	689,000.00	25,206.50	3.7	274,573.36	39.9	
Conferences & Training	214,000.00	9,975.00	4.7	36,845.17	17.2	
Utilities	1,413,000.00	142,704.24	10.1	737,144.20	52.2	
Supplies, Repairs & Maintenance	1,234,500.00	72,903.25	5.9	643,006.51	52.1	
TOTAL EXPENDITURE	17,583,000.00	1,253,616.26	7.1	10,308,858.43	58.6	
NET INCOME (LOSS)	4,873,000.00	(1,504,318.70)		4,264,309.04		
Unfunded Accrued Liability	1,144,000.00	0.00		1,106,589.00	96.7	

67% of the fiscal year has elapsed.
 This is an unaudited status report.

Notes:

- 1 - TTSA collects the majority of its Sewer Service Charges on the county property tax bills of Placer County, El Dorado County and Nevada County. Placer County and Nevada County Sewer Service Charges are on the Teeter Schedule.
- 2 - Sewer Service Charges and Property Tax Revenue are net amounts of each County's billing fees. Teeter Schedule 55% - 1/2024, 40% 5/2024 and 5% 7/2024.
- 3 - The majority of Sewer Service Charges are collected on the County tax roll and recorded on a monthly basis according to the accrual-based accounting method. Sewer Service Charges not on the County tax roll are recorded when received.
- 4 - Interest income for various investments to include LAIF, CalCLASS, US Securities, FDIC Certificates of Deposit, Money Market Account and Bank Accounts.
- 5 - Other Revenue includes rebates, billings and surplus items sold.
- 6 - OPEB Reimbursement received from CalPERS for FY22 retiree health insurance premiums.
- 7 - Property and Pooled liability insurance.
- 8 - SWRCB Waste Discharge annual permits in the amount of \$199,478
- 9 - The monthly total includes the reversal of the direct bill six month accrual



Tahoe-Truckee Sanitation Agency
Fund 02: Wastewater Capital Reserve
Fiscal Year 2023 - 2024
Period Ending February 29, 2024

	Budget \$	Month \$	Month %	YTD \$	YTD %	Notes
REVENUE						
Income from Connection Fees	1,071,000.00	17,078.50	1.6	898,057.63	83.9	
Connection Fee Refunds	0.00	(50,000.00)	0.0	(136,034.50)	0.0	
Fund Interest	440,000.00	70,247.15	16.0	588,496.09	133.7	7
TOTAL REVENUE	1,511,000.00	37,325.65	2.5	1,350,519.22	89.4	
EXPENDITURE						
FY24 Disinfection Process Modernization	500,000.00	84,509.37	16.9	374,429.13	74.9	1
FY24 Improve Physical Security	167,000.00	12,620.13	7.6	17,900.53	10.7	1
FY24 Digestion Improvements Project	81,000.00	0.00	0.0	0.00	0.0	2
FY24 Lime Systems Improvements	56,500.00	0.00	0.0	0.00	0.0	2
FY24 River Crossing, Gravity Main	31,500.00	0.00	0.0	0.00	0.0	2
FY24 Plant Wide Electrical Improvements	12,500.00	0.00	0.0	0.00	0.0	3
FY24 TWAS Pump Replacement Project	7,000.00	0.00	0.0	0.00	0.0	2
FY23 Maintenance Carts	0.00	0.00	0.0	29,289.76	0.0	1
FY23 Flowmeter Improvements	0.00	1,200.00	0.0	11,549.78	0.0	1
FY23 Scada/IT Develop Standards	237,000.00	0.00	0.0	120,039.56	50.6	1
SUBTOTAL EXPENDITURES	1,092,500.00	98,329.50	9.0	553,208.76	50.6	
Allocation of 73.2% of Bond Payment	2,206,000.00	0.00	0.0	200,105.70	9.1	8
TOTAL EXPENDITURE	3,298,500.00	98,329.50	3.0	753,314.46	22.8	
NET INCOME (LOSS)	(1,787,500.00)	(61,003.85)		597,204.76		

67% of the fiscal year has elapsed.
This is an unaudited status report.

Notes:

- (1) Project started
- (2) Project started; no expenses invoiced
- (3) Project not started
- (4) Project completed
- (5) Project postponed to after FY24
- (6) Project cancelled
- (7) Interest income from various investments to include LAIF, CalCLASS, US Securities, FDIC Certificates of Deposit, Money Market Account and Bank Accounts.
- (8) Bond Payments are paid twice per year, December interest only and June principal and interest



Tahoe-Truckee Sanitation Agency
Fund 06: Replacement, Rehabilitation and Upgrade
Fiscal Year 2023 - 2024
Period Ending February 29, 2024

	Budget \$	Month \$	Month %	YTD \$	YTD %	Notes
REVENUE						
Fund Interest	100,000.00	7,167.13	7.2	72,443.77	72.4	7
TOTAL REVENUE	100,000.00	7,167.13	7.2	72,443.77	72.4	
EXPENDITURE						
FY24 Building Roof Replacements	1,268,000.00	2,000.00	0.2	878,008.20	69.2	1
FY24 Front Entry Landscape Improvements	1,260,000.00	4,452.48	0	6,927.48	0.5	1
FY24 Lime Systems Improvements	414,000.00	0.00	0	0.00	0.0	2
FY24 LEL Equipment Replacement	364,000.00	0.00	0	0.00	0.0	3
FY24 Cashman CAT 938M Wheel Loader	297,000.00	0.00	0	0.00	0.0	2
FY24 Upgrade Networks	188,000.00	0.00	0	0.00	0.0	2
FY24 Harmonic Filter Replacement	148,000.00	0.00	0	0.00	0.0	2
FY24 Plant Wide NFPA 820 Compliance	126,000.00	0.00	0	0.00	0.0	3
FY24 Visible Reinforcement Study	105,000.00	0.00	0	0.00	0.0	3
FY24 Light Vehicle Replacement	104,000.00	0.00	0	0.00	0.0	2
FY24 Filter Press Feed Pump	103,000.00	0.00	0	89,975.19	87.4	1
FY24 Plant Wide Electrical	92,000.00	0.00	0	0.00	0.0	3
FY24 2-Water Valve Replacement	86,000.00	0.00	0	0.00	0.0	2
FY24 Odorous Air VFD	80,000.00	0.00	0	0.00	0.0	2
FY24 Cashman CAT Skid Steer	78,000.00	0.00	0	0.00	0.0	2
FY24 BIPS Strainer Basket Refurbishment	75,000.00	0.00	0	0.00	0.0	2
FY24 Condition Assessment	74,000.00	0.00	0	0.00	0.0	2
FY24 Maintenance Carts	63,000.00	0.00	0	0.00	0.0	2
FY24 Replacement Primary Sludge Pumps	63,000.00	0.00	0	48,372.83	76.8	1
FY24 TWAS Pump Replacement Project	50,000.00	1,368.36	2.7	19,275.13	38.6	1
FY24 Misc Plant Rehab Project	50,000.00	0.00	0	0.00	0.0	3
FY24 Breaker Replacement	49,000.00	0.00	0	0.00	0.0	3
FY24 WAS Thickening	46,000.00	0.00	0	0.00	0.0	3
FY24 Cake Discharge VFD	41,000.00	0.00	0	0.00	0.0	2
FY24 Operation Forklift	40,000.00	0.00	0	0.00	0.0	2
FY24 2-Water System	40,000.00	0.00	0	0.00	0.0	3
FY24 Replacement Valves	35,000.00	0.00	0	0.00	0.0	3
FY24 VFD Replacements	34,000.00	0.00	0	20,833.96	61.3	1
FY24 BNR Blower Replacement	29,000.00	0.00	0	0.00	0.0	2
FY24 Filter Press Hydraulic	26,000.00	0.00	0	0.00	0.0	2
FY24 Phosphorus Stripper Flow	17,000.00	0.00	0	0.00	0.0	3
FY24 Digestion Improvements Project	501,000.00	10,759.79	0	24,259.79	4.8	1
FY23 Scada/IT Replace Servers	285,000.00	0.00	0	0.00	0.0	2
FY23 River Crossing, Gravity Main	255,000.00	0.00	0	0.00	0.0	2
FY23 Lab Equipment Replacements	73,000.00	0.00	0	0.00	0.0	3
FY23 Chlorine Scrubber IMP	0.00	3,948.57	0	31,885.31	0.0	1
FY23 Odorous Air VFD	0.00	1,196.28	0	1,795.49	0.0	1
FY23 Cake Discharge VFD	0.00	362.36	0	18,298.07	0.0	1
FY23 Plant Coating Improvement	0.00	0.00	0	48,838.50	0.0	1
FY23 Filter Press Feed Pump	0.00	42,433.88	0	42,433.88	0.0	1
SUBTOTAL EXPENDITURES	6,559,000.00	66,521.72	1.0	1,230,903.83	18.8	
Allocation of 26.8% of Bond Payment	808,000.00	0.00	0.0	73,262.73	9.1	8
TOTAL EXPENDITURES	7,367,000.00	66,521.72	0.9	1,304,166.56	17.7	
NET INCOME (LOSS)	(7,267,000.00)	(59,354.59)		(1,231,722.79)		

67% of the fiscal year has elapsed.
This is an unaudited status report.

Notes:

- (1) Project started
- (2) Project started; no expenses invoiced
- (3) Project not started
- (4) Project completed
- (5) Project postponed to after FY23
- (6) Project cancelled
- (7) Interest income from LAIF and CalCLASS
- (8) Bond Payments are paid twice per year, December interest only and June principal and interest

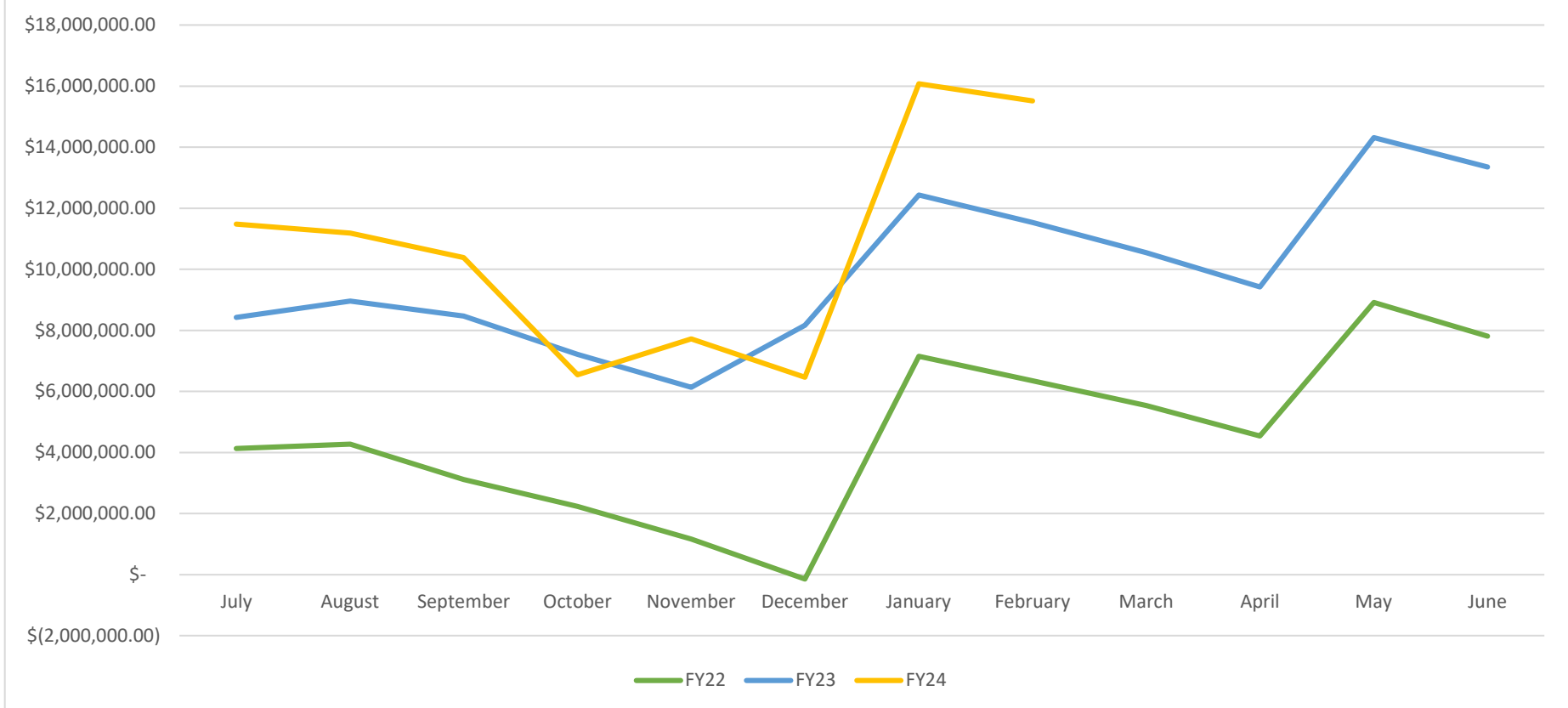
Tahoe-Truckee Sanitation Agency
 Combined Cash Statement
 February 29, 2024

COMBINED CASH ACCOUNTS	Transfer in Process*		3/1/2024 Anticipated Balance
CASH - US BANK CHECKING	-35,453.35	300,000.00	264,546.65
CASH - USB SERVICE CHARGE	65,665.57		65,665.57
CASH - US BANK TAX REV	10,302.10		10,302.10
CASH - US BANK WWCRF	17,263.34		17,263.34
CASH - WELLS FARGO PAYROLL	610,625.97		610,625.97
CASH - PETTY CASH	600.00		600.00
CASH - L.A.I.F.	3,970.46		3,970.46
MONEY MARKET INV - PERSHING	252,407.26		252,407.26
MONEY MARKET INV - ZIONS	11,223.09		11,223.09
CALIFORNIA CLASS	30,182,354.83	(300,000.00)	29,882,354.83
FDIC INSURED CERTIFICATES OF DEPOSIT - RESTRICTED FUNDS @ COST	4,900,032.76		4,900,032.76
US TREASURY SECURITIES - UNRESTRICTED FUNDS @ COST	5,124,521.62		5,124,521.62
CASH CLEARING - UTILITIES	0.00		0.00
TOTAL COMBINED CASH	41,143,513.65		41,143,513.65
CASH ALLOCATED TO OTHER FUNDS	(41,143,513.65)	-	(41,143,513.65)
TOTAL UNALLOCATED CASH	0.00		0.00

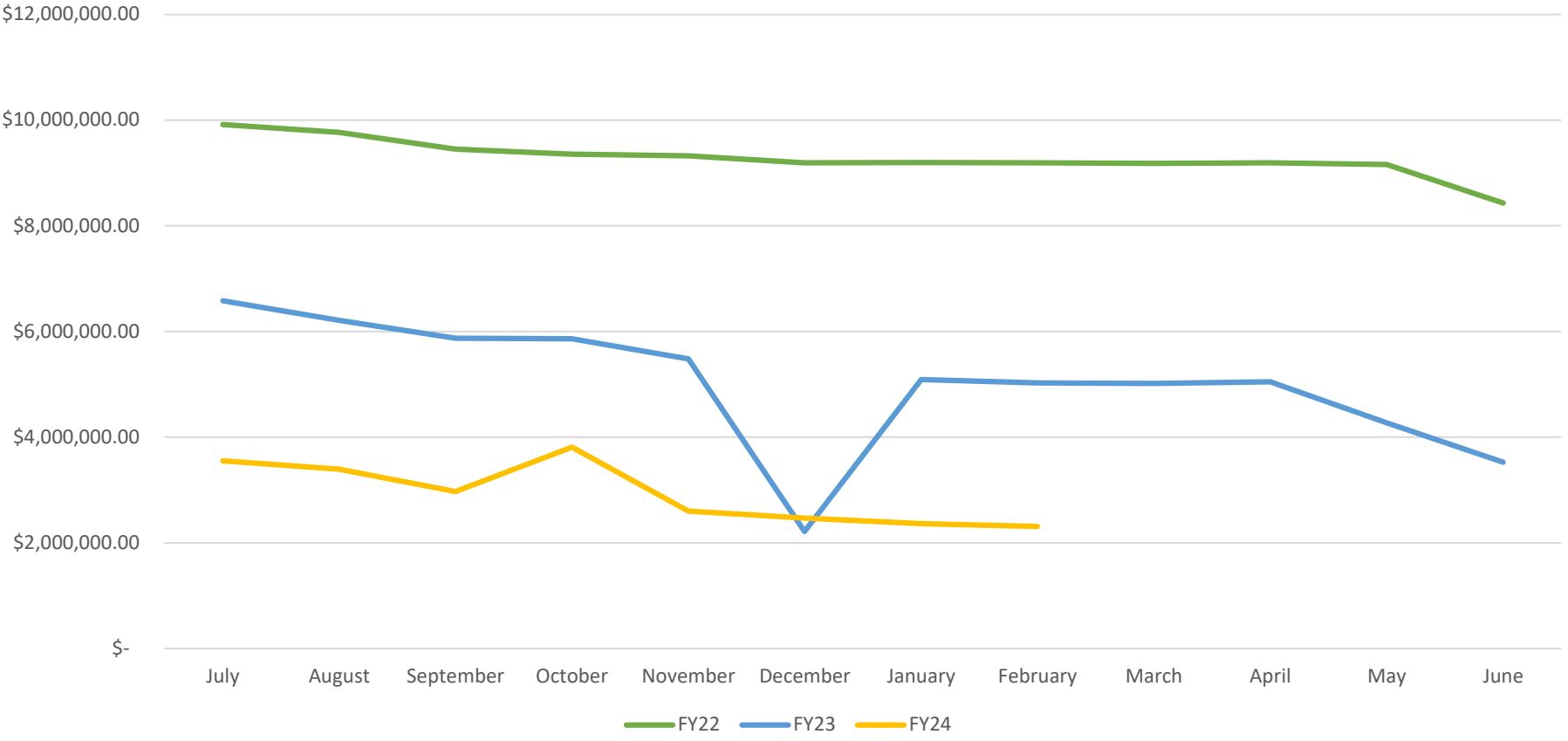
*AP Checks posted to General Ledger 2/29/24 and issued on 3/1/24

FUND CASH ALLOCATION RECONCILIATION	February 29, 2024	January 31, 2024	Amount of Change	% of Change	February 28, 2023	Amount of Change	% of Change
02 ALLOCATION TO WASTEWATER CAPITAL RESERVE FUND	19,127,371.78	19,173,602.83	(46,231.05)	(0.24)	19,338,421.92	(211,050.14)	(1.09)
06 ALLOCATION TO R.R. & UPGRADE FUND	2,308,132.73	2,367,487.32	(59,354.59)	(2.51)	5,028,800.84	(2,720,668.11)	(54.10)
07 ALLOCATION TO EMERGENCY & CONTINGENCY FUND	4,185,004.45	4,172,373.37	12,631.08	0.30	4,034,707.55	150,296.90	3.73
10 ALLOCATION TO GENERAL FUND	15,523,004.69	16,079,134.41	(556,129.72)	(3.46)	11,536,505.69	3,986,499.00	34.56
TOTAL ALLOCATION TO OTHER FUNDS	41,143,513.65	41,792,597.93	(649,084.28)	(1.55)	39,938,436.00	1,205,077.65	3.02
ALLOCATIONS FROM COMBINED CASH	(41,143,513.65)	(41,792,597.93)			(39,938,436.00)		
ZERO PROOF IF ALLOCATIONS BALANCE	0.00	0.00			0.00		

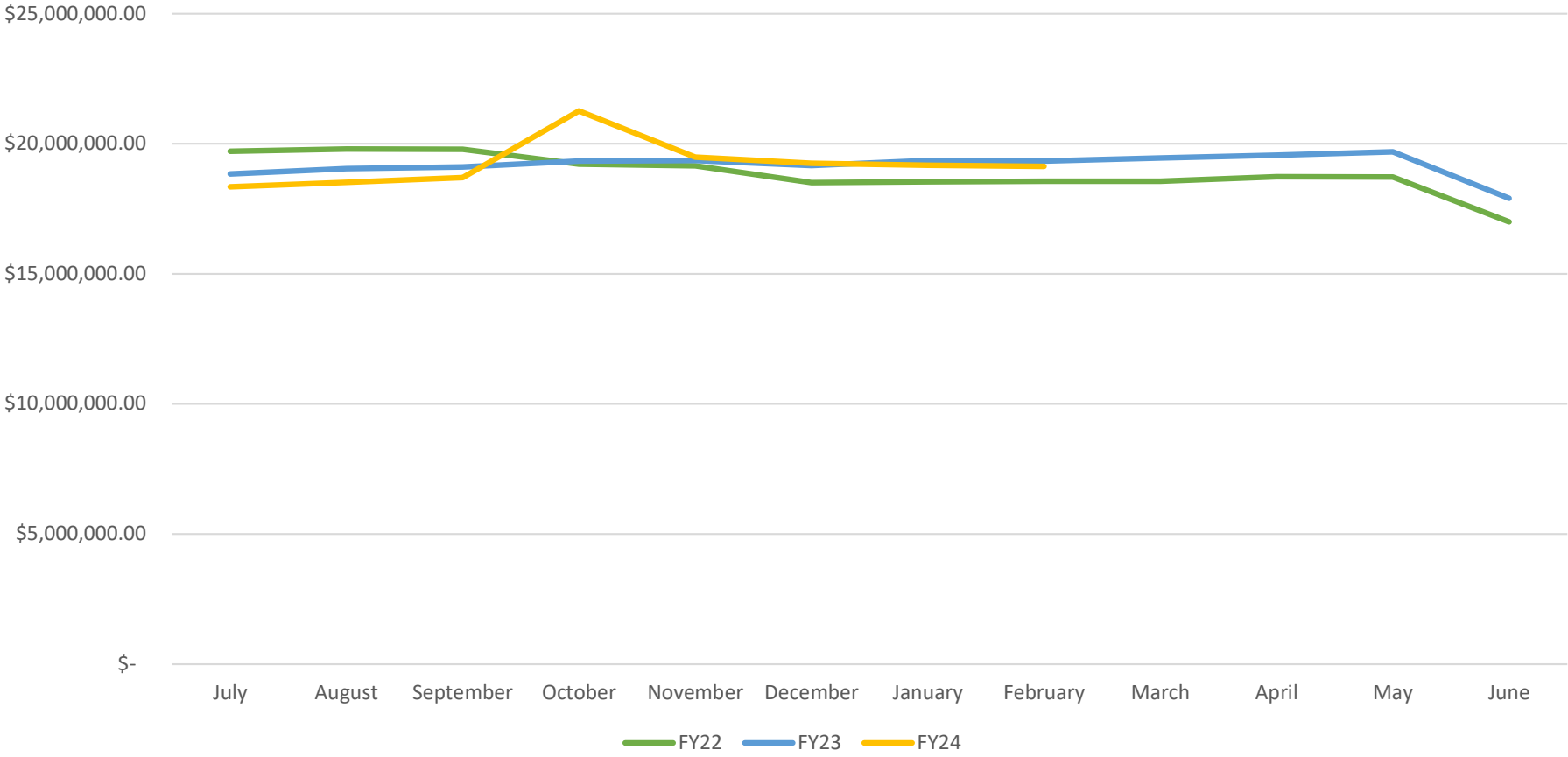
GENERAL FUND BALANCES



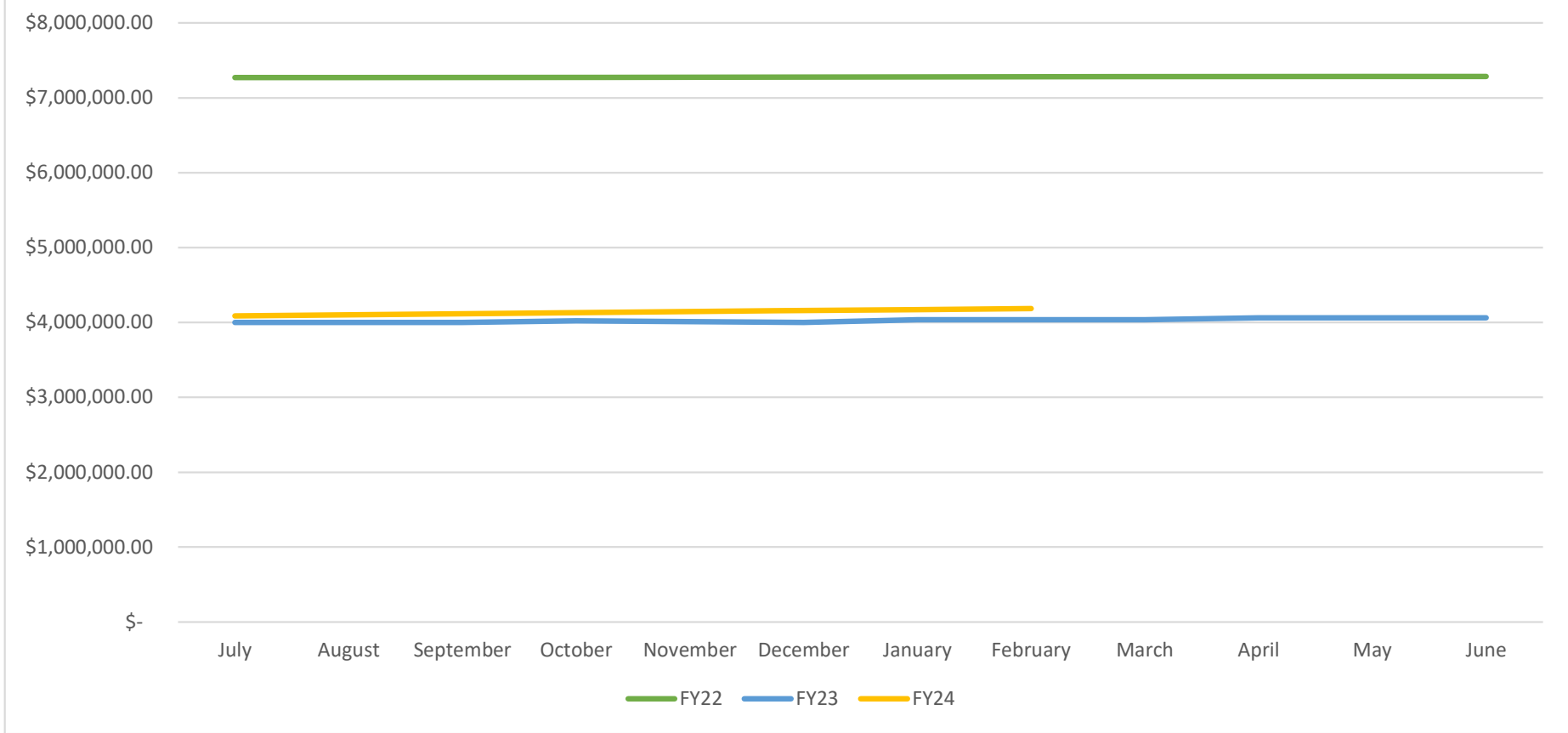
R R & UPGRADE FUND BALANCES



WASTEWATER CAPITAL RESERVE BALANCES



EMERGENCY & CONTINGENCY FUND BALANCES





TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Vicky Lufrano, Human Resources Administrator
Item: IV-2
Subject: Discussion and Approval of Selected Comparable Agencies and a Selection of Classic or PEPRA as a Comparable for the Classification and Compensation Study with Gallagher Consulting Company (Formerly Koff & Associates)

Background

At the August 16, 2023 Board meeting, the Request for Proposal (RFP) process was approved by the Board of Directors. At the September 2023 Board meeting, Koff & Associates (now known as Gallagher) was chosen to perform the classification and compensation study.

Gallagher has been working with staff on the study. To date, staff have completed their Position Description Questionnaires (PDQs) and have participated in their PDQ interviews. Additionally, the General Manager and Human Resources Administrator, along with the TTSA Observation Group, have met with Gallagher several times to establish a fair list of comparable agencies for the compensation side of the study.

Gallagher is joining the Board meeting to discuss the process, including the list of proposed comparable agencies and the difference between Classic and PEPRA retirement as it relates to the study.

Fiscal Impact

None.

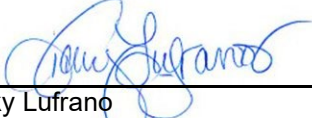
Attachments

Gallagher's Comparator Agency Analysis for the Total Compensation Study
Gallagher's TTSA – Total Comp – Board Presentation.

Recommendation

Staff recommends that the Board of Directors select comparable agencies and a selection of PEPRA as a Comparable for the Classification and Compensation Study.

Review Tracking:

Submitted By: 
Vicky Lufrano
Human Resources Administrator

Approved By: 
Richard Pallante
General Manager

Tahoe Truckee Sanitation Agency



Total Compensation Study 2024

Formerly Koff and Associates



Gallagher

Insurance | Risk Management | Consulting

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Total Compensation Study Overview



Gallagher

Insurance | Risk Management | Consulting

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**Comparator
Agencies**



**Benchmark
Classifications**



**Benefits
Elements**

Survey Elements

Comparator Agency Criteria

- Organizational type & structure
- Population, number of employees and budgets
- Services and programs
- Labor market - geography
- Cost of living/labor
- Wastewater Treatment Plant Grade

Each factor analyzed and ranked

Determine similarity to TTSA

Benchmark Classifications

Classes which we anticipate would be common to other agencies

- Not every class is a benchmark
- Should have a relationship to other classes
- Benchmark classes are used to set salaries for non benchmark classes

Benefits Data

Retirement and annuities

Includes PERS, 401(k), social security and deferred compensation

Insurances

Flexible benefit and/or health, dental, vision

Leaves

Holidays, vacation, administrative/personal

Other



Gallagher

Insurance | Risk Management | Consulting

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Retirement Benefits

CalPERS/Defined Benefit Plans

I. Classic Tier

- Tier in effect at each agency immediately preceding PERPA – 12/31/2012
- More variable/impactful to total compensation data due to agency formulas, final compensation calculations, EPMC, and/or employee cost sharing
- If the majority of the workforce is comprised of newer employees/new members, the inclusion of “classic” retirement benefits in total compensation reflects benefits that do not actually apply to the new members.
- Becoming a less “relevant” benefit plan, especially if the vast majority of an agency are PEPRA hires.

II. PEPRA

- New Member Tier – effective 1/1/2013
- Less variability in benefit formulas, final compensation calculations, and employer/employee contribution rates
- More accurate reflection of benefits employees may receive if the majority of the workforce is comprised of new members

Data Collection

All data analyses is completed in-house; no questionnaires

- Job/classification descriptions
- MOUs
- Organizational charts
- Salary information and benefits information
- Description-to-description
- 70% match/likeness
- Follow-up

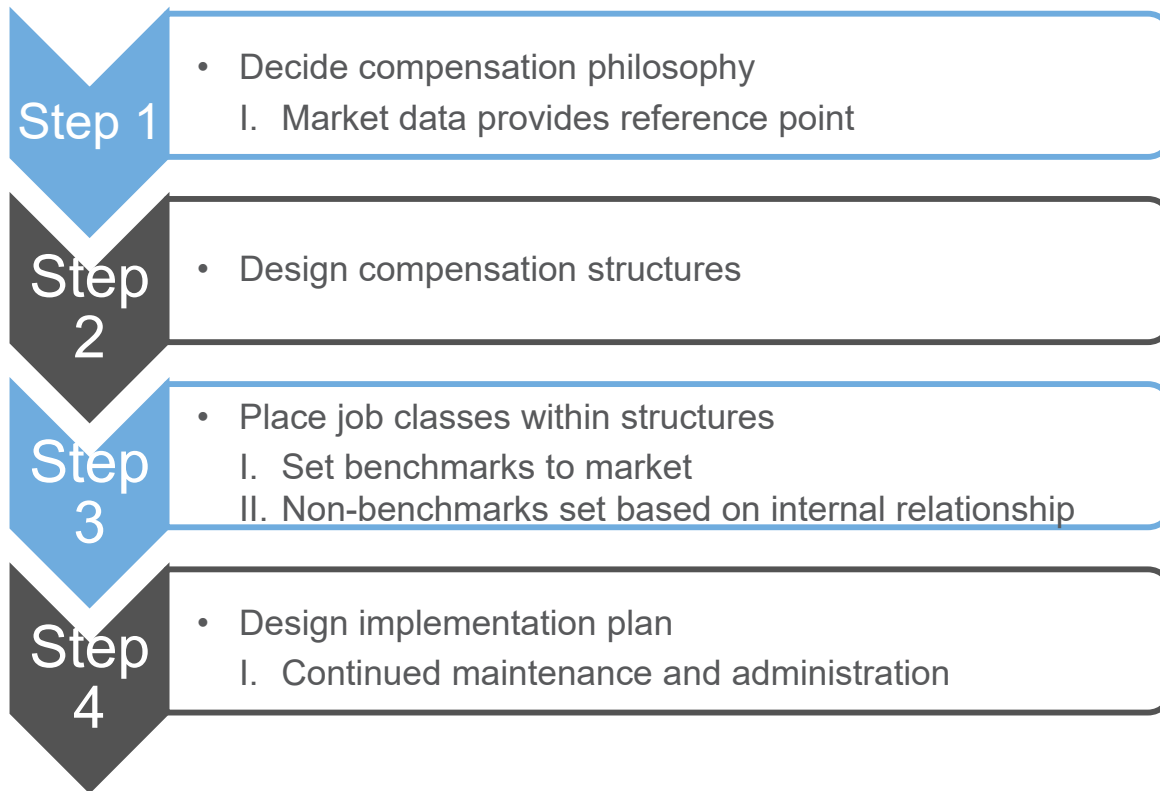
Total Compensation Data Sheet

Administrative Assistant II

Rank	Comparator Agency	Classification Title	Top Monthly Salary	Benefits Package	Total Monthly Comp	Salary Effective Date	Next Salary Increase	Next Percentage Increase
1	Comparator Agency 1	Administrative Assistant I	\$ 7,578	\$ 3,445	\$ 11,023	1/1/2022	unknown	Unknown
2	Comparator Agency 2	Administrative Specialist	\$ 7,299	\$ 3,590	\$ 10,888	7/1/2022	7/1/2023	Based on CPI min 1%- 4%
3	Comparator Agency 3	Senior Office Specialist	\$ 6,892	\$ 3,726	\$ 10,618	10/29/2022	7/1/2023	Based on CPI
4	Comparator Agency 4	Department Assistant	\$ 6,228	\$ 4,109	\$ 10,337	7/4/2022	7/1/2023	Based on CPI min 2%-3%
5	CLIENT	Administrative Assistant II	\$ 6,396	\$ 3,927	\$ 10,323	1/8/2022	1/1/2023	2%-4.5%
6	Comparator Agency 5	Administration Assistant I	\$ 6,063	\$ 4,046	\$ 10,109	7/1/2022	7/1/2023	2-4%
7	Comparator Agency 6	Administrative Assistant II	\$ 6,794	\$ 3,160	\$ 9,954	7/3/2022	unknown	unknown
8	Comparator Agency 7	Administrative Assistant II	\$ 7,151	\$ 2,726	\$ 9,877	7/1/2022	7/1/2023	3.00%
9	Comparator Agency 8	Administrative Assistant II	\$ 5,888	\$ 3,898	\$ 9,787	1/1/2022	1/1/2023	COLA
10	Comparator Agency 9	Administrative Assistant II	\$ 5,937	\$ 3,556	\$ 9,494	7/1/2022	unknown	unknown
11	Comparator Agency 10	Administrative Assistant	\$ 5,799	\$ 2,673	\$ 8,472	11/28/2022	7/1/2023	3.00%
12	Comparator Agency 11	Senior Administrative Assistant	\$ 5,056	\$ 3,308	\$ 8,364	12/16/2021	1/14/2023	2.5-4.5%
13	Comparator Agency 12	Administrative Assistant	\$ 5,074	\$ 2,546	\$ 7,620	7/1/2022	7/1/2023	3.00%

Summary Results	Top Monthly	Total Monthly
Average of Comparators	\$ 6,313	\$ 9,712
% CLIENT Above/Below	1.3%	5.9%
Median of Comparators	\$ 6,145	\$ 9,916
% CLIENT Above/Below	3.9%	3.9%
Number of Matches	12	12
N/C - Non Comparator		

Compensation Structure and Strategy Development



Recommended Comparator Agencies

- Central Marin Sanitation Agency
- Delta Diablo Sanitation District
- Fairfield Suisun Sewer District
- Monterey One Water
- Napa Sanitation District
- North Tahoe Public Utility District
- Oro Loma Sanitary District
- Silicon Valley Clean Water
- South Tahoe Public Utility District
- Tahoe City Public Utility District
- Truckee Sanitary District
- Union Sanitary District

Project Timeline & Deliverables

Timeline approximately 6 months (January – June 2024)

Classification:

- **Clearly developed & communicated concepts**
- **Clear classification plan & position allocation**
- **New/revised classification specifications**

Compensation:

- **Market compensation data**
- **Compensation structure & range placement recommendations**
- **Implementation plan; multi-year if necessary**

Questions & Comments

Thank you!



Gallagher

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March 11, 2024

COMPARATOR AGENCY ANALYSIS FOR THE TOTAL COMPENSATION STUDY

Tahoe-Truckee Sanitation Agency

Georg Krammer



Gallagher

Insurance | Risk Management | Consulting
Formerly Koff & Associates

Gallagher evaluated several comparative indicators related to Tahoe Truckee Sanitation Agency's ("TTSA") demographics, financials, and scope of services to develop a list of potential agencies for the compensation study. The methodology and specific criteria used in the analysis follows.

1. Organizational type and structure: Gallagher generally recommends that agencies of a similar size and structure providing similar services to that of TTSA be used as comparators.

Note: Because technical job classifications perform similar work across agencies, organizational size is not critical. The difference in size of an organization becomes more important when comparing management classes. Factors such as management of a large staff, consequence of error, the political nature of the job and its visibility all increase with organizational size. When it is difficult to find agencies that are similar in size, a good balance of smaller and larger agencies is used instead.

2. Staff, operational budgets, scope of services, and population: Staff and operational budget size determine the amount of resources available for the agencies to provide services, and population size accounts for the ratio of resources to constituents served. Organizations providing the same services are ideal for comparison; therefore, most comparator agencies included provide similar services to TTSA. Specifically, Gallagher focused on whether agencies provide the following:

- In-House Engineering
- In-House Laboratory
- In-House Maintenance
- Wastewater Treatment (including treatment plant grade)

3. Geographic location and labor market: Today's labor market reality is that many agencies are in competition for the same pool of qualified employees because large portions of the workforce don't live in the communities they serve, are accustomed to lengthy commutes, and are more likely to consider changing jobs in a larger geographic area than in the past. Therefore, the geographic labor market area where TTSA may be recruiting from or losing employees to, is taken into consideration when selecting comparator organizations.

The comparator agency analysis includes specific data for each proposed agency:

1. Geographic Proximity
2. Population Served
3. Full-Time Equivalent (FTE)
4. Agency Financials (Expenditures)
5. Services provided

Gallagher initially included cost of living as a 6th comparative factor in the analysis. However, since differences in geographic proximity of the comparator agencies to TTSA are already included in the analysis, the inclusion of an additional variable (cost of living), based on geographic location skewed the results in favor of those agencies in close proximity to TTSA, while forcing other, more similar agencies, to fall to the bottom of the analysis. For this reason, Gallagher removed cost of living as a factor from the comparator analysis. Cost of living measures the required costs to maintain a certain standard of living within a geographic location based on goods and services and can vary significantly from region to region. By contrast, the cost of labor, is less volatile and measures the supply

and demand of labor, across all industries and occupations, within a geographic location. Should TTSA decide to utilize comparators outside of the immediate geographic region, Gallagher will apply regional differences in cost of labor to the data collected in order to “normalize” the data to TTSA’s regional cost of labor.

Following Gallagher’s ranking of each comparator based on the aforementioned quantitative factors/overall similarity to TTSA, Gallagher presented the preliminary results to TTSA’s leadership and the Observation Group for review and discussion. During this meeting, concerns were raised related to overall comparability of TTSA’s wastewater treatment plant operations, and the complexities of a Grade V Treatment Plant as compared to lower-level plants with only primary and/or secondary treatment processes. Further, examples of successful recruitment efforts of employees to/from TTSA from/to agencies outside of the region were provided to support the notion that TTSA’s labor market extends beyond its immediate geographic region. Following this meeting, Gallagher staff worked to revise the initial comparator analysis to remove those agencies outside of California (due to differences in licensing requirements for operators and other professionals) as well as reassess the comparability of including those agencies that did not have a wastewater treatment plant as well as those with a treatment plant lower than a Grade IV. Simultaneously TTSA staff worked to run their own analysis which included data related to treatment plant grade, design flow, and other nuances of each potential comparator related to TTSA’s core services and relative likeness.

An additional meeting was held with TTSA leadership and the Observation Group to discuss their proposed comparators and determine the most appropriate strategy for determining the final group of comparator agencies. During this meeting, Gallagher and TTSA agreed to a combination of agencies representative of those *most* similar to TTSA based on both quantitative and qualitative factors analyzed within the comparator analysis as well as in conversation with TTSA leadership and the Observation Group, representing the employees’ interests. The following twelve (12) agencies are recommended based on the extensive analysis and collaborative efforts of both Gallagher and TTSA leadership and the employee Observation Group.

1. Central Marin Sanitation Agency
2. Delta Diablo Sanitation District
3. Fairfield Suisun Sewer District
4. Monterey One Water
5. Napa Sanitation District
6. North Tahoe Public Utility District
7. Oro Loma Sanitary District
8. Silicon Valley Clean Water
9. South Tahoe Public Utility District
10. Tahoe City Public Utility District
11. Truckee Sanitary District
12. Union Sanitary District

This analysis is intended to assist TTSA in choosing the comparator group. However, TTSA should reflect on other factors that apply to their labor market that could potentially override these quantitative considerations.

Once the comparator agencies are approved, Gallagher can begin the data collection for the compensation study.

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Registered in England and Wales.

Company Number: 1193013.

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Gallagher

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TAHOE-TRUCKEE SANITATION AGENCY MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Jason Hays, Technical Services Manager
Item: IV-3
Subject: Approval to Enter into an Agreement with Brown and Caldwell to Perform the Final Design of the River Crossing, Gravity Main between MH 33 and MH 35 Rehab Project

Background

As part of the 2022 TTSA Master Sewer Plan, several sections of the Truckee River Interceptor (TRI) were identified as requiring conditional improvements. Primary driving forces for assessing the severity of rehabilitation needs and subsequent scheduling revolved around the physical condition and the risk of a catastrophic spill event. Because TRI river crossings present substantial risks to the environment in the event of failure, three sections of the TRI with river crossings were scheduled for rehabilitation.

The first scheduled river crossing project (RR-1 as defined in 6.3.2 of Volume 2: Collection System Master Plan) entails rehabilitating approximately 1,380 feet of 24-inch diameter pipeline between MH 33 and MH 35. The attached proposal from Brown and Caldwell provides design services that will enable TTSA to move into construction in late 2025 or early 2026.

The River Crossing, Gravity Main (MH 33 and MH 35) project has been budgeted for in the Annual Budget Fiscal Year 2023-2024 in Fund 02: Wastewater Capital Reserve Fund CIP Expenditures (5-Year) as follows:

Item No.	Project Description	FY24	FY25	FY26	FY27	TOTAL
6	River Crossing, Gravity Main (MH 33 and MH 35)	31,500	57,000	237,000	0	325,000

The River Crossing, Gravity Main (MH 33 and MH 35) project has been budgeted for in the Annual Budget Fiscal Year 2023-2024 in Fund 06: Replacement, Rehabilitation and Upgrade Fund CIP Expenditures (5-Year) as follows:

Item No.	Project Description	FY24	FY25	FY26	FY27	TOTAL
8	River Crossing, Gravity Main (MH 33 and MH 35)	461,000	1,913,000	0	0	2,374,000

Consultants Ranking & Managing Office

1. Brown and Caldwell – Rancho Cordova, CA
2. Carollo, Engineers Inc. – Reno, NV
3. Kimley Horn – Reno, NV

Panel Score

- 94
79
60

Fee

- \$761,760
\$827,736
\$479,845

Fiscal Impact

\$761,760

Attachment

Brown and Caldwell Proposal, including Scope and Fee.

Recommendation

Staff recommends approval to enter into an agreement with Brown and Caldwell to perform the Final Design of the River Crossing, Gravity Main (MH 33 and MH 35) project in the amount of \$588,365.

Review Tracking

Submitted By: Jason Hays
Jason Hays
Technical Services Manager

Approved By: Richard Pallante
Richard Pallante
General Manager

Truckee River Interceptor Rehabilitation Project



December 14, 2023



PROACTIVE
Stakeholder
Engagement



PROTECT
Community
Values



DEVELOP
Optimal
Solutions

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Appendices

Agreement Exceptions	Appendix A
Fee Proposal	Separate Attachment

Cover Letter

SECTION 1





December 14, 2023

Trevor Shamblin
Assistant Engineer
Tahoe-Truckee Sanitation Agency
T: 530.587.2525 ext.132
tshamblin@ttsa.ca.gov

Request for Proposal – Truckee River Interceptor Rehabilitation Project

Dear Trevor,

The Tahoe-Truckee Sanitation Agency (TTSA) has investigated the condition of the Truckee River Interceptor (TRI) and has identified the need to rehabilitate two priority sections of pipeline to address coating failures and corrosion. These sections of pipe are ductile iron, include four crossings of the Truckee River, and have no redundancy and a high consequence of failure. Proactive rehabilitation of this pipeline will preserve system operation and provide environmental stewardship to protect the pristine environment of the Truckee River.

Brown and Caldwell (BC) brings more than 20 years of regional experience conducting pipeline rehabilitation locally in Northern California and Reno, as well as across the United States. Trenchless rehabilitation provides cost-effective pipeline renewal that minimizes community impact and expedites construction activities. Successful installations require upfront planning and coordination with stakeholders to prevent costly delays during construction. BC has met the TTSA team and investigated the site conditions to fully understand your needs and the project. BC is committing local staff and subconsultants who understand the Tahoe-Truckee area, combined with national experts in pipeline rehabilitation who understand how to evaluate alternatives to provide TTSA with a long-term, cost-effective solution. We will provide TTSA with the following:



PROACTIVE
Stakeholder
Engagement

- **Proactive Stakeholder Engagement and Coordination.** Construction is anticipated during the summer months. There are multiple agencies and organizations that have permit requirements, events, and interest in the corridor. BC and our subconsultants, ESA and Zephyr Collaboration, will work with TTSA to engage all stakeholders and identify constraints and concerns prior to construction to prevent delays during the limited construction period.



PROTECT
Community Values

- **Protect Community Values.** BC will evaluate alternatives to limit overall impact to the bicyclist, rafters, local residents, and traffic on River Road. During our site visits, we identified multiple alternatives for pipeline rehabilitation and bypass pumping. We will work with TTSA and the stakeholders to develop a solution that limits impact to the community during the high-use summer months.



DEVELOP
Optimal Solutions

- **Develop Optimal Solutions.** There are multiple technologies available for trenchless rehabilitation. BC will use a business case evaluation (BCE) to identify the best solution for TTSA considering factors such as cost, reliability, structural capabilities, community impact, need for bypass pumping, and capacity reduction.

This is a very exciting project and our team looks forward to collaborating with TTSA staff to provide timely completion of this important work.

Uday Sant, PE
Project Manager
916.853.5341 | usant@brwncald.com

Ron Ablin, PE
Principal-in-Charge
602.567.3801 | rablin@brwncald.com

Description of Consultant

SECTION 2

Section 2: Description of Consultant

At BC, we strive to drive positive change and be an environmental steward for our communities.

It is our purpose and our passion.

BC is a full-service environmental engineering and construction services firm with 52 offices and more than 2,000 professionals across North America and the Pacific. For 76 years, our creative solutions have helped municipalities, private industry, and government agencies successfully overcome their most challenging water and environmental obstacles. We are employee-owned and bound by a shared purpose to unlock the potential of water for our clients, our communities, and our environment.

We know from our pre-work on this project that building key stakeholder consensus and obtaining permits will be critical to keeping our schedule on track. We have assembled a team that combines exceptional knowledge of the community and understanding of the regulatory requirements, with a nationwide portfolio of pipeline rehabilitation expertise.

Details on our team's most relevant projects are provided in Section 7, Consultant's Related Experience. Section 7 demonstrates our proposed team members' direct experience working on projects with similar challenges to those of the TRI Rehabilitation Project. Our organizational chart with key team member's resumes are provided in Section 8.



BC is the RIGHT team

Top 10

Trenchless Technology Firms by Trenchless Technology Magazine in 2022

4 to 252

inch diameter pipes inspected and/or rehabilitated

200+

trenchless buried pipe projects delivered

76 years in business

2,000+

national talent force



187

full-time conveyance specialists

#2

Top Design Firms for Sanitary and Storm Sewers, by ENR in 2022

PIPELINES ARE CORE to BC's history and business. We will serve TTSA with a full depth of resources and focused pipeline rehabilitation expertise.

A partner who understands local regulations



We handpicked our subconsultant ESA for several reasons, most notably their technical expertise, experience within the Tahoe-Truckee region, and their passion for this type of work. ESA is a knowledgeable collaborator who understands the complex regulatory environment of the Tahoe/Truckee area. They will provide TTSA with a quick, thorough, and efficient evaluation of the environmental permitting to make your project a success. We have worked with ESA on many projects, PUREWater Soquel Program and Sacramento Harvest Water Program.

The ESA team has successfully delivered a wide range of services in the Lake Tahoe area, having worked in the region since the 1970s. ESA's involvement in the Tahoe-Truckee region includes the following experience:

- **Tahoe Regional Planning Agency (TRPA)** - ESA has worked with TRPA for more than 20 years. A couple of these projects include, Aquatic Invasive Species Lakewide Monitoring, Taylor and Tallac Creek Watershed Assessment and Restoration Plan, and the Lake Tahoe Info Platform.
- **Tahoe Keys** - ESA is providing environmental permitting and review for the Methods Testing Study, where they are conducting ongoing monitoring to evaluate the effectiveness of control on aquatic plants, nutrients, and water quality.
- **Town of Truckee** - ESA is working on the Truckee River Legacy Trail Project, Phase 3B and the Meeks Bay Restoration project.
- **Lake Tahoe Airport** - ESA has a 5-year environmental on-call contract with for airport and environmental planning services.

A local partner who understands Tahoe-Truckee stakeholder preferences



Zephyr Collaboration, founded in Lake Tahoe in 2017, is a team of veteran facilitators who work with communities, agencies, and organizations on technically complex and controversial projects. Their work is rooted in principles of transparency and accountability, helping shape durable solutions with those who implement and live with the results. They have decades of experience working on collaborative problem-solving for environmental, land use, and public health policy and planning. They provide facilitation, public engagement, and mediation services to address complex public policy and planning challenges through collaborative process design, engagement of stakeholders and communities, conflict resolution, strategic planning, and training.

Zephyr Collaboration's involvement in the Tahoe-Truckee region includes the following experience:

- **Tahoe Science Advisory Council** - Strategic Planning and Science to Action Conference, 2023
- **TRPA** - Tahoe Keys Aquatic Invasive Species Controlled Methods Test, 2022-Ongoing
- **Stakeholder Process Tahoe Regional Planning Agency, Tahoe Keys** - Aquatic Invasive Species Environmental Analysis and Collaborative, 2018-2022
- **Tahoe Transportation District** - Strategic Planning and Interagency Coordination, 2021-2022
- **North Tahoe + Tahoe City Public Utility Districts** - North Lake Tahoe Active Recreation Community Needs Assessment, 2020
- **Placer County + North Lake Tahoe Resort Association** - North Lake Tahoe Stronger Together Community Engagement, 2020
- **Tahoe Resource Conservation District** - Polaris Creek + Pomin Park Relocation and Restoration Feasibility Study, 2019

A trusted survey partner who has extensive experience partnering with BC



Beginning as a survey firm in 1927, Mark Thomas has grown to a staff of more than 370 professional, technical, and support personnel. They provide right-of-way engineering, surveying and mapping, landscape architecture, planning, grant funding support, and consulting engineering services for various government agencies and private enterprises throughout the state. Since 2012, they have provided land surveying and right-of-way engineering for flood control agencies. The following are benefits that Mark Thomas can bring to the project:

Sanitary Sewer Experience - Mark Thomas has provided professional engineering services to various sanitary sewer districts. Some, if not all, have included surveying services across Northern California, Nevada County, and El Dorado County.

Robust Surveying Services - Mark Thomas provides surveying services with an emphasis on public works projects, local roadways, utility identification and relocation, water/wastewater facilities, airport facilities, and on-call contracts. Having extensive knowledge providing survey services including establishing control surveys, reconnaissance of boundary surveys, scanning/LiDAR and conventional TDS total station topographic surveys, construction staking of lines and grades for construction

projects, and monument preservation, they understand the sensitive nature of communicating early and often with agencies and private owners impacted by a project.

The following projects demonstrate their experience with Nevada and El Dorado County:

- **Nevada County** - RSSA Phase 2, HSIP Road Sign Safety Improvement Program, and Mostoufi Truckee River Field Surveying, Guardrail Safety Audit Project
- **El Dorado County** - Generations at Green Valley – ICE & RSSA and surveying for 4741 Rattlesnake Bar Road

Project Approach and Scope of Services

SECTION 3

Section 3: Project Approach and Scope of Services

Project Understanding

TTSA owns and operates the TRI and the regional Water Reclamation Plant (WRP). The TRI conveys wastewater via gravity from five member agencies in the north and west Lake Tahoe region along the Truckee River to the WRP. The TRI is 19.5 miles of gravity pipeline ranging in diameter from 18 to 42 inches with 181 manholes. Most of the pipeline is reinforced concrete pipe (RCP) with approximately a 1/2-mile of ductile iron pipe (DIP) and a 1/2-mile of pipe that has been rehabilitated using cured in place pipe (CIPP). TTSA does not own or operate any of the gravity sewer mains or laterals that convey wastewater to the TRI. There is no redundancy for the TRI in event of a failure.

The majority of the TRI follows the Truckee River and is located in or adjacent to the floodplain with eight crossings of the Truckee River. The Truckee River corridor is a highly used recreation area for whitewater rafting, fly fishing, bicycling, and hiking. Protecting community values is a high priority, and the consequence of failure within the floodplain of the Truckee River is very high.

As identified in the RFP, there are multiple agencies and groups that have a vested interest in the pipeline corridor. Preventing construction delays is founded in proactive stakeholder engagement and coordination to identify stakeholder concerns, limitations, and permit requirements. Past project limitations in California such as restrictions on the use of diesel generators for heating curing water can impact the applicability of rehabilitation methods, schedule and overall cost. Thorough and complete coordination is required starting in the pre-design efforts all the way through final construction completion.

The current pipeline condition provides an excellent opportunity to proactively rehabilitate the pipelines using trenchless technologies to maintain pipeline operation and prevent future failures.

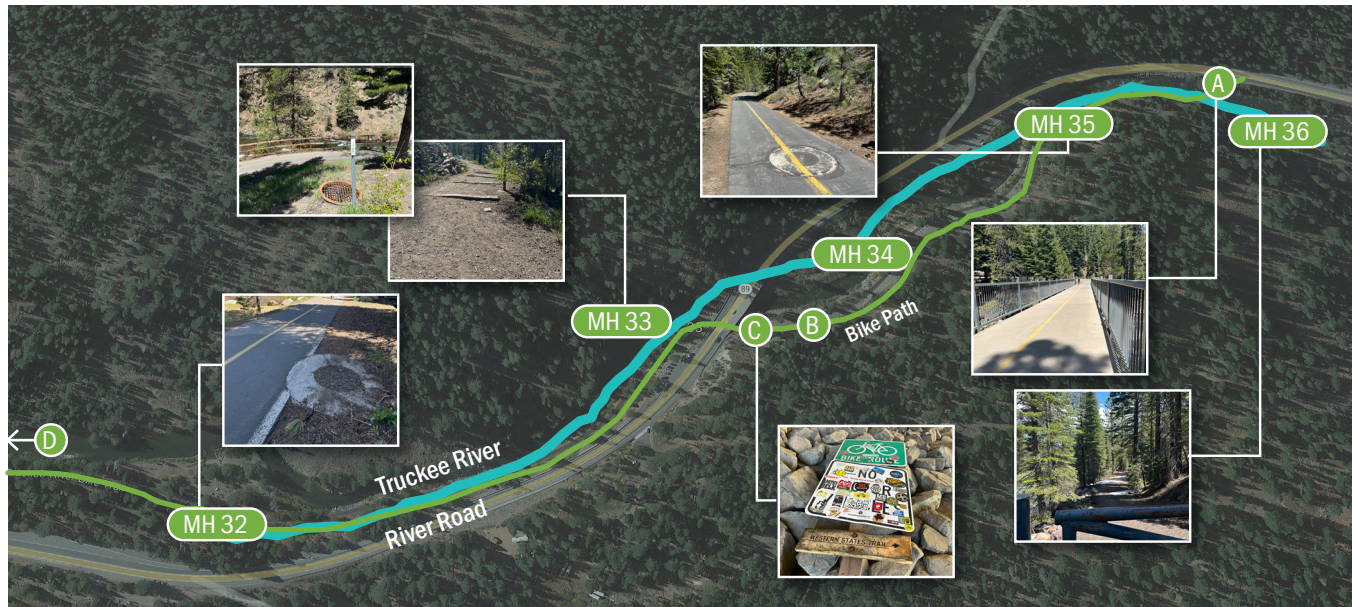
The February 2022 Collection System Master Plan included recommendations for rehabilitation of the 24-inch DIP pipelines between manholes 33 to 35. These pipelines include four crossings of the Truckee River with a high consequence of failure. In reviewing the closed circuit television (CCTV) data collected, the pipeline segments are experiencing coating failures and pipeline corrosion which will ultimately compromise the structural condition of the pipelines. Although the pipelines cross under the Truckee River, no active infiltration was observed.

Evaluating the existing conditions and selecting alternative technologies for rehabilitation and constructability will provide TTSA with an optimal solution that balances cost and overall community impact.



Manhole 33 to 34

Figure 1 // Project Alignment



KEY

- MH 32** Bypass suction pit location, accessible by bike path for installation and maintenance of equipment.
- MH 33** Start of Rehab, accessible by wide path from potential staging area on River Road.
- MH 34** Access manhole, highly inaccessible by anything other than foot. Depending on the rehabilitation method a temporary access road may be required.
- MH 35** End of Rehab, accessible from bike path only.
- MH 36** Bypass discharge, off the bike path in a gated dirt road. Direct access to the main roadway from adjacent bike path bridge.
- A** Bike Trail Bridge Crossing – Potential location for detour of bike traffic along River Road.
- B** Bike Trail – Heavily traveled and primary feature within project limits.
- C** Western States Trail – Located immediately downstream of MH 33.
- D** White Water Rafting – Rafting ends at River Ranch Restaurant upstream of the project area, potential location for bike detour.

Identification of site constraints

BC conducted multiple site visits to identify site constraints and potential alternatives as illustrated in Figure 1 (above).

The above drivers lead us to the following scoping goals and objectives to rehabilitate the 24-inch river crossing between manholes 33 and 35.



PROACTIVE

engagement with all potential stakeholders during the design period to prevent costly delays during construction.



PROTECT

community values by minimizing disruption including visual, noise, odor, and traffic impacts.



DEVELOP

optimal solutions by finding a rehabilitation method that provides the greatest overall value of cost, schedule, community impact, and risk reduction.

Approach

BC’s approach to this project is founded on our 20+ years of experience on similar rehabilitation projects locally and nationwide.

Our team understands the need to be an environmental steward while providing TTSA with a long-term, cost-effective solution. Our approach is based on us providing proactive stakeholder engagement and coordination, protecting community values, and developing optimal solutions.



Stakeholder Engagement

Our stakeholder engagement team includes BC staff combined with local staff from ESA and Zephyr Collaboration. We will work

collaboratively to identify stakeholders and actively engage at the project’s initiation and throughout the design process to identify permit requirements, potential limitations, and requirements.

California Environmental Quality Act (CEQA). ESA will conduct a database search for known occurrences of sensitive resources in the project area. A site visit including biological and archaeology technical specialists will be conducted to characterize the resources within the anticipated work area. A memorandum will be prepared to assess the applicability of a CEQA categorical exemption for the project, and if applicable, to document how the project qualifies for the categorical exemption and which class of exemptions are potentially applicable to the project. If it is determined that the project will qualify for a CEQA categorical exemption, a Notice of Exemption (NOE) will

be prepared and filed with the state clearinghouse and the County Clerk. If the project does not qualify for a CEQA categorical exemption, a CEQA Initial Study/Mitigated Negative Declaration (IS/MND) will be required.

Coordination with Regulatory Agencies. To minimize the project’s regulatory permitting requirements and associated time and cost implications, our project team will evaluate construction method alternatives with the goal of avoiding the need for regulatory agency permits to the extent possible. The use of trenchless technologies will drastically reduce the need for more difficult permits such as Army Corps CWA Section 404 at the river crossings, but pumping water from the Truckee River for construction, spill prevention, and the use of onsite generators may trigger other limitations and permits. Regardless of the ultimate permitting requirements for the project, early agency outreach and coordination will reduce the uncertainties that can arise for projects that intersect numerous agency jurisdictions and experience a high level of community and recreational exposure, reducing unexpected issues and resulting in a higher level of confidence in the project’s schedule and budget.

Anticipated Project Permitting Requirements

Agencies	Regulatory authority within/adjacent to the project area	Anticipated permit/authorization (if any)
Tahoe City Public Utility District (TCPUD)	The project is located within TCPUD’s geographic area of coverage.	The project will require close coordination with TCPUD.
Placer County	The project is located within Placer County.	The project will require coordination with, and likely permits from, Placer County for work within County right-of-way.
California Water Resources Control Board (CA WRCB) (Lahontan – Region A)	Clean Water Act (CWA) Section 401 and Porter Cologne Water Quality Act protects water quality in waters of the United States and waters of the state. The Truckee River is likely considered both a water of the United States and state.	A CWA 401 Water Quality Certification or Waste Discharge Requirement authorization will not be required as no work is planned within the banks of the Truckee River. However, trenchless methods and work in facilities that pass under the river may require a permit to address spill prevention.
California Department of Fish & Wildlife (CDFW)	The Truckee River is a CDFW-regulated streambed, and wetlands and riparian areas adjacent to the river are also likely regulated by CDFW according to California Fish and Game Code Section 1600-1602. The California Endangered Species Act (CESA) protects state-listed species and their habitats.	A Section 1600 Streambed Alteration Agreement is not likely needed if no work is planned within the banks of the Truckee River. Similar to the CWA 401, spill prevention may need to be addressed. The records search and site survey are needed to confirm the potential impact to CESA-listed species and habitats.
California Department of Transportation (Caltrans)	Caltrans manages State Route (SR) 89 in the project area and may also play a role in managing the recreational trail which generally runs adjacent to SR 89 and the Truckee River.	The project will require coordination with, and likely permits from, Caltrans for temporary construction impacts which may be necessary for both SR 89 and the adjacent recreational trail.

Agencies	Regulatory authority within/adjacent to the project area	Anticipated permit/authorization (if any)
California Department of Water Resources (CA DWR)	CA DWR is not anticipated to have any jurisdiction or oversight role on this project.	Not applicable.
United States Army Corps of Engineers (USACE)	CWA Section 404 protects the physical, chemical, and biological integrity of waters of the United States. The Truckee River is a water of the United States. Certain wetlands adjacent to the river are also likely waters of the United States.	The project will not need a CWA 404 Permit if no work is planned below the Ordinary High Water Mark of the Truckee River or in any contiguous wetlands that meet federal definitions. Spill prevention may need to be addressed.
United States Forest Service, Tahoe National Forest (USFS)	The project’s alignment and limits of work may be located in or adjacent to USFS lands.	If encroachment into USFS lands is not avoidable, a permit or other agreement for temporary construction work may be required.
United States Fish and Wildlife Service (USFWS)	The federal Endangered Species Act (FESA) protects federally-listed species and designated critical habitats.	Records search and site survey are required to verify potential impacts to FESA-listed species.

Approach to Stakeholder Engagement

Our team will collaborate with TTSA to identify a full list of stakeholders and interested parties to be engaged throughout the course of the project. The project team will conduct a kickoff session with key stakeholders to discuss the project goals and timeline, and to collect an initial list of questions and criteria for what would make a successful project. Interested groups such as cyclists and other recreationists, businesses in the project area, and nearby communities will be engaged directly through small group meetings. Through these direct engagements, the criteria for success, concerns, and suggestions will be developed. The trail users and recreationists in the project area will be engaged directly during high-use season to raise awareness and collect feedback. Public engagement will culminate with a brief report that catalogs interests, ideas, questions, and concerns for use by the project team, TTSA, and its partners to be incorporated into the construction documents.

We will protect community values by engaging with locals during high-use season to raise awareness and collect feedback. Through these direct engagements, the criteria for success, concerns, and suggestions will be developed.

Zephyr Collaboration, based in the Tahoe area, has facilitators with extensive experience engaging with the community and stakeholders on some of the Tahoe region’s most difficult land use and environmental challenges. They maintain strong working relationships with many jurisdictions and agencies in the project area including utility districts, the Lahontan Water Board, planning agencies, and Placer County.



Protecting Community Values

Trenchless rehabilitation provides renewal to an existing pipeline with minimal surface disruption and is ideal for the TRI since a conventional dig would be difficult due to the limited access and river crossings. However, there are still multiple factors to consider during design and construction to minimize community disruptions, including community safety, odor, spill prevention, and traffic impacts.

Community Safety

Community safety requires clear construction zones that limit interaction between the construction activities and the community. Manhole 33 has a wide path from a parking area on Lake Road that can be used to access the manhole for most types of rehabilitation, and the parking area can be used as a small staging area. Most rehabilitation methods will be able to be installed through the manholes or with minimal excavation. However, there is limited space at the manhole due to the proximity to the road and the river. Constructing a temporary bike path around the

insertion location may be an alternative to address work to be conducted at manholes 33, 34, and 35. However, any bypass pumping needed can create a larger issue.

For products that require full or partial bypass pumping, the bypass will start at manhole 32, which is located at the edge of the 10-foot-wide bike path. The discharge will be at manhole 36, which is located off the bike path in a well-developed and gated dirt road. Given the transient nature of the TTSA service area, dry weather flows are typically much higher during holiday weekends and have significant impacts during wet weather and snow melt. The two holidays with

the highest flows are either New Year’s Eve or the Fourth of July. Flows are typically 6 mgd with a wet weather peak around 12 mgd, but can go as high as 20 mgd when there is a rare mix of heavy rainfall with snow present on the ground. Bypass pumping will be based on a performance specification but we anticipate it will be either four 8-inch or two 18-inch pipes and one additional pipe for redundancy.

BYPASS PUMPING - BC evaluated the site constraints and summarized alternative strategies for bypass pumping in Table 3-1.

TTSA has expressed a desire to do construction during the summer to eliminate the potential for wet weather flows.

Table 3-1 // Bypass Options During Construction

Option	Benefits	Considerations
1 Share the bike path for bypass pumping and bike traffic.	Maintain bike traffic on the existing path, and less overall disruption to bikers.	– The bike path is only 10 feet wide and it is not feasible to fit the bypass pumps and pipelines while maintaining bike operations. The pumps and pipes require 24/7 monitoring and maintenance and there is a high potential for accidents and complaints.
2 Close the bike path during construction and divert bike traffic onto the shoulder of River Road (both sides) and use the bike path for bypass pumping.	Avoids accidents due to shared bike lanes on a narrower bike path. Separates the public from the construction activities.	– Pre-construction notification and signage will be needed to divert the bike traffic onto the shoulders of Lake Road. The existing bike path can be diverted onto the road at the bridge near Manhole 32 and then reopened at Alpine Meadows Road, which is just over 1 mile away. Traffic control measures such as cones/ barricades, temporary speed reductions, and other traffic control provisions can be provided to improve safety.
3 Put bypass pumping on the shoulder of River Road and make provisions for temporary bike paths around the manholes.	Maintains bike path.	– Will need special measures at the access manholes including a temporary relocation of the bike path. Bypass piping will be on the roadway shoulder which may require barricades and burial at roadway crossings.
4 Close the bike path during construction and provide a shuttle to convey cyclists past the construction limits.	Avoids accidents and provides maximum safety	– Need to time construction around special events (like races) that run through the affected section. May impact the path for between 1.5 to 3 months during peak season. May consider providing a shuttle during closure.

Project Manager Uday Sant led the design for the rehabilitation of 15,000 Llinear feet of 16- to 30-inch asbestos cement pipe and reinforced concrete pipe (RCP) trunk sewer in the City of Campbell and Town of Los Gatos. The project included trenchless lining using CIPP and rehabilitation of 47 manholes. Uday evaluated different rehabilitation methods including CIPP and Spiral wound lining. He coordinated with the environmental team to evaluate the impacts of construction across a creek crossing and in the banks of a creek.

Uday developed a bypass pumping plan to avoid impacts to nearby residents and the environment which served as a guide during construction.



Odor Considerations

Odor can be a concern from the bypassing of sewage or styrene during the installation of CIPP. Styrene has a very strong chemical odor even at very small concentrations. The Trenchless Technology Center and NASSCO have recommended safe handling guidelines for styrenated resins based on research that suggests exposure limits to long-term exposure limits to less than 10 ppm is safe. Using water cure and UV cure limits these issues further. However, due to the strong odor, there can be complaints and concerns from the general public. Public engagement and information can be provided prior to construction to circumvent complaints, and we can evaluate the use of alternative resins/methods to eliminate styrene discharge.

When sewage is pumped the agitation can release hydrogen sulfide gas at the discharge manhole. Manhole 36 is located near the bike path and near existing homes. To prevent any issues, the manhole discharge should be covered or sealed to prevent gas from being discharged. For this location, this should be adequate based on the hydrogen sulfide levels but other provisions such as odor control and chemical additional will be evaluated.

Spill Prevention

Bypass pumping will be above ground using temporary high-density polyethylene (HDPE) pipes. Preventing any type of raw sewage spill is a high priority. The pipelines are constructed of butt fusion-welded HDPE which has no joints to leak. The pipelines are constructed, leak tested, and operated prior to any sewage being conveyed to verify that they are leak-proof. During construction, 24/7 monitoring of the pipelines and pumps is required during pumping operations. Other features include spill containment for air release valves, if required, to contain any small amounts of sewage that are conveyed during the release of air.

Ron Ablin, who will serve as your principal-in-charge, and Mark Poppe, serving as your design lead, did the design and provided construction support for the North Rillito Interceptor (NRI), which included CIPP rehabilitation of four reaches (15 to 36 inches) adjacent to a bike trail. The award-winning project included rehabilitating 9.8 miles of the interceptor; manhole rehabilitation work for 126 existing manholes; and pipeline realignment. The team also established design criteria to determine optimal renewal solutions that considered design flows, pipe sizing and hydraulic capacity, maintenance of flow velocity at horizontal alignment changes, manholes, and diversion structures. The team conducted extensive permitting coordination with the USACE.

Ron and Mark designed a redundant bypass system that prevented spills from reaching the adjacent Rillito River and used the same bypass for construction of the NRI Relief Sewer diversion, saving the County money.





Develop Optimal Solutions

Rehabilitation Options

Based on the diameter of the pipe, flow capacity, and review of the CCTV reports, BC recommends evaluating the following methods of rehabilitation for this river crossing.

Table 3-2 // Methods for rehabilitation

Option	Benefits	Considerations
1. CIPP	<ul style="list-style-type: none"> - Minimal diameter loss - Structural repair capable of taking external pressure - Can be either water, steam, or ultraviolet cured - Single insertion locations (MH 33) 	<ul style="list-style-type: none"> - Requires bypass pumping - There is no water in the area for the inversion so river water will need to be used. Permitting will be required to pull water from the river for construction. - Possible styrene odor during construction, but styrene-free resins may be considered - If there is active infiltration during the lining, it may require either chemical grout injection at joints or use of pre-liner
2. Slip-lining	<ul style="list-style-type: none"> - Can use either segmental pipe or continuous - Segmental pipe can be done without bypass pumping 	<ul style="list-style-type: none"> - High loss of capacity in 24-inch pipelines as new pipeline will likely be 15 to 18 inches - Continuous sliplining requires large laydown areas for installation - Requires excavation at the manholes for installation - Requires two insertion locations to address bend in the pipe alignment at MH 34
3. Pipe bursting	<ul style="list-style-type: none"> - Geotechnical conditions in the area will most likely impact successful execution - Can replace an existing pipeline with same size or slightly larger diameter 	<ul style="list-style-type: none"> - Requires bypass pumping - Very difficult to burst ductile iron - Requires a large area for the installation of equipment and piping - Requires two installation locations to address pipeline bend at MH 34
4. PVC spiral-wound SPR	<ul style="list-style-type: none"> - Can be installed under partial flow conditions which may eliminate need for bypass pumping - Fully structural repair - Limited reduction of diameter - Installed in existing manholes without excavation 	<ul style="list-style-type: none"> - May require partial bypass if flow depth exceeds 30% diameter - Limited competition, which may impact overall cost - Installation in live flow requires velocities under 1 fps

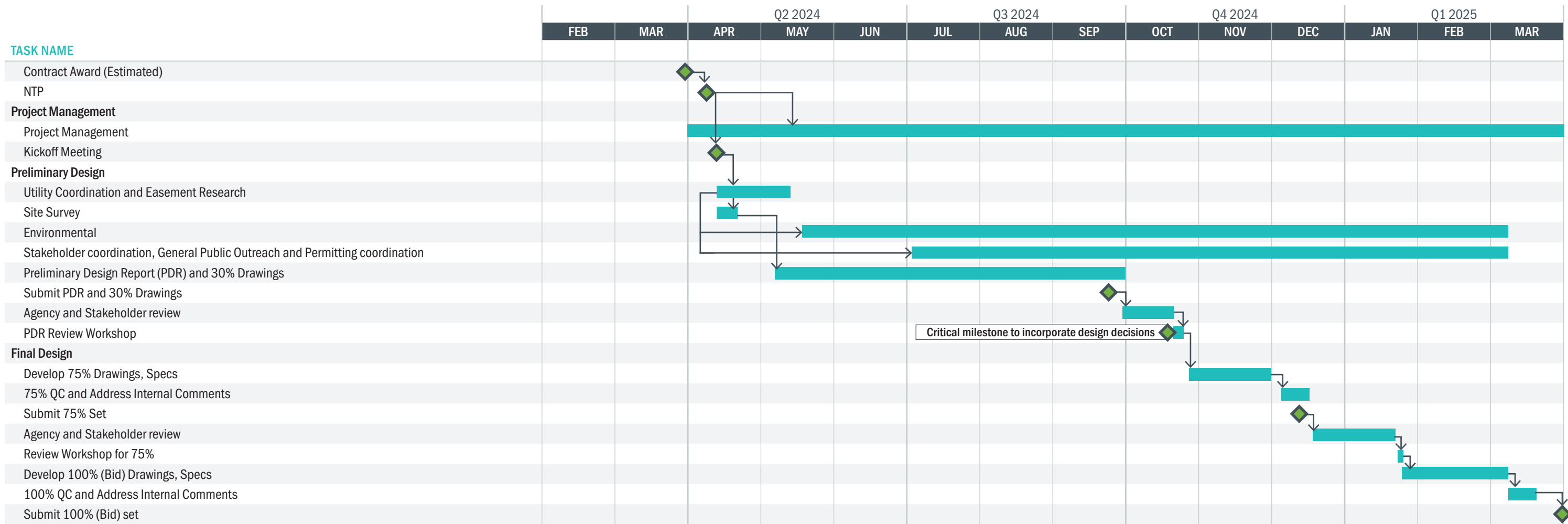
Evaluation of alternatives will be conducted as part of the design process to identify the most appropriate methodology for TTSA.

Project Schedule

SECTION 4

Section 4: Project Schedule

Based on the scope of work and project background BC has gathered through site visits, we developed the schedule below.



KEY SCHEDULE TAKEAWAYS

- We have reduced the number of milestone submittals to focus more time on stakeholder buy-in and create efficiency on design and deliverable costs to the Agency
- We expect stakeholder coordination to dictate the critical path
- Permits if needed are likely to extend past the bid design set milestone
- The intent of the schedule is to allow possible start of construction in Summer 2025 if permits are ready

Preliminary List of Drawings

SECTION 5

Section 5: Preliminary List of Drawings

BC has determined the following list of drawings will be needed.

1	Cover Sheet
2	Abbreviations
3	Symbols and Designation Systems
4	General Notes
5	Overall Site and sheet Index Plan
6	Pipeline Rehab Plan 1
7	Pipeline Rehab Plan 2
8	Pipeline Rehab Plan 3
9	Pipeline Rehab Plan 4
10	Pipeline Rehab Plan 5
11	Pipeline Rehab Plan 6
12	Odor Control (if CIPP is selected)
13	Possible Bypass Plan 1
14	Possible Bypass Plan 2
15	Manhole and Pipeline Rehab Schedules
16	Bike Path Detour Plan and Notes
17	Civil Details 1
18	Civil Details 2
19	Civil Details 3
20	Mechanical Details 1

Client References

SECTION 6

Section 6: Client References

Proven Partnerships

We encourage you to reach out to these references to confirm what BC can offer for the Truckee River Interceptor Rehabilitation Project. Additional information on these projects can be found in Section 7, Consultant's Related Experience.

Sewer Rehabilitation Program, Reno, Nevada

BC's proactive partnering approach minimizes service disruptions and maximizes construction spending.

Reference:
Dustin Waters, Assistant Director Utility Services
City of Reno
1 E. First Street
Reno, NV 89505
775.321.8352

Winchester Boulevard Trunk Sewer, Campbell, California

BC's attention to detail resulted in no environmental impacts and a satisfied client.

Reference:
Alan Kam, Senior Civil Engineer
West Valley Sanitation District
100 E Sunnyoaks Avenue
Campbell, CA 95008
408.385.3030

North Rillito Interceptor (NRI) Rehabilitation, Tucson, Arizona

BC's strong project coordination resulted in cost savings by using the same bypass for construction of the NRI relief sewer diversion structure and rehabilitation of the NRI.

Reference:
Jamie Rivera, Deputy Director, Conveyance Division
Pima County Regional Wastewater Reclamation Department
201 N. Stone Avenue, Suite 8
Tucson, AZ 85701
520.724.3400

Consultant's Related Experience

SECTION 7

Section 7: Consultant’s Related Experience

Proven experience to guide your interceptor rehabilitation project

This team brings creative solutions and lessons learned from a variety of pipeline and wastewater conveyance system projects.

Table 7-1 // Project Experience Matrix

Project Name + Client		AREA OF EXPERTISE						
		Pipe Diameter (inches)	Evaluation of Different Rehab Methods	Community/Traffic Disruption	Public Outreach	CIPP	Assessment	Manhole Rehab
FEATURED PROJECTS	1. NRI Rehabilitation Pima County Regional Wastewater Reclamation Department, Tucson, Arizona	15-36	●	●	●	●	●	●
	2. Winchester Boulevard Trunk Sewer West Valley Sanitation District, Campbell, California	24	●	●	●	●	●	●
	3. Sewer Rehabilitation Program City of Reno, Nevada	6-72	●	●		●	●	
	4. Force Main Emergency Rehabilitation Truckee Meadows Water Reclamation Facility (TMWRF), City of Reno, Nevada	24-72	●	●		●	●	●
	5. Influent 54-inch Pipe Rehabilitation City of Santa Cruz, California	54	●	●		●	●	●
	Buchanan and Wood Street East Bay Municipal Utility District, Oakland, California	105	●	●		●	●	●
	University Avenue Rehab – Phases 1 and 2 West Valley Sanitation District, Campbell, California	16			●	●	●	
	Modesto Ceres Trunk Final Design City of Modesto, California	24	●	●	●	●		
	Trunk Sewer Condition Assessment (Phases 1-5) West Valley Sanitation District, Campbell, California	N/A		●	●			
	Ocean Outfall System Rehabilitation (J-117) Orange County Sanitation District, California	72, 84, 120					●	●
	Salt River Outfall Interceptor Rehabilitation City of Phoenix, Arizona	54-91	●		●		●	●
	CIPP Rehabilitation Program North Davis Sewer District, Syracuse, Utah	8-60				●		
	1200 W. Trunk Line CIPP Rehabilitation Salt Lake City Department of Public Utilities, Utah	36-78				●		

NRI Rehabilitation

Pima County Regional Wastewater Reclamation Department, Tucson, Arizona

BC's creativity in design and coordination with the USACE resulted in cost savings without disrupting the river channel.



BC provided preliminary and final design and construction support for 1,200 feet of 30-inch gravity pipeline and 650 feet of 24-inch, twin-barrel siphon conveying up to 10 mgd. The project rehabilitated 9.8 miles of the interceptor, rehabilitated and reconstructed 126 existing manholes, and realigned the pipeline. BC coordinated with the USACE to use an innovative technique to allow open cut construction, saving time and budget. An extensive public engagement program kept trail users informed of construction and resulted in minimal impacts to users.

Relevancy

- ✓ Bike path disruption
- ✓ Agency coordination
- ✓ Piping condition assessment
- ✓ CIPP
- ✓ Large flow and 24/7 operation

PROJECT VALUE
Total: \$765,000
BC Fees: \$215,000

PROJECT DATES
Start: January 2014
Completion: January 2017

BC KEY STAFF, ROLE
Ron Ablin, Technical Expert
Mark Poppe, Pipeline Rehabilitation Lead

Winchester Boulevard Trunk Sewer

West Valley Sanitation District, Campbell, California

BC's full-service assessment and design, along with sound bypass pumping, met the goals of rehabilitation with minimal stakeholder disruption.



The Winchester Boulevard Sewer Rehabilitation project is located along Winchester Boulevard between Highway 17 and the San Tomas Expressway in the City of Campbell. The project involves rehabilitation of approximately 12,000 linear feet of the existing trunk sewer which varies in diameter from 16 to 27 inches. The existing trunk sewer in Winchester Boulevard is mostly ACP and RCP. The trenchless methods for proposed sewer rehabilitation consisted of CIPP and/or spiral wound PVC liner. The project also involved workshops to discuss detailed bypassing evaluation under multiple scenarios, environmental sensitivity, and constructability to develop a bypassing plan for the contractor. BC provided predesign and final design services.

Relevancy

- ✓ Detailed bypass plan
- ✓ Environmental impacts
- ✓ Evaluation of different rehab methods
- ✓ Agency coordination

PROJECT VALUE
Construction: \$1.8 million

PROJECT DATES
Start: June 2018
Completion: June 2022

BC KEY STAFF, ROLE
Uday Sant, Design Lead
Bernadette Visitacion, Project Manager/Project Engineer

Sewer Rehabilitation Program

City of Reno, Nevada

Through 12 rehabilitation programs, BC has partnered with the City of Reno to complete design and construction management for more than 80 miles of pipeline rehabilitation ranging in diameter from 6 to 72 inches.



In February 2003, the City of Reno identified two segments of 30-inch-diameter sewer adjacent to the Truckee River that had extensive corrosion and multiple areas of exposed reinforcing steel. To prevent collapse, the City of Reno brought BC on to rehabilitate the sewer under an emergency authorization. The pipeline was rehabilitated using CIPP over the course of 2 days. Over the next 20 years, BC completed the design and construction management for 12 rehabilitation programs for the City totaling more than 80 miles of pipeline ranging in diameter from 6 to 72 inches. Rehabilitation has included manhole rehabilitation, pipeline replacement, pipe bursting, and CIPP using both water and steam curing. For the larger projects, bypass pumping up to 40 mgd was provided. BC is currently providing design and construction services for the 2023 rehabilitation program.

Relevancy

- ✓ Evaluation of different rehabilitation methods
- ✓ Condition assessment

PROJECT VALUE

Construction: ~\$60 million

PROJECT DATES

Start: 2003
Completion: Ongoing

BC KEY STAFF, ROLE

Ron Ablin, Project Manager/Project Principal
Mike Meyers, Field Inspector/Assistant Construction Manager
Krystal Pruzinsky, Project Manager/Project Principal

Influent 54-inch Pipe Rehabilitation

City of Santa Cruz, California

BC is navigating the City of Santa Cruz's aging infrastructure and community needs to rehabilitate their 54-inch influent pipe and protect the environment.



Built in 1965, and after 60+ years of service, the City of Santa Cruz recognizes the headworks process and the influent 54-inch sewer are at the end of their service life. The Influent and Headworks design includes condition assessment, infrastructure rehabilitation, influent pump upgrade with dry pit submersible pumps, gate replacement, odor control/ventilation upgrade, electrical consolidations and septage receiving station upgrades. The pipeline portion includes approximately 3,200 ft of 54-inch cured-in-place pipe (CIPP) influent sewer and rehabilitation of manholes.

The project scope includes condition assessment of the 54-inch sewer line, junction vault, and plant infrastructure, surveying, geotechnical investigation, preliminary design/Basis of Design Report, detailed design, bid period services, and engineering support during construction.

Relevancy

- ✓ Evaluation of different rehabilitation methods
- ✓ Community/traffic disruptions
- ✓ CIPP
- ✓ Condition assessment
- ✓ Manhole rehabilitation

PROJECT VALUE

Construction: \$20 million (est.)

PROJECT DATES

Start: July 2022
Completion: Ongoing

BC KEY STAFF, ROLE

Uday Sant, QC
Mark Poppe, Pipe and Manhole Condition Assessment/QC Reviewer

Force Main Emergency Rehabilitation

Truckee Meadows Water Reclamation Facility (TMWRF), City of Reno, Nevada

BC monitored installation of pipelines crossing sensitive environmental areas. Operation was maintained 24 hours a day for more than 5 months, without incident.



In 2013, TMWRF declared an emergency due to leaks in two of its raw sewage wastewater force main pipes. BC was hired to monitor the installation of emergency bypass design and construction and develop rehabilitation plans for the raw sewage wastewater pipelines from the raw wastewater pumps to the grit removal building. BC worked with TMWRF and multiple onsite contractors to complete the design and construction documents for the rehabilitation of the three 24-inch reinforced concrete force main pipelines. Bypass design and construction was developed to collect flow from both the 72-inch Southeast Connector and the 60-inch Reno/Sparks Interceptor totaling 40 mgd and deliver it directly to the two grit tanks, with the capability to isolate each tank and pipeline and match plant requirements for flow. Installation included crossing sensitive environmental areas and operation was maintained 24 hours a day for more than 5 months, without incident.

Relevancy

- ✓ Evaluation of different rehabilitation methods
- ✓ Community/traffic disruptions
- ✓ Assessment
- ✓ Manhole rehabilitation

PROJECT VALUE

Construction: \$10 million

PROJECT DATES

Start: February 2013

Completion: August 2014

BC KEY STAFF, ROLE

Mike Meyers, Construction Manager and Engineer

Ron Ablin, Principal-in-Charge



Scope of Services

Tahoe Truckee Sanitation Agency TRUCKEE RIVER INTERCEPTOR REHABILITATION PROJECT

March 13, 2024

Scope of Services

The project's scope of services, deliverables, and assumptions are summarized below. A list of project tasks, deliverables and assumptions are also included with the proposed fee proposal.

Task 100 Project Management

Sub-Task 101 Project Management

Project Management includes project setup, internal project team and client and subconsultant coordination, the preparation of a project management plan, a quality assurance, an initial schedule, and quality assurance and control (QA/QC) plan, a Field Work Safety Plan, monthly preparation of invoices/status reports, overall project tracking, and maintaining the project schedule, risk register and action and decision logs. The invoices will include the work completed, percent of budget expended to date by task, and percent complete by task. Monthly meetings are assumed during the duration of design.

Sub-Task 102 Kickoff Workshop and Data collection

A project Kickoff Workshop meeting attended by the Tahoe Truckee Sanitation Agency (Agency), the Brown and Caldwell (BC) team, to introduce the project teams and discuss the project background, goals, deliverables, and schedule. BC will be responsible for scheduling the workshop and preparing the workshop agendas and minutes. The minutes will include tracking of action items and preparation of a project decision log. BC will also collect project related data and coordinate on any additional information needs at this time.

Deliverables:

- Kickoff Meeting agenda and minutes (pdf)

Assumptions:

- The 1-hour Kickoff Meeting will be in person and have up to five attendees from the BC Team.
- The schedule will depend on the data collection phase at the start of the project and receipt of critical data from the Agency within the first two weeks after the kickoff meeting.

Task 200 Preliminary Design

The preliminary design phase duration is assumed to be approximately 5 months.

Sub-Task 201 Utility Coordination and Easement Research

- BC will prepare utility A, B and C letters, coordinate with, and notify utility companies.
- BC and Mark Thomas will research the provided easements and parcels in the project area.

Deliverables:

- Utility letters to agencies (pdf) – Up to six agencies

Sub-Task 202 Site Survey

Topographic Survey

Mark Thomas will establish and set durable project control that is intended to last throughout construction and is based on the California Coordinate System of 1983 (NAD83), and vertically on NAVD88. The project control for this task will include a closed level loop transferring benchmark elevations to each area identified for improvements.

Manhole rim and Invert information along with aboveground surface visible utilities, limited existing ground and grade break shots will be collected for an approximate swath of 100' x 100' around manholes (MH) 32, 33, 34, 35, and 36.

Record Boundary Retracement

Mark Thomas will perform record research at Placer County to locate recorded control maps, right-of-way maps, records of survey, corner records, and other official maps of record necessary to retrace the right of way and boundary near MH 32, 33, 34, 35, and 36 along with the Highway 89 bridge near MH 33 and the pedestrian & bike bridge near MH 36.

Mark Thomas will collect a sample of monuments (as shown on record maps) and physical evidence during the Topographic Survey task. Mark Thomas will retrace the boundary and easements based on record deeds and maps, and a best fit of the improvements and found monuments.

Temporary Construction Easements: BC's teaming partner, Mark Thomas will draft up to five (5) 8.5"x 11" temporary construction easement (TCE) exhibits. The exhibits will show the project basis of bearings, ties to found monuments, bearings & distances along the TCE limits, overall area (Square Ft., and/or acreage), impacted owner and adjacent parcels. Exhibits will be based on record boundary retrace completed per this scope of work. It is assumed no preliminary title reports will be needed for this effort and all boundary and existing easements will be based on publicly available record documents and maps.

Assumptions:

- All access, both public and private will be provided to the site by the Agency.
- This task does not constitute a boundary survey.
- Mark Thomas, BC's surveying teaming partner will provide an ACAD file 2021 for use.
- Air quality and noise monitoring during construction will be completed by the Agency's selected prime contractor as required and outlined in the project bid set specifications.
- Potholing is not included in the BC scope of work and may be added after preliminary design.
- Geotechnical investigations are not part of this scope. This may need to be discussed during preliminary design for the pits around the manholes.
- Preserving, re-setting monuments that may be disturbed or destroyed, filing corner records and/or Record of Survey(s) is not part of this scope of work.
- The construction contractor shall comply with business and professions code 8771 (b) regarding referencing, preserving and reconstructing monuments, whether or not monuments were/are flagged or located in the field prior to construction.
- Any monument or control point that may be disturbed, damaged or covered during construction must be referenced before operations begin per B&P code section 8771 (b).

Sub-Task 203 Environmental

California Environmental Quality Act (CEQA) Effort: Environmental Science Associates (ESA) will prepare a brief project description that is appropriate for CEQA review and use in regulatory agency coordination (below). Biological and cultural resources technical specialists will also participate in a one-day site visit to characterize the resources within the anticipated work area to support CEQA review and inform the permitting strategy (below). The site survey will be accompanied by database searches for known occurrences of sensitive resources.

CEQA Act Review

Using the project description and results from the initial site resources and database review, ESA will prepare a memorandum to assess the applicability of a CEQA categorical exemption for the project. If applicable, the memorandum will document how the project qualifies for the categorical exemption and which class of exemptions is potentially applicable to the project. If it is determined that the project will qualify for a CEQA categorical exemption, ESA will prepare a Notice of Exemption (NOE) for review and signature by TTSA and file the notice electronically with the State Clearinghouse and the County clerk, accompanied by any CEQA filing fees as provided by TTSA.

Environmental Permit strategy:

ESA will use the project description and site survey results to evaluate anticipated regulatory permitting requirements for the planned work. Based on this evaluation ESA will develop a permit strategy for navigating any environmental and/or archaeological concerns and achieving project regulatory compliance.

An initial list of potentially interested agencies was provided in the RFP; based on this list, our current understanding of the project, and the likely construction approach proposed by BC, ESA has put together an initial list of agencies to present our

preliminary assessment of anticipated project permitting requirements. We expect that this list would serve as the key component of a concise permit strategy document, would be refined as project design is initiated, and will be the basis for ESA's development of meeting materials to present to regulatory and other interested agencies at the early stages of project development. Input from agencies will confirm the anticipated permitting requirements for the project, if any, as well as any additional required or recommended coordination actions as the project advances.

To minimize the project's regulatory permitting requirements and associated time and cost implications, ESA will coordinate closely with the project team on project design and construction method alternatives at the project's outset, with the goal of avoiding the need for state or federal regulatory agency permits to the extent possible. Following TTSA's selection of a preferred project design, ESA will conduct an additional round of agency outreach and coordination, to confirm or revise the project's permit strategy.

Assumptions

- Tribal consultation in compliance with Public Resources Code Section 21080.3 (Assembly Bill 52, or AB52) will be completed by TTSA prior to completion of the public review draft IS/MND.
- All deliverables will be provided in electronic format; no paper copies will be provided.
- ESA is not responsible for any CEQA filing fees.
- ESA's participation at a CEQA public meeting is not anticipated for the project.
- No supplemental field work or modeling will be required of ESA for preparation of the IS/MND. All evaluations will be qualitative and/or utilize existing studies and data.
- ESA will receive one set of consolidated comments from TTSA on each draft document. Edits on the screencheck IS/MND will be limited to confirming prior edits and formatting issues.
- ESA, in coordination with TTSA, will upload an electronic copy of the CEQA documents to the State Clearinghouse's CEQAnet website.
- ESA will respond to public and agency comments related to the potential physical impacts of the project as they relate to the environmental analyses presented in the IS/MND within the estimated level of effort in the budget. Responses will involve explanation, clarification, or amplification of the contents of the IS/MND; new technical analyses will not be required and completed technical studies will not need to be substantially revised based on changes to the project or pre-approved assumptions as part of the response to comments.
- The IS/MND would be drafted to comply with the provisions of CEQA. Although the information contained in the IS/MND may be used to support compliance with the National Environmental Policy Act (NEPA), the IS/MND would not be drafted to meet NEPA requirements (i.e., equal level of analysis between alternatives, NEPA required sections, etc.).
- ESA anticipates that the state or federal regulatory agency permits or approvals needed for the project could either be fully avoided (if excavation and vegetation disturbance in the riparian corridor can be avoided) or would be limited to 2 state permits (a Section 1600 Streambed Alteration Agreement from the California Department of Fish and Wildlife [CDFW] and Waste Discharge Requirement authorization from the California Regional Water Quality Control Board Lahontan Region [CA WRCB]) to address work within the riparian corridor of the Truckee River, since the planned work as envisioned by BC would avoid direct impacts to the Truckee River itself and is aimed at avoiding most other sensitive resource impacts, including endangered species.
- However, if it is determined the project does require additional state and/or federal regulatory permits beyond the Section 1600 Streambed Alteration Agreement and WDR authorization included in ESA's scope, ESA can support TTSA with the preparation of additional permit application packages under separate scope authorization (Task 500). Furthermore, if the project cannot avoid adverse effects to federally-listed species protected by the U.S. Fish and Wildlife Service (USFWS), ESA can assist the project team in evaluating and implementing an alternative approach to permitting, aimed at enabling the Section 7 Endangered Species Act consultation process between the U.S. Army Corps of Engineers and the USFWS, under separate scope authorization, if this approach is determined feasible and advantageous to the project.

Sub-Task 204 Stakeholder coordination, General Public Outreach and Permitting assistance.

Stakeholder Coordination: This sub-task will include BC and its teaming partner Zephyr Collaboration assisting the Agency in coordinating with the following stakeholders for the implementation of this Project.

- Tahoe City Public Utility District (TCPUD)
- Placer County
- California Water Resources Control Board (CA WRCB) (Lahontan – Region A)

- California Department of Fish & Wildlife (CDFW)
- California Department of Transportation (Caltrans)
- California Department of Water Resources (CA DWR)
- United States Army Corps of Engineers (US ACOE) – Included under Task 203 (ESA)
- United States Forest Service, Tahoe National Forest (USFS) – Included under Task 203 (ESA)
- United States Fish and Wildlife Service (USFWS) – Included under Task 203 (ESA)

General Public outreach: The level of public outreach is expected to be determined based on the findings from the initial stakeholder outreach and preferences and is currently estimated at a limit of 24 hours with the remaining hours under this task dedicated to stakeholder outreach and permit kick-off efforts and associated coordination. Our understanding is that initial stakeholder coordination with key agencies like TCPUD, Tahoe City may give us a better scale of the general outreach needed. BC will provide supporting materials for community outreach material as needed.

Permitting: BC will start the permitting process during the preliminary design. See Task 203 for assumptions associated with environmental permits. We are not able to predict which permits would be needed until we start stakeholder coordination and reach a stage where we have initial environmental findings. Due to the long anticipated permitting timelines, we are assuming that our effort will be limited to preparing the application material to start the permit process and is limited to the duration of our design duration (12 months).

Assumptions

- The limit for Permitting assistance is assumed as the budget assumed under this task.
- BC will identify required rights-of-way and easement access.
- Storm water discharge requirements and General Discharge Permit will be completed by the selected prime contractor as required and outlined in the bid set specifications.
- Agency will pay all permit fees.
- BC will prepare and submit permits as needed but will not be responsible for delays in procuring permits.
- Contractor to acquire all construction permits.

Meetings:

- Eight one-hour long stakeholder meetings (up to 2 BC staff) – Remote attendance is assumed for BC personnel.

Deliverables:

- Stakeholder meeting agenda and minutes (pdf)
- Draft and final versions of drawings needed for permit applications (pdf)

Sub-Task 205. Preliminary Design Report and 30% drawings

BC will submit a draft and final Preliminary Design Report (PDR). Each milestone submittal will go through a QA/QC and constructability review. The PDR will include the following:

- An overview of existing information provided by Agency.
- Design considerations and comparison of different methods of rehabilitation
- Preliminary approach, including conceptual recommendations.
- Preliminary pipeline plans (horizontal).
- Preliminary bypass plan recommendations
- Summary of Environmental, cultural and archaeological findings from Task 203
- Preliminary List of permits

Assumptions

- The scope will include the stated limits between MH 33 and 35 but will include a bypass pumping plan between MH 32 and 36.

Deliverables:

- Draft and Final PDR (pdf)
- 30% Design Drawings (pdf) – A sheet list has been included as an attachment to the scope document.
- Preliminary List of Technical Specifications (pdf)
- 30% Implementation schedule (pdf) developed in MS Project

- 30% Cost estimate (AACE Class 4)

Sub-Task 206. PDR review Workshop

A PDR Review Workshop will be scheduled by BC with the Agency to review the draft PDR findings. Agency's engineering and operations staff will be invited to provide feedback and achieve consensus on the most feasible method for rehabilitation. The focus of this task is to confirm the rehabilitation method before moving into subsequent design phases to minimize changes later in design. This will serve as Design Gate 1 where key stakeholders sign off on the decisions and the project is approved to move into Final Design.

Deliverables:

- PDR and 30% Review Meeting agenda and minutes (pdf)
- Comment Log (pdf)

Meetings:

- A 2-hour PDR Review Meeting (up to 4 BC staff) – Hybrid attendance is assumed with two people remote and two in person.

Task 300 Final Design

The final design phase duration is assumed to be approximately 7 months. Each milestone submittal will go through a QA/QC and constructability review.

Sub-Tasks 301, 302 and 303 - 75% Design

After the completion of the 30% design and incorporation of Agency comments, site survey, BC will begin preparation of the 65% design submittal. BC will prepare 75% design drawings, specifications. A constructability review will be included at this stage. A technical review meeting will be held with the Agency after the 75% design submittal to collect comments to discuss the 75% design submittal comment log and BC responses.

Assumptions:

- Included in the list of assumptions in the Plans and Specifications section below.

Deliverables:

- 75% design drawings (pdf)
- 75% design technical specifications (pdf)
- 75% Implementation (construction) schedule (pdf) developed in MS Project
- 75% AACE Class 3 Cost estimate
- Technical review Meeting minutes (pdf)
- Comment log (pdf)

Meetings:

- 2-hour Technical Review Meeting (In person) with Agency staff and BC team (up to 4 BC staff)

Sub-Task 304 and 305 - 100% Design (Bid Set)

BC will prepare a 100% design bid set.

Deliverables:

- 100% design drawings (pdf)
- 100% design specifications (pdf)
- 100% Implementation (construction) schedule (pdf)
- 100% AACE Class 2 Cost estimate
- Comment log (pdf)

Assumptions for Plans and Specifications

BC assumes the following for the development of its 30%, 75%, and final design plans and specifications:

- Agency comments on project deliverables will be coordinated and compiled prior to delivering to the BC team and be submitted in Microsoft Excel, Word or pdf.
- CADD deliverables will be per BC standards.
- BC will follow relevant Agency standard specifications, Design and Procedures Manuals. State's standard specifications, and all applicable State Design manuals.
- The Agency review's period is three weeks (15 workdays) for deliverables. One of the milestone reviews has been extended to 25 workdays to accommodate stakeholder input in later stages of design.
- Specifications will be based on BC standard specifications, Division 50 format and follow relevant sections from Agency standard specifications.
- Agency standard details, front-end documentation and standard specifications will be provided by Agency.
- Traffic control will be the responsibility of the selected Contractor during construction. General notes will be provided in the drawings for traffic control.
- A bypass and bike detour plan will be included to assist the Contractor with some guidelines during construction.
- Design of sheeting, shoring and bracing, and detailed design of excavation, dewatering and sewer bypassing systems will be performed by the Contractor.

Task 400 Bid Services

Sub-Task 401: Addendum

- The Agency will advertise and distribute bid documents. The BC Team will prepare responses to questions and issue upto one addendum,

Sub-Task 402: Meeting and Bid Summary

- Attend one pre-bid meeting (One in-person) upto two BC personnel. BC will prepare meeting notes and evaluate the bid summary of the bid results prepared by T-TSA.

Sub-Task 403: Conformed Documents

- Prepare Conformed Contract documents, incorporating changes made during bid phase.

Assumptions

- The Agency will be the contact for the bidders.

Deliverables:

- Addendum (pdf)
- Meeting notes (pdf)
- Bid Tab sheet (pdf)
- Conformed documents (pdf)

Fee Estimate

The fee proposal includes a fee estimate and sheet list for the services provided in this Scope, including all tasks and deliverables. The table provides the estimated hours by task and by staff and the associated billing rates. It also includes sub-consultant costs, other direct costs and other associated expenses.

Fee Assumptions

- Included with fee estimate sheet.

Schedule Assumptions

- The contract Notice to proceed will be provided by the Agency on 04/05/24; and
- The project duration is assumed as 12 months in design and 3 months in bid services.

- Schedule is included in the main proposal.

TASK 500 (CONTINGENCY SERVICES – TO BE USED IN PERMITS ARE TRIGGERED)

Sub-Task 501 Environmental Permit preparation

In the event that it is determined the project does require a California Department of Fish and Wildlife (CDFW) Lake and Streambed Alteration Agreement (LSAA), ESA can support TTSA with the preparation of the permit application.

ESA will prepare a client information request to support permitting (CDFW here, and RWQCB below) and document any initial concerns or questions raised by CDFW/RWQCB during the CEQA and agency coordination phase (above). ESA biologists will utilize information gathered during the CEQA site survey to assess, document, and calculate the potential effects of the proposed project on sensitive species and habitats protected under CDFW regulations.

ESA will prepare a draft CDFW LSAA application in electronic format for TTSA review. Based on one round of consolidated comments provided to ESA in track changes format and after discussing review comments with TTSA, ESA will revise the draft notification package. As directed by TTSA, ESA will address any final edits or formatting issues, and will provide TTSA the final notification package in electronic format. ESA will then upload the application to CDFW's Environmental Permit Information Management System (EPIMS), in coordination with TTSA as the applicant.

In the event that it is determined the project does require a Lahontan Regional Water Quality Control Board (RWQCB) notification of waste discharge requirements (WDR), ESA can support TTSA with the preparation of the permit application.

ESA biologists will utilize information gathered during the CEQA site survey to assess the potential environmental impacts associated with the proposed project, including potential discharges of fill or other pollutants, effects on water quality, aquatic habitats, and beneficial uses of receiving waters.

ESA will prepare a draft WDR application in accordance with Lahontan RWQCB guidelines and requirements. The draft application will be provided in electronic format for TTSA review. Based on one round of consolidated comments provided to ESA in track changes format and after discussing review comments with TTSA, ESA will revise the draft application. As directed by TTSA, ESA will address any final edits or formatting issues, and will provide TTSA the final application in electronic format. ESA will then electronically submit the application to the RWQCB on behalf of TTSA.

ESA will also support TTSA and Brown & Caldwell with the development of project materials for, and presentation and attendance at, a Board hearing , if deemed necessary. ESA assumes this support will be limited to 8 hours.

Habitat Assessment to Support Permitting (Contingent)

In the event that it is determined the project does require CDFW and RWQCB permits (and/or a CEQA IS/MND), ESA can support TTSA with the preparation of a Habitat Assessment Technical Memorandum. ESA will utilize information gathered during the CEQA site survey and the selected project description, to evaluate the project's potential effects on sensitive species and/or habitats, and summarize them in the Tech Memo, for submittal as a part of the permit application packages (and utilized in the CEQA Biological Resources section, if applicable).

Deliverables

- Permit strategy document (draft and final)
- Meeting materials for outreach to regulatory and other interested agencies- 2 meetings total (draft and final)
- Permit applications for CDFW LSAA and RWQCB WDRs:
 - Permit application packages (draft and final)
 - Meeting materials in support of a RWQCB WDR Board hearing

Sub-Task 502 CEQA Exemptions:

If it is determined the project does not qualify for a CEQA categorical exemption, ESA can support T-TSA with the preparation of a CEQA Initial Study/Mitigated Negative Declaration (IS/MND). In the event that it is determined the project does not qualify for a CEQA categorical exemption, ESA will support TTSA with the preparation of a CEQA Initial Study/Mitigated Negative Declaration (IS/MND). The IS/MND will include completion of the State CEQA Guidelines Appendix G Environmental Checklist Form. The document will include the project description from the previous task, as well as an environmental setting and analysis of environmental impacts. Mitigation measures for the environmental topics determined to have the potential for significant impacts will be included.

ESA will provide an electronic copy of the administrative draft IS/MND to TTSA for review and comment. Based on one round of consolidated comments provided to ESA in track change format and after discussing review comments with TTSA, ESA will revise the draft IS/MND. ESA will provide a second administrative draft for TTSA review and comment. Based on one round of consolidated comments provided to ESA in track change format, ESA will revise the draft and prepare a pre-publication screencheck version, that will also include a draft of the Notice of Intent (NOI) to Adopt a MND, in electronic format for TTSA review. As directed by TTSA, ESA will address any final edits or formatting issues, and will provide TTSA the IS/MND and NOI to Adopt the MND, and Notice of Completion (NOC) in electronic format for publication. ESA will also prepare a draft of the Mitigation Monitoring and Reporting Program (MMRP) and submit an electronic version to TTSA for review along with the proposed IS/MND.

When directed by TTSA, ESA will assist with filing the NOC and IS/MND with the State Clearinghouse for public and agency review. ESA will work with TTSA to compile a mailing list for the NOI. ESA will publish the NOI in a newspaper of general circulation, mail a notification to neighboring property owners and others on the mailing list, and notify the applicable County Recorder-Clerk's Office.

After the close of the 30-day public comment period and after meeting with TTSA to discuss comments received, ESA will prepare responses to comments related to the potential physical impacts of the project as they relate to the environmental analysis presented in the IS/MND and incorporate any needed revisions into the IS/MND and MMRP. Responses will involve explanation, clarification, or amplification of the contents of the IS/MND; no new technical analyses will be required and completed technical studies will not need to be substantially revised based on changes to the project or pre-approved assumptions as part of the responses to comments. ESA will submit the responses to comments, Final IS/MND, and Final MMRP electronically to TTSA. ESA will also prepare a Notice of Determination (NOD) and will assist with filing the NOD with the State Clearinghouse.

During development of the IS/MND, ESA will maintain a project file that documents the project-related supporting materials for the administrative record, including all reference materials, citations, and all data and information assembled and used during development of the CEQA document. Upon completion of this task, ESA will provide TTSA with a complete administrative record file (electronic only, no hardcopies). The applicant (TTSA) will be responsible for payment of the permit application fees.

Task 500 Assumptions

- The contingency task budgets are based on 2024 rates and may need to be adjusted based on the actual timing of the permits.
- The project can be designed to avoid and or minimize potential impacts to sensitive species, such that a CDFW Incidental Take permit (ITP) and a USFWS Biological Opinion will not be required.
- The applicant (TTSA) will be responsible for payment of permit application fees.
- Agency outreach/coordination meetings will be limited to a total of two meetings, anticipating that one or both meetings will be attended by multiple agencies.
- Permit applications prepared by ESA will meet regulatory agency requirements and ESA will support the client in gaining agency approvals to the best of our abilities. However, ESA cannot guarantee successful procurement of regulatory agency permits and approvals within a desired timeframe.

- The preparation of Restoration Plans (for temporary construction-related impacts) and/or Compensatory Mitigation Plans (for unavoidable permanent impacts, generally to regulated waters or sensitive habitats) are not included in this scope of work.

Key Team Members and Organizational Chart

SECTION 8

Section 8: Key Personnel and Organizational Chart

The BC team is the right partner for you

This team is proficient in state-of-the-art rehabilitation strategies and offers TTSA a comprehensive knowledge base of rehabilitation solutions best suited for the condition of your pipe. Our knowledge of the condition and initial list of solutions is directly from our review of your CCTV videos.

From our pre-work on this project, and visiting and studying the site, we understand the project's unique features, and will develop optimal solutions that balance cost and community impacts.



Trevor Shamblin
TAHOE-TRUCKEE SANITATION AGENCY
PROJECT MANAGER



PRINCIPAL-IN-CHARGE/REHAB EXPERT
Ron Ablin, PE



PROJECT MANAGER
Uday Sant, PE



TECHNICAL ADVISORS
Mike Meyers, PE



Bernadette Vistacion, PE



Mark Poppe, PE
DESIGN LEAD



Anthony Knapp
CONSTRUCTABILITY REVIEW



Kelley Sterle, PhD
CEQA LEAD



Krystal Pruzinsky
CONDITION ASSESSMENT REPORT REVIEW



Lauren Riley, PE
PROJECT ENGINEER/ PERMITTING



Jen Mair
STAKEHOLDER COORDINATION



Sam McIntyre, PLS
SURVEY

KEY

● Licensed in states outside of CA

SUBCONSULTANTS

● ESA ● Zephyr Collaboration ● Mark Thomas

Uday Sant, your Project Manager and Lauren Riley, your Project Engineer/Permitting will also lead stakeholder coordination in partnership with Zephyr Collaboration and ESA.

Uday Sant, P.E.

Project Manager



Uday has more than 20 years of experience in civil engineering and municipal water/wastewater infrastructure projects including areas of project/program management and pipeline design. He has experience working in the Tahoe region, most recently with Truckee Meadows Water Authority.

Uday is an expert in the areas of pipelines, valves and has worked extensively on a wide range of projects involving pipeline replacement, pipeline rehabilitation, rehab or replace cost evaluations, pump stations, reservoirs, and treatment plant yard piping rehabilitation projects. Uday has managed dozens of projects ranging from small to large and complex programs.

Winchester Boulevard Sewer Rehabilitation Project, West Valley Sanitation District, California

Design Lead. Uday led the design for the rehabilitation of 15,000 LF of 16- to 30-inch ACP and RCP trunk sewer in the City of Campbell and Town of Los Gatos. The project includes trenchless lining using CIPP and rehabilitation of 47 manholes. Uday evaluated different rehabilitation methods including CIPP and spiral wound lining. He coordinated with the environmental team to evaluate the impacts of construction across a creek crossing and in the banks of a creek. Uday developed a bypass pumping plan to avoid impacts to nearby residents and the environment which served as a guide during construction.

Influent 54-inch Pipe Rehabilitation, Santa Cruz, California

QC. The project includes rehabilitation of approximately 3,250 LF of a 54-inch gravity sewer pipeline and 13 manholes located in Santa Cruz, California. The 54-inch pipeline starts from a junction structure and continues upstream underneath Neary Lagoon, two urban parks, railway tracks, and underneath the right-of-way of congested urban corridors. CIPP was used as the method of rehabilitation with a styrene-free resin. Uday served as a QC reviewer for the design and specifications.

University Avenue ACP Trunk Sewer Rehab, West Valley Sanitation District, Los Gatos, California

Design Lead. Uday served as the design lead for the preliminary design for this project, which was identified during the District's Trunk Sewer Condition Assessment. Portions of the existing trunk sewer are in poor condition with mild to severe corrosion of the ACP. The trunk sewer pipes are located in an area with a high consequence of failure, are at risk of failing in the future, and require rehabilitation. The project includes the trenchless rehabilitation of approximately 9,200 LF of 15- to 18-inch-diameter vitrified clay pipe (VCP) and ACP trunk sewer. Trenchless lining methods evaluated were CIPP and/or spiral-wound polyvinyl chloride liner.

Water System Improvements, California American Water (Cal-Am), California

Project Manager. Uday oversees BC's Cal-Am program, directing 19 separate contracts across California for the largest and most geographically diverse water utility in the United States. Uday manages several individual projects and oversees several other project managers and 10+ subconsultants. He conducts technical and QA/QC reviews; serves as the primary client contact; and manages project scopes, schedules, and budgets. Projects include pipeline, tank, and

EDUCATION

M.E., Civil Engineering - Water Resources, Texas A&M University, 2005

B.E., Civil Engineering, Mumbai University, India, 2001

REGISTRATION

Professional Engineer, No. 89332, California, 2018

Professional Engineer, No. 102371, Texas, 2008

Professional Engineer, No. 192364, British Columbia, 2016

EXPERIENCE

20 years

JOINED FIRM

2017

RELEVANT EXPERTISE

Wastewater and water conveyance

Pipeline Replacement

Pipeline Rehabilitation

Business case evaluations

Conceptual studies

Detailed Design

Construction services

Start-up/Commissioning

Project/Program Management

Cost Estimating

Pump Stations

Valves

Witness factory testing

booster station designs, cost evaluations, groundwater well evaluations and replacements, and water quality studies.

Program Management Services for the Harvest Water Program Sacramento Regional County Sanitation District (Regional San), California

Project Manager. Uday is part of a joint venture team selected to serve as the Capital Program Management Office (C-PMO) to Regional San's team, complementing the facilities planning and advancing the program, helping release engineering packages to consultants for final development of the recycled water delivery system. BC is responsible for the planning, design, construction, and commissioning of the capital improvements required to meet the needs of the Program. Uday serves as the lead for the program Basis of Design Conveyance report and utility lead for approximately 30 miles of distribution system ranging in diameter from 6 to 36 inches.

Hayward Bypass Transmission Pipeline, San Francisco Public Utilities Commission (SFPUC), California

Project Engineer. Uday served as a design lead/project engineer for the overall planning level alignment study, providing hydraulic analysis and the cost estimate of a 36 to 42-inch pipeline along a congested 12-mile-long public right-of-way corridor in the City of Hayward. The Hayward intertie is considered a critical conveyance feature for its wholesale customers to receive supply transfers from several proposed regional reliability projects, especially during drought years. The project aims to address long-term reliability, water supply planning and transfer needs by connecting the EBMUD water system and SFPUC's system.

Strand Main Replacement, California American Water, San Diego California

Client Service Manager. Uday is serving as the client service manager and QC lead for the 16- to 24-inch pipeline project. The project consists of an alignment study and replacement of approximately 6 miles of existing transmission main through a congested urban corridor with heavy permitting associated with environmentally sensitive areas, a trenchless highway crossing, and stakeholder management through traffic and residential areas. The construction of the first phase of this pipeline was completed in 2020.

Echewater Program, Sacramento Regional Wastewater Treatment Plant, Regional San, Elk Grove, California

Design Lead. Uday designed the plan and profile of a 8-inch flexible pipeline through an existing storm drain. His role included design and an overall hydraulic system feasibility check. The project includes extensive coordination with the owner with regards to environmental constraints and adherence to overall program standards. This project has won multiple awards with the American Public Works Association and the American Society of Civil Engineers.

Iona Water Crossing, Metro Vancouver, Richmond, British Columbia, Canada

Project Lead. Uday led the conceptual design and feasibility study of open-cut versus trenchless methods for an 18-inch river crossing. He also developed horizontal directional drilling geometric curve design.

Gilbert Road Trunk Sewer Twinning, Metro Vancouver, Richmond, British Columbia, Canada

Design Lead. Uday led the design for 4 miles of 72-inch gravity trunk sewer through a congested utility corridor in one of the busiest metropolitan cities in the world, Vancouver. He detailed a pipe material selection evaluation of the trunk sewer for poor soil and seismic conditions. Uday designed six diversion and crossflow chambers and developed multi-disciplinary design drawings and specifications to include extensive utility coordination. He reviewed the hydraulic design, traffic and environmental impacts, and geotechnical design reports, developed a cost comparison with CIPP lining for seismic resilience, and developed options for construction staging and schedule.

Various Projects, City of Phoenix Water Program, City of Phoenix, Arizona

Technical Reviewer. The City of Phoenix Water services department is working on a program to supplement water supply to the Colorado River water delivered through the Central Arizona project. The program encompasses four 60 mgd booster pump stations and approximately 12 miles of up to 66-inch-diameter conveyance pipelines to supplement the existing water delivery system. Uday was a technical reviewer on three pipeline design packages which involve reviewing for conformance to Phoenix design standards, industry design guidelines, and constructability.

Ron Ablin, P.E.

Principal-in-Charge/Rehab Expert



Ron has more than 34 years of experience specializing in the assessment, design, and rehabilitation of large-diameter pipelines, pump stations, wells, and reservoirs.

Ron's experience includes the investigation, assessment, and rehabilitation of waterlines, gravity sewers, and force mains ranging in size from 8 to 108 inches in diameter including a variety of services at more than 75 production facilities in the Phoenix Valley. These facilities ranged from very complex, high-volume pumping facilities to difficult retrofits and expansions of existing facilities. Ron has actively promoted the use of constructability reviews, value engineering, non-destructive investigation, and trenchless rehabilitation over conventional technologies to provide cost-effective projects that are completed with minimal impact to customer service.

NRI Rehabilitation, Pima County Regional Wastewater Reclamation Department, Tucson, Arizona

Project Principal. This is a multi-year program to provide a comprehensive approach to condition assessment and rehabilitation/repair (R/R) for the city's wastewater collection system. Phase 1 of the program includes program development, with major components for data management and maintenance management; field investigation with Panoramo video inspection of 200,000 feet of gravity pipe and 1,500 manholes; condition assessment of the inspected pipes and manholes; recommendations for R/R projects to address deficiencies in the system; and development of immediate and long-term capital improvement programs to address additional inspections, assessments, and R/R projects.

2003 to 2023 Sewer Rehabilitation Program, City of Reno, Reno, Nevada

Project Manager/Project Principal. In February 2003 the City of Reno identified two segments of 30-inch-diameter sewer located adjacent to the Truckee River that had extensive corrosion and multiple areas of exposed reinforcing steel. To prevent collapse, the City of Reno contracted BC to rehabilitate the sewer under an emergency authorization. The pipeline was rehabilitated using CIPP over 2 days. Over the next 20 years, BC completed

the design and CM for 12 rehabilitation programs for the City totaling more than 80 miles of pipeline ranging in diameter from 6 to 72 inches in diameter. Rehabilitation has included manhole rehabilitation, pipeline replacement, pipe bursting, and CIPP using both water and steam curing. For the larger projects, bypass pumping up to 40 mgd was provided. BC is currently providing design and construction services for the 2023 rehabilitation program.

91st Avenue Wastewater Treatment Plant Pipeline Rehabilitation Phase 1, City of Phoenix, Arizona

Project Manager. Ron was responsible for the condition assessment, evaluation of rehabilitation alternatives, and preparation of final design documents for the rehabilitation of 15 influent and effluent pipelines within the 91st Avenue wastewater treatment plant. The in-plant pipelines were rehabilitated with CIPP and included 6,635 feet of sewers ranging in diameter from 48 to 60 inches. The 15 pipelines included 23 bends with radii ranging from 20 to 110 feet. The project also included rehabilitating a concrete splitter box and approximately 1,000 feet of 72-inch interceptor sewers located outside the wastewater treatment plant. This project was awarded the Outstanding Engineering Design Project Award presented by the Arizona Consulting Engineers Association in 1999 and the Emergency Repair Project of the Year by APWA on the national level in 2000.

EDUCATION

BS, Civil Engineering,
Pennsylvania State
University, 1989

**Master of Project
Management, Keller
Graduate School, 2001**

REGISTRATION

Professional Engineer:

Arizona, No. 27807, 1994
Nevada, No. 14135,
1999

Colorado, No. 40883,
2007

Texas, No. 109070, 2011

EXPERIENCE

34 years

JOINED FIRM

1997

RELEVANT EXPERTISE

Pipeline Rehabilitation

Project Management

**Water Distribution and
Wastewater Collection
System Design**

Crosstown Interceptor Rehabilitation Project No. 3 and No. 4, Clark County Water Reclamation District, Las Vegas, Nevada

Project Oversight. The Crosstown Interceptor Rehabilitation Program included four phases of CIPP rehabilitation design for 10 miles of 36- to 84-inch diameter RCP with a failing PVC lining system located in the high-traffic urban environment adjacent to the Las Vegas Strip, across UNLV and throughout business and residential areas along the alignment. Applicable project elements included flow monitoring, flow analysis, additional CCTV, and review of inspection video and logs. Weld strip failures of the PVC lining initiated a Rehabilitation Program for the Crosstown Interceptor to protect it from continued corrosion attack and ultimate failure. The first two Crosstown phases were rehabilitated using a CIPP liner for the pipelines and a combination of PVC liner repairs and cured-in-place manhole for manhole rehabilitation.

Sewer System Condition Assessment and Rehabilitation Program, Phases 1 and 2, City of Tempe, Arizona

Technical Advisor. This project was delivered in two phases. Phase 1 developed the program and included data management, maintenance management, and inspection/assessment for 200,000 feet of pipe and 1,500 manholes. Phase 2 includes inspection/assessment of 75,000 feet of pipe, 1,000 manholes, three diversion structures, and a bio filter facility. The City has approximately 490 miles of gravity sewer mains and more than 10,000 manholes of various materials installed as part of its wastewater collection system. The structural and operational characteristics of this collection system are critical to health and safety of the general public. A comprehensive assessment and R/R program evaluates and documents the condition of the collection system components, identifies immediate and potential problems within the system, plans and prioritizes necessary R/R projects for the City's capital improvement program (CIP), and implements the CIP with design and construction of the prioritized R/R projects.

Reinforced Plastic Mortar Pipe Installation Project Design, City of Mesa, Arizona

Project Manager. Ron is responsible for the analysis and design of 2,700 LF of 33-inch sewer pipe rehabilitation. The project includes assessment and bid document preparation for piping and manholes along the alignment. Slip-lining was chosen as the rehabilitation method after initial design for CIPP methods.

I/I Improvements, City of Nogales, Arizona

Project Engineer. Project included the preparation of construction documents for a sewer rehabilitation in the City of Nogales using CIPP. Ron conducted inspections using surface inspection and CCTV to identify defects within the collection system.

Sub-regional Operating Group Unlined Concrete Sewer Rehabilitation Projects, City of Phoenix, Arizona

Project Manager. Ron was responsible for the preparation of final design documents for 12 separate projects to rehabilitate approximately 30 miles of unlined reinforced concrete pipe ranging in size from 54 to 90 inches in diameter. The pipelines were rehabilitated over a 3-year period with CIPP and included one of the largest sewer bypass pumping operations ever performed in the United States. The sewer bypass was designed for a flow of 122 mgd. The large bypass project was awarded the Rehabilitation Project of the Year by Trenchless Technology Magazine in 2002 and the Tempe Town Lake project was selected for the Engineering Excellence Grand Award in 2002.

Sewer Main Rehabilitation Program, City of Henderson, Nevada

Project Oversight. This is the first year of a City of Henderson yearly program which repairs, rehabs or replaces assets based on criticality within their sewer collection system. This project encompasses 69 assets and 171 sewer lateral connection repairs have been identified. These repairs include raising manholes to grade, rehabilitation of manholes and pipelines, and reconfiguration of pipelines to resolve surcharging and odor conditions.

Unlined Concrete Sewer Rehabilitation, City of Phoenix, Arizona

Project Manager. Investigation and design services for the rehabilitation of 7 critical sewer pipeline projects throughout the City of Phoenix. The total project included over 21,000 linear feet of unlined concrete pipelines with sizes ranging from 27- to 72-inches in diameter. Each project included a detailed investigation of the pipeline condition including geotechnical, structural, and hydraulic considerations. Additional background investigations were provided to determine the existing and long-term hydraulic requirements including capacity, operation, and maintenance needs. Alternative methodologies for rehabilitation were evaluated and ultimately the use of cured in place pipe (CIPP) was selected. Bid documents were prepared and construction management was provided for the project. The total bid cost for the project was \$2.8 million.

Mark Poppe, P.E.

Design Lead



Mark has more than 23 years of engineering experience, including project management and contract administration. Mark specializes in the assessment, maintenance, and rehabilitation of water and wastewater infrastructure.

His experience employing various rehabilitation methods to extend the service life of conveyance systems helps guide design engineers in making the best choices for rehabilitation that minimize public disruption, accommodate bypass piping, and resolve field utility issues. He has performed the role of project manager on a variety of wastewater-related projects including pipeline inspection and condition assessments, pipeline siphon design and rehabilitations, route studies, conducting flow monitoring and sampling studies, performing CM, performing inspections, and providing onsite engineering services.

NRI Rehabilitation, Pima County Regional Wastewater Reclamation Department, Tucson, Arizona

Project Manager. BC was contracted by Pima County Regional Wastewater Reclamation Department to design the NRI Relief Sewer to connect the NRI to the South Rillito Interceptor (SRI). The project includes the design of a 10 mgd sewer and twin-barrel siphon across the Rillito River, two biofilter odor treatment systems, and CIPP rehabilitation of four reaches on the NRI and SRI.

Influent 54-inch Pipe Rehabilitation, Santa Cruz, California

Pipe and Manhole Condition Assessment/QC Reviewer. The project includes rehabilitation of approximately 3,250 LF of a 54-inch gravity sewer pipeline and 13 manholes located in Santa Cruz, California. The 54-inch pipeline starts from a junction structure and continues upstream underneath Neary Lagoon, two urban parks, railway tracks, and underneath the right-of-way of congested urban corridors. CIPP was used as the method of rehabilitation with a styrene-free resin.

NRI Rehabilitation CMAR Project, Pima County Regional Wastewater Reclamation Department, Tucson, Arizona

Design Manager. Mark was responsible for the design of bypass flow management plans to bypass approximately 51,000 LF of sanitary sewer ranging from 15 to 36 inches in diameter to allow for CIPP rehabilitation. He designed new access structures and pipeline realignments to allow suitable access and improve flow hydraulics of the conveyance system. The project was awarded the 2018 Public Works Project of the Year Environmental \$5 to \$25 million category.

North Davis Sewer District Rehabilitation Assessment, North Davis, Utah

Project Engineer. This project consisted of conducting condition assessment of 60,000 LF of 18- to 24-inch-diameter sewer and developing rehabilitation recommendations for UV-cured rehabilitation. Recommendations for developed for strategies to address inflow and infiltration during the rehabilitation process.

EDUCATION

M.S., Environmental Engineering, University of Arizona, Tucson, Arizona, 2001

B.S., Nuclear Engineering, University of Arizona, Tucson, Arizona, 1998

Postgraduate education has included courses in:

- Environmental Transport Processes
- Hazardous Waste Management
- Water and Wastewater Treatment Design

REGISTRATION

Professional Engineer:

Arizona, No. 41958, 2004

Kansas, No. 24560, 2015

Utah, No. 11215574-2202, 2019

EXPERIENCE

23 years

JOINED FIRM

2001

RELEVANT EXPERTISE

Pipeline Replacement

Pipeline Rehabilitation

Ocean Outfall System Rehabilitation, Project J-117, Orange County Sanitation District, Fountain Valley, California

Rehabilitation Design Engineer. Mark was responsible for the rehabilitation design for the nearly 4-mile-long, 120- and 84-inch-diameter interplant pipelines conveying an average of 240 mgd within the Santa Ana River levee corridor between treatment plants numbers 1 and 2 and the Ocean Outfall Booster Station Joint Facilities flow control and pumping structure. The design evaluated several trenchless rehabilitation methods and developed requirements for bypass flow management so that rehabilitation and repairs can be accomplished to extend the facilities' remaining useful service lives by 30 to 40 years. [Granger-Hunter Improvement District Interceptor Siphon Rehabilitation Evaluation and Design, Central Valley Water Reclamation Facility, Salt Lake City, Utah](#)

Project Engineer. Mark was responsible for evaluating and designing rehabilitation for a twin barrel siphon 42-inch and 30-inch diameters crossing the Jordan River. The evaluation included hydraulic modeling of the siphon barrels for various rehabilitation methods at various flow rates, analysis of rehabilitation methods including CIPP resins, and rehabilitation of access structures.

Guam Water and Wastewater Infrastructure Improvements, GWA Project S17-001-OEA, Guam Waterworks Authority, Mangilao, Guam

Project Manager. Mark was responsible for program management of the Northern District Interceptor Sewer Refurbishment project, consisting of CIPP rehabilitation of approximately nine miles of 18-inch to 42-inch diameter pipelines. The government of Guam and U.S. military are executing a significant buildup plan that will support the arrival of approximately 5,000 U.S. marines. The Guam Waterworks Authority (GWA) must provide reliable and sustainable water and wastewater infrastructure for this mission. This \$170M program requires robust resources, inclusive coordinated stakeholder engagement, and driven program management to deliver by the 2021 deadline.

Gladiola Street Sewer Assessment and Rehabilitation, Salt Lake City Department of Public Utilities, Salt Lake City, Utah

Project Engineer. Responsible for condition assessment and preliminary design for approximately 5,000 feet of existing 30-inch through 24-inch sewer, including manholes. Used closed captioned television (CCTV) and 3D Laser Profiling technologies for condition assessment. Challenges included a burial depth of approximately 18 feet, high ground water, utilities including an adjacent 30-inch water

line, soft soils, and a pea gravel backfill.

Influent Channel Rehabilitation, Central Valley Water Reclamation Facility, Central Valley Utah

Project Engineer. This project involves rehabilitation of large diameter (90-, 84- and 54-inch) plant piping, interceptor piping and the main 300-ft long influent channel to the CVWRF treatment plant headworks. As the sole inlet to the plant, this piping conveys over 100 mgd at peak flows and was required to remain in operation. Design included rehabilitation utilizing sliplining and coating of structures with uninterrupted flows. Duties included technical support to develop rehabilitation methods and contract documents.

Small Diameter Pipeline Assessment - Year 2, City of Las Vegas, Nevada

Project Engineer. This project is the second year of a 15-year overall assessment program for CLV to inspect the physical condition of the small diameter pipelines in their collection system and identify the location of their service laterals. Approximately 75 miles of pipeline will be inspected and assessed using the National Association of Sanitary Sewer Companies-Pipeline Assessment Certification Program (NASSCO-PACP) condition assessment standards. Inspection will be accomplished using the Panorama inspection equipment. Responsibilities include performing condition assessment and making recommendations for pipeline and manhole rehabilitation.

Phase II Southern Avenue Interceptor Rehabilitation Project, City of Tempe, Tempe, Arizona

Project Engineer/Inspector. The project consisted of rehabilitation of approximately 13,200 LF of 36- and 48-inch unlined concrete sewer using cured-in-place pipe (CIPP). Inspection consisted of pre-CIPP cleaning, CIPP inversion, and post-CIPP assessment. This project required 24-hour per day staffing and a by-pass pumping operation for 30 million gallons per day (mgd).

Hyperion WRF Outfall and Interceptor Pipelines 3rd Party Inspections, City of Los Angeles, LA Sanitation, Los Angeles, California

Field Inspection Lead. Mark led field inspection efforts that focus on inspection and condition assessment of more than 50,000 linear feet of the CIS, NOS, NCOS, NORS, and COS pipelines that feed the Hyperion treatment plant. Inspections included use of a free-floating CCTV inspection platform and using robotically operated and controlled platforms equipped with HD CCTV, sonar profiling and 3D laser (LiDAR) imaging. Resultant data are being used for identification of obstacles or debris buildup, and emergency repair needs.

Mike Meyers, P.E.

Technical Advisor



Mike has more than 18 years of experience in the water and sewer distribution facilities, pipeline construction, and rehabilitation industry, with expertise in infrastructure and preferred rehabilitation and repair techniques.

Mike's experience includes construction management (CM), project management, municipal sewer condition assessment and rehabilitation, field inspection, facilities and pipelines startup, testing, shutdown, sewer lift station design, sewer collection system design, and well design. Mike has been involved with numerous utility design projects, giving him a thorough understanding of protocols and design standards.

2013 Sewer Rehabilitation, City of Reno, Nevada

Field Inspector and Assistant Construction

Manager. BC was responsible for analysis, design, and CM for 44,000 LF of 8- to 72-inch sewer pipeline rehabilitation that included more than 700 feet of 8- to 15-inch gravity sewer installation by traditional excavation methods and more than 6,200 feet of 48- to 72-inch CIPP with a section of pipe crossing the Steamboat Creek. BC coordinated with local agencies for traffic control and bypass pumping systems in addition to coordinating with the contractor and residents that included more than 700 feet of 8- to 15-inch. Rehabilitation methods were determined as the assessment was completed, and bid documents were prepared for 17 separate project areas. The design effort included coordination with several other contractors with projects in the same locations and property owners for pipeline across easements on private property. BC coordinated with local agencies for traffic control and bypass pumping systems in addition to coordinating with the contractor and residents.

TMWRF Headworks and Force Main Emergency Replacement, City of Reno, Nevada

Construction Manager and Engineer. In 2013, TMWRF declared an emergency due to leaks in two of its raw sewage wastewater force main pipes. BC was hired to monitor the installation of emergency bypass design and construction and develop rehabilitation plans for the raw sewage wastewater pipelines from the raw wastewater pumps to the grit removal building. BC worked with TMWRF and multiple onsite contractors to complete the design and construction documents for the rehabilitation of the three 24-inch reinforced concrete force main pipelines. Bypass design and construction was developed to collect flow from both the 72-inch Southeast Connector and the 60-inch Reno/Sparks Interceptor totaling 40 mgd, and deliver it directly to the two grit tanks with capability to isolate each tank and pipeline and match plant requirements for flow. Installation included crossing sensitive environmental areas, and operation was maintained 24 hours a day for more than 5 months without incident.

EDUCATION

B.S., Mechanical Engineering, Arizona State University, 2004

REGISTRATION

Professional Engineer (ME) Arizona No. 58919

(Mechanical, Arizona)

EXPERIENCE

18 years

JOINED FIRM

2007

RELEVANT EXPERTISE

Pipeline Replacement Design

Pipeline Rehabilitation Design

Salt River Outfall Interceptor Rehabilitation – Project C and D, City of Phoenix, Arizona

Project Manager. In 2014, BC completed a condition assessment on the nearly 21-mile Salt River Outfall Interceptor that ranges in diameter from 54 to 91 inches. The assessment located defective weld strips in PVC-lined RCP at the Phoenix Sky Harbor International Airport (PSHIA) and 48 manholes with structural defects requiring rehabilitation. Due to the consequence of failure of this large-diameter pipeline, Rehabilitation Projects C and D were developed. Project C covered the structurally deficient manholes outside the airport and Project D addressed the defective pipeline liner at the airport. The project used a construction manager at-risk (CMAR) contract mechanism to aid in constructability and reduce potential for construction change orders. BC oversaw the rehabilitation of 14,000 LF of existing 72-inch-diameter PVC-lined RCP and associated manholes under the south runway at PSHIA, which required the installation/operation of a 60 mgd sanitary sewer bypass reaching 3 miles along the Salt River. Work also included rehabilitation of an additional 32 active sanitary sewer manholes located near the airport.

Sanitary Sewer Emergency Repair Construction Administration and Inspection (CA&I), City of Phoenix, Arizona

Project Manager. This work involved emergency repair of sanitary sewer infrastructure throughout the City of Phoenix. Projects are given to the City of Phoenix Sewer Emergency contractors in which BC provides engineering and construction inspection support. Projects range from 10-inch sewer line blockages to manhole rehabilitation over a 72-inch-diameter sewer. One of the project's tasks included the evolution of a 69-CIPP failure, requiring a 65 mgd emergency bypass and installation of a composite CIPP liner. Mike's tasks included engineering design solutions, managing construction inspection, acting as owner's representative, verifying compliance with City standards, and developing record drawings.

Hardy Drive and 1st Street Emergency Sanitary Sewer Rehabilitation, City of Tempe, Arizona

Project Engineer. BC responded to a partially collapsed 27-inch concrete sanitary sewer that was found during our sewer condition assessment program. Working with a contractor, BC determined the limits of the failure, and established and developed repair solutions. The result was a 50-foot pipe replacement, rehabilitation of 2,000 feet of reinforced concrete gravity sewer with CIPP liner, and rehabilitation of 12 manholes with corrosion coating. A key factor to this project being successful was the public outreach informing the public of impacts to the right-of-way from the bypass pumping and deep pipe replacement excavation. This emergency required an immediate assessment, collaborative design recommendation, and construction flexibility due to changes in the field.

Trunk Sewer Rehabilitation FY19 Design Phase, City of Peoria, Arizona

Technical Advisor. BC recently completed an investigation of approximately 285,000 LF of 15- to 36-inch trunk line gravity sanitary sewer pipelines located throughout the City of Peoria. This assessment resulted in the recommendation to rehabilitate 3,700 feet of 30- and 36-inch PVC-lined RCP with CIPP due to the location and severity of defect. The sewer alignment was along the embankment of the New River wash, requiring additional coordination for access and special provisions to protect the wash. BC provided professional services for field investigation and development of design documents, including CA&I services.

Salt River Outfall Rehabilitation Project E CA&I, City of Phoenix, Arizona

Project Manager. Project E included design and rehabilitation design for 83 manholes that had structural defects. BC developed design solutions and supported the field work with CA&I to rehabilitate sanitary sewer manhole structures to maintain structural integrity and system operation. Over the years, BC has found that manhole structures can be the weak link in the sewer collection system. This project provided BC with additional experience in manhole rehabilitation. Every manhole is unique with different configurations and connections, therefore, understanding the various rehabilitation techniques that can be used and the limits of those techniques is key to developing a long-lasting product. Several manholes for this project were located on the banks of the Salt River and Tempe Town Lake, requiring special consideration for access and groundwater concerns.

Sweetwater Lift Station Upgrade, City of Glendale, Arizona

Project Engineer. This project included engineering assessment, design, and CA&I. This project involved abandoning the dry well, retrofitting the existing wet well with submersible pumps, and upgrading the existing equipment. Additionally, a condition assessment was completed on approximately 850 LF of the upstream 10-inch ductile iron sewer pipe; rehabilitation with CIPP was recommended. The 10-inch DIP sewer line crossed beneath the Arizona Canal Diversion Channel (ACDC) and the Arizona Canal, making this pipe segment extremely critical. Extensive coordination was completed with the flood control district to allow bypass pumping within the ACDC to bypass the sewage during construction.

Bernadette Visitacion-Sumida, P.E.

Technical Advisor



Bernadette has 16 years of experience as a project engineer on water and wastewater infrastructure projects.

Bernadette's primary focus is wastewater infrastructure projects, including the study, design, assessment and construction of wastewater conveyance systems. She also works on a variety of projects involving water distribution, construction inspection, and environmental services.

Buchanan Street Interceptor Rehabilitation, EBMUD, California

Pipeline Engineer. The Buchanan Street Interceptor is a section of EBMUD's North Interceptor that had hydrogen sulfide-related corrosion and needed rehabilitation. Bernadette led evaluation of rehabilitation methods for cast-in-place manholes and pipelines ranging in size from 24 to 30 inches. Bernadette also prepared the rehabilitation specifications and reviewed design drawings prepared by EBMUD.

Wastewater Treatment Plant Digester Condition Assessments, City of San Jose, California

Project Engineer. Bernadette was a project engineer for the evaluation of primary effluent pipelines and junction box at the San Jose wastewater treatment plant. The 78- and 96-inch-diameter pipelines have crown corrosion that extends through the top of the pipe. Rehabilitation technologies such as slip lining, CIPP, and replacement were evaluated. Several condition investigative techniques were used including man-entry, CCTV, and 3D laser. Pipeline rehabilitation and flow bypassing options were evaluated.

San Tomas Expressway ACP Sewer Rehabilitation, West Valley Sanitation District, Los Gatos California

Project Manager/Project Engineer. The San Tomas Expressway Sewer Rehabilitation involves rehabilitation of approximately 4,500 LF of the existing trunk sewer and 12 manholes. The existing sewer in San Tomas Expressway is constructed of RCP and varies in diameter from 24 to 33 inches. Manholes consist of standard 60-inch prefabricated RCP sections and cones, with metal frames and covers.

Winchester Boulevard ACP Sewer Rehabilitation Project Engineering Services During Construction (ESDC), West Valley Sanitation District, Los Gatos, California

Project Manager/Project Engineer. Bernadette managed ESDC for rehabilitation of approximately 11,685 LF of 15- to 30-inch-diameter pipeline with trenchless lining product CIPP. The project includes review of submittals RFIs, inspection reports, and potential change orders. Record drawings and field inspection are included in the scope.

EDUCATION

M.S., Civil Engineering, University of Washington, 2006

B.S., Civil Engineering, Seattle University, 2005

REGISTRATION

Professional Civil Engineer, California No. C82377, 2013

Professional Civil Engineer, Arizona No. 51487, 2010

EXPERIENCE

16 years

JOINED FIRM

2007

RELEVANT EXPERTISE

Pipeline system evaluation and design

Constructability and risk assessment evaluations

Pipeline condition assessment

Winchester Boulevard ACP Sewer Rehabilitation Project, West Valley Sanitation District, Los Gatos, California

Project Manager/Project Engineer. Bernadette managed the rehabilitation design of approximately 12,500 LF of 16- to 27-inch-diameter sewers along Winchester Boulevard in Los Gatos. The ACP pipe in the area is in poor condition and requires immediate rehabilitation. Bernadette worked with the client to minimize impacts to the surrounding community and develop solutions to decrease surface bypassing and maximize in-system bypass opportunities.

University Avenue ACP Trunk Sewer Rehab, West Valley Sanitation District, Los Gatos, California

Project Manager. Bernadette managed this project, which was identified during the District's Trunk Sewer Condition Assessment Phase 3 completed in 2014. Portions of the existing trunk sewer are in poor condition with mild to severe corrosion of the ACP. The trunk sewer pipes are in an area with a high consequence of failure, are at risk of failing in the future, and require rehabilitation. The project includes the trenchless rehabilitation of approximately 9,200 LF of 15- to 18-inch-diameter vitrified clay pipe and ACP trunk sewer. Trenchless lining products will consist of CIPP and/or spiral-wound PVC liner. The project also included ESDC and CM.

2012 Sewer Rehabilitation, City of Reno, Nevada

Project Inspector. Bernadette performed construction inspection for the rehabilitation of approximately 15,500 LF of sanitary sewer pipeline ranging in size from 8 to 36 inches in diameter, and their associated manholes. The pipelines and manholes were rehabilitated using CIPP and coating systems, respectively. Another 4,820 LF of sewer pipeline ranging in size from 8 to 30 inches was installed using a combination of open-cut and pipe bursting methods. During construction, Bernadette provided daily construction inspection and oversaw the large-diameter CIPP rehabilitation, manhole rehabilitation, and installation of pipeline using open-cut methods.

Large-diameter Gravity Sewer Rehabilitation Design, Ross Valley Sanitary District, San Rafael, California

Project Engineer. BC performed interior inspection and condition assessment of approximately 45,000 feet of large-diameter gravity sewer (LDGS) pipelines for the District. Capital improvement projects that arose from the condition assessment include rehabilitation of approximately 2 miles of Techite and non-reinforced concrete pipe in segments ranging from about 1,000 to 2,200 feet, scattered throughout the LDGS system. This project addresses the rehabilitation of the sewers assessed during the previous condition assessment project. Bernadette is responsible for the design of the siphon crossing of Ross Creek that is included within

the rehabilitation design. Bernadette also developed the preliminary design report for the CIPP rehabilitation within downtown San Anselmo.

Wood Street Interceptor Rehabilitation, EBMUD, California

Project Engineer. This project updated the original BC rehabilitation design of a 105-inch, arched sewer interceptor completed in 1998. Bernadette evaluated new technologies that may be used to rehabilitate the interceptor. She helped review the design drawings completed by EBMUD and updated the project specifications.

Pump Station Improvements Project Owner's Advisor Services, Silicon Valley Clean Water SVCW), Redwood City, California

Project Engineer. BC is providing owner's advisory services and technical support to SVCW by supporting SVCW outreach efforts to potential progressive design-build (PDB) proposers; preparing procurement documents (RFQ and RFP); and continuing technical development of information needed for overall project definition. Bernadette was responsible for updating the work previously completed for the three pump station rehabilitations to better define the scope of preconstruction services for the PDB contractor and identify additional design criteria. Bernadette completed pump selections, wet well sizing, site layouts and lifecycle analyses to support mandatory technology selections and constructability for the three pump station rehabilitations included in the project. The pump station capacities range from 16 to 60 mgd with variable frequency drive-driven pumps to accommodate the wide range of flows entering the pump stations. Two of the pump stations include upgrades of pumps within the existing pump stations and the third pump station included a new wet well.

Trunk Sewer Condition Assessment – Phase 2 through 5, West Valley Sanitation District, Campbell, California

Project Manager/Project Engineer. This five-phase assessment program included the assessment of 120,000 LF of asbestos cement, RFP, and vitrified clay pipes 12 to 42 inches in diameter. Bernadette performed a condition assessment of the 100,000 LF of pipeline and identified future rehabilitation, replacement, and reinvestigation needs within the sanitary sewer system. Bernadette developed capital improvement projects based on the condition assessment results and prioritized the projects through a risk-based approach. Bernadette managed and performed field inspections.

Anthony (Tony) Knapp, P.E.

Constructability Review



Tony has extensive field experience, often acting as the main point of contact for owners. Tony is based out of Lake Tahoe.

He is a construction manager with experience in the construction and design of water and wastewater facilities and has extensive field experience at various facilities in California and Texas.

Pleasant Grove Wastewater Treatment Plant Energy Recovery Project, City of Roseville, California

Construction Manager/Inspector. Tony is providing CM and inspection services for this new facility. The project involves the construction of a high-strength waste receiving station, an energy recovery building with microturbines a biogas conditioning system, and a compressed natural gas fueling facility. The project includes the installation water, sewer, natural gas, and chemical piping above and below ground.

Pleasant Grove Wastewater Treatment Plant Expansion Project, City of Roseville, California

Construction Manager/Inspector. Tony providing CM and inspection services for this wastewater treatment plant expansion. The project involves the construction of primary clarifiers, solids thickening, anaerobic digester tanks, a ferric chloride facility, and sludge storage tanks. Tony oversaw and inspected the installation of water, sewer, natural gas and chemical piping for this project.

Dry Creek Wastewater Treatment Plant Nitrate and Cogeneration Projects, City of Roseville, California

Lead Inspector. This project involved the construction of a cogeneration facility and improving the nitrate removal process at the Dry Creek Wastewater Treatment Plant. The work included the construction of a new carbon chemical facility and modifications to

the activated sludge process. The activated sludge improvements included new pumps for the mixed liquor return lines, new dissolved oxygen and ammonia analyzers, the installation of INVENT aerator/mixers and revisions to the process air piping. The new cogeneration facility included a high-efficiency internal combustion engine with associated heat recovery equipment, a biogas conditioning system to remove hydrogen sulfide and siloxane, and a new high-strength waste receiving facility. Tony performed civil, mechanical, and electrical field inspections and worked closely with the design team to make sure contract work was implemented correctly in the field.

Auburn Lake Trails Water Treatment Plant, Cool, California

Assistant Construction Manager. This \$10 million contract involves the complete reconstruction of a 2 mgd water treatment plant. Tony's major responsibilities included procuring yard piping and equipment, overseeing equipment installation, and resolving construction issues with the design engineer.

Flocculation/Sedimentation Basin Project, San Juan Water District, Granite Bay, California

Assistant Construction Manager. This \$7 million contract involved replacing the flocculation and sludge collector system at a 120 mgd water plant. Tony's tasks included laying out the concrete structures, overseeing installation of mechanical equipment, and preparing shop drawing submittals.

EDUCATION
M.S., Civil Engineering,
University of California at
Davis, 2007

B. S., Civil Engineering,
University of California at
Davis, 1998

REGISTRATION
Professional Engineer,
California, No. 68525

TRAINING
OSHA 30 hour
Construction Safety
40 Hour HAZWOPPER

EXPERIENCE
24 years

JOINED FIRM
2018

RELEVANT EXPERTISE
Inspection and
Construction
Administration Experience
for Water and Wastewater

Inspection of Mechanical,
Civil, and Electrical
construction work

Krystal Pruzinsky

Condition Assessment Report Review



Krystal has more than 20 years of management, design, assessment, and construction experience in water and wastewater infrastructure, including assessment of sewer and storm drain facilities.

She is experienced in designing vertical turbine and horizontal split-case water pumping stations, submersible and dry-well sewer lift stations, surge control facilities, and large-diameter pipelines. Her experience encompasses detailed project management; development of design reports, specifications, contract drawings, hydraulic grade lines, and pumping system curves; pump and motor selection; piping system and valve layout; and air compressor and surge tank configuration and design.

Small-diameter Pipeline Assessment Program, City of Las Vegas, Nevada

Project Manager. This project includes the first 10 years of a 15-year overall assessment program to assess the condition of the City's small-diameter collection system and locate existing service laterals. Each year includes approximately 75 to 80 miles of sewer and associated manhole inspections. Inspection was accomplished using Panorama digital technology in accordance with PACP and MACP standards. Recommendations for repair, rehabilitation, and replacement were grouped into "blocks" based on geographical location, and prioritized by criticality. Cost estimates were provided to the City for each rehabilitation recommendation, with implementation of strategies for identifying cost-effective and efficient CIP projects.

Sewer Main Rehabilitation Program, City of Henderson, Nevada

Monitoring Manager/Project Engineer. This is the first year of a City of Henderson yearly program which repairs, rehabilitates, or replaces assets based on criticality within the sewer collection system. This project encompasses 69 assets, with 171 sewer lateral connection repairs identified. These repairs include raising manholes to grade, rehabilitation of manholes and pipelines, and reconfiguration of pipelines to resolve surcharging and odor conditions.

Crosstown Interceptor Rehabilitation Project No. 3 and No. 4, Clark County Water Reclamation District, Nevada

Monitoring Manager. The project included fast-tracked design of CIPP and slip-lining rehabilitation for 16,000 LF of 60-inch, and 8,000 LF of 84-inch PVC-lined concrete interceptor pipe and the design of a fiberglass realignment of the sewer. Responsibilities included support during the design phase and utility coordination.

66-inch Force Main Rehabilitation, Clark County Water Reclamation District, Nevada

Project Manager. This project involved assessment on an existing 66-inch prestressed concrete cylinder pipe force main to determine its condition and, based on that, making recommendations for rehabilitation. This included coordination of the necessary plant facilities shutdown, which needed to be completed in less than 24 hours to restore effluent reuse water at the plant.

Storm Drain Condition Assessment Program, City of Las Vegas, Nevada

Project Manager. This project includes the first 5 years of storm drain facility condition assessment and evaluation for all existing storm drain facilities. Each year includes assessment of approximately 75,000 feet of 12- to 96-inch-diameter pipelines and 1,000 structures.

EDUCATION

BSME, Mechanical Engineering, SDSM&T, 1998

REGISTRATION

Professional Mechanical Engineer:

California, No. 32812, 2004

Nevada, No. 017515, 2006

EXPERIENCE

23 years

JOINED FIRM

2004

RELEVANT EXPERTISE

Sanitary Sewer Rehabilitation

Management of Large Sewer and Storm Drain Condition Assessment

Design and Management of Large Diameter Pipelines, Pump Stations and Reservoirs

Route Study and Selection of Pipeline Alignments

Lauren Riley, P.E.

Project Engineer/Permitting



Lauren is a civil and environmental engineer based in BC's Sacramento office.

She has supported a variety of projects throughout California and Arizona, including water and sewer infrastructure design of pipelines and pump stations, wastewater treatment design, energy design, and construction projects.

Vasona Park Sewer Rehabilitation, West Valley Sanitation District, California

Project Engineer. Lauren is the lead staff engineer on the Vasona Park Sewer Rehabilitation project, located in the Town of Los Gatos. The project involved rehabilitation of approximately 5,000 LF of existing sewer and 27 manholes. Lauren helped with the development of final design documents, permitting and compliance documentation, and specification development.

Howatt Ranch Recycled Water Preliminary Design Report, City of Davis, California

Project Engineer. Lauren is the lead project engineer on the City of Davis Recycled Water Pipeline Project. The project includes the preliminary design of a 24-inch pipeline that will deliver recycled water from the City of Davis's Wastewater Treatment Plant an agricultural plot of land about three miles away (Howatt Ranch Property). Lauren is responsible for preparation of utility plans, easement analysis, title report analysis, topographic survey analysis, pipe alignment selection, and development of a preliminary design report.

Regional Recycled Water Program, City of Riverbank, California

Technical Lead. Lauren is supporting the City of Riverbank's wastewater treatment plant upgrade to produce recycled water for local agricultural operations. The project consists of new headworks screening, oxidation ditches, clarifiers, tertiary filtration, UV disinfection, solid storage, and dewatering

facilities. Lauren is the technical lead for the secondary treatment evaluation, the biosolids management evaluation, the yard piping design, as well as the grading and paving design. Work includes coordination with vendors, design of facilities, production and presentation of workshop materials, and development of a basis of design report and 30% design drawings. Lauren also completed a biosolids lifecycle cost estimate for the City.

Sump 1 Vacuum Pump Replacement, City of Sacramento, California

Project Engineer. Lauren was the lead project engineer on the Vacuum Pump Replacement project. This project analyzed various design alternatives for the City of Sacramento's existing vacuum pumps at Sump 1 and recommended several replacement pumps. Lauren was responsible for leading data collection/review, completing design calculations, analyzing the various vacuum pump alternatives, and providing a final cost estimate to the City.

Sump 1, 107, and Pioneer Reservoir BCE, City of Sacramento, California

Project Engineer. BC is evaluating alternatives for three of the City of Sacramento's combined wastewater system facilities: Sump 1, Sump 107, and Pioneer Reservoir. All three facilities are facing different issues, primarily from aging infrastructure. The BCEs will help define solutions to these challenges that consider the financial, operations and maintenance, environmental, and social impacts of the work. Lauren is the lead project engineer on this project and is responsible for developing an alternatives analysis for each BCE.

EDUCATION

M.S., Civil Engineering and Environmental Engineering, 2020; Graduated with Honors; California Polytechnic State University, SLO

B.S., Civil Engineering: Water Resources Emphasis, 2019; California Polytechnic State University, SLO

REGISTRATION

Professional Civil Engineer, California No. C95538, 2023

EXPERIENCE

3 years

JOINED FIRM

2021

RELEVANT EXPERTISE

Pipeline design

Civil and Environmental Engineering

Water

Wastewater

Pump station design

Wastewater treatment design

Construction Management

Kelley Sterle, PhD

CEQA Lead



Dr. Kelley Sterle is an interdisciplinary scientist with 15 years of years of experience specializing in water resource projects, academic research, and environmental consulting. She is currently working with the Truckee Meadows Water Authority.

Kelley earned her PhD in hydrology from the University of Nevada, Reno, and has lived and worked in the Reno-Tahoe area since 2008. She brings technical expertise related to hydrology and climate change and regularly contributes to interdisciplinary teams comprised of scientists, planners, and engineers. Kelley has worked extensively in river basins across the arid western United States that face diverse and competing water use interests challenged by growing populations, emerging economies, and highly regulated water management institutions.

Truckee Meadows Water Authority, Advanced Purified Water Facility at American Flat. Reno, Nevada

Project Manager. Kelley is providing technical studies review and National Environmental Policy Act (NEPA) support for permitting and grant funding applications for the Advanced Purified Water Facility at American Flat.

CA DWR Pulse Flows Component of the Water Storage Investment Program Supplemental Environmental Impact Report, Feather River Basin, California

Environmental Planner/Hydrologist. Kelley is supporting development of a CEQA Supplemental Environmental Impact Report for the pulse flows component of the Water Storage Investment Program's groundwater projects. Tasks include developing a project description, conducting a hydrology and water quality impact analysis, and translating technical modeling results for CEQA impact analyses.

CA DWRR West False River Drought Salinity Barrier Environmental Impact Report. Sacramento-San Joaquin Delta, California

Planner/Hydrologist. Kelley is supporting the development of a CEQA Environmental Impact Report for the installation of a drought salinity barrier in the West False River. Tasks include

hydrologic and water quality analysis and assessing the impact of climate change on the proposed project.

West Turlock Subbasin Groundwater Sustainability Agency. Turlock Subbasin Groundwater Sustainability Plan Program Environmental Impact Report. Turlock Subbasin, CA

Planner/Hydrologist. Kelley is supporting the development of a CEQA Program Environmental Impact Report for the implementation of projects and management actions under the Turlock Subbasin Groundwater Sustainability Plan.

City of Reno, Stormwater Quality Management Projects, Reno, NV

Hydrologist. Kelley managed a variety of projects related to stormwater quality management in the Truckee Meadows for the City of Reno. Kelley collaborated with staff engineers to update the Stormwater Best Management Practices Handbook to reflect revised industrial and construction permitting conditions and develop a virtual technical training for city staff related to the Truckee Meadows Structural Controls Design and Low Impact Development Manual.



EDUCATION

Ph.D. Hydrology,
University of Nevada,
Reno

M.S. Hydrogeology,
University of Nevada,
Reno

**B.S. Environmental
Science, Loyola
University, Chicago**

EXPERIENCE

15 years

Jen Mair

Stakeholder Coordination



Jen has more than 10 years of experience facilitating stakeholder and public engagement planning and decision making processes, and is currently working with the Tahoe Regional Planning Agency.

She has experience assisting government agencies in the consideration and management of diverse perspectives and interests in planning and policy decisions. She has a unique background covering more than 20 years as a communications specialist focused on cultivating communication competency and excellence in a broad range of settings, including state, county, and local governments, higher education, businesses, and non-profits.

TRPA Tahoe Keys Aquatic Invasive Species Environmental Analysis and Collaborative Stakeholder Process, Lake Tahoe, California

Stakeholder Coordination. Jen provided assessment of key stakeholder interests, strategic planning, and facilitation of core stakeholder processes, in coordination with lead agencies and environmental analysis firms during a CEQA/NEPA process and into the implementation phase to address the growing issue of AIS in Lake Tahoe. She provided planning and coordination of broad and consistent stakeholder engagement, public involvement, and outreach during the environmental review and implementation phases, including development and dissemination of outreach materials. She also provided construction and management of a project website to disseminate critical project information and reports.

North Tahoe + Tahoe City Public Utility Districts, North Lake Tahoe Active Recreation Community Needs Assessment, Lake Tahoe, California

Public Outreach/Engagement. Jen worked with North Tahoe and Tahoe City Public Utility Districts to engage key partners and community members on priorities and needs for North Lake Tahoe.

City of East Palo Alto Community Engagement on Priorities, California

Public Outreach/Engagement. Jen worked with the city and professional polling firm Lew Edwards Group to conduct public outreach to assess community priorities and attitudes toward adding a ballot measure. Public engagement included facilitation of in-person and virtual community meetings to educate and collect input on priorities. Qualitative results were summarized and combined with quantitative results from the polling firm to inform city council decisions.

Caltrans Highway 37 Planning and Environmental Linkages (PEL), California

Planner/Hydrologist. Jen worked with Caltrans and partner agencies to gather input to inform a federal PEL process, leading up to a CEQA analysis for improvements to Highway 37. Jen performed facilitation of stakeholder and community engagement processes and meetings to gather input to inform purpose and need, criteria, and the development of alternatives. She also provided development and dissemination of outreach and communication materials to keep partners and stakeholders informed of project activities and engagement opportunities.



EDUCATION

M.A., Department of Speech and Communication, San Francisco State University, 2006

B.A., Sociology, Loyola Marymount University, 1995

B.A. Communication Studies, Loyola Marymount University, 1996

CERTIFICATIONS

Fielding Graduate University, Dialogue Deliberation & Public Engagement Certificate, 2011

Online Education Initiative & @One Online Education Standards and Practices Certificate, 2016

EXPERIENCE

17 years

Samuel McIntyre, PLS

Survey



Samuel has 15 years of experience as a survey manager, project surveyor, survey technician, and field crew member.

He has experience in topographic and control surveys, the preparation of legal descriptions and plats for right of way and easement acquisitions, as well as the preparation of field staking notes. Sam has prepared and delivered several Records of Surveys, and Corner Records for municipalities and government agencies across the state. He has assisted in the completion of GPS and conventional control surveys in support of aerial topographic mapping, boundary and construction work. Sam also has 3 years of experience as a member of the Local 3 Union, where he was employed as a journeyman chainman. He has experience in field surveys which include topographic, control, and construction staking.



EDUCATION

B.S., Geomatics Engineering, California State University, Fresno, 2014

REGISTRATIONS

CA PLS 9313

EXPERIENCE

15 years

West Valley Sanitation District, University ACP Trunk Sewer Rehab, Los Gatos, California

Survey Manager. As a subconsultant, Samuel is serving as the survey manager, responsible for providing utility research and mapping, project controls, and a field survey of rim and invert for 53 manholes through two phases of University Avenue Sewer Rehab project in the City of Los Gatos. The survey included surface utility features along the alignment and approximate locations of easements. Deliverables included CAD drawings, plats, and legal descriptions.

Sacramento Area Sewer District Creek Protection Program - Phase II, Sacramento, California

Surveyor. As a subconsultant, Samuel provided surveying to support the planning and execution of field and office survey activities. This included topographic surveys for design mitigation measures at five additional sewer line creek crossings. Surveys included cross sections of creek for geomorphology studies as well as pipe, manholes, bridges and other appurtenances. Sixteen sites were surveyed, and base mapping was provided in AutoCAD format.

Davis Howatt Ranch RW Pipeline Study, Davis, California

Survey Support. As a subconsultant, Samuel provided surveying support for record research to locate publicly recorded right-of-way maps, records of survey, parcel maps, corner records, and other official maps of record publicly available to determine land rights and easements that may impact future design needs of the Davis Water Treatment Plant. Mark Thomas' GIS specialists compiled a base map showing available county GIS parcel lines within the project area. Easements, Owners and APN's discovered during record research were plotted and integrated into the GIS base map to aid the design team in preliminary pipeline route analysis.

Sump 85 Reconstruction, City of Sacramento, California

Surveyor. As a subconsultant, Samuel provided surveying support to collect topographic data for design improvements and realignment of existing services at the Sump 85 site. Topographic data was collected at the sump site and along the proposed alignment through back lot line alley ways, adjoining streets, and at the drainage canal crossing. Above-ground surface visible utilities, sewer and storm utility holes with invert information along with existing underground utility paint marks, and asphalt concrete pothole patches were analyzed against as-built maps to create a 2D utility and service network.

Exceptions to Agreement

APPENDIX A

Appendix A: **Exceptions to Agreement**

BC would like to request the following exceptions to TTSA's standard form of Services Agreement for your consideration

- **7. Ownership of Documents** – We request to be indemnified if the Agency reuses our work product for any other purpose than the project. We agree not to share information but will provide information to approved subs to perform services, so there is not a delay.
- **9. Indemnification** – 9.1 Updates to align the Agency's requirements with California Civil Code 2782.8 which was updated in 2018 to proportionate percentage of fault (inserting "to the extent").
- **9.2** – Insert language to address other mutually agreeable dispute and settlement processes that establish fault.
- **10. Insurance** – We request to lower limit amounts for general liability and professional liability.
- **10.2 Insert "general and auto liability" for clarity.** Our professional liability insurer Lloyds of London are "authorized" insurer not "admitted". We can provide a waiver of subrogation on all policies except for professional liability.



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TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Jason Hays, Technical Services Department Manager
Item: IV-4
Subject: Discussion, Review, and Approval of Nutrient Removal Alternative Evaluation Study

Background

At the February TTSA Board meeting, staff presented a draft proposal from Carollo Engineers for a Nutrient Removal Study. After the Board provided feedback, TTSA staff worked with Carollo staff to modify the proposal to address concerns and improve project specificity.

The proposal was modified to represent better touch points requested by the board. These touch points allow for staff and Board member input at integral steps prior to moving to the next stages of the study. The number of Board meetings in the scope was increased from one to four to allow for more collaborative effort between TTSA staff, TTSA Board members, and Carollo Engineers. A final meeting prior to beginning design allows the Board and staff to assess the level of confidence with the identified alternative and be confident with fleshing out the solution.

Staff are confident that proposed tasks associated with the review of loading and flow data are necessary to capture changes made to the facility since the original Master Plan was performed. Flow and loading data used in the Master Plan were pulled from a five-year period between 2014 and 2018. Since then, several process changes have been implemented; not least of these is the switch to sodium hypochlorite as a disinfection agent. A fresh look at more recent data derived from recently installed, more accurate flow meters will also provide an important refinement to the model.

In the interest of maintaining momentum after determining the best course of action, staff feel confident that carrying the study to a preliminary design of 10% represents the most practical way of ensuring a successful implementation of the identified alternative. Because the Master Plan as it stands would require substantial initial design work to initiate the proposed projects, even selecting alternative 1, which represents rehabilitating the existing facility, would benefit from this preliminary design work. This 10% design will give staff the needed tools to move any newly or previously identified projects into more in-depth levels of design and provide substantially more accurate estimates of both costs and geographic/infrastructure limitations. Proposed design fees of approximately \$198,000 in this scope provide substantial value when considering the \$217,000 recently spent on the Digestion Improvements Project PDR. Staff believe the integrated picture that will come from this design effort will provide important direction for the future.

Fiscal Impact

\$726,053.

Attachments

Nutrient Removal Alternative Process Evaluation Project, Proposal from Carollo Engineers.

Recommendation

Staff recommends approval to enter into agreement with Carollo Engineers to perform the Nutrient Removal Alternative Evaluation Study.

Review Tracking:

Submitted By: Jason Hays
Jason Hays
Technical Services Manager

Approved By: Richard Pallante
Richard Pallante
General Manager

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Scope of Work

Nutrient Removal Alternative Process Evaluations for Water Reclamation Plant Scope of Work

Background

The Tahoe-Truckee Sanitation Agency (T-TSA, Agency) provides wastewater collection and treatment for the North Lake Tahoe and Truckee region. T-TSA's service area and five member districts include:

1. North Tahoe Public Utility District (NTPUD)
2. Tahoe City Public Utility District (TCPUD)
3. Alpine Springs County Water District (ASCWD)
4. Olympic Valley Public Service District (OVPSD)
5. Truckee Sanitary District (TSD), which includes contributions from Northstar Community Services District (NCSD)

T-TSA owns and operates the Water Reclamation Plant (WRP) located along the Truckee River in the eastern portion of the Town of Truckee near the confluence of the Truckee River and Martis Creek. The WRP includes conventional treatment, chemical treatment for phosphorus removal (Phostrip), biological nitrogen removal (BNR), tertiary filtration utilizing pressure filters, chlorine disinfection, mesophilic and thermophilic digestion, solids handling and land disposal with soil aquifer treatment. The treated water flows to Martis Creek and the Truckee River watersheds through soil aquifer percolation.

T-TSA staff are looking to evaluate process alternatives for nutrient removal at the WRP to meet current and potential future waste discharge requirements. Although the WRP is achieving excellent treatment results, staff have expressed several concerns about continued operation and maintenance of some of the advanced treatment facilities. Although portions of the WRP have been modified several times over its 50+ year life in response to increasingly stringent discharge requirements and increased flows, much of the original treatment infrastructure still serves as the foundation of the WRP and is nearing the end of its useful life. Additionally, because the original WRP has been added on to over the years, the advanced treatment trains are complex and at times challenging to operate over the wide range of seasonal variations for achieving stringent nutrient (nitrogen and phosphorous) limits. A key issue is the need to use lime for phosphorus removal. Lime is expensive, messy and a constant maintenance issue.

The current processes are also energy and chemical intensive. More efficient treatment processes that use less energy and chemicals and are more economical over the longer term will be evaluated.

This Alternative Process Evaluation will rely on information and modeling tools developed from the 2022 Sewer Master Plan, prepared by Carollo, and it will be an adjunct to the Master Plan. The evaluation will consist of the following scope of services.

Scope of Services

Task 1 - Project Management

1.1 Project Management Plan

Prepare a project management plan. The plan will define the personnel, project schedule, scope of services, Quality Assurance/Quality Control (QA/QC) plan, field work safety plan, communication protocol, and other procedures used in performing the Work.

1.2 -1.4 Meetings and Workshops

This task includes the preparation of agendas, handouts, presentation material, and minutes for the following meetings:

1. **Kick-off Meeting:** Organize, prepare, and attend the project kickoff meeting. One of the goals of the kick-off meeting will be to establish goals, visions, and objectives for the Process Evaluation. The kick-off meeting will be attended by the project manager and the project leads, as well as other critical staff such as the modeling and condition assessment leads.
2. **Biweekly Progress Meetings:** Organize, prepare, and attend biweekly progress meetings. These meetings will review progress and any deviations from the schedule and budget. The project manager will maintain decision and action logs as well as a critical issue log that will be updated for these monthly meetings. The level of effort for this task is based on a 10-month project duration.
3. **Agency Board Meetings:** Organize, prepare presentation material, and attend four board meetings to support Agency staff in presenting findings and requesting input or approval from the Board. The four meetings will be as follows:
 - Present findings and recommendations of Tasks 2 and 3 for Board input, including evaluation criteria and updates on existing facilities evaluation.
 - Present shortlisted alternatives for Board input.
 - Present selected alternative for Board approval.
 - Present final recommended process configuration and 10 percent design.Additional information on these Board Meeting presentations is provided under other tasks. Budget associated with these workshops is included in Task 1.

1.5 Invoicing and Progress Reports

At the end of each month submit an invoice for the Work performed during the preceding month. The invoice shall include a brief description of the Work performed, the dates of Work, number of hours worked and by whom, payment due, and an itemization of any reimbursable expenditures.

1.6 Monitor Budget, Schedule, and Decision Log

Monitor and track the overall project scope, budget, schedule, and update on a monthly basis. Maintain a log throughout the project to record the decisions made by the project team. The log shall contain decisions made during technical workshops and project meetings as well as during telephone conversations or email. The log shall list the date the decision was made, the type of meeting in which it was made (regular design meeting, telephone conversation, etc.), the individual involved in making the decision, and the nature of the decision.

1.7 Quality Assurance/Quality Control

Review and provide general QA/QC of all work products developed by Carollo. All documents delivered to T-TSA are considered deliverables, including but not limited to the Nutrient Removal

Alternative Process Evaluation Report and Executive Summary, technical memorandum, agendas, meeting materials and summaries, invoices, progress reports, and other communications.

Task 1 Deliverables

- Project Management Plan
- Monthly Progress Reports
- Monthly Decision Log updates
- Quality Management Plan
- Agenda, presentation material, and minutes for project kick-off meeting and sixteen biweekly progress meetings

Task 2 – Gather Baseline Information and Develop Evaluation Parameters

The purpose of this task is to gather the information needed and establish key assumptions and criteria used for development of the Alternative Process Evaluation. This includes establishing the Agency’s vision, goals, and objectives for the Process Evaluation as well as identifying evaluation and reliability criteria and metrics. The major sub tasks and activities are listed below.

2.1 Gather and Review Existing Information

Gather and review existing information available from T-TSA, its member Districts and other sources. Information that will be required includes the 2022 Master Plan, historical drawings and specifications, previous studies of existing facilities, and recent plant data including flows, loads, and process data. After reviewing the data, it is possible that additional sampling efforts or data collection may be required. It is assumed that this effort will be conducted by T-TSA staff if necessary.

2.2 Evaluation Criteria and Metrics

As part of the kick-off meeting, identify economic and noneconomic criteria and measurable outcomes (metrics) to compare process alternatives, and to assess attainability with the stated goals and objectives. These criteria and metrics shall allow for a relative comparison of the ranking of conceptual alternatives, as well as the ability to measure progress towards the project goals. The Process Evaluation objectives, and associated evaluation criteria will be further developed to identify performance parameters and units of measure (metrics). Likely evaluation criteria will include capital cost, operational costs, energy use, chemical use, ease of operation, reliability, and resiliency.

2.3 Description of Existing Facilities

The description of existing facilities will be taken from the 2022 Master Plan.

Task 2 Deliverables

- Existing Facilities Overview Chapter 1 to be included in Final Report
- Alternative Evaluation Criteria and Metrics Chapter 2 to be included in Final Report.

Task 3 – Evaluate Existing Facilities

3.1 Flow and Loading Projections Updates

Flows and loadings will be taken from the 2022 Master Plan and supplemented with recent data from the past five (5) years. Flow and load projections made as part of the Master Plan

will be revisited and updated based on recent information from member Districts. The five (5) years of daily flow and loading data for the Agency will be reviewed and flow and loading projections will be updated for the Master Plan buildout condition. Average dry weather and peak hour flow projections will be coordinated with projections developed from the prior collection system modeling. Flow and load projections for other conditions will be revisited and updated as necessary. Using the TRI model, hourly hydrographs will be updated for current and future design conditions so that flow equalization requirements can be evaluated as part of the analysis. Results of the analysis will be incorporated into the final report.

3.2 Process Performance and Capacity Analysis

The performance and capacity analysis performed for the Master Plan will be summarized for reference and updated as necessary based on the revised flow and load projections. This task consists of evaluating the performance and the hydraulic and process capacity of the WRP facilities. The capacity analysis will be based on the BioWin wastewater treatment process simulator that integrates biological, physiochemical, and chemical process models to enable integrated evaluation of liquid treatment and solids handling processes. Key activities in this task include:

1. Review WRP Unit Process Performance.
 - a. Review last five (5) years of historical WRP operation and performance data and compare to original design criteria. Review performance, hydraulic, and solids loadings for each major unit process and associated reliability criteria. Review and summarize effluent and biosolids quality and quantity data. Results of the performance assessment will be incorporated into the Final Report.
2. Capacity Assessment. The objective of this task is to review and update the current capacity of existing facilities based on the update flow and load projections. Each process will be assigned a hydraulic and/or process capacity based on recommended operating and reliability criteria. The overall plant capacity is the lesser of the hydraulic and/or process capacity. Key activities for the capacity assessment are summarized below. Results of this task will be incorporated into the Final Report.
 - a. Hydraulic Profile Analysis: A hydraulic profile model will be updated using Visual Hydraulics. This analysis will use the model to assign a maximum hydraulic flow capacity for each process. The capacity will be based on maintaining a minimum freeboard for process tanks and a free discharge for flow splitting weirs. The hydraulic analysis will identify hydraulic restrictions and provide recommendations for alleviating them.
 - b. Equalization Basin Analysis: This task consists of using the updated design influent flow hydrographs to estimate the required flow equalization volume assuming that flow through the plant is limited to the permitted instantaneous peak flow rate of 15.4 million gallons per day. The second part of the analysis will consider the feasibility of increasing the hydraulic flow through the plant to above the permitted capacity, which will reduce the required flow equalization volume. Results will be updated using hydrographs generated from the updated collection system model. The feasibility and cost associated with the construction of new flow equalization facilities will also be evaluated as part of this task. It should be noted that the current WDR specifies that equalization basins shall be sized to handle a 100-year event.

3.3 Condition Assessment of WRP and CIP for Renewal and Replacement

The condition assessment recommendations for renewal and replacement improvements

developed for the Master Plan will be summarized for reference and Capital Improvement Costs associated with renewal and replacement (R&R) projects will be updated.

3.4 Update Current and Potential Future Waste Discharge Requirements

The regulatory analysis from the Master Plan will be summarized and updated with new potential WDRs or NPDES considerations. Any updates from T-TSA staff will be incorporated. It is noted that T-TSA may be required to sample effluent for compliance at the filter effluent pipe prior to the disposal field discharge and monitoring point at Well 31. Therefore, limitations such as Nitrogen may be exceeded based on the current WDR's and existing treatment approach. This shall be considered as part of the alternatives analysis and summarized in the Final Report.

3.5 Workshop No. 1 – Review Findings and Recommendations from Tasks 2 and 3

Workshop No. 1 will be held on the same day as a biweekly progress meeting.

Board Presentation No.1 – Present Findings and Recommendations from Tasks 2 and 3

A Board Presentation will be held to present findings and staff recommendations following Workshop No.1. This will include recommendations on the evaluation criteria and metrics as well as updates on the existing facilities, including updated flow and loading projections, capacity analysis findings, cost estimate updates, and regulatory analysis updates.

Task 3 Deliverables

- Workshop No.1 agenda, materials, and minutes.
- Board Meeting No.1 presentation materials.
- Flow and Loading Projections updates to be incorporated into the Final Report.
- Process Performance and Capacity analysis updates to be incorporated into the Final Report.
- Regulatory Analysis to be incorporated into the Final Report.
- Capital improvements project cost updates.

Task 4 – Evaluate Nutrient Removal Process Alternatives

4.1 Alternatives Initial Screening

A “universe” of reasonable alternatives will be identified and screened at a high level and shall either be eliminated or moved into the next phase of analysis. Of these alternatives, up to four nutrient removal process alternatives will be evaluated in further detail. These alternatives will be confirmed after the initial screening process is complete. It is assumed the alternative process configurations may consist of the following, however it is understood that this could change after the screening process:

- **Alternative 1** – Continue current Phostrip/ Biostyr process configuration with rehabilitation and optimization including WASSTRIP process for reducing chemical use and nitrified effluent recycle to the plant headworks to reduce methanol addition.
- **Alternative 2** – Five-stage Bardenpho biological process, with sidestream phosphorus recovery process, followed by tertiary filtration.
- **Alternative 3** – Membrane Bio Reactor (MBR) with biological nutrient removal tanks designed for nitrogen and phosphorus removal.
- **Alternative 4** – An emerging technology identified from the “universe” of alternatives screening process.

4.2 Workshop No.2 – Alternatives Screening

The results and recommendations from the initial alternatives screening will be reviewed with T-TSA staff for input and discussion.

Board Presentation No.2

A Board Presentation will be held to present on the four shortlisted alternatives. The screening process will be presented describing how the four alternatives were selected for further consideration.

4.3 Develop Shortlisted Alternatives

The alternatives will be modeled using Carollo's dynamic Biowin process model developed for the Master Plan as a starting point and validated with Water Year 2023 data. The original model will be modified to represent each process alternative listed above. The process model will provide the necessary biokinetics and physical parameters to accurately model the proposed alternatives and include both liquid treatment and solids handling processes so the impact of all recycles can be accounted for.

The benefits of developing a dynamic BioWin model are that secondary treatment process oxygen demands and effluent nutrient concentrations are more accurately predicted than with a steady-state model. The model will be used to evaluate primary, secondary, and chemical sludge production (as applicable) and predict effluent ammonia, total nitrogen and phosphorus concentrations to determine the capacity of the existing liquid treatment and solids handling facilities. The model will also be used to establish design and sizing information for alternative operating and treatment scenarios for the liquid treatment and solids handling facilities.

Results of the modeling effort will be used to size the facilities and prepare facility layouts that will be the basis for planning level cost estimates. The models will also be used to estimate operating costs such as energy and chemical consumption. Impacts on the existing solids processing train and electrical power loads will be assessed for each alternative.

The WRP Alternative Process Evaluation will also consider potential regulatory scenarios that may occur beyond the 25-year planning horizon so that space is reserved, and considerations made, for future needs to minimize the risk of stranding assets.

The use of flow equalization (FEQ) will also be evaluated for Alternatives 2 – 4. FEQ may be cost effective in that the nutrient removal facilities could be designed for essentially constant flows, without the need to oversize to accommodate daily and seasonal peak flows and loadings. A cost comparison of capital and O&M costs will be performed to compare the cost with and without FEQ. The volume/size of the FEQ basins will be taken from the 2022 Master Plan. Siting conditions and restrictions will be considered to select a preliminary site for the FEQ basin.

Support Facilities:

For each alternative, any required support facilities will be described and included in the cost analysis and facility layouts. This includes the electrical, instrumentation and control facilities, standby generator, digestion and solids handling processes, digester sludge heating equipment (boilers and heat exchangers), energy management and digester gas handling facilities, and plant water and chemical systems with respect to expandability and reliability.

4.4 Compare Alternatives

The process alternatives will be compared according to the established evaluation criteria. The basis for comparison will include capital costs, O&M costs, use of resources, operability, reliability, use of space, and total life cycle costs, as well as other criteria identified in Task 2. Capital costs will be based on estimates derived from similar facilities. These estimates will be planning level estimates (AACE Class 5) for comparison and budgeting purposes.

4.5 Workshop No.3 - Alternatives CAMP®

The CAMP® approach was developed by Carollo to facilitate execution of fast-track projects; however, it has become a popular mechanism for targeted client input and focused collaboration. CAMP® (Concentrated, Accelerated, Motivated, Problem Solving) is a technique to optimize stakeholder participation, make decisions, solidify process criteria, and critically evaluate the design. Through a facilitated approach, the combined experiences of key personnel from the client, the designer, and other specialists are leveraged over a short, concentrated effort to accelerate project development. When decades of experience are brought together in an organized fashion, the quality and speed of decision making are dramatically enhanced, with reduced overall impact on our client's time.

CAMP® is expected to be conducted on-site in Truckee to allow a focused team with minimal interruptions. It will consist of a two-day effort, approximately 6 hours each day. Participants from Carollo and the Agency will be selected several weeks in advance to block out the required time. Tasks for CAMP® include:

- Prepare CAMP® working materials - design information and alternatives evaluations along with a detailed agenda two weeks prior to CAMP®.
- Prepare and present objectives and tasks.
- Provide support services on stand-by to make changes to the alternatives during CAMP® notes will be prepared to summarize the discussions and outcomes of the alternatives review process. Notes will include action items, decision expectations, and outcomes/ work products.
- A CAMP® facilitator will be used to keep the process on track. The facilitator will have experience facilitating CAMP® on other projects coupled with our team's technical knowledge of future facility needs and strong relationships with T-TSA staff will keep the CAMP® on track and arriving at a consensus for the selected project alternative.

Board Presentation No.3

The alternatives evaluation and selected alternative will be presented to the Board for approval prior to proceeding with development of the selected alternative.

4.6 Develop Selected Alternative

The selected alternative will be developed further to a 10 percent conceptual design level sufficient to define the project characteristics to become the basis for CEQA permitting and final design implementation. The following will be defined in the project report:

- Site plans for the process components, including the FEQ basin if applicable.
- Process flow diagrams for the new processes and their connection with the existing plant facilities.
- Preliminary hydraulic profile.

- 3-D model of all proposed facilities utilizing Sketchup. Model shall be exported to 2-D plan and section sheets for the proposed facilities.
- Conceptual design of yard piping for all major process piping including tie-ins to existing facilities and new facilities. Any pumping facilities required shall be identified.
- Preliminary design criteria.
- Process descriptions.
- General process control descriptions.
- Capital and O&M costs.
- Chemical requirements, if applicable.
- Power loads and information on power supply as well as electrical facility siting.

4.7 Constructability Assessment

Additionally, a construction feasibility assessment will be performed including a preliminary sequence of work that demonstrates the selected alternative is feasible to implement while T-TSA maintains existing treatment objectives. This document will detail the construction sequencing of critical process, power, and communication tie-ins. A preliminary construction schedule will be provided that includes all major elements for construction to understand sequencing and project implementation timing.

4.8 Power Load Evaluation

This evaluation will include a detailed discussion on the WRP's current electrical supply system and the limited capacity for additional loads. An load analysis on Building 27 will be included to identify power supply needs for the proposed facility and how they will be met. Standby power reliability shall also be considered as part of this analysis.

4.9 Site Visits to other Water Reclamation Facilities Carollo will coordinate site visits to three other facilities to allow T-TSA staff to view other facilities that have implemented similar processes for nutrient removal, discuss the process with operations and maintenance staff, and better understand the implications of implementing the technologies.

Plants of similar size, with similar nutrient limits, and environmental conditions will be targeted for these site visits. It is assumed that they will be in the Mountain West region of the United States.

Task 4 Deliverables

- Workshop No.2 Materials, agenda and minutes
- Board Meeting No.2 presentation materials.
- Workshop No.3 - Alternatives CAMP® materials, agenda and minutes
- Board Meeting No.3 presentation materials.
- Draft Chapters 3 and 4 of Final Report.

Task 5 – Prepare Project Report

5.1 Draft Report and Executive Summary

The project report will be prepared in draft form for review by T-TSA. The report will consist of the following chapters and an executive summary suitable for review by the Board of Directors.

- **Chapter 1** – Existing Facility Overview
- **Chapter 2** – Alternatives Evaluation Criteria and Metrics
- **Chapter 3** – Evaluation of Existing Nutrient Removal Process
- **Chapter 4** – Alternatives Analysis
- **Chapter 5** – Selected Alternative Recommendations for Implementation
- **Appendix A** – 10 percent Level Design Drawings for Recommended Alternative
- **Appendix B** – Cost Estimates
- **Appendix C** – Power Load Study
- **Appendix D** – Supplemental Reference Materials

The draft report will be delivered in electronic (PDF) format. Each draft report chapter will be submitted separately for T-TSA review and comment, summarizing the findings and efforts associated with each task.

5.2 Workshop No. 4 – Review Draft Report

Workshop No. 4 will be held to receive comments from Staff and discuss final findings and recommendations. Comments from Staff will be incorporated into the final draft of the report.

5.3 Final Report and Executive Summary

The final report and executive summary will be delivered in electronic (pdf) format and hard copy (5 copies).

Board Presentation No.4

Present final report recommendations to the Board. This presentation will include presentation of the 10 percent Design of the recommended alternative and cost estimate.

Task 5 Deliverables

Project deliverables will include:

- Draft and final project report (5 copies of final)
- Draft (pdf only) and final (5 copies and pdf) of separate Executive Summary
- Workshop No.4 agenda, materials, and minutes.
- Board Meeting No.4 Presentation Materials.

Services/Information to be Provided by Agency

Services and information to be provided by the Agency are provided below.

- Attend project meetings and review meeting notes.
- Provide updates on potential future WDR permit as applicable to analyzing the project

alternatives.

- Participate in the CAMP® workshop, expected to require two consecutive 6-hour days.
- Review project deliverables, including the draft project report. 2 weeks of review time for each deliverable has been assumed in the project schedule. Additional review time will impact the project schedule.

Project Schedule

The project schedule is presented in Exhibit A.

Project Fee

The project fee is presented in Exhibit B.

Assumptions

The following assumptions have been made in development of the attached fee.

- All workshops and the project kick-off meeting will be held in person at T-TSA and include key project staff.
- Biweekly progress meetings will be held virtually using MS Teams platform.
- Project duration is anticipated to be 10 months per the attached schedule.
- Up to 4 liquid-stream alternatives will be evaluated including rehabilitation and optimization of the existing nutrient removal process.
- Development of the recommended alternative will be completed to an estimated 10 percent level of design completion. This will include a site plan, 3D renderings of proposed facilities showing structural and mechanical facilities using Sketchup exported to 2D sheets, electrical improvements including electrical site plan and one-line diagrams, control block diagram and process control narratives.
- Any required sampling and laboratory analysis will be conducted by T-TSA staff.
- Piloting of the recommended alternative if required will be scoped separately.
- Cost estimate will be AACE Class 5 planning level estimates.
- No geotechnical investigations are included in the scope. Assumptions will be made for foundation designs based on available historical geotechnical information from the site.
- No new survey will be performed. Consultant will rely on available survey and topographical information for the site.
- No permitting is included in the effort. It is assumed that if the recommended alternative is selected for implementation, the necessary permitting efforts will be included as part of the final design scope.

EXHIBIT A

Project Schedule

Notice to Proceed

Task 1 Project Management

Project Management Plan

Kickoff Meeting

Biweekly Progress Meetings

Board Meetings (Four)

Invoicing, budget controls, QA/QC

Task 2 - Gather Baseline Information and Develop Eval Criteria

Gather existing information

Evaluation criteria and metrics

Description of existing facilities

Task 3 - Evaluate Existing Facilities

Flows and loads projections

Process performance and Capacity Analysis

Condition Assessment and CIP

Update WDRs and Potential Future WDRs

Workshop No. 1

Task 4 - Evaluate Nutrient Removal Alternatives

Develop Alternatives

Workshop No. 2 - Initial Alternatives Screening

Compare Alternatives

Workshop No. 3 - CAMP® - Select Alternative

Develop Selected Alternative

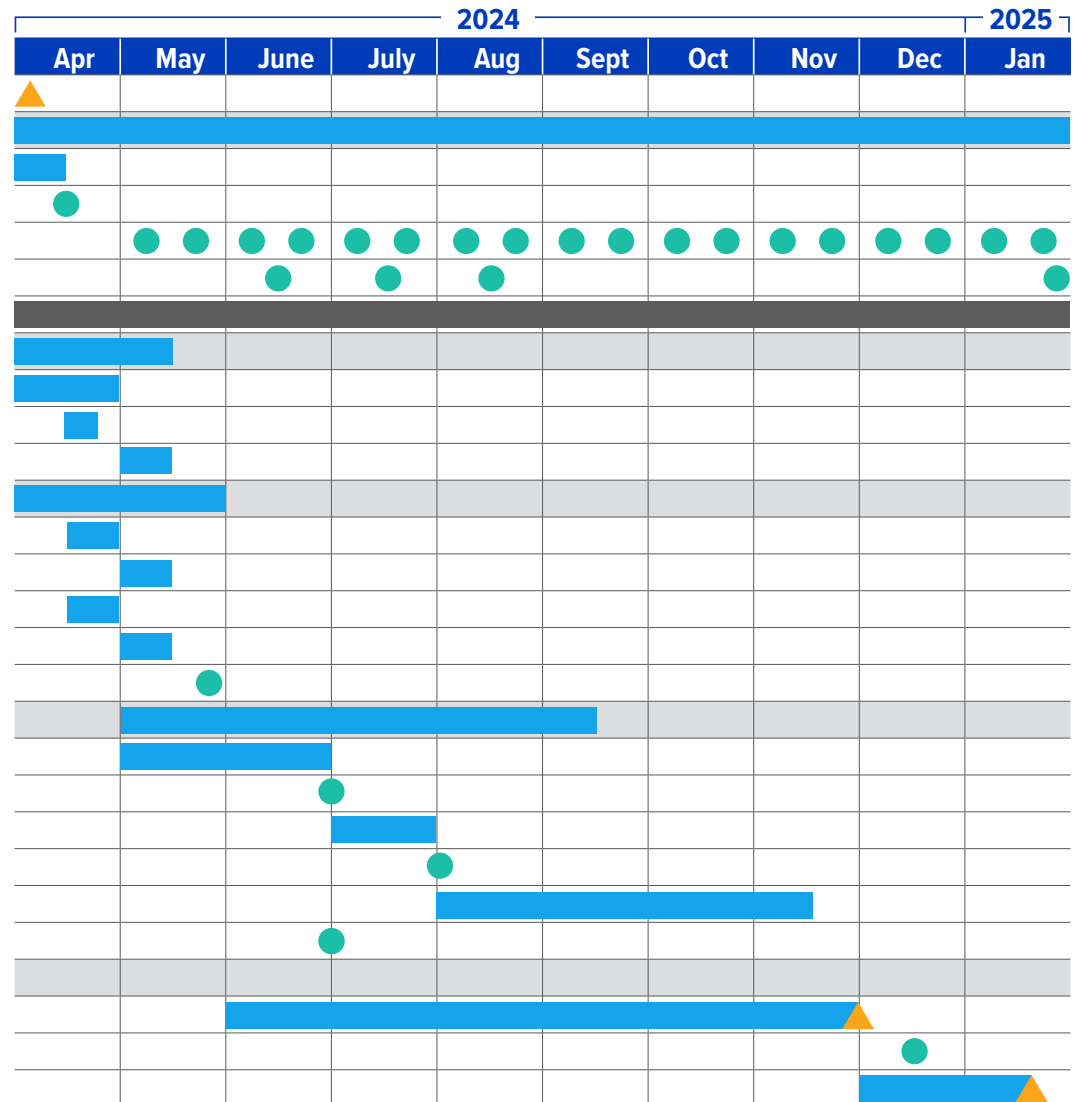
Site Visits to Other WRF's

Task 5 - Prepare Project Report

Draft Report and Executive Summary

Workshop No. 4 - Review Draft Report

Final Report and Executive Summary



TAHOE-TRUCKEE SANITATION AGENCY
NUTRIENT REMOVAL ALTERNATIVE PROCESS EVALUATION PROJECT

EXHIBIT B

ESTIMATED LEVEL OF EFFORT AND FEE

NUTRIENT REMOVAL ALTERNATIVE PROCESS EVALUATION PROJECT

Tahoe Truckee Sanitary Agency

Task	Job Code	Task Description	CAROLLO LABOR															OTHER DIRECT COSTS			TOTAL OTHER DIRECT COSTS	TOTAL
			Principal-in-Charge Tim Loper	Project Manager Richard Gutierrez	Project Engineer Jenny Warren	Project Professional Chad Knight	Electrical & Instrumentation Lead Engineers Erik Bahnmann Daniel Robinson	Technical Advisor John Fraser Andrew Gilmore Scott Parker	Process Lead Engineers Ron Appleton Bryan Coudry Ryan Orloff (flow projections)	Quality Manager Michael Britton	Regulatory Review Ella Garvey	Process Engineer - Solids Christine Pabo	Structural Lead Engineer Mike Dadik	Cost Estimator/Constructability Jason Razonoy/ Walter Gomez	CAD/Graphics	Word Processing/Clerical	TOTAL LABOR HOURS	SUBTOTAL LABOR COST	PECE	REPRODUCTION TRAVEL		
		Billing Rate (2024 Rates)	\$350	\$324	\$308	\$262	\$324	\$350	\$324	\$350	\$324	\$308	\$324	\$308	\$156	\$133			\$15			
1	T1	PROJECT MANAGEMENT	31	66	68	2	0	4	8	20	2	0	0	0	20	18	239	\$70,856	\$3,585	\$1,100	\$4,695	\$75,541
1.1		Project Management Plan	1	0	0	0	0	0	0	0	0	0	0	0	0	2	9	\$2,560	\$135	\$0	\$135	\$2,695
1.2		Kickoff Meeting	2	4	8	2	0	4	8	2	0	0	0	4	2	36	\$10,514	\$540	\$1,000	\$1,540	\$12,054	
1.3		Biweekly Progress Meetings (20 total)	8	20	20	0	0	0	0	0	0	0	0	0	10	58	\$16,770	\$870	\$0	\$870	\$17,640	
1.4		Board Meetings (Four)	16	16	32	0	0	0	0	0	0	0	0	16	0	80	\$23,136	\$1,200	\$50	\$1,250	\$24,386	
1.5		Invoicing	2	8	0	0	0	0	0	0	0	0	0	4	14	84	\$3,824	\$210	\$0	\$210	\$4,034	
1.6		Monitor Budget, Schedule and Decision Log	2	8	0	0	0	0	0	0	0	0	0	0	0	18	\$5,756	\$270	\$0	\$270	\$6,026	
1.7		Quality Assurance/Quality Control	0	4	0	0	0	0	0	20	0	0	0	0	0	24	\$9,296	\$360	\$50	\$410	\$8,706	
2	T2	GATHER BASELINE INFORMATION AND DEVELOP EVAL. PARAMETERS	5	10	16	0	0	12	16	0	4	0	0	0	4	6	73	\$22,020	\$1,095	\$0	\$1,095	\$23,115
2.1		Gather and Review Existing Information	0	4	8	0	0	4	16	0	0	0	0	0	0	32	\$10,344	\$480	\$0	\$480	\$10,824	
2.2		Evaluation Criteria and Metrics	4	4	4	0	0	8	0	0	4	0	0	0	2	26	\$6,290	\$390	\$0	\$390	\$6,680	
2.3		Description of Existing Facilities	1	2	4	0	0	0	0	0	0	0	0	4	4	15	\$3,386	\$225	\$0	\$225	\$3,611	
3	T3	EVALUATE EXISTING FACILITIES	6	8	22	0	0	0	56	0	8	0	0	4	4	0	108	\$34,060	\$1,620	\$1,000	\$2,620	\$36,680
3.1		Flows and Loads Projection Updates	1	1	4	0	0	0	48	0	0	0	0	0	0	54	\$17,458	\$810	\$0	\$810	\$18,268	
3.2		Process Performance and Capacity Analysis	1	1	4	0	0	0	4	0	0	0	0	0	0	10	\$3,202	\$150	\$0	\$150	\$3,352	
3.3		Condition Assessment and CIP for R&R	1	1	4	0	0	0	0	0	0	0	0	4	0	10	\$3,138	\$150	\$0	\$150	\$3,288	
3.4		Update Current and Potential Future WDRs	1	1	2	0	0	0	0	0	6	0	0	0	0	10	\$3,234	\$150	\$0	\$150	\$3,384	
3.5		Workshop No. 1 - Review Findings from Tasks 2 and 3	2	4	8	0	0	0	4	0	2	0	0	4	0	24	\$7,028	\$360	\$1,000	\$1,360	\$8,388	
4	T4	EVALUATE NUTRIENT REMOVAL PROCESS ALTERNATIVES	42	104	224	280	256	74	172	64	10	36	84	120	244	44	1,754	\$500,140	\$26,310	\$7,003	\$33,313	\$533,453
4.1		Alternatives Initial Screening	2	4	8	0	0	4	24	0	0	8	0	0	0	4	54	\$16,632	\$810	\$0	\$810	\$17,442
4.2		Workshop No. 2 - Initial Alternatives Screening	2	4	8	0	0	0	4	0	2	0	0	0	4	24	\$7,028	\$360	\$1,000	\$1,360	\$8,388	
4.3		Develop Shortlisted Alternatives	2	4	32	0	0	8	4	0	0	8	0	0	16	8	178	\$52,844	\$2,670	\$0	\$2,670	\$55,514
4.4		Compare Alternatives	2	16	20	24	4	30	16	0	8	4	0	40	0	4	168	\$51,988	\$2,520	\$0	\$2,520	\$54,508
4.5		Workshop No. 3 - Alternatives CAMP6	16	16	24	16	16	16	16	16	0	4	4	8	8	160	\$49,476	\$2,400	\$4,000	\$6,400	\$55,876	
4.6		Develop Selected Alternatives	4	24	80	200	100	12	16	24	0	4	48	8	200	8	728	\$187,912	\$10,920	\$0	\$10,920	\$198,832
4.7		Constructability Assessment	2	16	24	40	8	8	8	8	0	24	60	8	214	8	663,108	\$3,210	\$1	\$3,211	\$66,319	
4.8		Power Load Evaluation	0	8	16	0	120	0	0	0	16	0	0	8	8	184	\$56,776	\$2,760	\$2	\$2,762	\$59,538	
4.9		Site Visits to Other WRFs	12	12	12	0	0	0	8	0	12	0	0	0	0	44	\$14,376	\$660	\$2,000	\$2,660	\$17,036	
5	T5	PREPARE PROJECT REPORT	10	24	52	20	8	10	22	0	0	0	0	2	20	22	190	\$52,414	\$2,850	\$2,000	\$4,850	\$57,264
5.1		Draft Report and Executive Summary	4	8	32	16	4	4	16	0	0	0	0	16	12	112	\$30,012	\$1,680	\$0	\$1,680	\$31,692	
5.2		Workshop No. 4 - Review Draft Report	2	4	4	4	4	4	4	0	0	0	0	2	28	28	\$8,534	\$420	\$1,500	\$1,920	\$10,454	
5.3		Final Report and Executive Summary	4	12	16	0	0	2	2	0	12	0	0	4	8	50	\$13,868	\$750	\$500	\$1,250	\$15,118	
TOTAL ALL TASKS			94	212	382	302	264	100	274	84	24	36	84	126	292	90	2,364	\$79,490	\$35,460	\$11,103	\$46,563	\$726,053



TAHOE-TRUCKEE SANITATION AGENCY MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Scott Fleming, Senior Engineer
Item: IV-5
Subject: Approval to Enter into an Agreement with Brown and Caldwell to perform the Final Design of the Digestion Improvements Project

Background

The digester building, “Building No. 32”, was originally constructed in 1977 with three steam boilers located inside the facility to operate on digester gas, natural gas, or fuel oil. Other equipment included sludge mixing systems, heating equipment, sludge transfer equipment, CO₂ equipment, digester gas equipment, and electrical equipment. The facility was designed to operate two primary mesophilic digesters, “Digester No. 29 and Digester No. 30”, a secondary gas holding digester, “Digester No. 31”, provide plant comfort heating to other facilities, and capture CO₂ generated by the boilers to operate the chemical treatment recarbonation process. Additionally, a candlestick flare was installed to serve as a waste gas burner during times of low digester gas heating demand, such as during the summer months.

In 2005, during the most recent plant expansion, the digester facility complex was expanded to include a thermophilic digester, “Digester No. 33”, as well as support equipment, including a hot water boiler to provide the necessary heat for the thermophilic digester and allow for Temperature-Phased Anaerobic Digestion (TPAD). These improvements were designed to provide improved Volatile Suspended Solids (VSS) destruction, increased digester gas production, and a reduction of foaming. Other improvements included the addition of foam separators and new control box covers for the two original mesophilic digesters, and process piping interconnections for the new thermophilic digester. Planned expansion space was left adjacent to the digester building for Class A Biosolids batch tanks should the Agency be required to meet Class A requirements in the future.

The expansion did not include improvements or replacement of the existing equipment systems installed in 1977, including the original steam boilers and other equipment in the original Building No. 32 area. This original equipment has now served the Agency for 47 years and is well past its expected service life. Replacement parts and support are very difficult, if not impossible, to obtain, and the equipment requires extensive staff time to diagnose and repair. There have been multiple recent failures that have posed safety concerns for staff and have left the Agency at risk of not being able to meet the necessary process and comfort heating demands during winter. Minor modifications have been made by staff to provide a stopgap should another boiler failure occur while long-term improvements are designed and constructed. However, the Agency is still largely vulnerable should one of these boilers fail prior to completing improvements.

The Agency engaged Jacobs Engineering (formerly CH2M) in December 2020 to provide a Preliminary Design Report (PDR) to identify the necessary improvements to replace the original steam boilers and supporting equipment and bring the facility up to current code compliance requirements. The report was completed in December 2022, and the Agency has reviewed the report and is now ready to proceed to Final Design with the necessary scope to complete the upgrades in the Digestion Improvements Project.

The Digestion Improvements Project has been budgeted for in the Annual Budget Fiscal Year 2023-2024 in Fund 02: Wastewater Capital Reserve Fund CIP Expenditures (5-Year) as follows:

Item No.	Project Description	FY24	FY25	FY26	FY27	TOTAL
4	Digestion Improvements Project	81,000	252,000	918,000	1,879,000	3,130,000

The Digestion Improvements Project has been budgeted for in the Annual Budget Fiscal Year 2023-2024 in Fund 06: Replacement, Rehabilitation and Upgrade Fund CIP Expenditures (5-Year) as follows:

Item No.	Project Description	FY24	FY25	FY26	FY27	TOTAL
3	Digestion Improvements Project	501,000	1,850,000	6,732,000	13,779,000	22,862,000

T-TSA issued an RFP in January 2024 to solicit proposals from qualified engineering consulting firms to provide Final Design services for the Digestion Improvements Project. Three (3) proposals were received by the deadline in February. Staff have reviewed the proposals and evaluated them using a qualifications-based selection (QBS) process to select the most responsive proposal. The criteria for selection were qualifications, project approach, fee, and presentation. The three (3) firms provided presentations to a staff panel that consisted of Operations, Maintenance, Engineering, and Management. The panel members independently scored each proposal. The scores were then tabulated to determine a staff ranking of the proposals to determine a recommended selection. Below are the staff rankings of the three proposals received.

<u>Consultants Ranking & Managing Office</u>	<u>Panel Score</u>	<u>Fee</u>
1. Brown and Caldwell – Rancho Cordova, CA	80.1	\$2,254,226
2. Carollo, Engineers Inc. – Reno, NV	74.4	\$2,036,224
3. HDR Engineering, Inc. – Folsom, CA	60.3	\$1,752,473

Standout elements of the Brown and Caldwell proposal include a thorough discussion of key project components while presenting creative alternative grant funding solutions to potentially offset project costs with the added benefit of reducing carbon emissions. The forward-thinking approach to the project and the design team’s extensive recent experience implementing projects of similar size and complexity while targeting these funding solutions across Northern California were a major contributor to their score with the panel.

Fiscal Impact
\$2,254,226.00

Attachment
Brown and Caldwell Proposal

Recommendation
Management and Staff recommend Board approval of the Agreement with Brown and Caldwell to perform the Final Design of the Digestion Improvements project.

Review Tracking

Submitted By: 
Scott Fleming
Technical Services Manager

Approved By: 
Richard Pallante
General Manager

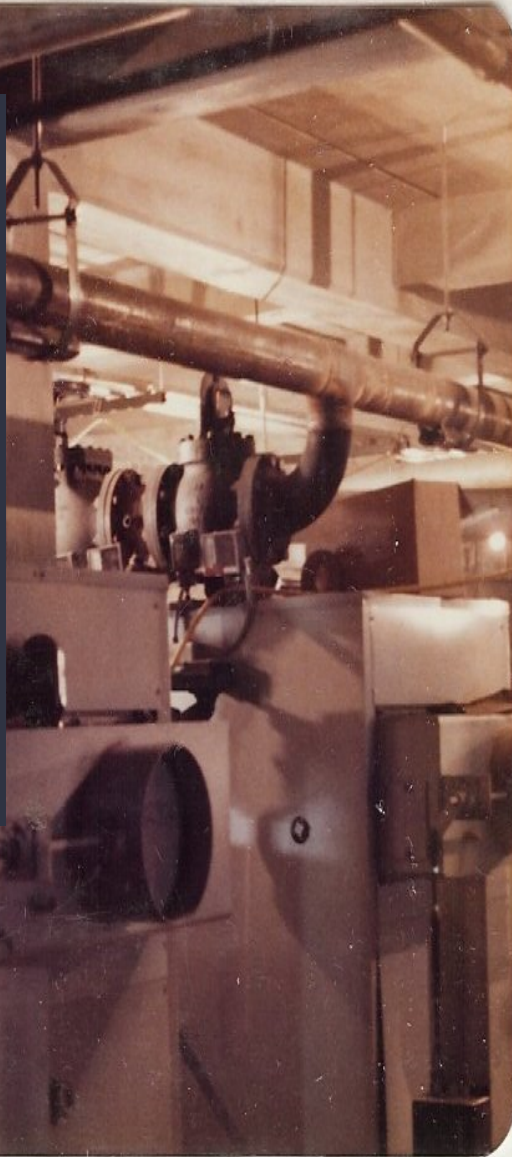
TAHOE-TRUCKEE SANITATION AGENCY

DIGESTION IMPROVEMENTS PROJECT



BACKGROUND

- PROJECT NECESSITY
 - Equipment and components at end of service life
- DESIGN CONSIDERATIONS
 - Heat Demand
 - Code and Regulatory Compliance
 - Construction Feasibility
 - Funding and Environmental Stewardship
 - Site Optimization for long-term planning and future improvements



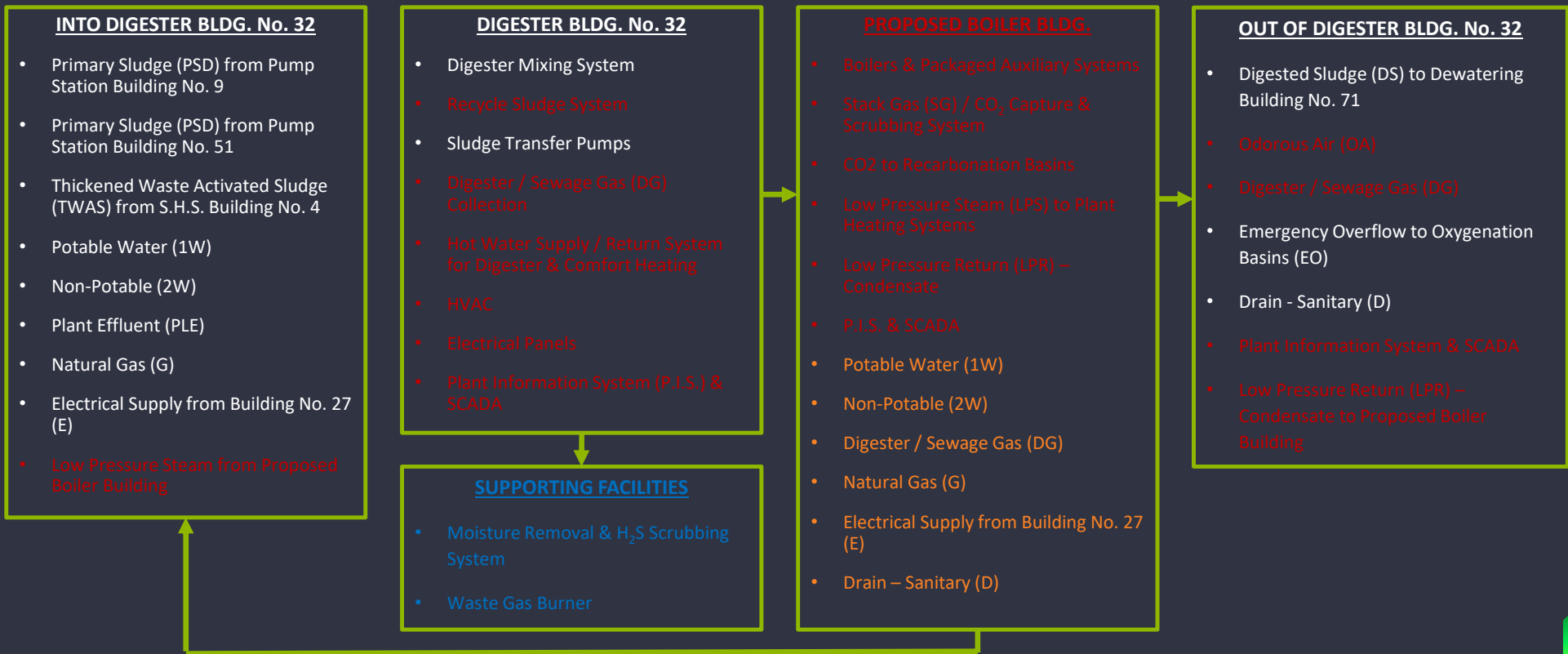
JUNE 2, 1977

BOILERS AND STEAM HEADER
AT DIGESTER BLDG.



DIGESTION FACILITIES

RED TEXT: IMPACTED AND /OR RELOCATED TO PROPOSED BOILER BUILDING
 BLUE TEXT: IMPACTED AND RELOCATED TO A SUPPORTING FACILITY LOCATION
 ORANGE TEXT: NEW UTILITY CONNECTIONS REQUIRED
 WHITE TEXT: NO IMPACT ANTICIPATED

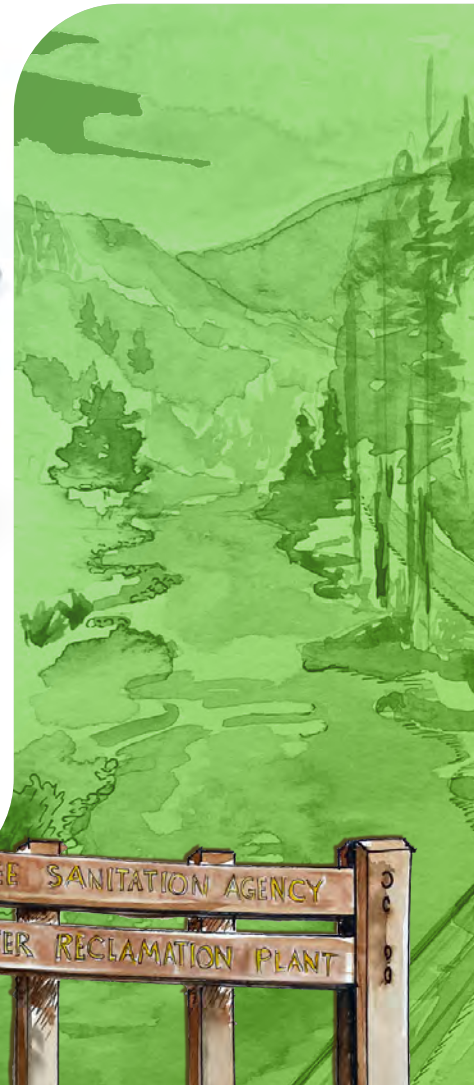


QUESTIONS?



Digestion Improvements Project

February 16, 2024



Design for
Ease of
O&M



Think Like a
Master
Planner



Find
Opportunities



Cover Letter



11020 White Rock Road, Suite 200
Rancho Cordova, CA 95670
T: 916.444.0123
www.brownandcaldwell.com



February 16, 2024

Scott Fleming, P.E., Senior Engineer
Tahoe-Truckee Sanitation Agency
13720 Butterfield Drive
Truckee, CA 96161

Subject: Digestion Improvements Project

Dear Mr. Fleming,

Digestion is generally thought of as easy – and compliance is a matter of time and temperature. However, for Tahoe-Truckee Sanitation Agency (T-TSA) staff, the age and condition of the existing steam boilers has them living with emergency maintenance issues with limited to zero redundancy. This inability to reliably deliver heat means digestion is not running easily in the background. To secure stable, reliable digestion and to position for a future of solids processing, T-TSA is ready to replace the steam boilers and make code-compliant improvements to the anaerobic digestion system.

By selecting Brown and Caldwell (BC), you will be working with the region’s leading experts in digester design and rehabilitation. Several team members completed the \$80 million East Bay Municipal Utility District’s Digester Upgrades and are currently working on the \$2.2 billion San Francisco Public Utilities Commission’s Southeast Plant Biosolids Digester Facilities Upgrades.

Our team is led by Project Manager, **Adam Ross**, a mechanical engineer specializing in digester upgrades, biogas utilization, and hydronic heating systems. He is supported by Design Manager, **Colin Casey**, a wastewater engineer focused on waste gas burner and gas management system designs, who will lead a design team based almost entirely in Sacramento. If it has to do with a digester, this team has done it!

Over the past year, we have developed a clear understanding of your facilities, digestion system, and operations, as well as your interest in future resource recovery options. This knowledge shaped the following strategies we will employ to successfully deliver the Digester Improvement Project.



Design for Ease of Operations and Maintenance to Achieve a Heating System that is Easy to Run and Code Compliant for your Digesters.

A reliable system is much more than just firm capacity for winter heat demands. We want to design a boiler and heat delivery system that also considers summer turndown, comfort heating, carbon capture, constructability, and future maintenance. With each design decision, we will contemplate how we can make the solution more streamlined, resilient, or flexible. BC helped author the fire protection code that governs wastewater treatment plants, National Fire Protection Association (NFPA) 820, and will use our practical experience to bring Building 32 and your digester system into compliance.



Think Like a Master Planner to Meet Near-term Needs While Preparing You for Future Changes.

The new building presents an excellent opportunity for T-TSA to form a future vision of your plant that will facilitate easy integration of future processes and facilities. We will employ a master planning mindset for the location and functionality of the new building that considers flare and digester gas conditioning placement, gas storage, and sludge cooling all while preparing you for a 2050 solids future. When you look back on this project years from now, we want you to say: *“I’m glad we did it that way.”*




Find Opportunities to Reduce Emissions and Leverage Available Funding.

In the current funding environment, grants, loan forgiveness, and tax credits exist for projects that make renewable power/reduce emissions of criteria pollutants and methane. While these are not a primary project driver, BC recognizes that the right project ingredients are in place—renewable fuel and newer, cleaner emissions sources—to align with funding opportunities. BC is adept at leveraging these opportunities to benefit project economics. For the City of Roseville’s Energy Recovery Project, BC added a renewable power component to gain \$4M in loan forgiveness—a net benefit for construction cost and a huge benefit for life cycle cost. We will look for ways to help T-TSA recover renewable energy from waste heat and take credit for cleaner emissions sources.

We offer T-TSA a team that knows how to deliver a reliable, high performing, and efficient digester heating solution that is easy to operate and maintain and can support T-TSA for generations to come. This is an exciting project and we are eager to partner with you to deliver a dependable, resilient digestion system. If you have any questions regarding our proposal, please contact Adam Ross at 916.300.3290 or aross@brwncald.com.

Sincerely,
Brown and Caldwell


Adam Ross, PE, PMP
Project Manager


Colin Casey, PE
Design Manager

Offeror Statement and Business Information

SECTION 1



Section 1 Offeror Statement and Business Information

BC focuses on providing thoughtful designs to get the most value out of treatment facilities, while providing agencies flexibility for future growth.

We strive to drive positive change in our environment and our world. To accomplish this, BC approaches every project from a full life cycle perspective. We guide project delivery from concept to startup and help clients efficiently own and operate their facilities long into the future. We look beyond each facility and consider system-wide solutions that create lasting value. In the end, we want every client to look back on their projects in 10 or 20 years and think “I’m glad we built it that way.”

BC is a full-service environmental engineering and construction services firm. Since our founding 75 years ago, BC has applied energy-efficient improvements and organically practiced energy conservation on all of our projects, and we continue to advance innovative approaches to wastewater and energy management practices.

As shown adjacent, BC offers T-TSA a diverse and extensive solids, digestion, and energy resume to leverage. With decades of experience developing solids management solutions, we know how to deliver solutions that are reliable, cost effective, and adaptable to changing demands and regulations.

Financial Health and Stability

BC has a diverse market and geographic base, which strengthens our ability to provide services to our clients. Over the last five years the company had total revenues averaging \$400 million per year. Engineering News Record has ranked BC in the Top 20 percent of environmental firms in revenues for the past 15 years. BC have a strong balance sheet and excellent credit references. There are currently no conditions that would materially impact our ability to complete this project.

BC is headquartered in Walnut Creek, California. This project will be mainly managed out of our Sacramento County office, shown below.

Consultant Information

Brown and Caldwell

11020 White Rock Road, Suite 200
Rancho Cordova, CA 95670
O | 916.444.0123
W | brownandcaldwell.com

Principal Contact

Adam Ross

Vice President, Project Manager
C | 925.300.3290
E | aross@brwnncald.com

Founded in
1947



2,200+
staff



200+
biosolids/bioenergy
projects



20+
co-digestion
and food waste
projects



130+
digester
projects



200+
biogas utilization
projects



Project Approach

SECTION 2



Section 2 Project Approach

Project Understanding

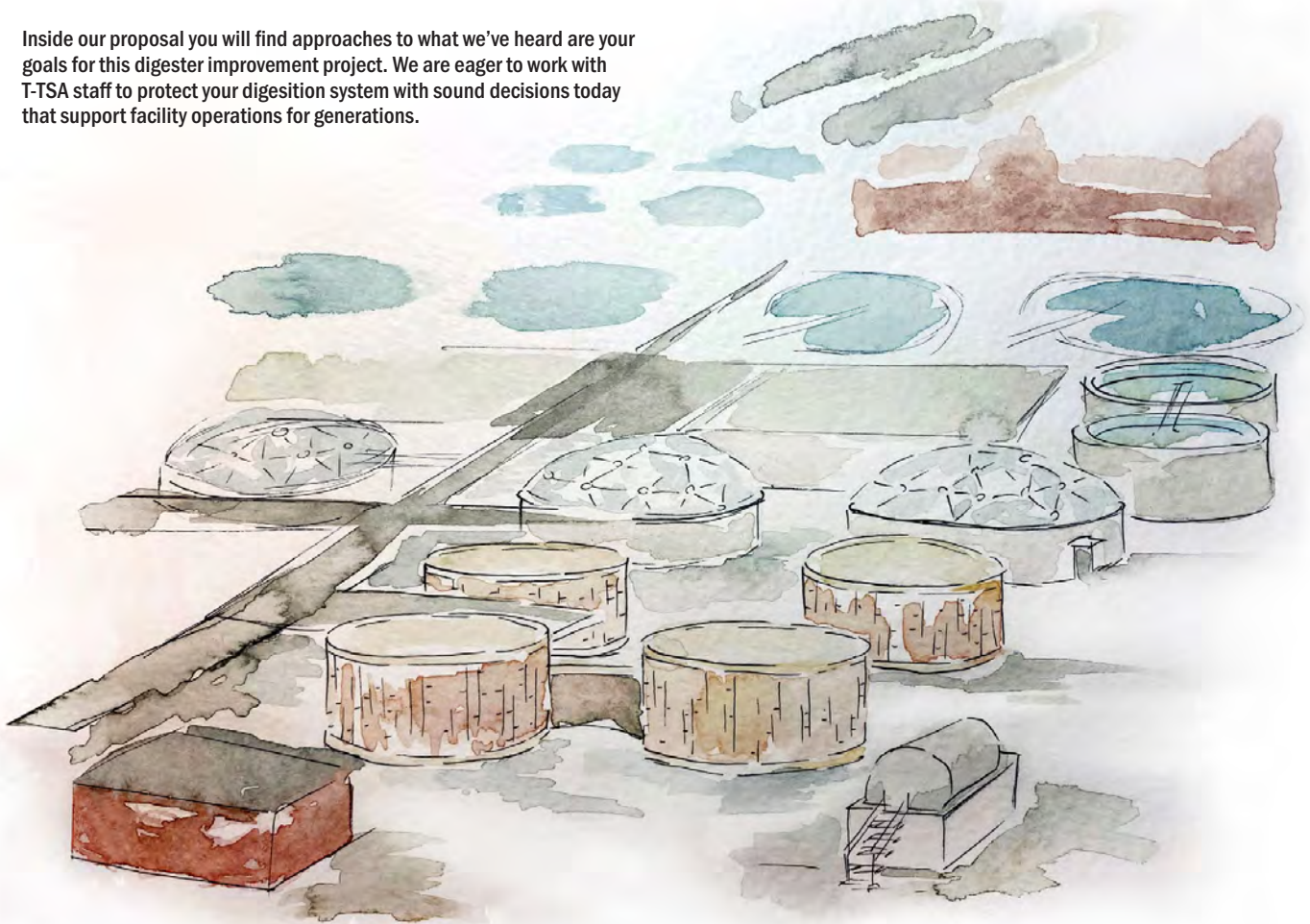
T-TSA's Water Reclamation Plant (WRP) operates three existing steam boilers that produce heat for the digesters and campus heating needs. The boilers have reached the end of their useful life and are beginning to fail. Operation and maintenance of this aging infrastructure is further complicated by the constrained space within the existing digester control building. Moreover, this is one of the last steam systems in a California wastewater treatment plant operating under compliance codes that have evolved since your equipment was originally designed.

The four anaerobic digesters operate in a temperature-phased anaerobic digestion (TPAD) process. The first-stage digesters are operated in a thermophilic temperature regime; a single, second-stage digester is operated at a mesophilic temperature and provides equalization upstream of dewatering. This process serves T-TSA well; however,

the digester support systems require various upgrades to comply with current codes, provide redundancy, and generally improve operations and maintenance (O&M). Lastly, the existing flare is not compliant with code requirements for set-back from other processes, digester gas pressure relief valves lack redundancy, and the floating gas storage cover is vulnerable to snow accumulation.

For a new, reliable, and robust heating system, T-TSA is interested in replacing the existing steam boilers with new hot water boilers in a new building with hot water loop pumps, expansion tanks, and support equipment. To attain code compliance, redundancy, and ease of O&M, this project will consider relocating the existing flare and updating the digestion system.

Inside our proposal you will find approaches to what we've heard are your goals for this digester improvement project. We are eager to work with T-TSA staff to protect your digestion system with sound decisions today that support facility operations for generations.



Although the Digestion Improvements Project does not include co-generation or co-digestion facilities, T-TSA may consider strategic decisions now to accommodate resource recovery facilities in the future.

At 10 million gallons per day of treatment capacity, T-TSA is at the cusp of cost effectiveness for co-generation facilities. To date, digester gas has been prioritized for producing heat—a wise allocation considering T-TSA's cold winter and thermophilic heating demands.

Future co-digestion would increase digester gas production and could improve the economies of scale of renewable power generation or renewable fuel sale. This project is an ideal opportunity to establish a foundation for future resource recovery by providing adequate heat for digestion and anticipating the needs of these future processes in terms of footprint, process connections, and heat demands.



Meeting “time and temperature” should be easy. However, the three existing boilers are putting your biosolids compliance at risk. This Digester Improvements Project is an excellent opportunity to not only replace the existing steam boilers in a code compliant site, but to also help position T-TSA to accommodate future resource recovery options.

Approach

T-TSA’s goal is straightforward: Build a heating system that is reliable and O&M-friendly, designed for your specific climate, and with enough flexibility to accommodate future demands and processes.

The BC team has spent the last year meeting with T-TSA staff, walking the site, and understanding your WRP and the challenges associated with this project. Your thermophilic digestion process, coupled with tourist-season flows and cold winters create large peaks in heat demand. New facilities need to account for snow accumulation and removal and consider how to heat and ventilate buildings when temperatures are below freezing.

The existing steam system is critical to your biosolids treatment process and your campus heating needs. Our team understands that the WRP must remain operational throughout construction of this project. The scope of the design and construction of this project won’t happen in a vacuum—we will thoughtfully consider the existing systems and allowable system outages, and carefully script a sequencing plan.

The Request for Proposal states the T-TSA’s goals for this project:



GOAL 1: Develop a Comprehensive and Effective Design Plan

GOAL 2: Enhance System Reliability and Monitoring

GOAL 3: Ensure Compliance with Applicable Codes, Standards, and Regulations

GOAL 4: Minimize Disruption to Existing Operations

GOAL 5: Deliver a Comprehensive Set of Contract Documents

BC is prepared to realize these goals and aims to exceed T-TSA’s expectations through an approach that designs for O&M, uses a master planning mindset, and seeks out opportunities to reduce emissions and leverage funding opportunities.

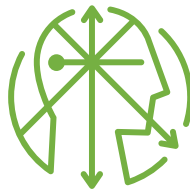


Design for Ease of Operations and Maintenance

Achieve a Heating System that is Easy to Run and Code Compliant for your Digesters

Our approach will:

- Size the boilers first, considering winter demands and summer turndown
- Work backwards from “runs on AUTO”, to control strategy and design, for an operator-friendly heat delivery platform
- Consider maintenance needs for redundancy, access, isolation, and ease of startups and shutdowns



Think Like a Master Planner

Meet Near-term Needs While Preparing You for Future Changes

Our approach will:

- Allocate space for future processes and facilities like biosolids processing, Class A batch tanks, and high-strength waste receiving
- Provide for logical expansion of the boiler building for future co-generation or waste heat recovery



Find Opportunities

Reduce Emissions and Leverage Available Funding

Our approach will:

- Reduce flaring
- Reduce emissions
- Recover energy
- Reduce natural gas blending
- Align with funding opportunities

Boiler Sizing (Technical Memo 2) that Secures Reliable Heat and Builds-in Flexibility for Future Processes



GOALS: 2, 3

The most important exercise in the Basis of Design validation is to determine maximum demand.

A primary project outcome is to install hot water boilers with sufficient firm capacity to meet maximum heating requirements at a predetermined, future condition. "Firm capacity" refers to the system capacity with one unit out of service.

BC's approach is to determine maximum process heat demand that takes the guesswork out of the analysis. Instead of focusing on variables that can change (i.e., design year, population growth rate, peaking factors, future digestion feedstocks, solids thickness), we focus on the things that don't: the size of your digesters and 15-day solids retention time. We use your tank volume and assume a maximum hydraulic loading rate of 15 days (compliant with EPA Part 503 requirements for Class B biosolids). This methodology assures that you'll always have enough heat to comply. It also gives you the flexibility to operate the digesters as you see fit—whether that's the addition of high-strength waste (HSW) feedstocks for co-digestion or changes to your thickening processes. Heat will never be your limiting factor.

We will establish maximum process heat demand by assuming:

- 15-day digester hydraulic residence time, assuming all four digesters in parallel service
- 135-degree Fahrenheit thermophilic operating temperature (to be confirmed by T-TSA)
- 43.7-degree Fahrenheit minimum winter influent sludge temperature (to be confirmed by T-TSA)
- Digester heat loss at 17.6-degree Fahrenheit outside air temperature (to be calculated)

Because the boilers will provide heat for buildings, maximum demand must also include plant comfort heating. At a minimum, the new hot water boilers will provide comfort heating to the same areas connected to the existing steam system, recognizing that the heat demands for these locations could increase if ventilation rates are increased for code-required air changes. It could also include the loads currently served by the existing Camus boiler.

BC's approach is to "right size" the boilers first (considering winter demands and summer turndown), to identify an optimum constant operation that:

Ease of O&M

- Runs on "auto"
- Eases startups and shutdowns

Think Like a Master Planner

- Gives you flexibility for any future digestion process
- Reduces digester gas flaring
- Facilitates future projects

Finding Opportunities

- See page 11

Choosing a two-boiler solution that installs two new hot water boilers that operate in a duty-standby mode will:

Ease of O&M

- Require less footprint, equipment, and O&M

Think Like a Master Planner

- Reduce project and life cycle cost



Digester Upgrades // East Bay Municipal Utility District

As part of East Bay Municipal Utility District's efforts to reduce overall energy consumption and reach net zero, Adam Ross led a team to design various digester improvements, including installation of a new hot water boiler, a heating system able to operate in thermophilic mode to achieve Class A biosolids, a HSW facility, and digester storage that helped reduce flaring.



Minimum Demand Drives Boiler Sizing and Quantity for Optimum Constant Operation

Minimum heating demand typically occurs in summer when low flows and warmer temperatures reduce process heating requirements and eliminate plant comfort heating needs entirely. In addition, operating at mesophilic temperature instead of thermophilic temperature decreases heat demand significantly. Minimum heating demand must be achieved within the turndown capacity of an individual boiler. If the boilers are oversized for this operating condition, they will have to cycle on and off. This cyclical heating and cooling promotes condensation and corrosion—decreasing boiler life. Start-stopping the boilers also means increased digester gas flaring. To identify an optimum constant operation, BC will use minimum heat demand to select the boiler size, as shown in Figure 2-1.

Limiting Turndown with Radiators or Energy Recovery Leads to Fewer Boilers and Lower Cost

A typical boiler has a 4-to-1 turndown range, but T-TSA's boiler system operating range may require a large turndown of 10-to-1, or more. Without some creativity, this wide operating range could drive the boiler selection toward multiple, smaller units—increasing the amount of supporting equipment (pumps, valves, controls), footprint, and cost.

BC's approach is to provide a two-boiler solution where the existing steam boilers (Hurst and Camus boilers) are demolished and replaced with two new hot water boilers that will operate in a duty-standby mode. This two-boiler solution will require less footprint, equipment, and O&M—reducing project and life cycle cost.

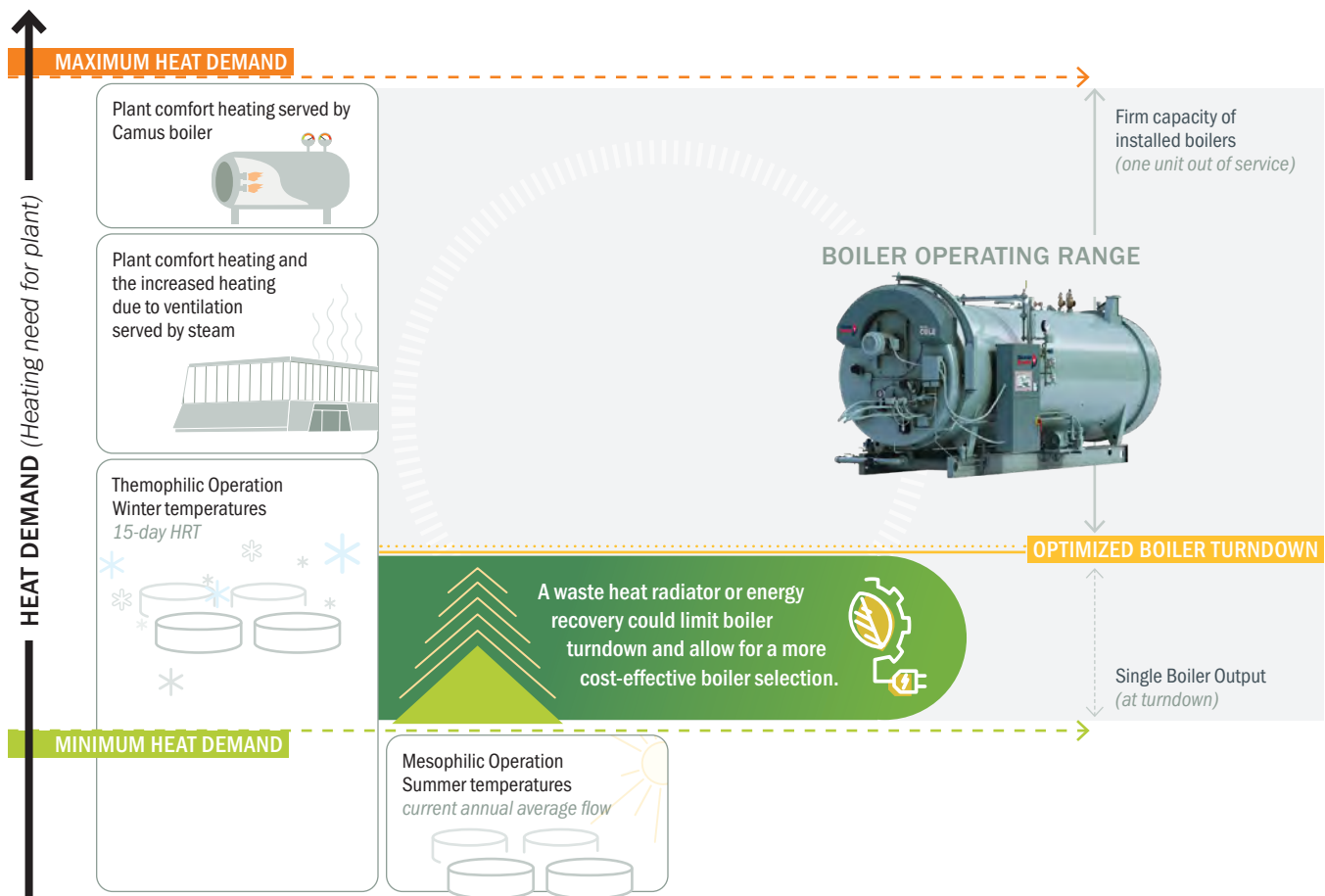


Figure 2-1 // Finding the “Goldilocks” of Maximum and Minimum Heat Demand.

Boiler sizing and selection requires careful consideration of how to accommodate turndown. Adding a waste heat radiator (or waste heat recovery) raises the minimum heat demand and reduces the required boiler turndown. This allows T-TSA to install fewer, larger boilers and reduce overall cost and complexity.

Boiler Building and Location (Technical Memo 5) that Allows for Easier Process Integration as Your WRP Needs Evolve

Choosing the best location for new facilities requires us to think like a master planner so that improvements you make under this project prepare you to easily integrate any forthcoming process changes.

The new boiler building should be the new foundation for your digestion processes, not an obstacle. Figure 2-2 is a future-forward view of your WRP, planning the interface of your existing plant with new potential processes and facilities.

- 1 Class A batch tanks are planned on the north side of Building 32. The batch tanks will achieve compliance with EPA Part 503 requirements for Class A biosolids.
- 2 HSW receiving is a potential process which would allow T-TSA to receive trucked deliveries of fats, oil, and grease (FOG), or food waste. Many wastewater treatment plants (WWTP) have a HSW receiving program to increase digester gas production, increase revenues from energy recovery and tipping fees, and provide an outlet for organics diverted from landfills. Our experience shows that HSW receiving should be located as close as possible to the digesters to limit pumping distance. HSW is usually high-solids and high-viscosity, prompting high pressure loss and fouling potential, so a short run of glass-lined piping is the best solution for digester feeding. In addition, the receiving facility should also be located for convenient truck delivery access.
- 3 Biosolids processing, such as thermal drying or pyrolysis, may be added in the future to reduce biosolids hauling costs or comply with regulatory requirements. Regardless of the processing technology or driver, the facility should be located adjacent to the existing dewatering building.

In addition to future process facilities, existing site features and code-required setbacks limit the location of the boiler building and flare. As shown on Figure 2-3, there are overhead power lines that run adjacent to the road and across the site. Clearly, these corridors are off limits for new facilities unless T-TSA embarks on a disruptive relocation. Additionally, the flare requires a code setback from buildings and roads. This limits flare location and demands coordination with the boiler building location.

Figure 2-3 shows a conceptual location for the new boiler building, flare, above-grade piping connection to Building 32, and tunnel heat loop routing. Our proposed boiler building location provides:

- Minimal disruption to current and future operations
- Adequate space for contractor staging, O&M, snow removal, and expansion
- Easy construction sequencing

Each of these benefits helps control the construction cost by avoiding contractor's "soft costs"—things that cost money but don't give T-TSA additional value—like extended schedule, complicated sequencing, and inefficiencies derived from working in a congested area.



Looking at your facility holistically, BC staff are thinking on how to provide for logical expansion of the plant now in order to accommodate any future co-generation or waste heat recovery. That includes:

Ease of O&M

- Minimizes disruption to current and future operations
- Provides adequate space for O&M and snow removal
- Provides adequate space for contractor staging and construction sequencing
- Eases integration with existing facilities

Think Like a Master Planner

- Provides adequate space for expansion
- Reduces pumping distance by placing a HSW facility near the digesters
- Facilitates truck delivery access by placing a HSW facility near the digesters
- Reduces hauling costs and complying with regulatory requirements by placing biosolids processing near the existing dewatering building

Figure 2-2 // Looking at the Future of T-TSA's WRP

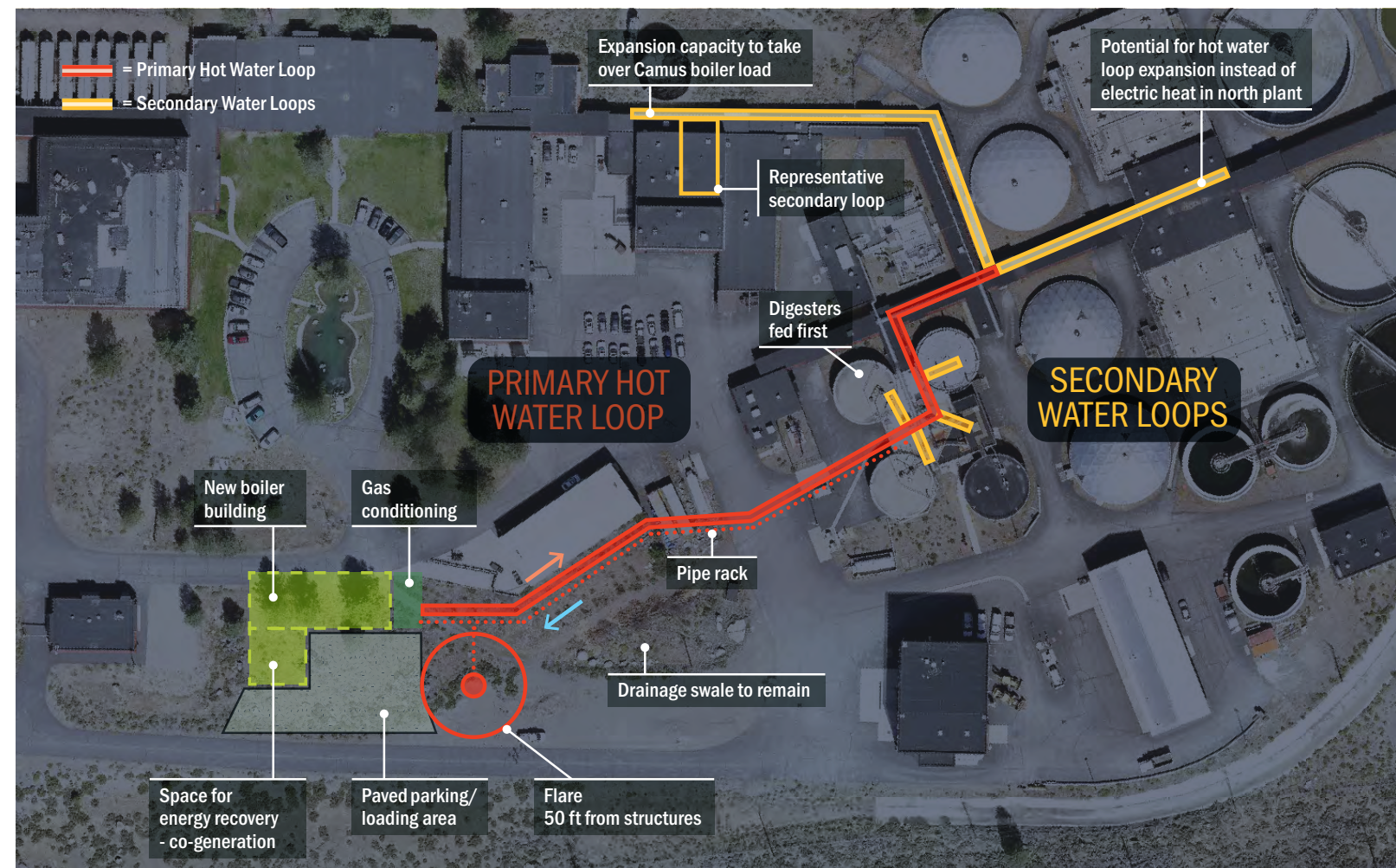
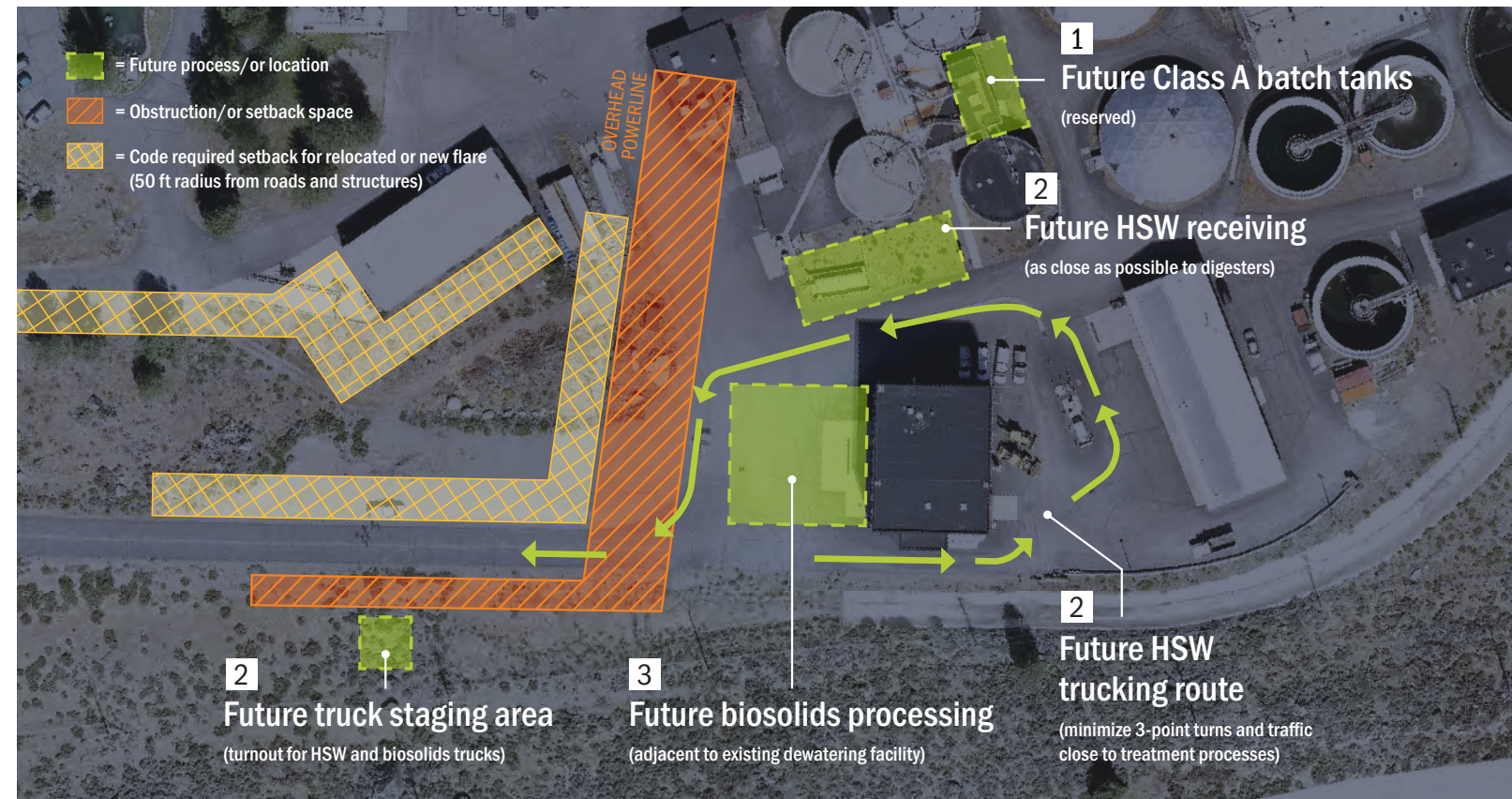


Figure 2-3 // Digester Improvements Arranged to Support WRP's Evolving Needs

Basis of Design Alternatives that Achieve T-TSA's Objectives

GOALS: ✓ 1, ✓ 2,
✓ 3, ✓ 4, ✓ 5

Flare Replacement Instead of Relocation

The project scope calls for relocation of the waste gas burner—an existing candlestick-style flare—to comply with code setback requirements; however, a new, enclosed flare may better achieve T-TSA's objectives.

Candlestick flares are notoriously dirty and cannot be permitted in most California air districts. The existing flare does not appear in your air permit, so there is a risk that the Northern Sierra Air Quality Management District will treat it like a new source if you modify or relocate it. If the flare can be relocated, it may be vulnerable to a future revised rule which will require replacement in coming years. Candlestick flares also require greater code-required setback from roads, making it harder to comply with ANSI B149.6—Code for Digester Gas.

A new flare would be a low-nitrogen oxide (NO_x), enclosed flare. This style has lower emissions and is in line with current air permitting requirements. Enclosed flares only require a 10-foot set back from roads and property lines, whereas open flares require 25 feet.

In addition, relocating the existing flare leaves T-TSA without a flare during construction. Workarounds would include installing a temporary flare, staging a hurried relocation while boilers attempt to consume all digester gas (challenging unless this work goes perfectly and is done in winter), or venting digester gas to atmosphere.

Installing a new flare in a new location would allow the existing flare to remain in service throughout construction and avoid disruption to existing operations. A new, enclosed flare will:

- Reduce T-TSA's emissions of criteria pollutants and fugitive methane (Master Plan goal)
- Require less setback from roads
- Facilitate CEQA and air permitting processes
- Reduce the risk of stranded assets/future upgrading to satisfy air quality requirements

The cost of the foundation, piping, controls, programming and startup are the same whether the flare is relocated or replaced. The cost of the equipment itself is minimal compared to the overall cost.

Instead of relocating the existing candlestick-style flare, BC proposes that T-TSA consider replacing it with an enclosed, low-NO_x flare that would:

Ease of O&M

- Keep the existing flare in service throughout construction to maintain plant operations

Think Like a Master Planner

- Lower emissions and meet current and future air permitting requirements
- Require less set back from roads and property lines (10 vs 25 feet for open flares)
- Reduce stranded assets risks

Finding Opportunities

- Reduces emissions and may align with funding opportunities (with a new flare)



Waste Gas Burner Replacement // City of Santa Rosa

Colin Casey is leading a team to replace the City of Santa Rosa's candlestick flare. The new, low-NO_x burner allows the City to burn digester gas when production exceeds co-generation engine fuel requirements, engines are off-line for maintenance, and digester gas is low quality and cannot be used as engine fuel. We kept the existing candlestick flare in service through construction, limiting downtime and shutdowns of the digester gas system.



Upgraded Digester Gas Conditioning Instead of Status Quo

T-TSA's existing digester gas conditioning consists of a small iron sponge (hydrogen sulfide [H₂S] scrubber) and moisture knock-outs located on the roof of Building 32. H₂S removal reduces the corrosivity of the digester gas and condensate and reduces emissions of sulfur oxides (SO_x).

BC recommends installing a new H₂S scrubber using a modern configuration and media at the new boiler building. The new system will more effectively remove H₂S and be easier to service. This will also protect the boilers from corrosion and reduce SO_x emissions. Installing a new H₂S removal system also aids constructability by allowing the existing system to stay in service during construction.

BC proposes to consider the benefits of microaeration on H₂S reduction. Microaeration is an emerging process which adds a small amount of air into sludge recirculation piping to feed sulfur reducing bacteria. This simple process makes microaeration the most cost effective way to reduce H₂S concentrations in digester gas. T-TSA is an excellent candidate facility for microaeration due to its size, digester cover configuration, and use of boilers. Microaeration could extend the life of H₂S scrubbing media and reduce H₂S concentration to the flare – reducing SO_x emissions.

BC also proposes to evaluate the cost and benefits of adding siloxane removal vessels to the gas conditioning system. Siloxanes turn into silica deposits when they are combusted in the boilers, decreasing their performance, and requiring additional maintenance.

Sludge Cooling Designed for Struvite Mitigation and Removal

T-TSA would like to cool sludge in Digester 31 to operate in true TPAD mode and improve conditions for downstream dewaterability. Unfortunately, experience has shown that sludge cooling promotes struvite formation.

Sludge cooling heat exchangers need to be designed to avoid struvite formation and be easy to clean. Spiral heat exchangers are neither of these things. We recommend using glass-lined, concentric tube heat exchangers located outdoors for sludge cooling. Concentric tube heat exchangers are easy to clean because

Digester and Thickener Facilities Upgrades // City of San José

Based on our design experience at the San José-Santa Clara Wastewater Treatment Plant, the largest TPAD facility in North America, BC recommends using glass-lined, concentric tube heat exchangers located outdoors for sludge cooling. This provides T-TSA with a solution that protects T-TSA from struvite in two ways: prevention and preparedness.



By considering strategic upgrades to your digester gas conditioning, such as a new H₂S scrubber, microaeration, and siloxane removal vessels, you will:

Ease of O&M

- Reduce H₂S concentrations in digester gas more effectively
- Simplify equipment service

Think Like a Master Planner

- Protect the boilers from corrosion
- Extend the life of H₂S scrubbing media
- Reduce H₂S concentration to the flare and ensuing SO_x emissions
- Preserve boiler performance

Our approach to struvite mitigation and removal is to consider using glass-lined, concentric tube heat exchangers or Carbon dioxide injection (CO₂) injection for sludge cooling. This results in:

Ease of O&M

- Easier maintenance
- Preventing struvite from sticking to the tubes
- Reduces the pH and inhibits the conditions for struvite precipitation (CO₂ option only)

Finally, we will also determine if digester gas storage is required for Digest 31. If you are able to operate with a pressure-based control strategy, you will:

Ease of O&M

- Eliminate the need to manually shovel snow in the winter
- Be able to fix the existing Digester 31 cover in place at lower cost
- Increase sludge level variability

they can be rodded out with the ends removed. The glass lining prevents struvite from sticking to the tubes. Glass lining reduces heat transfer by about 10 percent, so BC will account for this in sizing the heat exchanger.

CO₂ is another way to reduce struvite formation. This can be impractical at most sites, but because T-TSA already recovers CO₂ from boiler exhaust, this may be a simple solution. CO₂ injection into the sludge cooling heat exchanger reduces the pH and inhibits the conditions for struvite precipitation.

Use Pressure-Based Digester Gas System Control Instead of Storage

Digester 31 has a floating cover which provides digester gas storage. The cover is ballasted to provide a variable volume, constant pressure storage device for digester gas system control. There's just one problem: snow. Accumulated snow adds weight to the cover, increasing its effective operating pressure. To date, the mitigation measure has been manual shoveling. While we salute the hearty, dedicated staff who have shoveled the cover, we agree that a better solution is warranted.

BC will start by determining if digester gas storage is required at all. A plant of T-TSA's size, with mostly fixed-cover digesters, should be able to operate with a pressure-based control strategy using just the digester headspace for attenuation. BC has successfully employed this strategy at Santa Rosa, Sacramento, and Roseville.

If this analysis confirms that gas storage is not required, then options include fixing the existing Digester 31 cover in place (lowest cost) or replacing the cover with a new fixed cover. If gas storage is needed, then a dual-membrane

cover replacement is recommended. BC recommended and designed dual-membrane covers for East Bay Municipal Utility District, giving them a digester gas storage and a cover for the price of one.

Any of the new cover alternatives would “unlock” your existing liquid level constraint and allow for more sludge equalization upstream of dewatering.

Collaboratively Develop a Robust Design



A “design” is both a process and a deliverable. BC's design process will be done in collaboration with T-TSA to:

- Make good, cost-informed decisions
- Manage project risks
- Build consensus around solutions that best meet your goals

To facilitate the design process, we use three-dimensional design tools and bring live visual models to workshops to promote T-TSA staff engagement and reviews. We also use construction professionals, not engineers, to produce accurate cost estimates, and engage our construction management team and operations specialists to perform constructability and operability reviews.

Our design deliverables are a robust set of plans and specifications that facilitate a transparent bid process and minimize change orders during construction. BC is committed to providing T-TSA this effective, successful design process and deliverable experience.

Digester Upgrades // East Bay Municipal Utility District

When replacing two of the District's failing floating digester covers, BC worked with staff to figure out what type of cover to use. When they expressed a desire to better control their digester gas production to match their co-generation system, we helped select and design dual membrane covers with customized actuated air control valves. This modification, along with a control strategy that BC developed, allowed the membranes to store and release digester gas in an active, controlled way that also integrated with the rest of their existing digester gas management and co-generation system. This also reduced flaring and increased the plant's utilization of digester gas.



Reduce Emissions and Leverage Funding Opportunities with Heat-to-Power

BC acknowledges that T-TSA's size, location, and thermophilic operation require a heat-first digester gas utilization strategy. Traditional co-generation solutions are unable to deliver adequate heat or return on investment.

In winter months, all digester gas will be consumed in the boilers for the purpose of making heat for the digesters and plant comfort. Delivering an efficient system will reduce the need for natural gas blending.

During summer months though, digester gas production exceeds boiler fuel demand and is flared. This increases greenhouse gas emissions (beneficial use of renewable digester gas is considered biogenic, but flaring is not), increases criteria pollutant emissions (the boilers burn cleaner than the flare), and decreases CO₂ recovery for liquid stream treatment.

BC proposes to evaluate an Organic Rankine Cycle (ORC) technology to use your installed boiler capacity and available digester gas to convert heat into renewable electricity. With ORC, all digester gas would be used for heat, even more than process demands, to avoid flaring. The extra heat would be used to drive the ORC process and make power. Any additional heat would be wasted using a radiator.

Funding Opportunities

The Digester Improvements Project has many aspects that are aligned with environmental policy. There is a dynamic funding environment for projects that make renewable energy and reduce emissions. Potential opportunities include:

- Clean Energy Investment Tax Credit for projects that produce electricity with zero greenhouse gas emissions. This could make the ORC eligible for a 30 percent tax credit. This tax credit was created in the Inflation Reduction Act (IRA) of 2022. BC leads our industry in capitalizing on this credit.
- Carbon capture credits for CO₂ scrubbing. This project is likely too small to qualify for IRA credits, but may qualify for other incentives.
- Fugitive methane emission reduction incentives for sealing the existing floating cover and retiring the existing flare.

Throughout our proposal, BC has proposed digester improvements that would support renewable energy initiatives and reduce emissions, by:

- Reducing flaring
- Replace all existing boilers with new boilers
- Recovering energy
- Reducing natural gas blending

In addition, our recommendations help align this project to attract funding, including:

Finding Opportunities

- Clean Energy Investment Tax Credit
- Carbon capture credits
- Fugitive methane emission reduction incentives

If T-TSA should choose to implement one or more of our renewable energy recommendations, BC will leave no stone unturned to pursue grants, credits, and incentives.



Energy Recovery Project // City of Roseville

When Roseville asked BC to evaluate renewable energy alternatives, we took a simple but aggressive approach: do the right project and align it with funding opportunities—knowing we were doing exactly what the State of California was moving toward. We identified and recommended a project that best fit Roseville's needs—upgrading their digester gas to renewable compressed natural gas vehicle fuel. We then monitored the State's funding opportunities. We ended up winning THREE different grants for the project totaling over \$7M. We also helped Roseville get Renewable Identification Number and Low Carbon Fuel Standard credits for vehicle fueling.



Scope of Work

SECTION 3



Section 3 **Scope of Work**

BC has adopted the Scope of Work included in T-TSA's Request for Proposals, Section 4—Attachment B. This detailed scope is included in Appendix B of this proposal.

Although some tasks have been reorganized, we have retained the detailed requirements and deliverables. For example, project support tasks which span multiple design deliverables (i.e., permitting) have been separated into their own section. Where applicable, BC added additional detail to clarify our assumptions in translating scope to level of effort.

Upon selection, BC looks forward to further collaboration toward scope and effort refinement that meet T-TSA's project goals.

Proposed Organization Chart, Team Members, and References

SECTION 4



Section 4 Proposed Organization Chart, Team Members, and References

A leader in digestion and heating systems, the BC team knows how to help agencies increase system reliability, ease operations, and improve recovery.

The BC team introduced in this section brings relevant expertise in boilers, digestion, digester gas management, and regulatory permitting in California. This is a team that works well together, turns challenges into opportunities, and thrives on delivering exceptional client service. As shown in Figure 4-1, each team member has a role to play based on their skill set and ability to provide a heating system and digester system improvements that improve reliability and operability, and provide the necessary flexibility to meet future process changes.

Profiles for key personnel and brief summaries of our entire staff are provided on the following pages.

Business History and Affiliation

BC is a full-service environmental engineering and construction services firm. Since our founding, we have been an employee-owned firm without the need for any mergers, acquisitions, or re-organizations. BC is not part of any affiliation or joint venture with another firm.





Figure 4-1 // Proposed Organization Chart
All team members identified herein are designated as full-time staff.



Adam Ross, PE, PMP  
PROJECT MANAGER
Sacramento

Colin Casey, PE 
DESIGN MANAGER
Sacramento

QA/QC REVIEWER
Kenny Klittich, PE 
San Diego

COLD WEATHER ENVIRONMENT BUILDING
MECHANICAL TECHNICAL ADVISOR
Dan Stewart, PE, LEED AP  
Saint Paul

Task Leads

Samuel Ross  
STAFF ENGINEER
Sacramento

George Ghush, PE, SE, LEED AP*3
STRUCTURAL
Reno

Hunter Adrian, PE 
BUILDING MECHANICAL
Sacramento

Dane Forsberg, PE
ELECTRICAL AND I&C
Sacramento

Davina Carboni, PE
CIVIL
Sacramento

Selena Huang³
ARCHITECTURAL
Reno

Project Support

GEOTECHNICAL
Shaun Smith, PE, LEED AP*2
Jonathan Payne, PE, PG, CEG*2
Reno

AIR PERMITTING
Jennifer Border, PE
Sacramento/Davis

O&M
Leslie Knapp
Sacramento

CONSTRUCTABILITY REVIEW/
CONSTRUCTION MANAGEMENT
Tony Knapp, PE
Sacramento

CALIFORNIA ENVIRONMENTAL
QUALITY ACT (CEQA)
Nanette Hansel¹
Stateline
Stephanie Rasmussen¹
Sacramento

COST ESTIMATING
Dan Goodburn
Denver

FUNDING SUPPORT
Alison Nojima, PE
San Francisco

SURVEY
Kevin German, PLS⁴
Reno

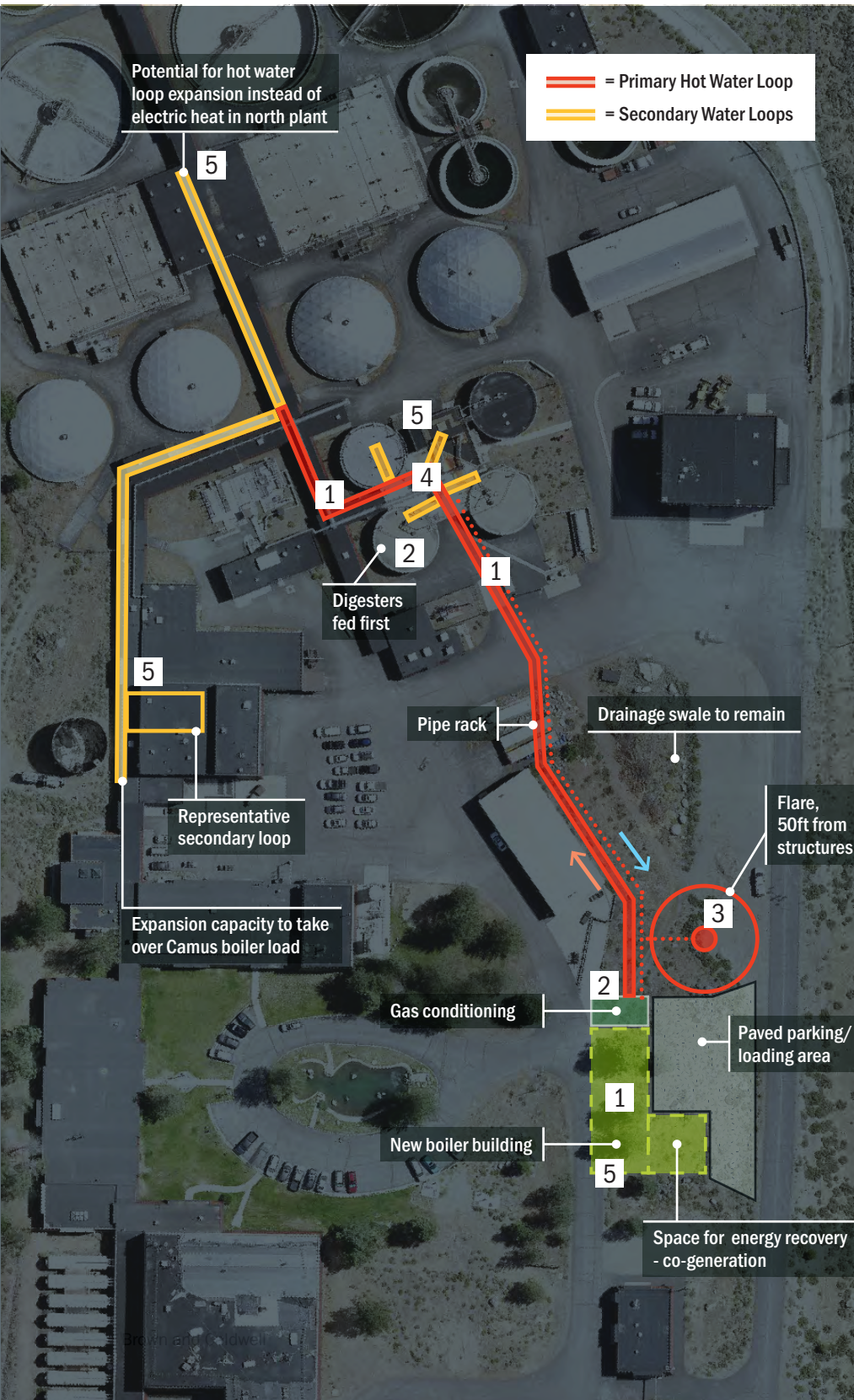
HAZARDOUS MATERIALS
Philip Childers, CEM, CAC⁵
Reno

KEY  Key Staff  Mechanical *Licensed Outside California

1. Ascent Environmental
2. Black Eagle Consulting
3. BJG Architecture & Engineering
4. CFA, A Bowman Company
5. Converse Consultants

Team Members

Thinking of the plant as a whole while keeping potential future processes in mind, we offer team members with experience in every part of an anaerobic digester system to provide a reliable heating solution and digestion improvements that meet your immediate needs while positioning you to easily integrate any future changes.



Boilers and Heat Loop

Adam Ross, Samuel Ross,
Jennifer Border, Leslie Knapp



Digester Improvements

Adam Ross, Samuel Ross,
Leslie Knapp



Flare

Colin Casey, Jennifer Border



NFPA 820 Compliance

Adam Ross, Hunter Adrian



Comfort Heating

Hunter Adrian, Dan Stewart



Adam Ross, PE, PMP

Project Manager

Adam’s passion centers around two objectives: helping agencies build long-lasting, dependable wastewater treatment facilities and realizing the potential in every facet of a digester system. When these objectives align, he is unmatched in making your investment today serve you for generations.

Adam is a mechanical and civil engineer who has dedicated his career on anaerobic digestion, boiler systems, biogas utilization, renewable energy, and co-digestion of organic waste. His experience includes energy efficiency improvements, digester gas management, digester heating, mixing, feed systems, and alternative waste digestion (FOG/ HSW and algae). Adam has helped plan and design some of the largest digestion and energy projects in the Northern California, including those showcased below. As a realistic,

big picture thinker, Adam knows how to help agencies determine the best path forward for the facilities they build or repair—not just for today, but for decades.

As BC’s Climate Change and Resilience Strategy leader, he is invested in helping WWTPs replace aging infrastructure with more resilient systems that are designed for future scenarios, while finding solutions that are efficient, clean, and resilient.



City of Roseville

Energy Recovery Project

Adam helped Roseville realize their energy recovery goals by designing an innovative renewable biofuel facility that is now powering 10 percent of the plant and fueling 30 trucks a day.



Adam not only led design of the biofuel facility that included digester gas conditioning system and upgrading the digester gas system, but he also aligned the project to attract funding: \$3M awarded from the California Energy Commission, \$4M in loan forgiveness from the Clean Water State Revolving Fund (Green Project Reserve), and a \$180K Clean Air Grant from the local air district. Now that the facility is in startup, we are also pursuing IRA funding.



East Bay Municipal Utility District

Digester Upgrades

In three phases, Adam helped upgrade nearly every system within the District’s digester facility, transforming it into a resource recovery, renewable energy facility that is one step closer to net zero.



As part of the District’s Resource Recovery Program, Adam has led various strategic digester and biogas upgrades that have supported them in feeding non-traditional organic wastes to the anaerobic digesters for vastly increased energy production. Improvements included installation of a new boiler, a heating system able to operate in thermophilic mode to achieve Class A biosolids, and digester storage that helped reduce flaring.



SacSewer (formerly Regional San)

BioGeneration Facility Project

Serving as an Owner’s Advisor, Adam is working with SacSewer staff to replace their existing steam boilers and beneficially use biogas and generate heat to power onsite.



Adam has led this project from study through Contractor selection. A critical component of the project has been ease of O&M for this new 13.4 megawatt facility. From completely abandoning the existing steam system in favor of a new hot water system, to integrating a new pressure-based control strategy to avoid gas holder rehabilitation, to a design-build procurement requiring the Contractor to “prove out” the facility for a year, Adam has considered ease of operations in every project decision.

“ Adam has been working continuously on all aspects of our digestion system for nearly a decade. He has had a hand in improving our digester covers, mixers, gas management system, digester heating system, feed system, transfer system, and new FOG and blend tank systems. He has been closely involved in all of these projects from conception through construction. Adam is a valuable extension of our staff who has proven himself both as a mechanical/process engineer with an eye for detail and as a responsive project engineer.

— MICHIKO MARES, Engineering Manager of Construction, East Bay Municipal Utility District



Engaged and Committed Key Team Members



Colin Casey, PE

Design Manager

Colin is a process mechanical lead in BC's NorCal-Sierra region, where he specializes in gas burner and gas management designs that meet air quality management district permitting and regulations requirements.

Colin is well-versed in working in cold climates, having supported agencies such as the City of Sparks and Placer County on numerous infrastructure design and rehabilitation efforts. As a design manager, Colin focuses on improving the existing digestion systems at regional WWTPs and designing replacements to digesters and digester components that have reached the end of their useful life.

- Project Manager // Digester 4 Cover Replacement Design, Truckee Meadows Wastewater Reclamation Facility, City of Reno, NV
- Project Manager // Waste Gas Burner Replacement, City of Santa Rosa, CA

Samuel Ross, EIT

Staff Engineer

Sam specializes in the retrofit and design of boilers, chillers, pumps, variable frequency drives, and heat exchangers.

Sam has performed cradle-to-grave services on numerous WWTP projects, and understands the intricacies associated with designing and constructing in cold weather environments, having performed work for such agencies as the City of Reno. Sam takes the lead in determining various alternatives for digestion and gas management systems, including determining project drivers, costs associated with alternatives, and weighing pros and cons of various pathways.

- Staff Engineer // Bioenergy Generation Project, Fairfield-Suisun Sewer District, CA
- Staff Engineer // Digester 4 Cover Replacement Design, Truckee Meadows Wastewater Reclamation Facility, City of Reno, NV

Dan Stewart, PE, LEED AP

Technical Advisor










(Cold Weather Environment Building Mechanical)



Dan is well-versed in NFPA requirements, and strengthens our team with his cold weather design skills with many of his mechanical engineering designs being developed for WWTP infrastructure in areas that experience extreme cold.






As an HVAC subject matter expert and national discipline lead, Dan's duties include HVAC design support from the planning phases through construction. Additionally, he provides company wide QA/QC of building HVAC designs, coordination of building HVAC designs with multiple disciplines, and standardization of HVAC design methods.

- Lead Mechanical Engineer/Mechanical Engineer of Record // Biosolids Digester Facilities Project, San Francisco Public Utilities Commission, CA
- Lead Mechanical Engineer/Drafter // Hot Water and Chilled Water Plant, Trait Conversion Acceleration, Syngenta, ID

Our support staff and subconsultants provide integral support to the project.

Team Member/Role	Technical Area of Expertise
 <p>Kenny Klittich, PE  QA/QC Reviewer</p>	<p>Kenny is BC's Energy Subject Matter Expert and supports biogas, biosolids, and co-digestion projects. He assesses and verifies planning and design recommendations for beneficial use of digester gas, carefully considering capital and operating costs and ease of O&M.</p> <ul style="list-style-type: none"> - QC Reviewer // Hyperion Flare Implementation Plan and Burner Replacement, City of Los Angeles, CA - Digester Gas Technical Advisor // J-124 Digester Gas Facilities Rehabilitation, Ultra-low Emissions Waste Gas Flares, Orange County Sanitation District, CA
 <p>Hunter Adrian, PE  Building Mechanical</p>	<p>A process mechanical engineer, Hunter evaluates HVAC systems in need of repair or replacement, and develops smart designs that will fit well into a plant's overall footprint. He brings extra value with his knowledge of applicable local codes and regulations, where he provides engineering solutions that will be accepted in the regulatory environment.</p> <ul style="list-style-type: none"> - Mechanical Engineer // Waste Gas Burner Replacement, City of Santa Rosa, CA - Mechanical Engineer // Biogas Alternatives Feasibility Assessment and BioGeneration Facility, SacSewer, CA
 <p>Dane Forsberg, PE Electrical and I&C</p>	<p>Dane's designs include motor control centers, variable frequency drives, instrumentation and control systems, programmable logic controller, and SCADA systems. He is skilled in designing electric power and control systems to modernize and extend the useful life of both water and wastewater treatment plants.</p> <ul style="list-style-type: none"> - Electrical Engineer // Primary Digester No. 7, Union Sanitary District, CA - Lead Electrical and Instrumentation Engineer // Cogeneration System Replacement, Delta Diablo Sanitation District, CA
 <p>Davina Carboni, PE Civil</p>	<p>Davina has an environmental background in civil engineering and specializes in the rehabilitation of water, sewer, and storm drain infrastructure for a variety of private and public sector clients across California and Nevada.</p> <ul style="list-style-type: none"> - Project Engineer // Digester and Thickener Facilities Upgrades, City of San José, CA - Project Engineer // Harvest Water Program Capital Program Management, SacSewer, CA
 <p>Alison Nojima, PE Funding Support</p>	<p>As a national energy specialty leader at BC, Alison directs BC's IRA funding initiative, helping agencies build a clean energy economy while reducing greenhouse gas emissions. She helps clients successfully secure IRA and other funding by helping them understand funding options and prepare applications.</p> <ul style="list-style-type: none"> - Funding Support // Cogeneration System Replacement, Delta Diablo Sanitation District, CA - Engineering and Funding Support // Digester and Thickener Facilities Upgrade, City of San José, CA
 <p>Jennifer Border, PE Air Permitting</p>	<p>As a former regulator at a San Francisco Bay Area air quality management district, Jennifer brings a unique understanding of California Air Quality Management District requirements. She compiles all necessary information for permits, prepares emissions estimates, reviews rules and regulations for applicability, and works with regulators to meet permitting requirements.</p> <ul style="list-style-type: none"> - Permitting Task Lead // Biogas Alternatives Feasibility Assessment and BioGeneration Facility, SacSewer, CA - Permitting Task Lead // Bioenergy Generation, Fairfield-Suisun Sewer District, CA
 <p>Leslie Knapp, EIT O&M</p>	<p>Leslie is part of BC's O&M group and brings a broad understanding of wastewater operation having been a licensed operator at numerous WWTPs. With vast experience in O&M, commissioning/start up planning and testing, and operator training—she knows what it takes to engage operators to safely preserve maintenance of plant operations from design through start up of the facilities.</p> <ul style="list-style-type: none"> - O&M Representative // EchoWater Program Management, SacSewer, CA - Commissioning Engineer // Energy Recovery Project, City of Roseville, CA

Team Member/Role	Technical Area of Expertise
 <p>Dan Goodburn Cost Estimating</p>	<p>Dan develops reliable anticipated cost of materials and delivery times for accurate cost estimates. He is proficient with cost estimating software, where he establishes sound budgets, monitors financial performance, and maintains cost control.</p> <ul style="list-style-type: none"> - Lead Estimator // Waste Gas Burner Replacement, City of Santa Rosa, CA - Lead Estimator // J-124 Digester Gas Facilities Rehabilitation, Orange County Sanitation District, CA
 <p>Lauren Riley, PE Civil Support</p>	<p>Lauren's background includes the evaluation, planning, design, rehabilitation, and construction support for wastewater facilities and infrastructure. Her strong knowledge of civil design and drafting technologies help successfully capture and analyze design concepts and maintain consistency of design throughout a project's lifecycle.</p> <ul style="list-style-type: none"> - Deputy Project Manager/Resident Engineer // Energy Recovery Project, City of Roseville, CA - Construction Management Support // Pleasant Grove Wastewater Treatment Plant Expansion, City of Roseville, CA
 <p>Tony Knapp, PE Constructability Review/Construction Management</p>	<p>During construction, Tony brings expertise in handling and reviewing shop drawings, requests for information, change orders, correspondence with various stakeholders, coordinating design changes, and managing subconsultants. He can also assist construction managers and resident engineers in mitigating any scheduling issues and bottlenecks to achieve project milestones on time.</p> <ul style="list-style-type: none"> - Construction Manager, Inspector // Energy Recovery Project, City of Roseville, CA - Construction Manager, Inspector // Pleasant Grove Wastewater Treatment Expansion, City of Roseville, CA

Subconsultant/Role	Technical Area of Expertise
	<p>Ascent integrates planning and environmental review with years of experience in project implementation to develop an effective and streamlined approach to regulatory compliance.</p> <ul style="list-style-type: none"> - NEPA and CEQA Services // Tahoe Cedars Water System Improvement Project, Tahoe City Public Utility, CA - Environmental Impact Report // BioGeneration Facility, SacSewer, CA
 <p>Structural/Architectural</p>	<p>BJG Architecture & Engineering is an architectural and structural engineering firm helping agencies determine or confirm structural integrity to plan design or repair of their assets.</p> <ul style="list-style-type: none"> - Structural Services // Clarifier Rehabilitations, Truckee Meadows Water Reclamation Facility, City of Sparks, NV - Structural Services // Grit Facility, Truckee Meadows Water Reclamation Facility, City of Sparks, NV
	<p>Black Eagle Consulting provides geotechnical engineering services to help clients understand soil conditions and recommend design parameters that support capital improvement projects.</p> <ul style="list-style-type: none"> - Geotechnical Investigations // Site Improvements, T-TSA, CA - Geotechnical Investigations // Water Treatment Plant, Tahoe City Public Utility District, CA
 <p>Hazardous Materials</p>	<p>Converse Consultants helps property owners comply with reporting and/or planning requirements when hazardous materials are present on-site.</p> <ul style="list-style-type: none"> - Asbestos and Lead Paint Evaluation / Nitrification Tower Design, Truckee Meadows Water Reclamation Facility, City of Reno, NV - Lead and Asbestos Investigation / Digester 4 Cover Replacement Design, Truckee Meadows Wastewater Reclamation Facility, City of Reno, NV
 <p>Survey</p>	<p>CFA works extensively in all facets of land surveying to help agencies determine the appropriate scope of services and level of accuracy to meet project objectives.</p> <ul style="list-style-type: none"> - Surveying // Fluidized Bed Reactors Evaluation, City of Sparks, CA - Surveying // Lear Lift Station Improvements, City of Reno, NV

References

Table 4-1 is a list of similar ongoing or completed projects that demonstrate our ability to perform the requested services. Project summaries follow for seven of the most significant projects that show BC's ability to consistently deliver high-quality solutions to digester systems to help agencies increase system reliability, ease operations, and improve recovery.

Table 4-1 // Digester Experience

Project Name + Client	Plant Capacity (mgd)	AREA OF EXPERTISE									
		Completed Within 5 Years	Digester Design/Rehab	Hot Water Boiler	Hot Water Loop	Waste Gas Burner	Gas Conditioning	Gas Management	Ventilation (NFPA 820)	Steam to Hot Water Transition	
Digester Upgrades (Phases 1–3) East Bay Municipal Utility District, CA	60	■	■	■	■			■	■		
BioGeneration Facility Project SacSewer, CA	330	■		■	■		■	■		■	
Digester and Thickener Facilities Upgrades City of San José, CA	100	■	■		■	■		■	■		
Primary Digester No. 7 Design and Digester Efficiency Study Union Sanitary District, CA	30	■	■	■	■						
Cogeneration System Replacement Delta Diablo Sanitation District, CA	12	■		■	■		■	■	■	■	
Waste Gas Burner Replacement City of Santa Rosa, CA	30	■				■		■			
Energy Recovery Project City of Roseville, CA	12	■			■		■	■			
Bioenergy Generation Project Fairfield-Suisun Sewer District, CA	23	■			■		■	■		■	
Biosolids Management Strategic Plan, Cogeneration Upgrade, and HSW Receiving Station City of Santa Rosa, CA	30	■			■		■	■			
Southeast Plant Biosolids Digester Facilities Project San Francisco Public Utilities Commission, CA	85	■	■			■	■	■	■		

92% of BC staff participated in one or more of the local projects presented herein.



Pictured here [L to R]: Lauren Riley, Kenny Klittich, Adam Ross, Alison Nojima

To advance the District's path to net zero, BC upgraded nearly every system within the District's digester facility in three phases, transforming it into an industry-leading resource recovery facility.



Digester Upgrades

East Bay Municipal Utility District, CA

REFERENCE

Gary Lin, Associate Engineer
East Bay Municipal Utility District
2020 Wake Avenue
Oakland, CA 94607
P | 510.287.1657
E | gary.lin@ebmud.com

DATES OF SERVICE

April 2005–December 2008

(Phase 1)

February 2007–April 2009

(Phase 2)

February 2009–December 2016

(Phase 2 construction)

June 2018–Ongoing (Phase 3)

LITIGATION STATUS

None

KEY STAFF, ROLE

Adam Ross, Project Manager
Kenny Klittich, Project Engineer
Hunter Adrian, Project Engineer

In 2001, BC began pre-design studies to evaluate four digester mixing systems and review digester cover replacement options for the District's 11-digester system.

The digesters ranged in age from 23 to 50+ years. Through Phases 1 and 2, BC upgraded eight of the 11 digesters. Key elements included:

- Designing fixed steel covers with internal mechanical draft tube mixing that increased active volume and volatile solids reduction
- Providing for digester gas storage for better control of cogeneration engines and reduced flaring
- Developing a control strategy that stabilized and simplified system performance
- Developing a new feed system that improved process O&M
- Designing a heating system with the ability to operate in thermophilic mode to achieve Class A biosolids

Phase 3 upgrades for the remaining three digesters is currently in construction, and features dual-membrane covers and pump mixing for the three second-stage digesters that will complete the District's digester renewal and transformation to a resource recovery facility.

BC also designed one of the largest FOG receiving facilities in the nation with a 100,000-gallons-per-day receiving capacity. These combined digester and biogas upgrades support feeding non-traditional organic wastes to the anaerobic digesters for vastly increased energy production as part of their resource recovery program.

The District's wastewater treatment plant was the first in North America to become a net energy producer, producing more power than needed for the plant. They are able to sell surplus electricity earning revenue from power sales that help keep rates low.

Similar Scope Features

- Hot water boiler (Clever Brooks)
- Hot water loop improvements, including pumps, controls, and expansion tanks
- Sludge heat exchangers for thermophilic digestion
- Digester gas storage evaluation (existing covers and storage tank)
- Dual-membrane digester covers
- HSW facility
- Ventilation improvements for declassification (NFPA 820)

BC is serving as SacSewer’s Owner’s Advisor on a 13.4 megawatt combined heat and power design-build project that replaces the existing steam boilers and offsite gas use with onsite engines, fuel cell, and digester gas conditioning to produce renewable electricity and heat for the plant.



BioGeneration Facility Project and Gas Management System Improvements

SacSewer, CA

REFERENCE

Steve Nebozuk, Senior Civil Engineer

SacSewer
8521 Laguna Station Road
Elk Grove, CA 9575
P | 916.878.6118
E | nebozuku@sacsewer.com

DATES OF SERVICE

August 2019–Ongoing (design)
June 2018–March 2023 (study)

LITIGATION STATUS

None

KEY STAFF, ROLE

Adam Ross, Project Manager
Kenny Klittich, Project Engineer
Alison Nojima, Engineer
Hunter Adrian, Mechanical Engineer
Jennifer Border, Permitting Lead
Samuel Ross, Field Manager

BioGeneration Facility Project

An agreement between SacSewer and the Sacramento Metropolitan Utility District expires in 2025 stipulating that SacSewer provide reliable utility and backup power, steam for digester heating, and revenue in exchange for biogas delivery. BC evaluated several biogas utilization options, including onsite cogeneration and upgrading onsite vehicle fueling and biomethane pipeline injection. Alternatives considered energy and financial modeling, schedules and delivery method options, and the applicability of the California Accidental Release Program.

SacSewer choose an onsite biogas cogeneration alternative via a design-build delivery method. We are providing Owner’s Advisor services for the 13.4 MW internal combustion engine and fuel cell cogeneration facility that includes hot water boilers (standby), a biogas conditioning system, and a new building. We completed a technical Basis of Design Report to establish project definition, including advancing environmental permitting efforts (CEQA and air permitting applications) and are providing full procurement support.

Gas Management System Improvements

BC also helped SacSewer address periodic uncontrolled venting of digester gas, posing an environment risk and drawing regulatory scrutiny. We developed a transient gas system model to assess the existing system, storage, and controls to diagnose venting problems. Subsequently, BC designed the following improvements:

- Refurbished the ground flares and waste gas burners with new controls
- Replaced digester gas piping, valves, and condensate tanks
- Installed new control valves, new flow, and pressure instrumentation
- Programmed new control strategies to prevent uncontrolled digester gas venting

Similar Scope Features

- Transition from steam heating system to hot water
- Hot water boiler
- Hot water loop improvements, including pumps, controls, and expansion tanks
- Digester gas storage evaluation (existing gas holders and storage tank)
- HSW receiving facility optimization
- Digester gas conditioning
- Gas management system improvements, including flare controls

BC leveraged an ordinary digester rehabilitation into a transformative upgrade to the biosolids process, transitioning the plant to temperature-phased anaerobic digestion (the largest in North America) and setting the stage for future Class A operation and HSW receiving.



Digester and Thickener Facilities Upgrades

City of San José, CA

REFERENCE

Alicia Alba, Principal Engineer
City of San José
700 Los Esteros Road
San José, CA 95134
P | 408.635.4003
E | alicia.alba@sanjoseca.gov

DATES OF SERVICE

January 2014–June 2023

LITIGATION STATUS

None

KEY STAFF, ROLE

Adam Ross, Project Engineer
Kenny Klittich, Mechanical Engineer
Alison Nojima, Engineer
Davina Carboni, Project Engineer
Dan Goodburn, Lead Estimator

BC, with a teaming partner, completed upgrades and improvements to four anaerobic digesters (out of 16), six dissolved air flotation thickeners (out of 16), and a digester gas system. We also converted their mesophilic digestion process to a temperature (thermophilic/mesophilic) phased anaerobic digestion process that included an odor control system and replacing the existing flares. BC provided preliminary, detailed design, and engineering services during construction for the following:

- New sludge screening and thickening facilities that distribute thicker sludge to four rehabilitated digesters that accept high organic loadings and process sludge at thermophilic temperatures.
- New sludge cooling facilities that reduce sludge temperature to mesophilic temperatures and the sludge will be distributed to existing digesters comprising the second-stage digestion process.
- Digester gas piping improvements to improve site safety.
- New gas storage system to improve control of the gas management system.

- Conceptual design for ultra-low NOx flares to replace aging waste gas burners and comply with strict air permitting requirements.

With the new digester systems in place, the facility will operate a Class B thermophilic/mesophilic phased anaerobic process with the flexibility to produce Class A biosolids in the future with the addition of batch tanks.

Similar Scope Features

- Temperature-phased anaerobic digestion system design
- Sludge heat exchangers for thermophilic digesters
- Sludge cooling heat exchangers between thermophilic and mesophilic digesters
- Hot water loop improvements, including pumps, controls, and expansion tanks
- Gas management system
- Digester gas storage replacement
- Ultra-low NOx flares
- Ventilation improvements for declassification (NFPA 820)

To help the District’s Alvarado Wastewater Treatment Plant create redundancy, improve efficiency, and achieve reliable capacity, BC designed a new state-of-the-art mesophilic anaerobic digester and hot water boiler.



Primary Digester No.7 Design and Digester Efficiency Study

Union Sanitary District, CA

REFERENCE

Curtis Bosick, Associate Engineer
 Union Sanitary District
 5072 Benson Road
 Union City, CA 94587
 P | 510.477.7607
 E | curtisb@unionsanitary.ca.gov

DATES OF SERVICE

November 2017–December 2019 (design); January 2020–Ongoing (construction); February 2023–Ongoing (study)

LITIGATION STATUS

None

KEY STAFF, ROLE

Adam Ross, Project Manager
Kenny Klittich, Heating Lead
Alison Nojima, Engineer
Dan Goodburn, Cost Estimator
Dane Forsberg, Electrical Engineer

Primary Digester No. 7 Design

During preliminary design, BC evaluated various cover, bottom, and mixing configurations. We considered future operating modes such as co-digestion, recuperative thickening, and thermophilic digestion. We also evaluated existing solids process data to help determine the best size for Digester 7, keeping in mind the District’s future capacity goals. Additionally, we became familiar with utilities near the proposed sites for Digester 7 to determine tie-ins and impacts to the existing system, and identified construction sequencing events.

In design, we incorporated features to ease O&M needs relating to struvite and rapid-rise events, such increased size and redundancy of safety devices. We worked with District staff to understand existing facility operations and develop construction sequencing to limit disruption to the solids processes resulting in the new boiler being constructed and started up with no disruption to digester heating.

We provided engineering support during construction, including creating process trainings for O&M staff, and provided startup and commissioning support to bring Digester 7 online.

Digester Efficiency Study

Currently, BC is evaluating digester efficiency at the District’s Alvarado Wastewater Treatment Plant. The study seeks to improve digester mixing, heating, and feeding. BC’s evaluation of the heat loop resulted in recommendations that will ease decades-long issues with their hot water system. Most notably, through modeling and troubleshooting, we identified that a buried portion of the system was designed and constructed incorrectly with cross connections that undermine the intent of a primary/secondary loop system. These findings were validated by subsequent potholing. BC has provided recommendations that will fix the system.

Similar Scope Features

- Hot water boiler
- Hot water loop improvements, including troubleshooting, modeling, and recommendations
- Sludge heat exchanger for future thermophilic capacity

To attain greater energy independence, BC is designing a new combined heat and power system for Delta Diablo Sanitation that expands biogas utilization and generates renewable energy and revenue.



Cogeneration System Replacement

Delta Diablo Sanitation District, CA

REFERENCE

Mark Guadagni, Associate Engineer

Delta Diablo Sanitation District
2500 Pittsburg-Antioch Hwy
Antioch, CA 94509
P | 925.756.1947
E | markg@deltadiablo.org

DATES OF SERVICE

February 2023–Ongoing

LITIGATION STATUS

None

BC KEY STAFF, ROLE

Adam Ross, Project Manager
Kenny Klittich, QA/QC Reviewer
Alison Nojima, Funding Support
Dan Goodburn, Cost Estimating
Dane Forsberg, Lead Electrical and Instrumentation Engineer
Hunter Adrian, Mechanical

The District's biogas resource recovery depends entirely on a single, 30-year-old cogeneration system. To expand biogas utilization and generate renewable energy, BC is designing a new cogeneration system, coupled with a HSW receiving facility, that will move the District one step closer to net zero.

BC is completing an alternatives analysis, pre-design, and detailed design. Design includes a new digester gas conditioning system, cogeneration engine, and hot water boiler. The new heating system will include new heat sources (engine and boiler), primary loop pumps, and expansion tanks. We already identified issues with the existing secondary loops which will be fixed as part of this project. The updated system will dramatically reduce O&M effort.

To align this project with future District initiatives, we are sizing the cogeneration system to accommodate an upcoming secondary improvements project that may increase sludge loading, heat demand, digester gas production, and plant power consumption. We are also considering the District's desire to revitalize their trucked waste receiving program which would increase digester gas production.

Regardless of future possibilities, BC is working with the District to design a cogeneration system that can support their future initiatives through power production, heat delivery, and gas conditioning capacity.

Similar Scope Features

- Transition from steam heating system to hot water
- Hot water boiler
- Hot water loop improvements, including pumps, controls, and expansion tanks
- Digester gas storage evaluation (existing gas sphere)
- HSW receiving facility study
- Digester gas conditioning
- Ventilation improvements for declassification (NFPA 820)

BC completed design of a new waste gas burner to supplement Santa Rosa's existing candlestick flare, ultimately selecting Varec's 244E model to address their unique digester gas conditions.



Waste Gas Burner Replacement

City of Santa Rosa, CA

REFERENCE

Liz Hanley, Project Manager
City of Santa Rosa
4300 Llano Road
Santa Rosa, CA 95407
P | 707.543.3862
E | lhanley@srcity.org

DATES OF SERVICE

January 2021–Ongoing

LITIGATION STATUS

N/A

KEY STAFF, ROLE

Colin Casey, Project Manager
Adam Ross, Principal-in-Charge
Kenny Klittich, QA/QC Reviewer
Dan Goodburn, Cost Estimating
Hunter Adrian, Mechanical Engineer
Jennifer Border, Permitting Lead

The City of Santa Rosa's Laguna Wastewater Treatment Plant operates a gas system consisting of four internal combustion engines, gas treatment and conditioning, a high strength waste receiving station, and four anaerobic digesters. To address safety concerns and address gas management constraints, BC helped design a cogeneration system and is now supporting the City with the replacement of their existing candlestick flare.

The flare replacement project includes evaluating waste gas burner manufacturers and models to determine the most efficient size and space required, designing a new waste gas burner system, engineering services during bidding and construction, air permitting, and construction cost estimating.

The City's new waste gas burner was designed to burn digester gas when digester gas production exceeds the City's cogeneration engine fuel requirements, when engines are off-line for maintenance, or when digester gas is of low quality and cannot be used as engine fuel. The City chose to keep their existing candlestick flare for very specific digester cleaning

operations for "burping" the digester during low flow conditions. The existing flare also remained in service through the construction of the project, limiting downtime and shutdowns of their digester gas system.

BC assisted the City in obtaining a modified air permit through California's Bay Area Air Quality Management District by writing an air permit application and supporting the City's development of a start-up and Source Testing Plan.

Similar Scope Features

- Low NOx waste gas burner
- Digester gas and natural gas piping
- Air permitting

To bring Roseville’s energy recovery vision to reality, BC designed a groundbreaking waste-to-energy plant that will produce electricity, onsite heat, and includes renewable natural gas derived from digesting organics to fuel the City’s solid waste truck fleet.



Energy Recovery Project

City of Roseville, CA

REFERENCE

George Hanson, Project Manager
City of Roseville
1800 Booth Road
Roseville, CA 95747
P | 916.746.1764
E | ghanson@roseville.ca.us

DATES OF SERVICE

September 2017–Ongoing

LITIGATION STATUS

None

BC KEY STAFF, ROLE

Adam Ross, Project Manager/
Energy Task Lead
Lauren Riley, Deputy Project
Manager/Resident Engineer
Kenny Klittich, QA/QC Reviewer
Alison Nojima, Project Engineer
Dane Forsberg, Electrical
Engineer/Inspector
Leslie Knapp, Commissioning
Engineer
Tony Knapp, Construction
Manager/Inspector

While expanding the Pleasant Grove Wastewater Treatment Plant, the City wanted to explore the opportunity of beneficially using digester gas from their new digesters. BC helped the City understand their options by evaluating digester gas use technology alternatives and recommending an economically favorable project to maximize the renewable gas quantity and capitalize on available digester capacity.

BC evaluated multiple biogas utilization technologies, including microturbines, engine-generators, and biogas upgrading for vehicle fuel. BC completed detailed design of an innovative renewable biofuel production facility comprised of four microturbine cogeneration units, a HSW receiving facility, a digester gas conditioning system, and a digester gas upgrading system with onsite vehicle fueling. Design features provide substantial operational flexibility to allow the City to modulate when biogas is used for vehicle fuel versus cogeneration and adapt to local market conditions.

BC also identified and delivered three grants to help fund the project: a \$3M award from the California Energy Commission, \$4M in loan forgiveness from the Clean Water State Revolving Fund (Green Project Reserve), and a \$180K Clean Air Grant from the local air district. This project is in startup and will pursue IRA funding.

Construction for all improvements is nearly complete. Since late 2022, the City has been able to fuel up to 30 trucks a day and power 10 percent of the plant.

Similar Scope Features

- HSW receiving facility
- Digester gas conditioning
- Digester gas upgrades

Resumes

SECTION 5



Section 5 Resumes

BC offers a high performing local team with the right people in the right roles to help T-TSA achieve its digestion reliability goals.



The BC team brings relevant experience delivering digester improvements for neighboring agencies.

Recently, several members of our team completed the \$100 million City of San José Digester and Thickener Facilities Upgrade and the \$80 million East Bay Municipal Utility District's Digester Upgrades, and are currently working on the \$2.4 billion San Francisco Public Utilities Commission's Southeast Plant Biosolids Digester Facilities Upgrades. These agencies have been challenged with common publicly owned treatment work issues, including upgrading aging infrastructure, increasing digester capacity, and easing O&M—all while trying to balance the uncertainty of future regulations and the need to increase biogas production.

Our team members have helped these agencies navigate their challenges by understanding their values, culture, infrastructure, and operations. And we have gained their trust by delivering high-quality projects that meet their needs and exceed expectations.

In this section we provide resumes for all team members assigned to this project.

Our team members are directly responsible for making BC a premiere solids-to-energy firm, especially in Northern California, having performed digester, biosolids, and energy work for agencies serving more than 6 million rate payers.



Hunter Adrian, PE

Building Mechanical

A process mechanical engineer, Hunter evaluates HVAC systems in need of repair or replacement, and develops smart designs that will fit well into a plant's overall footprint. He brings extra value with his knowledge of applicable local codes and regulations, where he provides engineering solutions that will be accepted in the regulatory environment.

Biogas Alternatives Feasibility Assessment and BioGeneration Facility Project, SacSewer, CA

Mechanical Engineer. The goal of the feasibility assessment project was to benchmark the value of biogas by developing project alternatives and qualifying their benefits. The benchmark value informed SacSewer of an apparent best alternative, which included extending the current commodity agreement with Sacramento Municipal Utility District, onsite combined heat and power, biomethane pipeline injection, onsite vehicle fueling, or a combination of these. Hunter's took SacSewer's current gas production and projections to develop a net present value and a pros and cons breakdown for each of the alternatives. The project has now moved into design which includes a 12 MW of cogeneration capacity derived from biogas that will be delivered via design build procurement. The BC team is providing Owner's Advisor services for the new biogas cogeneration engine system. **Cost: \$3.5M**

Cogeneration System Replacement, Delta Diablo Sanitation District, CA

Mechanical Engineer. This cogeneration replacement project involves designing a new digester gas conditioning system and cogen engine(s). The new system will position the District to achieve a net zero conditioning system and fuel blending capability in the near-term and align with future energy projects in the long-term. Hunter is coordinating with engine manufacturers and fan vendors to design a ventilation system to meet the engine cooling needs to maximize performance and engine health. **Cost: \$1.3M**

Digester Upgrades, East Bay Municipal Utility District, CA

Project Engineer (Phase 3). Upgrades include new dual membrane covers, addition of a pump mixing system, and replacement sludge piping for the final three original digesters. Hunter is assisting with final process mechanical design of the sludge piping system. **Cost: \$11.5M**

Lift Station Ventilation System Improvements, Moulton Niguel Water District, CA

Mechanical Engineer. Ventilation improvements project includes the evaluation of the existing systems at five wastewater lift stations, reconfiguring the equipment and ducting to improve air movement, and replacement of the ventilation equipment. Hunter is the HVAC design lead for the assessment and redesign of the ventilation systems incorporating NFPA 820 standards and client concerns. **Cost: Unavailable**

Digester Feedstock and Biogas Utilization Master Plan, Fairfield-Suisun Sewer District, CA

Mechanical Engineer. This is a three-part project where BC first modeled the District's current digester feedstock process and determined where there were bottlenecks and where processes could be improved to increase biogas production. Second, BC analyzed different alternatives for what the District could do with their biogas. Hunter worked on sizing equipment, contacting vendors, and modeling the alternatives using the modeled biogas values. These

EDUCATION

M.S., Mechanical Engineering, California State University, Sacramento, 2022

B.S., Mechanical Engineering, California State University, Sacramento, 2014

REGISTRATION(S)

Professional Mechanical Engineer, M41025, California, 2022

EXPERIENCE

7 years

JOINED FIRM

2019

FIRM

Brown and Caldwell

HUNTER ADRIAN // CONTINUED

alternatives consisted of new internal combustion engines, microturbines, rehabilitating the existing engine, pipeline injection, onsite vehicle fueling, and several hybrid options. The last task is to prepare a master planning document that incorporates the findings from the other two tasks including budgetary costs and timelines for construction of the feedstock handling biogas utilization alternatives to allow the District to plan and budget for these facilities.

Cost: \$312K

Gas Management System Rehabilitation and Improvements, SacSewer, CA

Mechanical Engineer. Hunter oversaw the construction of improvements to the digester gas management system for the Sacramento Regional Wastewater Treatment Plant. The project included modeling the existing system to diagnose venting problems at the digesters. The design required changes to every key subsystem, while maintaining operation of the gas managements system throughout construction. He worked with SacSewer staff to coordinate the construction documents, processing request for information, and submittals. **Cost: \$1.4M**

Bioenergy Generation Project, Fairfield-Suisun Sewer District, CA

Mechanical Engineer. After completing the Biogas Utilization Master Plan and recommending a cogeneration upgrade, BC is now preparing the detailed design of a new cogeneration engine which will be installed in the District's existing engine room alongside its existing engine. Hunter is designing improvements to the existing building HVAC system to accommodate the new engine. This includes engine room ventilation for both the existing blower and engine room, including the engine intake and exhaust systems. **Cost: \$1.5M**

Cogeneration Replacement and Ventilation Study, Union Sanitary District, CA

Mechanical Engineer. BC reviewed the District's existing cogeneration system was unreliable and did not deliver on economic payback through a variety of failures. Hunter was involved in dissecting their engine facility system-by-system, specifically the building mechanical and engine fuel systems. He engaged in an onsite testing of the existing HVAC system consisting of supply and exhaust fans distributed through an overhead duct system to determine if the engine system was impacted due to poor HVAC design/performance. **Cost: \$142K**

San Leandro Water Pollution Control Plant Biogas Upgrades, City of San Leandro, CA

Mechanical Engineer. The project tasks included replacing the plant's existing fats, oils, and greases storage and receiving equipment with a high strength waste receiving station and designing a new gas conditioning and compression system to produce and store compressed recovered natural gas derived from biogas via on site tube trailer. Hunter was integral in the equipment sizing, selection, and layout of the system. He coordinated with vendor representatives and communicated with the client to address client comments. **Cost: \$633K**

Sump 85 Reconstruction, City of Sacramento, CA

Mechanical Engineer. BC is currently in the design phase of the City's Sump 85 reconstruction project, which includes the replacement of an aging sewer pump station in north Sacramento. Hunter is tasked with completing the mechanical design for the facility requiring cooling of the electrical room to client, ventilation of the corresponding rooms, sizing the standby generator, and sizing the bathroom domestic water and sewer systems. **Cost: \$1.2M**

Well 80 Equipping Design, Sacramento Sanitary Water District, CA

Mechanical Engineer. BC designed a 1,500-gpm production well facility to replace aging water supplies in the District's north service area. Hunter completed the HVAC design for the facility including providing ventilation for a chlorine treatment room and pump room, as well as providing air conditioning to the electrical room.

Cost: Unavailable

Pump Station Rehabilitation CIP Project 1, City of Newton, MA

Mechanical Engineer. BC completed an assessment of 10 existing pump stations which resulted in four of the facilities requiring immediate HVAC improvements. Hunter is leading the preliminary design efforts as the lead HVAC engineer. The facilities include dry and well wells requiring upgrading their makeup and exhaust air with odor control systems. Additionally, each of the facilities have aged standby generators that will be replaced along with updating their corresponding intake and exhaust systems. **Cost: \$500K**



Jennifer Border, PE

Air Permitting

As a former regulator at a San Francisco Bay Area air quality management district, Jennifer brings a unique understanding of California Air Quality Management District requirements. She compiles all necessary information for permits, prepares emissions estimates, reviews rules and regulations for applicability, and works with regulators to meet permitting requirements.

Biogas Alternatives Feasibility Assessment and BioGeneration Facility Project, SacSewer, CA

Permitting Task Lead/Senior Reviewer.

Design includes 12 MW of cogeneration capacity derived from biogas that will be delivered via design build procurement. The BC team is providing Owner's Advisor services for the new biogas cogeneration engine system. Jennifer is updating the preliminary air permit application package based on contractor selection of engines. The application update includes a Best Available Control Technology analysis for the digester gas-fired engines to reduce regulatory review time required.

Cost: \$3.5M

Bioenergy Generation Project, Fairfield-Suisun Sewer District, CA

Permitting Lead. This project includes installing a new 1.1 MW lean-burn engine to utilize digester gas. The new engine will consume all the plant's digester gas to generate electricity to offset purchase from the utility and produce enough heat for the existing digesters. In addition to the engine, this project includes a gas conditioning system, HVAC improvements, and exhaust emissions control. Jennifer is reviewing and preparing BC's responses to regulatory agency comments regarding air permit application. **Cost: \$1.5M**

Primary Batteries Bio-trickling Filter Facility, City of Los Angeles, Department of Public Works, Bureau of Engineering, CA

Task Lead. Jennifer conducted air dispersion modeling (AERMOD) of hydrogen sulfide emissions from a proposed odor control system for emissions from primary treatment operation at a wastewater treatment plant. She provided fence line concentrations for comparison with the California Ambient Air Quality Standard for hydrogen sulfide. **Cost: \$250K**

Clearwater Road Wastewater Treatment Facility Regional Biosolids Gasification System, Derry Township Municipal Authority, PA

Permitting Lead. The Authority is implementing a new regional biosolids gasification system, including cake handling, storage and conveyance, and final product offloading. Equipment includes a drum dryer, gasifier, and thermal oxidizer. Jennifer estimated emissions from the proposed equipment and updated process limits to maintain facility-wide emissions under the major source threshold. She also reviewed federal and state regulations for applicability to the proposed process.

Cost: \$840K

EDUCATION
B.S., Chemical Engineering, Clarkson University, Potsdam, New York, 1992

REGISTRATION(S)
Professional Civil Engineer, C65164, California, 2003

CERTIFICATION(S)/ TRAINING
Certified Permitting Professional (CPP), South Coast Air Quality Management District

Visible Emissions Evaluation (VEE), Air Resources Board

Greenhouse Gas Reporting Training, International Organization for Standardization

40-Hour HAZWOPER

EXPERIENCE
27 years

JOINED FIRM
2022

FIRM
Brown and Caldwell

JENNIFER BORDER // CONTINUED

Tunnel Hill Reclamation Landfill, WIN Waste Innovations, OH

Task Lead. Jennifer conducted air dispersion modeling (AERMOD) of expected hydrogen sulfide and ammonia emissions from proposed aeration of two leachate storage tanks at the facility. She provided resultant fence line concentrations under various flowrate and water level scenarios. **Cost: \$25K**

Compost Facility, Northern Recycling, LLC, CA

Task Lead. Jennifer performed emissions estimates and Best Available Control Technology review for expansion of an existing composting operation located in Yolo County. Her review also included conducting a Health Risk Assessment of toxic emissions from the operation to estimate permissible toxics concentrations that would be approved by the regulator. Emissions estimates allowed for maximizing proposed volatile organic compound emission factors while minimizing the offset obligation for the operation. **Cost: Unavailable**

Electrical Distribution Building, Miami-Dade County, FL

Task Lead/Senior Reviewer. Jennifer reviewed emissions calculations and permit application for a new electrical distribution building at the facility. She reviewed emissions calculations for the proposed improvements which included seven duty and two standby diesel engines rated at 3,670 boiler hp each, two cooling towers, diesel storage tanks, and smaller engines associated with the project. In responding to regulatory requests, Jennifer has prepared emission estimates for the existing processes at the plant. **Cost: \$6.9M**

MECS Avon Fired Boiler, MECS, Inc., CA

Permitting Lead. Jennifer prepared the permit application to add a new steam boiler to the facility's existing permit. She incorporated manufacturer specifications for the emission estimates for typical nitrogen oxide and carbon monoxide emissions and incorporated the use of natural gas purchased from a private entity (not public utility natural gas). **Cost: \$535K**

Environmental Compliance Services, Air Permit Modifications, Greif-Taylor's Paperboard Mill, SC

Permitting Lead. Jennifer prepared the application to modify an existing synthetic minor air permit for a recycled paperboard manufacturing process for submission to the South Carolina Department of Health and Environmental Control, Bureau of Air Quality. Emissions estimates included

increased production capacity at the facility due to the proposed addition of vat in the wet-end equipment, review of chemicals used in the manufacturing process, and refinement of existing boiler calculations. Refinement of boiler calculations reduced facility emissions to less than the major source threshold and will allow the facility to be considered a "true" minor source (upon application).

Cost: Unavailable

Long-term Biosolids Facilities Plan, Central Contra Costa County Sanitary District, CA

Permitting Lead. Jennifer prepared a technical memorandum analyzing potential regulatory consequences of various options for biosolids handling at the wastewater treatment plant. Biosolids handling options included fluidized bed incinerators, digesters with cogeneration engines and/or flares, and digesters with the production of renewable natural gas. The technical memorandum reviewed applicable federal regulations and local (Bay Area Air Quality Management District) regulations and practices. **Cost: Unavailable**

San Leandro Water Pollution Control Plant Biogas Upgrades, City of San Leandro

Permitting Lead/Senior Reviewer. Jennifer is reviewing BC's response to regulatory agency comments regarding air permit application and reviewing/modifying calculations to quantify fugitive emissions from equipment leaks. **Cost: \$633K**

Yolo-Solano Air Quality Management District, CA

Associate Air Quality Engineer. Jennifer's responsibilities included emissions calculations. She calculated criteria pollutant and toxic air contaminant emissions for many different processes, including bulk fuel terminals, landfills, composting operations, grain handling facilities, seed coating operations, aggregate facilities, metal handling operations (plasma and laser tables, welding), and a crematory. Emissions from landfills included the use of Environmental Protection Agency's LandGEM to estimate gas production at landfills. She also completed dispersion modeling and health risk assessments. She performed AERMOD modeling and associated health risk assessments for various sources, including composting operation, engines, boilers, fuel storage tanks, aggregate handling operations, and coating operations. **Cost: N/A**

Davina Carboni, PE

Civil

Davina has an environmental background in civil engineering and specializes in the rehabilitation of water, sewer, and storm drain infrastructure for a variety of private and public sector clients across California and Nevada.



Digester and Thickener Facilities Upgrades, City of San José, CA

Project Engineer. The project involves a complete replacement of the low-pressure digester gas system and rehabilitation of aging anaerobic digesters as part of a comprehensive upgrade to the San José Santa Clara Regional Wastewater Facility sludge and biosolids processing facilities. BC provided preliminary design, detailed design and engineering services during construction. Davina performed site civil design during construction to address drainage, paving, and access issues. **Cost: \$16.5M**

Harvest Water Program Capital Program Management, SacSewer, CA

Project Engineer. The Program will provide agricultural and environmental benefits to growers located in southern Sacramento County by delivering recycled water from the Sacramento Regional Wastewater Treatment Plan, in lieu of groundwater for irrigation. The \$380M Program includes a 105 mgd capacity pumping station located at the plant, 14 miles of 54- to 72-inch diameter transmission pipeline, 33 miles of 12- to 48-inch diameter distribution pipelines, and on-site grower connections. Davina provided engineering support and was the primary author for the Basis of Design Report for the on-farm connections to the grower's irrigation systems. Preparation included calculations, design, and a tech memo to comply with Municipal Separate Storm Sewer System and Construction General Permits per Tuolumne County Standards. **Cost: \$9.5M**

Sheila Tank, North Coast County Water District, CA

Project Manager. The project included civil site design, valve vaults, electrical and instrumentation, and piping to upgrade the site from a 100,000-gallon redwood tank to a partially buried 600,000-gallon prestressed concrete tank. Davina led design of a new pre-stressed concrete tank, valve vault, and piping for North Coast County Water District. She led a multi-disciplinary team in the preparation of plans, specifications, and cost estimates. **Cost: \$1.2M**

Patton Reservoir, California American Water, Pasadena, CA

Design Manager. The design includes yard piping, bypass, and CEQA permitting improvements. The design effort includes civil, process mechanical, electrical, and structural drawings and specifications, and coordinating geotechnical and surveying tasks. Davina is leading the design team to replace a 500,000 gallon treated water reservoir project in an affluent neighborhood of Pasadena with a partially buried 940,000 gallon pre-stressed concrete tank. **Cost: \$500K**

Fassler Tank, North Coast County Water District, CA

Project Manager. The initial phase included a comparative cost evaluation between replacing with steel in its current location with replacing with a new steel tank in an alternate location. The current phase includes a siting study to evaluate steel versus pre-stressed concrete alternatives. The goal of the current phase is

EDUCATION
B.S., Environmental Engineering, California Polytechnic State University, San Luis Obispo, 2004

REGISTRATION(S)
Professional Civil Engineer, C74888, California, 2009

CERTIFICATION(S)/ TRAINING
Qualified Stormwater Pollution Prevention Plan Developer (QSD), 20692

EXPERIENCE
19 years

JOINED FIRM
2020

FIRM
Brown and Caldwell

DAVINA CARBONI // CONTINUED

to recommend a tank replacement project for the Owner to advance into design. Davina is currently evaluating for the replacement of 400,000 gallon steel tank with replacement of a 1.2 million gallon tank. **Cost: \$84K**

Highlands Ranch Tank Evaluation, City of Pittsburg, CA

Technical Lead. The project included conducting a coating and corrosion condition assessment of the existing water storage tank, and providing recommended improvements, a schedule of implementation, and cost estimate. Davina was primary author of the tank evaluation tech memo which included a prioritization of rehabilitation projects and associated cost estimate. **Cost: \$34K**

Water Tank Improvements, Estero Municipal Improvement District, CA

Project Manager. The project included the dive inspection, condition assessment, code compliance evaluation, and design of improvements to three 4MG steel water tanks. Proposed improvements included interior and exterior coatings, structural repairs, cathodic protection, water quality mixing and dosing, and seismic retrofits of the drain piping. Water booster station improvements included electrical instrumentation and controls to improve operations. Water system operational improvements included the development of an O&M manual for existing and improved operations as a result of the project. Davina led the rehabilitation of Tanks 1, 2, and 3 for the Estero Municipal Improvement District. **Cost: Unavailable**

Pressure Reducing Valve Improvements, North Coast County Water District, CA

Project Manager. The project included civil site design, valve vaults, and piping to improve operations and supplement fire flows in two water service zones. Davina led design and rehabilitation of two pressure reducing valve stations for the North Coast County Water District. She led the team in the preparation of plans, specifications, and cost estimates. **Cost: \$90K**

Three Tank Inspection and Rehabilitation, City of Pleasanton, CA

Project Manager. The project included tank diving inspection, recommendations for rehabilitation, and the development of plans, specifications, and estimates for the work— including a site design for temporary storage during the Upper Ruby Hill tank outage. Davina was the Project Manager for the rehabilitation of three water tanks: Upper Ruby Hill, Moller Ranch, and Laurel Creek ranging from 0.3-1.5MG. **Cost: Unavailable**

Negro Bar Waterline Replacement, City of Folsom, CA

Project Engineer. Davina managed and designed the replacement of an existing 5-inch steel water main with a 12-inch diameter DIP water line that is capable of serving the Negro Bar State Park as well as providing future capacity to the City's service area downstream of the park. **Cost: Unavailable**

Rainbow Bridge Waterline Rehabilitation, City of Folsom, CA

Project Engineer. Davina managed and designed the rehabilitation of a 20-inch diameter 150 psi high pressure steel waterline over the American River, which serves as an emergency waterline connection to the City's Historic District. Her duties included the design and construction management of a HDPE compression fit liner through 450-feet of pipeline attached to Rainbow Bridge. **Cost: Unavailable**

Antelope Reservoir Rehabilitation, Sacramento Suburban Water District, CA

Project Engineer. Work included a condition assessment of the existing tank's, structural components, internal and external coating systems, and cathodic protection system, an evaluation of conformity with existing structural and seismic codes, and providing recommendations to the District regarding repairs and upgrades. Davina was the project engineer for the rehabilitation of a 5 MG steel reservoir. **Cost: Unavailable**

Two MG Welded Steel Reservoir, City of Roseville, CA

Project Engineer. This project includes the rehabilitation of the nearly 50-year-old tank. Work included a tank condition assessment, structural inspection, and evaluation to determine the recommended rehabilitation improvements. Davina was the project engineer for the structural evaluation of the City's two (2) MG welded steel reservoir at the Barton Road Water Treatment Plant Site. **Cost: Unavailable**

Cimmaron Tank Structural Integrity Inspection, City of Folsom, CA

Project Engineer. The project included interior condition assessment, inspection of tank appurtenances including vent, piping, stairs, rafters and beams, and cathodic protection system. Davina was the project engineer for the annual inspection of the structural integrity of the City's steel water tank. She prepared recommendations for interior and exterior spot repair, replacement of deteriorated materials, and fittings to help prolong the life of the tank structure. **Cost: Unavailable**



Philip Childers, CEM, CAC

Hazardous Materials

Philip has completed Hazardous Building Materials Surveys, using destructive and non-destructive sampling methods, to facilitate project goals and stay within regulatory compliance, receive necessary permits, and keep workers safe.

Hazardous Building Materials Survey, Wonder Bread Factory Complex, Lassen County, CA

Principal Consultant. Philip completed a Hazardous Building Materials Survey (HBMS) of the former Wonder Bread Factory Complex located in Sacramento, Ca. The survey included sampling for asbestos, lead based paint or lead containing materials and other hazardous materials including polychlorinated biphenyls (PCBs) and mercury. Hidden asbestos subflooring materials were identified during the survey and the client was provided with a cost estimate for the needed abatement. **Cost: \$20K**

Turn-Key Asbestos Abatement Project for Industrial Flight Kitchen, JFK International Airport, Port Authority of New York and New Jersey/SkyChefs, NY

Industrial Hygiene Lead. Philip completed a turn-key asbestos abatement project of a commercial flight kitchen for a multinational client in the airline industry. The project included conducting the initial asbestos survey, completing the project design, bid specifications, contracting, project oversight and final clearance. The flight kitchen is a 24-hour, round-the-clock operation creating a high level of complexity both with the project design, abatement design and client coordination. The abatement involved constructing multiple zero emission containments with clearance followed by immediate tear down and set up to minimize disruption to the clients' food production process. **Cost: \$1.2M**

Hazardous Building Materials Survey, Abatement Oversight and Final Clearance of the Reid Gardner Power Generating Plant, NV Energy, NV

Senior Project Manager. Philip completed a comprehensive Hazardous Building Materials Survey, abatement oversight and final clearance of the 557-megawatt, coal fired power generating plant. The asbestos portion of the survey included taking over 4,000 asbestos samples and was mostly completed while the power generating plant was active, necessitating additional safety measures due to heat and fall hazards that were present. The PCB portion included testing for PCB in soils and transformer oil residues. Permit required confined space entry protocols were also required for inspection inside the plant coal stacks and boiler units. Initially completing the asbestos survey in 2014, Converse successfully bid and won the project oversight and final clearance in 2018 working for the owner of the power station. A total of ninety-two separate containments were successfully monitored and cleared during the abatement paving the way for the strategic demolition of the four-unit power generating station. **Cost: \$350K**

Pre-Demolition Hazardous Building Material Survey, Buena Vista Springs I and II, City of North Las Vegas, NV

Project Manager. Philip completed a comprehensive Hazardous Building Materials survey of the Buena Vista Springs Apartment Complex in North Las Vegas, Nevada. He collected over 1,000 bulk asbestos samples and 50 paint chip samples from 72 buildings at the property in preparation for scheduled

EDUCATION

B.S., Environmental Studies, University of Nevada Las Vegas, 2004

CERTIFICATION(S)/ TRAINING

Certified Environmental Manager (CEM), Nevada

Licensed Asbestos Consultant, Nevada

Certified Lead Based Paint Risk Assessor, Nevada

Asbestos Consultant (CAC), California

Lead Assessor/Inspector, California

EXPERIENCE

23 years

JOINED FIRM

2003

FIRM

Converse Consultants

PHILIP CHILDERS // CONTINUED

demolition activities. His consulting services included review and interpretation of analytical data and reporting providing conclusions and recommendations. Preparation of abatement specifications for asbestos, lead, PCB's, mercury, and other hazardous materials. **Cost: \$250K**

Moisture Penetration Study and Fungal Evaluation, Four Points Hotel, OK

Task Lead. Philip completed a complex moisture penetration study and fungal evaluation of an occupied hotel located in Oklahoma City, Oklahoma. The building had previously been evaluated due to noticeable moisture intrusion and fungal growth on interior perimeter walls after rainfall events. However, the cause of the moisture intrusion and extent of the fungal contamination was not adequately defined. He recommended a comprehensive moisture penetration study utilizing spray rack testing to determine the location of moisture penetration points through the exterior walls of the building. In addition, core samples were taken to observe the actual condition of the exterior insulation and finish system wall (EIFS). After the testing was completed the probable cause of the moisture intrusion was determined to be delamination of the exterior EIFS wall cladding due to improper installation during construction. Fungal contamination was found to be approximately 20,000 square feet with remediation. **Cost: \$2.5M**

Asbestos, Lead and PCB Services, City Place High Rise Building, City Place Management, OK

Hazardous Materials Lead. Philip completed asbestos, lead based paint and PCB consulting services in support of renovation projects at the City Place High Rise Building located at 501 Robinson Ave, Oklahoma City, Oklahoma. City Place is one of Oklahoma City's preeminent landmarks and when completed in 1931 was the city's first skyscraper. City Place Management often have abatement projects that need to be completed before tenant spaces can be renovated to facilitate a new lease. Time is of the essence as these projects are often predicated on a move- in date by new tenants. Philip managed four multi-story abatement projects for City Place Management, removing a total of 6,000 linear feet of asbestos piping insulation and 24,000 square feet of asbestos floor tile products. **Cost: Unavailable**

Asbestos Abatement, Page Woodson Historic School, Lingo Construction Services, OK

Hazardous Materials Lead. Philip completed asbestos abatement services for Lingo Construction Services at the Page Woodson School in Oklahoma City, Oklahoma. The project involved coordinating with community stakeholders and the National Park Service due to the properties listing on the National Register of Historic Places. The vision for the building was to convert the building into a modern apartment building while preserving the historic nature of the property. He was involved with all phases of the asbestos abatement work providing conceptual pre-planning, a complex multi-phase/multi-task project design, bid documents and turn-key asbestos abatement services. The asbestos abatement included the removal of 5,700 linear feet of asbestos piping insulation, 1,600 square feet of asbestos boiler insulation and 17,000 square feet of asbestos floor tile. **Cost: Unavailable**



Casey Colin, PE

Design Manager

Colin is a process mechanical lead in BC's Central-Valley Tahoe region, where he specializes in gas burner and gas management designs that meet air quality management district permitting and regulations requirements.



Waste Gas Burner Replacement, City of Santa Rosa, CA

Project Manager. The City's Laguna Wastewater Treatment Plant operates a cogeneration system consisting of four internal combustion engines; two of these engines are primarily fueled by digester gas from four anaerobic digesters and regularly consume all digester gas produced. The existing waste gas burner combusts excess digester gas not consumed by the cogeneration system and serves as a backup to the plant's cogeneration system. BC has confirmed that the existing waste gas burner is nearing the end of its useful life and requires replacement. Colin is leading a team to complete the design of a new waste gas burner, which will require use of the existing burner through construction and a modified air permit through the Bay Area Air Quality Management District. Colin is also responsible for completing the technical evaluation, submitting design deliverables for construction, and communicating with the City's project manager to keep the project on schedule. **Cost: \$462K**

San Leandro Water Pollution Control Plant Biogas Upgrades, City of San Leandro, CA

Project Manager. This project involves designing a high strength waste receiving facility and biosolids upgrading system at the City's Water Pollution Control Plant. The new high strength waste system and biogas upgrading system is designed to augment increased biogas production through additional

high strength waste receiving capacity and will produce a renewable natural gas for vehicle fuel storage and revenue generation. The process will reduce digester gas flaring and improve digester gas quality to the plant's flares and boilers. Colin serves as project manager and maintains close communication with Climatec and the City project managers to meet client needs and expectations. Construction of project will be completed via a design-build contract is expected to be completed in summer of 2023. **Cost: \$633K**

Gas Management System Study, SacSewer, CA

Project Engineer. BC provided modeling, design, and engineering support services for the digester gas management system at the Sacramento Regional Wastewater Treatment Plant in Elk Grove, California. The gas management system was experiencing periodic uncontrolled venting, which posed a risk to the environment and was incurring regulatory scrutiny. To address these concerns and improve operating efficiency, BC developed a model of the gas management system to assess and verify design recommendations for system improvements. BC provided field verification and inspection services to update existing process and instrumentation drawings so that they accurately reflected equipment tagging in the field. Colin worked closely with SacSewer staff to identify field equipment tags and helped develop the model for design improvements. **Cost: \$1.4M**

EDUCATION

M.S., Civil Engineering,
Michigan Technological
University, 2012

B.S., Civil Engineering,
University of Wisconsin,
Milwaukee, 2008

REGISTRATION(S)

**Professional Civil
Engineer, C86691,**
California, 2016

CERTIFICATION(S)/ TRAINING

**Certificate in
Sustainability,
Sustainable Futures
Institute, Michigan
Technological University**

**Pipeline Assessment and
Certification Program
(PACP), National
Association of Sewer
Service Companies**

40-hour HAZWOPER

First Aid and CPR

**EXPERIENCE
12 years**

**JOINED FIRM
2012**

**FIRM
Brown and Caldwell**

COLIN CASEY // CONTINUED

Nitrate Reduction Improvements, City of Roseville, CA

Project Engineer. This project included the design and installation of new internal mixed liquor recirculation pumps, variable frequency drives, piping systems, instrumentation and controls, and INVENT mixer/aerators. Colin worked on the design for a new chemical feed system and completed a business case evaluation to determine if the existing blowers were adequate for future aeration needs. During pre-design, he evaluated plant flows and recommended pumps for mixed liquor recirculation. Colin also designed a new ferric chloride storage and feed system for the plants digesters. He saw the project from conceptual design through final design and was the engineering lead throughout construction. **Cost: \$2.35M**

Digester 4 Cover Replacement Design, Truckee Meadows Wastewater Reclamation Facility, City of Reno, NV

Project Manager. Digester 4 is one of four anaerobic digesters constructed as part of the facility's 1978 treatment plant expansion. Colin is leading a design team to replace the existing digester floating cover with a new dual membrane cover which will provide the client with additional and variable digester gas storage volume. The BC team submitted a Basis of Design Report and 60 percent design plans for construction, including a construction sequencing plan and construction schedule estimate. A final cost construction estimate will be submitted with the 100 percent design as Truckee Meadows Wastewater Reclamation Facility prepares for replacement of the digester cover and operation without Digester 4 in service. **Cost: \$498K**

Digester Roof Condition Assessment, City of Santa Rosa, CA

Project Manager. The City's Laguna Wastewater Treatment Plant has four anaerobic digesters which stabilize solids as part of the overall wastewater treatment process. Two of these digesters have floating covers which were constructed in the mid-1970s and have past their useful life. Colin led a team of inspectors to perform the condition assessment of the Digester 1 floating cover to assess its condition and provide recommendations for repair and final design and bidding documents for construction. Findings from the inspection team led to a recommendation to only replace the roof, saving the City money and allowing staff to focus on other higher rehabilitation priorities. **Cost: \$148K**

Solids Dewatering Expansion, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Project Manager. To address capacity issues and increase the existing solids dewatering system's reliability, BC performed an alternative analysis of dewatering technologies, solicited dewatering manufacturers for pilot testing, and developed pilot testing guidelines. To help the City select the best dewatering technology, centrifuge manufacturers completed on site pilot studies using plant sludge, providing operators an opportunity to interact with centrifuge equipment. Colin was responsible for all project deliverables, including workshop presentations and technical memorandums, maintaining the project schedule, and addressing client questions and operational input for design. **Cost: \$728K**

Wastewater Treatment Plants Condition Assessment, City of Roseville, CA

Staff Engineer. BC performed a condition assessment of the City of Roseville's Dry Creek and Pleasant Grove Wastewater Treatment Plants. The project included collaborating with the City to develop risk prioritization criteria; preparing an asset database to document assessment results; conducting a desktop, visual, and physical inspection of prioritized assets; and identifying projects, preliminary cost estimates, and an initial timeline for the recommended repairs and rehabilitation. The project team included several specialty subconsultants who performed specialized physical inspections to assess the condition of the identified high priority assets. Colin worked on each phase of the project and was in close communication with City staff to ensure inspection, scheduling, and plant operation operated smoothly. **Cost: \$1M**

Sump 85 Reconstruction, City of Sacramento, CA

Project Engineer. Colin is a lead engineer for the City's the Sump 85 reconstruction project, which involves the replacement an aging sewer pumping station in north Sacramento with a new 7 mgd pumping station, designed with dual wet wells and four submersible non-clog centrifugal pumps. Colin's tasks include pumping analyses and recommendations, re-routing gravity sewer from the existing station to the pumping station site and developing plans for a new 20-inch force-main. BC's efforts aid the City with funding, meeting City security measures and standards, plans for bypass pumping, completing a survey and geotechnical investigation, and providing an environmental services and permitting assistance. **Cost: \$1.2M**



Dane Forsberg, PE

Electrical and I&C

Dane's designs include motor control centers, variable frequency drives, instrumentation and control systems, programmable logic controller, and SCADA systems. He is skilled in designing electric power and control systems to modernize and extend the useful life of both water and wastewater treatment plants.

Regional Plant 5 Liquids Treatment System Expansion and Solids Treatment Facility Design, Inland Empire Utilities Agency, CA

Electrical Engineer. Dane designed electrical systems for new sludge thickening facilities, an acid phase anaerobic digester, (4) 1.56MGal gas phase anaerobic digesters, and digester-gas fed boiler systems. The design included motor controls for digester mixing pumps, sludge and hot water recirculation pumps, sludge transfer pumps, and ventilation systems. The design also included a new 12.47kV to 480V substation to serve the thickening and digestion facilities, (7) 480V motor control centers, (4) remote input/output (I/O) panels, process instrumentation, and raceway systems. **Cost: \$8.3M**

Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Projects, City of Roseville, CA

Electrical Engineer/Inspector. Dane was part of the construction management and engineering teams overseeing plant expansion and energy recovery projects. He served as the lead electrical inspector during the construction of a waste gas burner, two digesters, solids thickening facility, and primary clarifiers. The construction also included a biogas upgrade system, vehicle fueling station, and 1 MW microturbine combined heat and power system. **Cost: \$13.4M**

Cogeneration System Replacement, Delta Diablo Sanitation District, CA

Lead Electrical and Instrumentation Engineer.

This cogeneration replacement project involves the design of a new digester gas conditioning system and cogen engine. The new cogen system will position the District to achieve a net zero conditioning system and fuel blending capability in the near-term and align with future energy projects in the long-term. Dane is leading the electrical and I&C design for the replacement of the existing cogen switchgear and modification of the existing motor control centers for powering the engine ancillaries and gas conditioning system. **Cost: \$1.3M**

Primary Digester No. 7 Project, Union Sanitary District, CA

Electrical Engineer. This retrofit design included adding a new digester, ferric chloride facility, and sludge mixing and heating facility. Dane assisted with the electrical power and instrumentation design for the project which included electrical single lines, power and control plans, control schematics, and conduit schedules. Dane provided engineering services during the project's construction including reviewing equipment submittals, responding to requests for information, and developing design clarification memos. **Cost: \$2.7M**

EDUCATION

B.S., Mechanical Engineering, California Polytechnic State University, San Luis Obispo, 2009

REGISTRATION(S)

Professional Electrical Engineer, E23627, California, 2021

CERTIFICATION(S)/ TRAINING

Commercial Electrical Inspector, International Code Council

EXPERIENCE

13 years

JOINED FIRM

2019

FIRM

Brown and Caldwell

DANE FORSBERG // CONTINUED

Bioenergy Generation Project, Fairfield-Suisun Sewer District, CA

Electrical Engineer. Dane designed the electrical and instrumentation for the addition of a new 1.1 MW cogeneration engine and the replacement of the existing biogas upgrade system. This included modification of the hot water heat loop to utilize the cogen exhaust as a heating source. The electrical design included the replacement of the existing low voltage switchgear and motor control center as well as the programmable logic controller (PLC) for the cogen area. **Cost: \$1.5M**

Sludge Thickener No. 2 Rehabilitation, City of Santa Cruz, CA

Electrical and Instrumentation Engineer. Dane developed the electrical and instrumentation design to rehabilitate the existing Sludge Thickener No. 2 Tank process area. The project included the replacement of the existing thickener drive motor and two primary sludge pumps. A new inline grinder and flow meter was included at the inlet to the tank. The new equipment and instrumentation was integrated into an existing PLC for monitoring and control at the plant SCADA. **Cost: \$584K**

San Leandro Water Pollution Control Plant Biogas Upgrades, City of San Leandro, CA

Lead Electrical Engineer. Dane is developing the electrical and instrumentation design for the replacement of the plant's high strength waste receiving facility and biogas upgrading skids. A new fueling station will be installed to fill a tube trailer with the compressed natural gas fuel. A new waste gas burner will also be installed and used for excess gas production. The electrical design includes a new motor control center which feeds two 100 HP variable frequency drives as well as the pumps and equipment packages. A new PLC for the area will control the new valves and pumps and integrate the new instrumentation. **Cost: \$633K**

Secondary Treatment Upgrades, City of Palo Alto, CA

Electrical Engineer. Dane is developing the electrical design for the upgrades of the plant's secondary treatment process area including the lift station, aeration tanks, air blower and distribution system, and waste/return activated sludge systems as well as the addition of a standby generator. He is developing the single line diagrams, control schematics, and electrical plans and conduit schedules for the new switchgear, motor control centers, and process pumps and equipment. **Cost: \$5.6M**

Standby Power Generation Design, Union Sanitary District, CA

Electrical Engineer. Dane is developing the electrical design to add three 2.5 MW diesel standby generators and a new 12kV to 480V substation at the wastewater treatment plant. This includes the duct bank routing to provide the power and fiber communication connections between the facilities as well as the standby building electrical plans, conduit and panelboard schedules, and single line diagrams. **Cost: \$3.2M**

Blend Tank Area Odor Control Project, East Bay Municipal Utility, CA

Electrical and I&C Engineer. Dane served as the electrical and I&C engineer, designing two odor control systems for the plant's fats, oil, grease, and blend tanks. The odor control systems include two foul air fans to move air through the first stage biofilters and second stage carbon polishers as well as grease filter/mist eliminators. During construction, a temporary odor control skid will be used to maintain operation of these critical systems. **Cost: Unavailable**

Influent Pump Station Improvements, Central Contra Costa Sanitation District, CA

Electrical and Instrumentation Engineer. Dane designed the upgrade of the District's influent pump station, including replacement of (5) variable frequency drives and rehabilitation of motors influent pumps ranging from 400-700 HP, the replacement of three 480V motor control centers with intelligent networked motor control centers, and the replacement of (5) existing remote I/O drops with modern remote I/O hardware. This included extensive documentation of existing systems and the development of a detailed work restrictions to document and sequencing plan which was structured to allow replacement of equipment in phases while keeping the influent pump station in operation. **Cost: Unavailable**

Raw Water Pump Station ASD & Switchgear, Valley Water, CA

Electrical Engineer. Dane developed the analysis of four alternatives for replacement of medium voltage switchgear, (6) 2,000 HP adjustable speed drives, and associated mechanical systems and switchyard structures. Dane developed lifecycle cost calculations including energy costs for the adjustable speed drives that were considered. **Cost: Unavailable**



Kevin German, PLS

Survey

Kevin is a licensed as a Professional Land Surveyor with extensive expertise in the implementation and use of advanced technologies, including GPS and geodetic surveying, conventional survey procedures, and remote sensing technologies such as unmanned aerial system aerial surveying, and three-dimensional (3D) laser scanning.

Fluidized Bed Reactor Evaluation, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Surveyor. Kevin provided land surveying support to Brown and Caldwell on the project that include a diverse aspect of conventional, and modern survey procedures to provide project deliverables needed for design. The work included establishment of a 3D control network that spanned the exterior portions of the project area and a 3-story building interior. The control network was used for a combination of conventional ground survey, unmanned aerial system aerial survey and 3D laser scanning of the 3-story building interior. Scan to BIM was performed to turn the 3D point cloud into a 3D architectural model. Project deliverables were a digital topographic survey base map suitable for civil engineering design and 3D Revit building model. **Cost: \$25K**

Pyramid Highway Operations Improvements, Regional Transportation Commission of Washoe County, NV

Surveyor. Kevin provided a combination of convention ground and aerial surveying and mapping for a design level topographic survey base map for approximately 1.95 miles of roadway rehabilitation along pyramid highway. The project involved establishing a precise 3D control network and surveying

50-foot cross sections along the roadway, locating all surface apparent features within the roadway and adjacent improvements, and locating all utilities within the area, including measurements to invert elevations for storm drain and sanitary sewer and top-of-nut for water valves. The corridor was flown with an unmanned aerial vehicle for orthophotography which provided background imagery and vertical data in non-paved areas requiring less stringent accuracy. Project deliverables were aerial photography and a 3D AutoCAD file of the site topography with 1-foot contour interval and right-of-way boundaries. **Cost: \$58K**

Lear Lift Station Improvements, City of Reno, NV

Surveyor. Kevin provided boundary and topographic survey support to Brown and Caldwell to support their lift station design efforts. A combination of conventional ground survey methods utilizing robotic total station equipment was combined with GPS and aerial surveying to provide project deliverables to meet client needs that included full topography of the project site and adjacent improvements, locating surface apparent utilities and measuring sewer and storm drain facilities for invert elevations. Project deliverable was digital AutoCAD files suitable for civil engineering design. **Cost: \$5K**

EDUCATION

B.S., Land Surveying/ Geomatics, Great Basin College, 2009

REGISTRATION(S)

Professional Land Surveyor, 20461, Nevada, 2009

Professional Land Surveyor, 8782, California, 2010

EXPERIENCE

19 years

JOINED FIRM

2006

FIRM

CFA a Bowman Company

KEVIN GERMAN // CONTINUED

Storm Drain Master Plan, Phases 1 and 2 , Atkins North America, NV

Surveyor. Kevin provided land surveying support to Atkins North America to survey location and elevation of approximately 1,300 storm drain assets through the City of Reno. The project included measuring manholes and drainage inlets for horizontal location and vertical rim elevation; removing manhole lids and measuring invert elevations; performing extensive documentation and quality assurance/quality control to ensure consistency of work. Project deliverables included XYZ coordinates for manhole or inlet center and rim elevation, photo documentation, and a report of each structure with measurements, pipe sizes, flows and condition. **Cost: \$134K**



George Ghusan, PE, SE, LEED AP

Structural

George is a structural engineer and president of BJJ Architecture & Engineering. His career has been dedicated to supporting design, analysis, and evaluation of infrastructure to provide structural integrity, functionality, and safety in water/wastewater projects.

Clarifier Rehabilitations, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Structural Engineer. The facility has seven primary and seven secondary clarifiers built in various phases since 1964. BJJ was selected as the prime design consultant for rehabilitations of all clarifiers over several years. The initial phase was to model the clarifiers in Revit and develop standardized details for rehabilitation and repair of various items. As the projects have progressed over the years, lessons learned have been incorporated in the documents to streamline the work and minimize change orders.

- Primary Clarifier 1A (Prime Consultant), **Cost: \$1.6M**
- Secondary Clarifier 2A (Prime Consultant), **Cost: \$1.6M**
- Primary and Secondary 1C (Prime Consultant), **Cost: \$2.4M**
- Secondary Clarifier 1B (Prime Consultant), **Cost: \$1.4M**

Seismic Review, Truckee Meadows Water Reclamation Facility, City of Sparks, NV

Structural Engineer. George and BJJ are currently under contract to the City of Sparks to provide a seismic review of the structures at the plant. Most of the structures are cast-in-place concrete and date from 1964 to the present. This work will provide a review per modern standards (ASCE 41 or ACI 350.3),

determination of possible failure modes and prioritize the structures for future retrofits. This work is currently approximately 25 percent complete with over 90 structures to be reviewed. **Cost: \$398K**

Grit Facility, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Structural Engineer. George and BJJ worked with Brown and Caldwell to evaluate the grit facility of structural and seismic issues. BJJ created a Revit model of the facility which was built in three phases over a span of 40 years. BJJ assisted Brown and Caldwell in structural supports for proposed new equipment. This project did not have any construction. **Cost: Unavailable**

Fluidized Bed Reactor Evaluation, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Structural Engineer. George and BJJ are currently working with Brown and Caldwell on evaluation and upgrades to the floating bed reactor building/tanks. BJJ created a Revit model of the structure and performed a seismic review. The seismic review found possible failure modes in the tanks that should be mitigated if the facility is to be kept in service. BJJ will work with Brown and Caldwell to implement structural solutions for modifications to the floating bed reactor to improve its performance. **Cost: Unavailable**

EDUCATION

M.S., Civil (Structural) Engineering, University of Nevada, Reno, 1986

B.S., Geological Engineering, University of Nevada, Reno, 19826

REGISTRATION(S)

Professional Civil Engineer, 8438, Nevada, 1989

Professional Structural Engineer, 8438, Nevada, 1992

CERTIFICATION(S)/ TRAINING

Leadership in Energy and Environmental Design Accredited Professional (LEED® AP), U.S. Green Building Council

EXPERIENCE

38 years

JOINED FIRM

1992

FIRM

BJJ Architecture & Engineering

GEORGE GHUSAN // CONTINUED

Aeration Tank Rehabilitations, Truckee Meadows Water Reclamation Facility, City of Sparks, NV

Structural Engineer. George and BJG are currently under contract to Carollo Engineers to provide structural assistance for rehabilitation and evaluation services for the five aeration tanks at the facility. The first tank rehabilitation is currently at 90 percent design documents and will be used as a basis for developing the documents for the remaining aeration tanks over the coming years. A seismic evaluation of the tanks has been completed and no significant seismic issues found. **Cost: Unavailable**

Headworks Expansion, Truckee Meadows Water Reclamation Facility, City of Sparks, NV

Structural Engineer. George and BJG performed architectural and structural design for an expansion for exterior wells and screening at the headworks building. The expansion consists of a structurally independent shell with CMU walls with a structural steel roof. This enclosure was designed to assist with odor control for the influent wet wells as well as provide a controlled environment for accessing the influent screens. This work was performed under contract to Stantec. **Cost: \$2M**



Dan Goodburn

Cost Estimating

Dan develops reliable anticipated cost of materials and delivery times for accurate cost estimates. He is proficient with cost estimating software, where he establishes sound budgets, monitors financial performance, and maintains cost control.

Waste Gas Burner Replacement, City of Santa Rosa, CA

Lead Estimator. The City's Laguna Wastewater Treatment Plant operates a cogeneration system consisting of four internal combustion engines; two of these engines are primarily fueled by digester gas from four anaerobic digesters and regularly consume all digester gas produced. The plant's existing waste gas burner combusts excess digester gas not consumed by the cogeneration system and serves as a backup to the plant's cogeneration system. BC confirmed that the existing waste gas burner is nearing the end of its useful life and requires replacement. The team is completing design of a new waste gas burner, which will require use of the existing waste gas burner through construction. Dan provided cost estimating for the new waste gas burner and modifications to the existing gas piping systems. **Cost: \$462K**

Digester and Thickener Facilities Upgrade, City of San José, CA

Senior Cost Estimator. This project included upgrades to the anaerobic digesters and dissolved air flotation thickeners to improve system capacity, safety, and performance. Dan was the mechanical cost estimating lead for the large digester, sludge thickening dissolved air flotation thickener upgrades, and sludge screening facilities. Total construction costs were \$110M. **Cost: \$16.5M**

Meridian Digester 6, City of Meridian, ID

Lead Estimator. Dan is providing cost estimating and construction scheduling for the addition of an anaerobic digester to the Meridian Wastewater Resource Recovery Facility. The project includes new anaerobic digester, annex building, digester control building, boiler building, and waste gas burner. Total project construction cost is \$8.9M. **Cost: \$2M**

J-124 Digester Gas Facilities Rehabilitation, Orange County Sanitation District, CA

Lead Estimator. The project includes replacing gas compressor equipment, designing a new compressor building, and replacing low pressure and high-pressure gas flares. The team is designing three, new ultra-low emissions combustion flares at each plant to meet new South Coast Air Quality Management District air emissions requirements. The flares are configured to operate automatically and safely dispose of up to 3,500 scfm of either low pressure or high-pressure waste digest gas. Dan provided cost estimating for planning level through 100 percent design for rehabilitation of the existing gas facilities at both plants. Total project construction costs are \$98M. **Cost: \$18M**

EDUCATION
B.S., Industrial Construction Management, Colorado State University, 1985

EXPERIENCE
38 years

JOINED FIRM
1986

FIRM
Brown and Caldwell

DAN GOODBURN // CONTINUED

P2-128 Digester Replacement, Orange County Sanitation District, CA

Senior Estimator. Dan is providing cost estimating for preliminary level through final design completion for new temperature-phased anaerobic digestion facilities. The temperature-phased anaerobic digestion process includes the following key components: digester feed facility and digester feed facility odor control facility, thermophilic anaerobic digesters, Class A batch tanks, sludge heating system, sludge cooling system, and existing mesophilic digesters. Total project construction costs are \$307M.

Cost: \$42M

Bioenergy Generation Project, Fairfield-Suisun Sewer District, CA

Lead Estimator/Scheduler. This project included replacing the existing engine generator with 1.2 MW biogas-fueled engine-generator that produces renewable power to offset power purchased from the utility. The project includes gas conditioning, oxidation catalyst and selective catalytic reduction exhaust treatment, heat recovery with connection piping to plant hot water system and digester, building HVAC improvements, electrical upgrades and new motor control center, instrumentation and controls, connection to plant control system, site civil work and utilities, and demolition of existing engine generator ER-2, associated heat recovery silencer, jacket water pump, piping, electrical conduit and wiring, and control panels, gas conditioning system, and high pressure gas compressors and gas boosters. Total project cost is \$11M. Dan provided cost estimating and scheduling from Basis of Design Report through 100 percent design. **Cost: \$1.5M**

Digester Gas System Upgrades, City of Flagstaff, AZ

Lead Estimator. Dan provided cost estimating for digester gas distribution upgrades to the Wildcat Hill Wastewater Treatment Plant. Project included replacing gas piping modifications, condensate traps, gas conditioning, and booster blower. Total project costs are \$1M. **Cost: \$140K**

Central Kitsap Treatment Plant Resource Recovery Project, Kitsap County, WA

Senior Electrical Estimator. Dan provided electrical cost estimating for the plant upgrades including aeration basins and blower replacement, waste activated sludge thickening, digester gas cogeneration, and plant process water system improvements. Total estimated costs were \$31.7M.

Cost: \$5.6M

Columbia Boulevard Digester Expansion, City of Portland, Bureau of Environmental Services, OR

Lead Estimator. The project included pre-design and final design to retrofit four 2.4-MG floating cover digesters designed in 1978 to accommodate a new mixing system, and two new digesters. The team completed pre-design and design of two new anaerobic digesters at the City's 100 mgd Columbia Boulevard Wastewater Treatment Plant. Dan provided cost estimating for gas piping system upgrades to digester waste gas system. Project included new waste gas burners, and gas piping modifications. Dan provided 60 percent and 90 percent design cost estimating. Estimated costs are \$22.2M. **Cost: \$4.6M**

Anaerobic Digester Improvements, City of Loveland, CO

Cost Estimator. Dan provided cost estimating for conceptual through 90 percent design for digester rehabilitation and improvements to existing digester facility. He also aided and review of design relative to construction sequencing. Total construction costs were \$7M. **Cost: \$2M**

West Point Biogas Optimization Study, King County Department of Natural Resources, WA

Lead Estimator. Dan provided conceptual alternative analysis cost estimates for digester gas utilization. Projects included gas blowers, gas conditioning, single and dual engine generators, and waste heat recovery. Total project costs range from \$4.7M to \$8.2M. **Cost: \$407K**

Digester Replacement, Confidential Client, NY

Lead Estimator. Dan prepares planning level cost estimates to compare conventional concrete submerged fixed cover design and steel egg-shaped digester designs to replace the existing digesters. Costs range from \$46M to \$59M.

Cost: Unavailable

Energy Management Program, Food Waste Acceptance, Nashville Metro Water Services, TN

Lead Estimator. Dan provided cost estimating for conceptual designs for improvements to solids processing to handle food wastes. Project included alternatives for sludge storage, lime stabilization, temperature-phased anaerobic digestion, and thermal drying. Total project costs are \$1M to \$23M. **Cost: \$2.5M**



Nanette Hansel

CEQA

Nanette's focus is on managing and preparing environmental review documents pursuant to CEQA, National Environmental Policy Act (NEPA), and Tahoe Regional Planning Agency regulations for projects in Lake Tahoe and a variety of other California environments.

Land Use Risk Analysis Study, Tahoe-Truckee Sanitation Agency, CA

Principal-in-Charge. Ascent is evaluating the risks of a proposed surplus land sale that T-TSA is contemplating in response to a change in treatment operations at its WRP in Truckee. The wastewater treatment stream at WRP has traditionally included a chlorine treatment module. T-TSA is conducting a pilot study to evaluate the efficacy of substituting this treatment module with a sodium hypochlorite system, which requires a substantially smaller safety buffer to adjacent and nearby land uses because it has fewer risks than those associated with a leak in a chlorine gas system. If the change to sodium hypochlorite is permanent, T-TSA would be able to sell T-TSA-owned parcels to raise capital and enable the use of now-vacant and potentially underutilized lands. The LURAS will consider potential risks associated with a variety of land uses. Nanette is serving as principal-in-charge and directing the study. **Cost: \$37K**

Tahoe Cedars Water System Improvement Project, NEPA and CEQA Services, Tahoe City Public Utility District, CA

Principal-in-Charge. The District is proposing improvements to their water main system in the community of Tahoma as part of the Tahoe Cedars Water Master Plan. The Master Plan identified numerous system improvements, including 27 miles of new or replaced water mains and service laterals, 172 new fire

hydrants with laterals, and new water service meters. The District anticipates receipt of federal grant funds to support implementation of the improvements, triggering the need to satisfy the requirements of NEPA. Ascent will complete a categorical exclusion for NEPA compliance, biological and cultural resources technical reports to support the categorical exclusion, and a categorical exemption for CEQA purposes. Nanette is serving as principal-in-charge, overseeing preparation of the CEQA and NEPA documentation.

Cost: \$70K

Recycled Water Strategic Plan, Environmental Services, Lake Tahoe Basin, South Tahoe Public Utility District, CA

Project Manager. Ascent is providing environmental input and support to the Recycled Water Strategic Plan team. Work to date has involved identifying major environmental constraints, considerations, and permitting requirements for recycled water alternatives, both within and outside of the Lake Tahoe Basin, under consideration by the District. Ascent conducted a focused review of permitting requirements for alternatives that would involve constructed wetlands in the Carson Valley and tunneling options under the first phase of work. Nanette is serving as project manager for this planning effort.

Cost: \$34K

EDUCATION

B.S., Environmental Policy Analysis and Planning (water quality emphasis), University of California, Davis, 1993

EXPERIENCE

30 years

JOINED FIRM

2010

FIRM

Ascent

NANETTE HANSEL // CONTINUED

Initial Study/Mitigated Negative Declaration and Environmental Assessment, County of Tuolumne/U.S. Department of Housing and Urban Development/Rural Community Assistance Corporation, CA

Project Manager. On behalf of Tuolumne County and the California Department of Housing and Community Development, Nanette is managing preparation of an Initial Study/Mitigated Negative Declaration and Environmental Assessment for the Tuolumne Biomass LLC Utilization Project. Housing and Community Development has delegated NEPA authority from the U.S. Department of Housing and Urban Development. The environmental review is funded by a Rural Community Assistance Corporation grant. Project implementation would be funded by the Rural Community Assistance Corporation, Housing and Urban Development National Disaster Resilience Program funds, CAL FIRE, and U.S. Forest Service grant funds. The project would use woody biomass material from forest stewardship projects, including forest restoration and wildfire mitigation activities, to manufacture a number of value-added products. This material would otherwise be burned. The project would fill a market niche in the Tuolumne County region by constructing a facility to handle logs (slash) of varying diameters and lengths that are too small or irregular to make a traditional saw log. The project would enable more complete utilization of woody biomass inputs (particularly small-diameter logs and biomass residuals), create local jobs, produce a diversified group of wood product lines, and generate heat and electricity for on-site purposes. Excess power generated, beyond that which is needed for on-site operations, would be returned to the electrical grid through a net energy metering agreement with PG&E. **Cost: \$174K**

Cabin Creek Biomass Facility Project, Environmental Impact Report, County of Placer, CA

Project Manager. Nanette managed preparation of an Environmental Impact Report for Placer County's Cabin Creek Biomass Facility Project that withstood legal scrutiny from the Center for Biological Diversity. The proposed facility includes a 2-MW wood-to-energy plant that would produce electricity and heat, and produce indirect benefits related to fuels management and reduced potential for catastrophic wildfire. The facility would consist of an 80-foot by 80-foot two-story building and an open structure for biomass storage. The Environmental Impact Report assessed impacts of construction and operation of the facility, including land use, air quality, green house gas emissions, noise, truck traffic, water supply and water quality,

sustainable forest practices, and biological resources. Impacts to resources are analyzed at both the facility site and the areas from which biomass fuel would be obtained.

Cost: \$226K

Buena Vista Biomass Facility, Environmental Impact Report, County of Amador, CA

Environmental Analyst. Ascent prepared an Environmental Impact Report for Amador County for the Buena Vista Biomass Facility. The proposed facility is an 18-MW wood-to-energy plant and would produce indirect benefits related to fuels management and reduced potential for catastrophic wildfire. The facility would reuse and retrofit an existing coal-fired power plant adjacent to a landfill. Fuel for the plant would be provided from by-products of forest thinning for fire fuel management, agricultural waste, and green waste at the landfill. The Environmental Impact Report assessed impacts of construction and operation of the facility, including land use, air quality, greenhouse gas emissions (including whether the facility is carbon neutral), noise, truck traffic, water supply, and biological resources. Nanette prepared the water supply assessment and related Environmental Impact Report analysis for the proposed biomass facility. **Cost: \$322K**

Sewer Line Rehabilitation Project, CEQA Guidance and Project Development Report, Tahoe City Public Utility District, CA

Project Manager. The project involved an existing gravity sewer line located along Edgewater Drive, adjacent to Lake Tahoe, in the Dollar Point subdivision in Tahoe City. The sewer line conveys untreated sewage from residential lakefront properties to the District's Dollar No. 1 sewer pump station. The sewer line was constructed in 1967 and comprises 6- to 8-inch plastic-lined asbestos-cement sewer pipe. The affected sewer line is located within the shorezone of Lake Tahoe and is submerged during high lake level periods. Portions of the line are exposed or have minimal cover from top of pipe to ground surface. The physical state of the sewer line could make it vulnerable to damage resulting in the infiltration of lake water into the sanitary sewer system/release of untreated sewage to Lake Tahoe. The project involved preparation of a Project Development Report documenting the condition and vulnerability of the existing sewer line and alternatives to mitigate identified risks. Nanette managed Ascent's biological input into the Preliminary Design Report that focused on potential impacts to Tahoe yellow cress (*Rorippa subumbellata*), designated as a sensitive plant species by the Tahoe Regional Planning Agency and listed as endangered in California under the California Endangered Species Act. She also authored a memorandum recommending the appropriate documentation for purposes of compliance with CEQA.

Cost: \$7K



Selena Huang

Architecture

Selena works with clients to plan, develop, and implement building designs. Her background includes managing client relationships; developing and presenting design proposals; preparing drawings, specifications, budgets, and construction documents; and managing project teams.

Department of Motor Vehicles Conversion, Galletti Way, Nevada Department of Transportation, NV

Project Architect. Selena led the design and documentation of the project at B.J.G. The project involved converting the existing Department of Motor Vehicles building into a testing lab and various office spaces for the Nevada Department of Transportation staff. She participated in the project from design development to the construction document stages. She paid close attention to the client's needs for site security, noise control and work environment quality. She also managed the complex aspects of programing and project phasing, as well as coordinating a large team of consultants. She produced a comprehensive set of CD drawings and specifications.

Cost: \$12.8M

Carilion School of Medicine, Virginia Tech, VA

Job Captain. Selena worked on the Virginia Tech Carilion School of Medicine project, a public-private partnership between a research university and a health care institution. She designed the interior and exterior of the 210,000 square feet of laboratory space, classrooms, offices, and educational spaces, using Revit modelling and working with the client, the project team, consultants, and contractors. She also presented the design to marketing and client meetings, and ensured

the design complied with the client's needs and the building codes and standards. She added sustainable features to the design, such as a green roof, drought-resistant landscaping, occupancy sensors, high-recycled content, daylighting, and a renewable energy design. She researched how the design influenced the medical students and faculty's learning and satisfaction. **Cost: \$89.8M**

Eastmont Senior Living Group, Christian Retired Homes, NE

Job Captain. Selena supported design of an aged care facility with 90 beds and a potential for 30 more. She used Revit modelling to develop and refine the interior and exterior of the building and presented the design to marketing and client meetings. She worked with a large design team, consultants, and contractors, to make sure the design satisfied the client's needs and the building codes and standards. She created a building that offered high care and dementia care services and supported patient well-being and independence. **Cost: \$52M**

MonteCedro, Episcopal Communities and Services, CA

Project Architect. Selena contributed to MonteCedro, a senior living community in California. She modeled the buildings and the site, both inside and out, and worked with other consultants. She also prepared

EDUCATION

**M.A., Architecture,
Virginia Tech, 2019**

**B.A., Architecture,
Virginia Tech, 2016**

REGISTRATION(S)

**Licensed Architect,
C-40690, California,
2023**

CERTIFICATIONS(S)

**American Institute
of Architects (AIA),
0796003, Nevada, 2022**

**National Council of
Architectural Registration
Boards (NCARB),
106300, 2022**

EXPERIENCE

8 years

JOINED FIRM

2023

FIRM

**BJG Architecture &
Engineering**

SELENA HUANG // CONTINUED

various documents, from presentations to construction documents. MonteCedro provides different kinds of residences and services for seniors, along with green spaces and courtyards. The buildings respect the site and the surrounding area. **Cost: \$2M**

Aldersly and Life Care Services Building, Aldersly, CA

Project Architect. Selena worked on the renovation of a memory-care facility and service buildings in San Rafael. She was involved in modeling the buildings and the site, coordinating with consultants, preparing presentations, master planning the new campus, and designing the new service building that connects two existing facilities. The project aimed to improve the staff workflow, the well-being of the users, the community's financials, and the site accessibility. **Cost: \$8M**



Kenny Klittich, PE

QA/QC Reviewer

Kenny is BC's local energy leader and supports biogas, biosolids, and co-digestion projects. He assesses and verifies planning and design recommendations for beneficial use of digester gas, carefully considering capital and operating costs and ease of O&M.

Waste Gas Burner Replacement, City of Santa Rosa, CA

QC Reviewer. The City's Laguna Wastewater Treatment Plant operates a cogeneration system consisting of four internal combustion engines, which Kenny helped to originally design. BC confirmed that the plant's existing waste gas burner is nearing the end of its useful life and requires replacement. The project included completing design of a new waste gas burner which will require use of the existing waste gas burner through construction and helping to obtain a modified air permit through the Bay Area Air Quality Management District. Kenny is providing guidance and reviewing the digester gas compressible flow pressure loss modeling to identify potential flow bottlenecks and verify system capacity. **Cost: \$462K**

Energy Recovery Project, City of Roseville, CA

QC Reviewer. The project involves evaluating cogeneration and fats, oil, grease/food waste receiving alternatives to develop an economically favorable project that would beneficially use gas from the digester expansion project at the Pleasant Grove Wastewater Treatment Plant. The project includes evaluating the benefits of microturbines, engines, and gas separation to generate a renewable compressed natural gas vehicle fuel. Design includes four microturbines, a high strength waste receiving facility, digester gas conditioning and upgrading systems, and a compressed natural gas fueling station for the City's garbage

collection fleet. Kenny serves as QC reviewer. He also helped obtain a \$3M award from the California Energy Commission to fund the vehicle fuel portion of the project. **Cost: \$9M**

Hyperion Flare Implementation Plan, City of Los Angeles, Department of Public Works, Bureau of Engineering, CA

QC Reviewer. Located within the challenging South Coast Air Quality Management District, six very large capacity but aging enclosed digester gas flares at this massive 275 mgd Hyperion Water Reclamation Plant needed improvements and upgrades to comply with current emissions regulations and an Order of Abatement. Kenny provided expert review of the study approach and conclusions. The BC team provided the required abatement timeline and repair or replacement schedule for three flare options. **Cost: \$212K**

Biogas Alternatives Feasibility Assessment and BioGeneration Facility Project, SacSewer, CA

Project Engineer. For the feasibility assessment, Kenny led the technical effort to develop alternatives and quantify their benefits. Alternatives under review included providing digester gas to an onsite cogeneration system, pipeline injection, and production of renewable vehicle fuel. The assessment included project schedule and delivery alternatives. The assessment concluded that onsite cogeneration provides SacSewer best value and recommended a 12 MW engine-based cogeneration

EDUCATION

B.S., Mechanical Engineering, University of California, Davis, 2006

REGISTRATION(S)

Professional Mechanical Engineer, M34928, California, 2010

Professional Mechanical Engineer, 71484, Arizona, 2020

EXPERIENCE

16 years

JOINED FIRM

2007

FIRM

Brown and Caldwell

KENNY KLITTICH // CONTINUED

project. The BC team is providing Owner's Advisor services for the new biogas cogeneration engine system. Through the Biogeneration project, SacSewer will gain exemption from onerous regulatory "covered process" requirements associated with their existing biogas sale. Kenny is advancing the technical basis of design and plant integration while developing a request for proposals package as part of a design-build procurement.

Cost: \$3.5M

Digester and Thickener Facilities Upgrade, City of San José, CA

Mechanical Engineer. The project involved preliminary and detailed design to upgrade digester facilities and included a comprehensive 3D utility model to facilitate decision-making. As part of a conversion of four existing digesters to a thermophilic process, Kenny led the mechanical design of new sludge heating and cooling systems as well as a new heat loop for the San José-Santa Clara Regional Wastewater Facility sludge and biosolids processing facilities. The project replaced the low-pressure digester gas system and rehabilitated aging anaerobic digesters. **Cost: \$16.5M**

Digester Upgrades, East Bay Municipal Utility District, CA

Staff Engineer (Phases 1 and 2) and Project Engineer (Phase 3). Phase 1 included new fixed dome covers, mechanical draft tube mixers for four digesters, improved digester gas management and electrical systems, upgraded all piping, modified gas storage components, installed a new boiler, and added control to the waste gas burners. Kenny compiled information from various historical sources to create an accurate schematic of the entire digester sludge feed, transfer, and withdrawal systems. He also provided engineering services during construction, including reviewing submittals and responding to requests for information. During Phase 2, Kenny helped design the sludge blending tanks; a fats, oil, grease receiving facility; digester covers and mixers; and a new digester feed/transfer/withdrawal system. Work included calculating system-wide flows; rotary lobe pump sizing; fats, oil, and grease heat exchanger sizing; thermal expansion tank sizing; and integrating new systems. Kenny also provided engineering services during construction. Other work included providing field services, startup assistance, online O&M Manual additions, and record drawings. For Phase 3, now under construction, Kenny led the mechanical design for new dual membrane covers and pump mixing systems for the final three digesters. **Cost: \$11.5M**

Primary Digester No. 7 Design, Union Sanitary District, CA

Heating Lead. Kenny designed and is supporting construction of the sludge heating system and backup boiler for the new mesophilic anaerobic digester. The new digester will be a state-of-the-art waffle-bottom, submerged-fixed-cover design with a gas-lance, draft-tube mixing system designed for efficient, high-rate mixing that is impervious to struvite accumulation. The project also includes a new hot water boiler and improvements to the control of the existing digester heating system. **Cost: \$2.7M**

Dry Creek Wastewater Treatment Plant Cogeneration, City of Roseville, California

Design Manager and Project Engineer. Kenny help secure \$665,000 in grant funding from the California Self-Generation Incentive Program for this project. He also led a technical team to design a new 500 kW cogeneration system with gas treatment and a high strength waste receiving facility. The new cogeneration facility included one high-efficiency, lean burn internal combustion engine with associated heat recovery equipment, a biogas conditioning system to remove hydrogen sulfide, siloxane and moisture, and a pipe rack to support biogas and hot water pipes above ground due to congested site yard piping. The engine is fueled by treated digester gas from the digestion wastewater treatment process. **Cost: \$1.8M**

J-124 Digester Gas Facilities Rehabilitation, Orange County Sanitation District, CA

Digester Gas Technical Advisor. The District owns and operates two wastewater treatment plants with a combined capacity of over 200 mgd, each with its own digester gas fueled central generation plant for power generation. The gas conveyance and treatment systems need rehabilitation to meet current and future process needs. To address those issues, our team is providing the technical design of three new ultra-low emissions combustion flares at each plant to safely dispose of up to 3,500 scfm of either low- or high-pressure waste digester gas. Kenny is providing technical guidance for the process mechanical design for new digester gas conditioning components, including gas cooling and compression, as well as reviewing compressible flow pressure loss modeling. **Cost: \$18M**

San Leandro Water Pollution Control Plant Biogas Upgrades, City of San Leandro, CA

Mechanical/Energy Lead. Kenny is leading a team to upgrade the digester gas system to onsite vehicle fuel. Design will include an enclosed flare, gas storage, high strength waste co-digestion, and high pressure compressed natural gas compressors. The project will beneficially use digester gas as renewable natural gas to offset transportation fuel. **Cost: \$633K**



Leslie Knapp, EIT

O&M

Leslie is part of BC's O&M group and brings a broad understanding of wastewater operation having been a licensed operator at numerous WWTPs. With vast experience in O&M, commissioning/start up planning and testing, and operator training—she knows what it takes to engage operators to safely preserve maintenance of plant operations from design through start up of the facilities.

EchoWater Program Management, SacSewer, CA

O&M Representative. SacSewer is currently upgrading their existing wastewater treatment plant to meet stricter National Pollutant Discharge Elimination System permit limits by 2021 and California Title 22 filtration and disinfection criteria by 2023. This multi-year, \$2B upgrade is divided into multiple subprojects, including new biological nutrient removal processes, disinfection and dechlorination facilities, and tertiary filtration. BC, in a joint venture with another firm, is providing program management services for timely and successful delivery of the project. Leslie is serving as the liaison between plant operations and maintenance staff and various project engineers and contractors to see the project through design, construction, and commissioning. Leslie works daily in the field—testing new equipment, troubleshooting, and transferring knowledge of the new process to plant staff. **Cost: \$63M**

Biological Nutrient Removal Project, SacSewer, CA

Commissioning Engineer. Leslie worked as part of the commissioning team to complete testing and startup of this 181-mgd 5-Stage Bardenpho facility. The project included six 3,000 hp blowers and various pumping stations ranging from 2 to 330 mgd. Leslie also worked closely with plant operators and maintenance staff to provide training workshops and hands-on field training of the new equipment and systems. **Cost: Part of \$63M for EchoWater**

Energy Recovery Project, City of Roseville, CA

Commissioning Engineer. BC is providing construction management services for two ongoing projects, which include construction of new primary clarifiers, solids thickening, anaerobic digesters, biogas upgrading equipment, microturbines, and a compressed natural gas fueling system for City fleet vehicles. Leslie led the planning phase for commissioning and startup of the new facilities and is now overseeing testing and startup activities in the field. She meets regularly with the City's O&M staff to foster their engagement and facilitate knowledge transfer of the new equipment and processes. **Cost: \$9M**

Nitrate Reduction Improvements Project, City of Roseville, CA

Commissioning Engineer. This project incorporated the recommended improvements identified in a Nitrate Reduction Study previously completed by BC to help the Dry Creek Wastewater Treatment Plant reliably meet an effluent nitrate discharge limit of 10 mg/l. The process modifications include: (1) A new acetic acid (80%) chemical feed system (2) Installation of internal mixed liquor recycle pumps with variable frequency drives (3) Air flow modifications of the existing four diffused aeration basins including installation of new air flow meters, control valves, and DO probes. (4) Installation of new INVENT aerator/mixers in the two existing surface aeration basins. (5) Sidestream system modifications to better modulate the filtrate return to the head of the plant. (6) Installation of ammonia

EDUCATION

M.S., Civil Engineering,
University of South
Florida, Tampa, Florida,
2014

B.S., Chemistry, Warren
Wilson College, Asheville,
North Carolina, 2007

REGISTRATION(S)

Engineer-in-Training (EIT),
164993, California

CERTIFICATION(S)/ TRAINING

**Certified Wastewater
Treatment Plant Operator,**
Grade 1, 44574,
California

**Biological Water
Pollution Control
Operator, Grade II,**
991970, North Carolina

40-hour HAZWOPER

EXPERIENCE
12 years

JOINED FIRM
2014

FIRM
Brown and Caldwell

LESLIE KNAPP // CONTINUED

and nitrate instrumentation for optimized process control and monitoring. Leslie was onsite during construction and startup to verify proper system performance and facilitate testing of new equipment and processes. **Cost: \$2.4M**

Nitrifying Sidestream Treatment Project, SacSewer, CA

Lead Commissioning Engineer. As part of the EchoWater Project, the \$40M Nitrifying Sidestream Treatment Facility treats the return sidestream from onsite sludge storage basins and produce nitrate-rich effluent, which is used for odor control in the plant interceptors. The facility includes fine screening, influent and effluent pumping, sequencing batch reactors with fine bubble diffusers, and lime feed and storage facilities. Leslie oversaw commissioning and startup activities for the new facility, verifying required documentation and testing is completed, and facilitating training of plant staff. **Cost: Part of \$63M for EchoWater**

Disinfection Chemical Storage Project, SacSewer, CA

Lead Commissioning Engineer. This project was a joint venture design with another firm to replace an existing chlorine and sulfur dioxide gas disinfection/dechlorination system with liquid chlorine and sodium bisulfite injection. Leslie coordinated commissioning and startup activities for the new facility, wrote standard operating procedures, and facilitated training of plant staff. **Cost: \$2.4M**

Wastewater Operations Assistance, Burlington Northern and Santa Fe Railway, Multiple States

Wastewater Manager. Leslie served as Interim Wastewater Manager for the Railway, reporting directly to the Senior Manager of Environmental Engineering. Her responsibilities included day-to-day oversight assistance of wastewater operations at 150 sites nationwide, helping to set operations and maintenance priorities, troubleshooting, and facilitating communications between wastewater operations personnel, Railway managers, and other consultants. **Cost: \$212K**

Nutrient Removal Planning Level Study and Annual Nutrient Compliance Reporting, Bay Area Clean Water Agencies, CA

Operations Specialist. The team is helping the Agency implement nutrient reduction studies to help meet new nutrient permit requirements. As part of this effort, our staff have visited 19 wastewater treatment plants for member agencies and worked with plant staff to identify ways to address future nutrient regulations. Leslie has

participated in wastewater treatment plant site walks as an operations specialist to assess current practices and identify opportunities to improve nutrient removal. She also reviewed and contributed to the follow-on reports summarizing the assessment findings. **Cost: \$300K**

Nitrate Reduction Study, City of Roseville, CA

Operations/Process Engineer. The project involved preparing an evaluation of optimization and upgrade alternatives to meet nutrient compliance requirements for nitrate plus nitrite. The Study included review of the existing facilities, characterization of influent wastewater, preparation of a process model and mass balance model, evaluation of process and operational modifications, preparation of cost estimates, various workshops with plant staff, and preparation of a draft and final report with improvement recommendations. **Cost: \$141K**

Wastewater Operations, City of Tampa Wastewater Department, FL

Wastewater Operator Intern. The 96 mgd wastewater treatment plant includes biochemical oxygen demand removal (high-purity oxygen), nitrification (diffused air) and denitrification filters in liquid train and anaerobic digestion, belt filter press dewatering and heat drying in solids trains. Leslie was responsible for operation of screen and grit area, onsite cryogenic oxygen plant, and nitrification reactors. She inspected and maintained pump station odor control systems and responded to odor complaints. She guided plant tours for school groups and the general public and collected plant samples and participated in laboratory work for local university researchers. **Cost: Unavailable**

Wastewater Operations, Water and Sewer Authority of Cabarrus County Concord, NC

Wastewater Operator. The 24 mgd wastewater treatment plant includes biochemical oxygen demand removal/partial nitrification (high-purity oxygen) in liquid train and centrifuge dewatering and multi-hearth incineration in solids train. Leslie worked on a shift consisting of one supervisor and two operators, alternating weekly between plant operator and incinerator operator. She trained four new operators on plant-operating checks, worker safety, routine cleaning, sampling, and operation of centrifuges and incinerator. She guided plant tours for school groups, State Operators Association members, and the public. **Cost: Unavailable**



Tony Knapp, PE

Constructability Review/Construction Management

During construction, Tony brings expertise in handling and reviewing shop drawings, requests for information, change orders, correspondence with various stakeholders, coordinating design changes, and managing subconsultants. He can also assist construction managers and resident engineers in mitigating any scheduling issues and bottlenecks to achieve project milestones on time.

Energy Recovery Project, City of Roseville, CA

Construction Manager/Inspector. Tony is providing construction management and inspection services for this new facility. He works closely with City and Engineering staff to make certain that the project gets constructed as intended and to make sure any issues with the Contractor get resolved as equitable as possible. The project involves evaluating cogeneration and fats, oil, grease/food waste receiving alternatives to develop an economically favorable project that would beneficially use gas from the digester expansion project at the Pleasant Grove Wastewater Treatment Plant. BC is evaluating the benefits of microturbines, engines, and gas separation to generate a renewable compressed natural gas vehicle fuel. Design includes four microturbines, a high strength waste receiving facility, digester gas conditioning and upgrading systems, and a compressed natural gas fueling station for the City's garbage collection fleet. The team also helped obtain a \$3M award from the California Energy Commission to fund the vehicle fuel portion of the project. **Cost: \$9M**

Pleasant Grove Wastewater Treatment Expansion, City of Roseville, CA

Construction Manager/Inspector. Tony is providing construction management and inspection services for this wastewater treatment plant expansion. The project involves the construction of primary clarifiers, solids thickening, anaerobic digester tanks, a ferric chloride facility and sludge storage tanks. He

oversaw and inspected the installation of the associate water, sewer, concrete and gradings work for this project. **Cost: \$4.4M**

Dry Creek Wastewater Treatment Plant Cogeneration, City of Roseville, CA

Construction Inspector. This project involved the construction of a cogeneration facility and improving the nitrate removal process at the Dry Creek Waste Water Treatment Plant. The work included the construction of a new carbon chemical facility and modifications to the activated sludge process. The activated sludge improvements included new pumps for the mixed liquor return lines, new dissolved oxygen and ammonia analyzers, the installation of INVENT aerator/mixers and revisions to the process air piping. The new cogeneration facility included a high-efficiency internal combustion engine with associated heat recovery equipment, a biogas conditioning system to remove hydrogen sulfide and siloxane, and a new high strength waste receiving facility. Tony performed civil, mechanical, and electrical field inspections and worked closely with the design team to ensure that contract work was implemented correctly in the field. **Cost: \$1.8M**

Construction Project, Auburn Lake Trails Water Treatment Plant, Georgetown Divide Public Utility District, CA

Project Engineer. This \$10M contract involved the complete reconstruction of a 2 million gallon per day water treatment plant. Tony's major responsibilities included laying out

EDUCATION
M.S., Civil Engineering,
University of California at
Davis, 2007

B. S., Civil Engineering,
University of California at
Davis, 1998

REGISTRATION(S)
Professional Civil
Engineer, C68525,
California, 2005

**CERTIFICATION(S)/
TRAINING**
OSHA 30-hour
Construction Safety
40-Hour HAZWOPER

EXPERIENCE
22 years

JOINED FIRM
2018

FIRM
Brown and Caldwell

TONY KNAPP // CONTINUED

the yard piping, overseeing equipment installation, and resolving construction issues with the design engineer.

Cost: Unavailable

Flocculation/Sedimentation Basin Project, San Juan Water District, CA

Project Engineer. This \$7M contract involved replacing the flocculation and sludge collector system at a 120 million gallon per day water plant. Tony's tasks included laying out the concrete structures, overseeing installation of mechanical equipment, and preparing shop drawing submittals. **Cost: Unavailable**

Terminal Island Water Reclamation Plant Aeration System Replacement, City of Los Angeles, CA

Project Engineer. This \$12M contract entailed demolition and replacement of the blowers and diffuser assembly for the City's activated sludge basins. Tony's responsibilities included preparing shop drawing submittals, coordinating equipment fabrication, and collaborating with the electrical and controls subcontractors. **Cost: Unavailable**

Deep Filter Modification Project, Village Creek Water Reclamation Plant, Fort Worth, TX

Project Engineer. Tony oversaw the installation of a distributed control system for the filter gallery at this 160 mgd treatment plant. The project team installed and programmed an Emerson Ovation control system. **Cost: Unavailable**

Ultraviolet Pilot Project, Trinity River Authority, TX

Project Engineer. Tony oversaw the construction and startup of a pilot ultraviolet treatment project. The project diverted 28 mgd of secondary wastewater at the treatment plant to six treatment systems. He also managed nine separate subcontractors for this project. **Cost: Unavailable**

Integrated Pipeline Project, Tarrant Regional Water District, TX

Project Engineer. Tony's responsibilities included the design of the yard piping and valve vaults for this 350 mgd pump station. The yard pipe design included the layout of welded steel pipe, gate valves and butterfly valves ranging in size from 84 to 114 inches diameter. **Cost: Unavailable**

Southern Regional Tertiary Treatment Plant, Marine Corps Base Camp Pendleton, CA

Project Engineer. Tony designed and sized the pumps for the influent, filter feed, and drainage pump stations. **Cost: Unavailable**

Wastewater Treatment Plant Repairs and Upgrade, Navy Facilities Engineering Command, Guam

Project Engineer. Tony designed and sized a dissolved air flotation thickener and polymer feed system for this wastewater plant. **Cost: Unavailable**

Libby Asbestos Remediation Project, United States Environmental Protection Agency, MT

Project Engineer. Tony performed field design and construction services for this \$80M Superfund project. **Cost: Unavailable**



Alison Nojima, PE

Funding Support

As a national energy specialty leader at BC, Alison directs BC's IRA funding initiative, helping agencies build a clean energy economy while reducing greenhouse gas emissions. She helps clients successfully secure IRA and other funding by helping them understand funding options and prepare applications.

Cogeneration System Replacement, Delta Diablo Sanitation District, CA

Funding Support. This cogeneration replacement project involves designing a new digester gas conditioning system and cogen engine(s). The new cogen system will position the District to achieve a net zero conditioning system and fuel blending capability in the near-term and align with future energy projects in the long-term. Alison is responsible for the biogas utilization economic analysis and engine sizing. **Cost: \$1.3M**

Digester and Thickener Facilities Upgrade, City of San José, CA

Engineer. This project included modifications to four existing anaerobic digesters, replacement of the digester gas pipeline, upgrades to the dissolved air flotation thickener system, and a new sludge screening facility. Alison designed the digester mixing system, digester gas dome, and primary sludge screening facility. She also developed the digester and dissolved air flotation thickener design criteria, supported the air permit application, and prepared the Clean Water State Revolving Fund technical package. **Cost: \$16.5M**

Primary Digester No. 7 Design, Union Sanitary District, CA

Engineer. To create redundancy and capacity, Alison helped design a new mesophilic anaerobic digester at the Alvarado Wastewater Treatment Plant. The new digester is a state-of-the-art waffle-bottom, submerged-fixed-cover design with a gas-lance, draft-tube mixing system designed for efficient, high-rate mixing

that is impervious to struvite accumulation. The project also included a new hot water boiler and improvements to the control of the existing digester heating system. **Cost: \$2.7M**

Biogas Alternatives Feasibility Assessment and BioGeneration Facility Project, SacSewer, CA

Engineer. The goal of the project is to benchmark the value of biogas by developing project alternatives and qualifying their benefits. Design includes 12 MW of cogeneration capacity derived from biogas that will be delivered via design build procurement. Alison worked on technical exhibits that included digester gas quantity and quality, performance standards, and minimum design build technical requirements. She is helping evaluate time-of-use based power generation versus demand, develop the air permit application, create process flow diagrams, and contribute to the site integration memo. Alison is also evaluating SacSewer's Organics Program expansion, which includes a food waste receiving pilot, cost to treat analysis, co-digestion capacity analysis, biogas production impacts, and potential administrative, process, and physical improvements. **Cost: \$3.5M**

Dry Creek Wastewater Treatment Plant Cogeneration, City of Roseville, CA

Project Engineer. Alison helped the City secure \$664,000 from the California Self-Generation Incentive Program to construct a new cogeneration facility at the Dry Creek Wastewater Treatment Plant. Design includes a high-efficiency, lean burn internal combustion

EDUCATION

M.S., Environmental Engineering and Science, Stanford University, 2013

B.S., Civil Engineering, Santa Clara University, 2012

REGISTRATION(S)

Professional Civil Engineer, 84933, California, 2015

EXPERIENCE

10 years

JOINED FIRM

2013

FIRM

Brown and Caldwell

ALISON NOJIMA // CONTINUED

engine with associated heat recovery equipment. Alison designed the gas conditioning system and high strength waste receiving facility and was involved with delivering the Self-Generation Incentive Program milestone requirements for the grant. **Cost: \$1.8M**

Energy Recovery Project, City of Roseville, CA

Project Engineer. The project involves evaluating cogeneration and fats, oil, grease/food waste receiving alternatives to develop an economically favorable project that would beneficially use gas from the digester expansion project at the Pleasant Grove Wastewater Treatment Plant. To determine the best use of digester gas, Alison modeled and evaluated the costs and benefits of microturbines, engines, gas upgrades to generate renewable natural gas for onsite vehicle fueling, and direct sales of digester gas to the Roseville Energy Park. She designed the microturbine system with heat recovery and a high strength waste receiving facility, prepared the Clean Water State Revolving Fund Green Project Reserve technical package, and helped secure \$3.18M in funding through the California Energy Commission and Placer County Air Pollution Control District. The project included digester gas conditioning and upgrading systems as well as a compressed natural gas fueling station for the City's garbage collection fleet. Alison is leading the RINs and LCFS services task that will support the City in capitalizing on the renewable natural gas produced. **Cost: \$9M**

San Leandro Water Pollution Control Plant Biogas Upgrades, City of San Leandro, CA

Energy Lead. Alison is helping design digester gas upgrades that include an enclosed flare, gas storage, high strength waste co-digestion, and high pressure compressed natural gas compressors. The project will beneficially use digester gas as renewable natural gas to offset transportation fuel. Alison serves as the main engineer on the air permit application. **Cost: \$633K**

Digester Gas Utilization Upgrades, San Francisco Public Utilities Commission, CA

Project Engineer. Alison designed a new digester gas conditioning system and gas storage tank, which included moisture removal, compression, and siloxane removal. The new digester gas conditioning system and storage tank provide increased reliability and full biogas utilization in the combined heat and power engines. **Cost: \$576K**

P2-128 Digester Replacement, Orange County Sanitation District, CA

Engineer. The project includes designing six new thermophilic digesters at Plant No. 2 to treat all the solids generated from the treatment process. The facility will be designed to operate as a Class A temperature

phased anaerobic digestion system, including new Class A thermophilic batch tanks and continued operation of the existing mesophilic digesters. Alison is preparing design criteria and process mechanical calculations and helped develop the Work Plan and approach for the temperature phased anaerobic digestion facilities Start-up Plan, Performance Acceptance Test Plan, and the Class A Start-up Plan. **Cost: \$42M**

Bioenergy Generation Project, Fairfield-Suisun Sewer District, CA

Project/Design Manager. Alison is leading a technical team to install a new 1.1 MW lean-burn engine to utilize digester gas. The new engine will consume all the plant's digester gas to generate electricity to offset purchase from the utility and produce enough heat for the existing digesters. Design also includes a gas conditioning system, HVAC improvements, and exhaust emissions control. Alison worked with Bay Area Air Quality Management District on the air permit application. **Cost: \$1.5M**

Biosolids Digester Facilities Project, San Francisco Public Utilities Commission, CA

Energy Lead. BC is the lead consultant for this \$2.2B project that involves planning, engineering, community integration, and construction services for the Southeast Treatment Plant. Alison completed a business case evaluation for multiple biogas utilization options and project delivery methods that would lower the agency's greenhouse gas footprint, beneficially use all gas, and reduce capital cost. After evaluating the best use of biogas resource, she recommended biomethane pipeline injection. The project team is now acting as a technical advisor for a public-private partnership procurement. The project will upgrade and inject all the biogas from the Southeast Treatment Plant into an adjacent utility natural gas pipeline for distribution and sale. This 1,400 scfm project will be the largest municipal renewable natural gas project in Northern California and Pacific Gas & Electric's service area. She also evaluated historical plant data to assist in developing a flows and loads technical memorandum, provided California Environmental Quality Act support, and prepared a Needs Assessment Report for the project. Alison also helped to develop the Commission's hedging strategy for various energy and electricity contracts. She evaluated solar and battery energy storage power purchase agreements to increase their renewable energy portfolio. Alison was a key player in developing the first Green Tariff rate offered under Hetch Hetchy Power and served as the City's LCFS project manager and navigated the team through its first LCFS credit sale and reporting. **Cost: \$87M**



Jonathan Payne, PE, PG, CEG

Geotechnical

Jonathan brings considerable experience in site evaluation, shallow and deep foundation design, rock excavation, and quality control of earthwork projects. He specializes in geologic hazard evaluation with specialized expertise in field methods for fault evaluation.

Site Improvements, Tahoe-Truckee Sanitation Agency, CA

Professional Geologist. Jonathan completed the geotechnical investigation to evaluate existing subgrade and foundation materials and to provide associated recommendations to aid in the performance of pavements and foundations. The project was for a parking lot addition and construction of four 6,700-gallon storage tanks. Site exploration included three test pits, soils testing, review for geological hazards and culminated into the geotechnical report with appropriate recommendations.

Cost: \$4K

Polymer Storage Tanks, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Geological Engineer. Jonathan worked as a subconsultant to Brown and Caldwell. He completed the geotechnical investigation to evaluate existing foundation materials and to provide geotechnical conclusions and recommendations for the design and construction of a 723-sq ft building to host (2) 5,000-gallon polymer storage tanks. **Cost: \$9K**

Fluidized Bed Reactor Evaluation, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Senior Geological Engineer . Jonathan was the Senior Geological Engineer for this geotechnical report and worked as a subconsultant to Brown and Caldwell. His investigation consisted of research, field

exploration, laboratory testing, and engineering analysis to allow formulation of geotechnical conclusions and recommendations for planning and preliminary design of this below grade fluidized bed reactor building expansion.

Cost: \$9K

Water Treatment Plant, Tahoe City Public Utility District, CA

Senior Geologist. The original geotechnical report was developed in 2015 with an update to the report in 2020. Jonathan supported completion of the geotechnical investigation which consisted of research, field exploration, laboratory testing, and engineering analysis to allow formulation of geotechnical conclusions and recommendations for a new water treatment plant and associated improvements.

Cost: \$34K

Advanced Water Treatment Project, Tahoe-Reno Industrial Center, NV

Senior Geologist. As as a subconsultant to Brown and Caldwell, Jonathan supported the overall project, including the design and construction of various water storage and treatment facilities to provide water for industrial use. Black Eagle Consulting completed the geotechnical investigation which consisted of research, field exploration, laboratory testing, and engineering analysis to allow formulation of geotechnical conclusions and recommendations for a new water treatment plant and associated improvements.

Cost: \$52K

EDUCATION

M.S., Geology, University of Nevada, Reno, 2013

B.S., Geosciences, Pacific Lutheran University 2005

REGISTRATION(S)

Professional Engineer, 030346, Nevada

Professional Geological Engineer, 9591, Nevada

CERTIFICATION(S)/

TRAINING

Certified Engineering Geologist (CEG), 2789, California

EXPERIENCE

16 years

JOINED FIRM

2014

FIRM

Black Eagle Consulting

JONATHAN PAYNE // CONTINUED

Ruby Vista Ranch Subdivision Phase 1 Improvements, Ruby Vista Ranch, NV

Senior Geologist. Jonathan completed the geotechnical investigation including research, field exploration, laboratory testing, and engineering analysis to allow formulation of geotechnical conclusions and recommendations for design and construction of the proposed Phase 1 streets and sewer improvements on this subdivision project. The proposed Phase 1 streets and sewer improvements of the overall Ruby Vista Ranch Subdivision project will involve the design and construction of approximately 5,000 lineal feet of streets and about 8,700 lineal feet of gravity sewer main.

Cost: \$13K

Terrasante Subdivision Fault Hazard Investigation, Fritz Duda Company, NV

Senior Geologist. Jonathan performed a fault hazard investigation in order to provide fault hazard mitigation recommendations for a residential subdivision with 210 single-family lots and associated streets within an overall 350-acre site. This involved a review of published geologic maps and fault hazard reports to establish the presence of any documented geologic hazards at the site. Existing geotechnical reports for other projects in the area were also reviewed. Additionally, six exploratory fault trenches perpendicular to the fault traces were excavated and observed. The results of the research, site exploration, laboratory testing, and geological analyses allowed for formulation of fault hazard mitigation recommendations for the design and construction of this project. **Cost: \$23K**

Effluent Reuse Pump Station Project, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Senior Geologist. Jonathan worked with a team to conduct a geotechnical exploration and laboratory testing for this facility. Site conditions were evaluated with 1 test boring to a depth of 46.5 feet. Soil samples were gathered, tested, and analyzed. **Cost: \$16K**



Stephanie Rasmussen

CEQA

Stephanie's background includes serving as a project manager, assistant project manager, and environmental analyst. She has assisted with preparation of CEQA, NEPA, and Tahoe Regional Planning Agency documents, habitat conservation plans, resource management plans, and permit packages.

BioGeneration Facility Project, Environmental Impact Report, SacSewer, CA

Project Manager. SacSewer is proposing to construct and operate a biogas cogeneration facility within the existing Sacramento Regional Wastewater Treatment Plant site. The proposed project would beneficially use biogas produced by the plant's anaerobic digesters to generate heat and power. The proposed project would include construction and operation of a new cogeneration engine system to use biogas onsite to produce electricity and heat for the plant. The proposed project would include up to six internal combustion engine generators, engine exhaust treatment (oxidation catalyst and selective catalytic reduction), a biogas conditioning system (as part of the gas management system), hot water boilers (standby), and a new building. Ascent prepared the Environmental Impact Report. Key issues include air quality and greenhouse gas emissions related to emissions generated by the biogas facility. Stephanie led preparation of the Environmental Impact Report. **Cost: \$322K**

Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project CEQA-Plus Initial Study/Mitigated Negative Declaration, City of Roseville, CA

Project Manager. The plant is a full tertiary treatment facility equipped to produce Title 22 recycled water. This expansion project would increase the effective treatment capacity of the plant from 9.5 mgd to 12.5 mgd average dry weather flow to accommodate projected growth through 2040. The project includes primary clarification, solids thickening, and

anaerobic digestion facilities. The Initial Study/Mitigated Negative Declaration also covers a separate, but related, energy recovery project that would beneficially use the digester gas produced by anaerobic digestion from the expansion project for generation of electricity, heat, and compressed natural gas for fueling City solid waste vehicles. The City was pursuing State Revolving Fund financing in support of this effort; therefore, the Initial Study/Mitigated Negative Declaration also addresses the State Water Resources Control Board CEQA-Plus requirements. Stephanie was the project manager for the CEQA-Plus Initial Study/Mitigated Negative Declaration and the subsequent addendum. **Cost: \$226K**

Sump 85 Relocation Project, CEQA-Plus Initial Study/Mitigated Negative Declaration, City of Sacramento, CA

Project Manger. The project will replace the aging Sump 85 sewage pumping station with a new pump station that would be located 0.06 mile north of the existing Sump 85 site. The new pump station would include new submersible pumps, wet wells, manholes, below and above-grade piping, vertical surge tanks, a generator and electrical equipment building, fiber optic line, a microwave communications tower, and a restroom. The project will also include demolition of the existing pump station and associated tie-in work related to commissioning of the new station and decommissioning of the existing station. The City is pursuing State Revolving Fund financing in support of this effort; therefore, the Initial Study/Mitigated Negative Declaration also addresses the State Water Resources Control Board CEQA-Plus requirements. A portion of the fiber optic

EDUCATION
B.S., Environmental Biology and Management, University of California, Davis, 2003

EXPERIENCE
20 years

JOINED FIRM
2014

FIRM
Ascent

STEPHANIE RASMUSSEN // CONTINUED

line would be parallel to Bay Drive Drainage Ditch and will require a Lake and Streambed Alteration Agreement from California Department of Fish and Wildlife. Ascent is preparing the CEQA-Plus Initial Study/Mitigated Negative Declaration and Section 1602 Lake and Streambed Alteration Agreement. Stephanie led preparation of the CEQA-Plus Initial Study/Mitigated Negative Declaration and Notification of Lake or Streambed Alteration. **Cost: \$96K**

EchoWater Program Management, Environmental Impact Report (CEQA-Plus), SacSewer, CA

Environmental Analyst. SacSewer's wastewater treatment plant is the largest discharger of treated wastewater to inland waterways in California. The discharge location is just upstream of the Sacramento-San Joaquin Delta. The project included upgrades to several treatment plant processes, including filtration (tertiary), disinfection, and ammonia removal. The Environmental Impact Report for the EchoWater Wastewater Treatment Plant upgrade was certified in October 2014. Regional San also pursued State Revolving Fund financing in support of this effort; therefore, the analysis addressed the State Water Resources Control Board CEQA-Plus requirements. Ascent led consultation with National Oceanic and Atmospheric Administration Fisheries, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. Stephanie assisted with preparation of the Final Environmental Impact Report and the CEQA-Plus package. **Cost: \$1.4M**

Walnut Grove Pump Station Abandonment Project, Initial Study/Mitigated Negative Declaration, SacSewer, CA

Project Manager. The project included installing a new 16-inch gravity sewer pipeline that connects to Pump Station S146, abandon the existing sewer pipeline, and removal of Pump Station S064. The project is located in Walnut Grove in Sacramento County and extends within SacSewer's sewer easement from Pump Station S064 southeast to Pump Station S146. The new pipeline follows the route of the existing 8-inch force main and would be 2,000 feet in length. Following installation of the new pipeline, the existing Pump Station S064 would be abandoned. Ascent prepared the Initial Study/Mitigated Negative Declaration and federal and state permitting packages including Section 404, Section 401, Section 1602 Lake and Streambed Alteration Agreement, Section 7 consultation for giant gartersnake, and Section 106 compliance. Stephanie led preparation of the Initial Study/Mitigated Negative Declaration and permitting packages. **Cost: \$80K**

Arcade Creek Pipeline Crossing Project, Sacramento Suburban Water District, CA

Project Manager. The District has an existing 14-inch cast iron water pipeline under the bed of Arcade Creek in Citrus Heights that has been undermined and is currently exposed. The District proposes to replace the exposed pipeline with a new pipeline attached to the adjacent bridge. Once the new pipeline is attached to the bridge, the existing pipeline would be removed and the new pipeline would be connected to existing pipeline on either side of Arcade Creek. The project will result in temporary disturbance of Arcade Creek and the adjacent riparian habitat. Ascent prepared the Notice of Exemption in compliance with CEQA and state permitting packages including Section 401 and Section 1602 Lake and Streambed Alteration Agreement. Stephanie led preparation of the Notice of Exemption and permit applications for the project. **Cost: \$78K**

Alta Sierra Reservoir Replacement Project, Initial Study/Mitigated Negative Declaration, Nevada Irrigation District, NV

Project Manager. The Alta Sierra Reservoir is a water storage reservoir on property currently owned and managed by the Nevada Irrigation District. The District proposed to remove and dispose of the existing Hypalon liner of Alta Sierra Reservoir and construct up to two new water storage tanks in the same footprint. Key issues included visual changes related to construction of the water tanks and construction-related impacts. Stephanie led preparation of the Initial Study/Mitigated Negative Declaration. **Cost: \$63K**



Lauren Riley, PE

Civil Support

Lauren's background includes the evaluation, planning, design, rehabilitation, and construction support for wastewater facilities and infrastructure. Her strong knowledge of civil design and drafting technologies help successfully capture and analyze design concepts and maintain consistency of design throughout a project's life cycle.

Energy Recovery Project, City of Roseville, CA

Deputy Project Manager/Resident Engineer.

This \$21M project consists of a new high strength waste receiving facility, a digester gas conditioning and separation system to produce vehicle fuel, a vehicle fueling station including compression, storage, and dispensing equipment, and microturbines for combined heat and power generation. Lauren is responsible for managing design decisions, evaluating design and performance criteria, analyzing value engineering opportunities, and managing technical meetings with the City. Lauren assists with the evaluation of the high strength waste facility, the digester gas conditioning system, and the compressed natural gas fueling system. She is also involved with design of the pipe systems, general site civil (stormwater runoff, grading, etc.), and process flow analysis. **Cost: \$9M**

Pleasant Grove Wastewater Treatment Plant Expansion, City of Roseville, CA

Construction Management Support. This \$55M expansion project consists of the construction of new primary clarifiers, solids thickening, anaerobic digesters and control building, digested sludge, and centrate storage tank conversions. Work also includes asset management, start-up, and testing to provide a complete and operational system. As a Resident Engineer for construction management and inspection, Lauren is working closely with the design staff, contractor, and City's Engineering and Operations team to make certain the project is completed on time and per City standards. BC coordinates all

concrete, geotechnical, and specialty testing. BC is the lead for change order management, cost estimating, and finalizing all as-builts and operations and maintenance manuals during project close out. **Cost: \$4.4M**

Regional Recycled Water Program, City of Riverbank, CA

Staff Engineer. BC is upgrading the wastewater treatment plant for the City. The project includes retrofit of the existing secondary treatment process to meet local discharge requirements and pre-treatment for the production of tertiary disinfected recycled water. The project will produce recycled water for irrigation of nearby agricultural operations. Lauren is the lead designer for oxidation ditches as well as the solids disposal. She is also responsible for collecting data, contacting vendors, and leading workshops with the client. **Cost: \$1.2M**

Sump 107, 1 and Pioneer Reservoir Business Case Evaluation, City of Sacramento, CA

Staff Engineer. BC is evaluating alternatives for three of the City's combined wastewater system facilities: Sump 1, Sump 107, and Pioneer Reservoir. All three facilities are facing different issues resulting from aging infrastructure. The business case evaluations will help define solutions to these challenges that consider the financial, operations and maintenance, environmental, and social impacts of the work. Lauren is responsible for evaluating various alternatives, leading workshops, and developing the final report/deliverable. **Cost: \$423K**

EDUCATION

M.S., Civil Engineering and Environmental Engineering, Graduated with Honors, California Polytechnic State University, 2020

B.S., Civil Engineering: Water Resources Emphasis, California Polytechnic State University, 2019

**REGISTRATION(S)
Professional Civil Engineer, C95538, California, 2023**

**CERTIFICATION(S)/
TRAINING
OSHA 10-Hour Construction**

**EXPERIENCE
2 years**

**JOINED FIRM
2021**

**FIRM
Brown and Caldwell**

LAUREN RILEY // CONTINUED

Howatt Ranch Recycled Water Preliminary Design Report, City of Davis, CA

Staff Engineer. The project includes the preliminary design of a 24-inch pipeline that will deliver recycled water from the City's Wastewater Treatment Plant to an agricultural plot of land about three miles away (Howatt Ranch Property). Lauren is responsible for utility plans, easement analysis, title report analysis, topographic survey analysis, pipe alignment selection, and preliminary design development.

Cost: \$219K

Vasona Park Sewer Rehabilitation, West Valley Sanitation District, CA

Staff Engineer. The project involved rehabilitation of approximately 5,000 linear feet of existing sewer and 27 manholes. Lauren helped with the development of final design documents. **Cost: \$300K**

Sump 1 Vacuum Pump Replacement, City of Sacramento, CA

Staff Engineer. This project analyzed various design alternatives for the City's existing vacuum pumps at Sump 1 and recommended several replacement pumps. Lauren was responsible for leading data collection/review, completing design calculations, analyzing the various vacuum pump alternatives, and providing a final cost estimate. **Cost: \$50K**

Program Management Services for Harvest Water Program, SacSewer, CA

Staff Engineer. Lauren is part of a BC/Carollo joint venture team selected to serve as the Capital Program Management Office. The team is advancing the Program to help release engineering packages to consultants for final development of the recycled water delivery system. BC is responsible for the planning, design, construction, and commissioning of the capital improvements required to meet the needs of the Program. Lauren is responsible for coordinating between stakeholders and SacSewer, leading the development of the communication program, and developing reports.

Cost: \$9.6M

Sump 137, City of Sacramento, CA

Staff Engineer. BC investigated potential solutions to pump station problems at Sump 157. Lauren was responsible for modeling the current pump station flow data to determine design changes that were required for the future system. She also analyzed flow data to define peak flows and diurnal curves and assisted with design calculations and pump improvements recommendations. **Cost: \$143K**

Water Reclamation Facility, City of Morro Bay, CA

Intern. Lauren supported construction oversight and program management for a new \$80M water reclamation facility designed to treat 1 mgd through full advanced treatment. This project included a new advanced wastewater treatment facility, 3 miles of pipelines, two lift stations, and wells to replenish the groundwater aquifer with the treated effluent, which the City can extract later for reuse. Lauren completed cost estimations due to change orders and time delays and attended meetings to facilitate timely project completion. **Cost: Unavailable**

Water Resource Recovery Facility Upgrade, City of San Luis Obispo, CA

Intern. Lauren aided with the construction management for the City's \$110M Water Resource Recovery Facility Upgrade. The project upgrade increased the treatment capacity of the plant and improved water quality of the effluent discharged into the San Luis Obispo Creek from the wastewater treatment facility. As a result of the project upgrade, the effluent is now treated to high quality drinking water standards. The project consisted of the addition of new digesters, solids thickening equipment, a membrane bioreactor system, an ultraviolet disinfection system, an odor control system, and an expanded equalization pond. Lauren was responsible for reviewing engineering calculations, specifications, and drawing, as well as developing meeting minutes for the weekly meetings.

Cost: Unavailable

Reservoir, Pump Station, and Well Conversion Project, Town of Gilbert, AZ

Intern. Lauren supported the design of a reservoir, pump station, and well conversion for the Town of Gilbert, Arizona. She designed overflow water retention basin for the reservoir and assisted with the Value Engineering effort due to cost restraints. **Cost: Unavailable**

North Avondale Water Supply Project, City of Avondale, AZ

Intern. Lauren supported the design of the \$7.7M supply, conveyance, and treatment project, expanding the City's water supply. The project consisted of a new interconnect facility, and new 10-inch, 16-inch, and 18-inch water lines that transport water to a treatment facility and then distribute it across the city. Lauren assisted with the design of the pipeline alignment based off constraints such as existing utilities and slope factors. **Cost: Unavailable**

Adam Ross, PE, PMP

Project Manager

Adam is a mechanical and civil engineer who has focused his career on anaerobic digestion, boiler systems, biogas utilization, renewable energy, and co-digestion of organic waste. His experience includes energy efficiency improvements, digester gas management, digester heating, mixing, feed systems, and alternative waste digestion (FOG/HSW and algae).



Digester Upgrades, East Bay Municipal Utility District, CA

Project Manager. Phase I included a new hot water boiler, hot water loop improvements, sludge heat exchanger replacement, fixed dome covers and mechanical draft tube mixers for four digesters, and improvements to digester gas management and electrical systems. Adam studied the existing digester gas management system and recommended improvements based on calculated future production. He designed the replacement of the digester gas management system for greater capacity, safety, and control; upgraded all piping; modified gas storage components; installed a new boiler; and added controls for the waste gas burners. During Phase 2, Adam designed sludge blending tanks and a fats, oil, and grease receiving facility, digester covers and mixers, a new digester feed/transfer/withdrawal system, and oversaw subconsultant work. The fats, oil, and grease receiving system is the largest in North America. Adam is the project manager for the current Phase 3 upgrades, which include new dual membrane covers for increased digester gas storage and control. **Cost: \$11.5M**

BioGeneration Facility Project, SacSewer, CA

Project Manager. Adam is currently leading the BioGeneration Facility Project as SacSewer's Owner's Advisor. This design-build procurement calls for a new, 13.4 MW internal combustion engine and fuel cell project to provide onsite heat and power. Through this project, SacSewer will gain exemption from onerous regulatory "covered

process" requirements associated with their existing biogas sale. The BioGeneration Facility was recommended as part of BC's Biogas Alternatives Feasibility Assessment. The Sacramento Regional Wastewater Treatment Plant currently delivers renewable digester gas (biogas) to the Sacramento Metropolitan Utility District in exchange for reliable utility and backup power, steam for digester heating, and revenue according to the terms of an existing Commodity agreement. The Biogas Alternatives Feasibility Assessment benchmarked biogas value by developing project alternatives and quantifying their benefits. The project alternatives included: providing digester gas to an onsite cogeneration system, pipeline injection, and production of renewable vehicle fuel. BC evaluated digester and campus heating demands to recommend replacement boiler capacity. A new hot water boiler will replace three existing steam boilers. The new boiler, engines, and fuel cell will be incorporated into the existing heat loop with new hot water pumps and expansion tanks.

Cost: \$2.1M

Digester and Thickener Facilities Upgrade, City of San José, CA

Project Engineer. Adam oversaw engineering activities and decisions. The project involves a complete replacement of the low-pressure digester gas system and rehabilitation of aging anaerobic digesters as part of a comprehensive upgrade to the San José Santa Clara Regional Wastewater Facility sludge and biosolids processing facilities. BC provided preliminary design, detailed design and engineering services during construction.

Cost: \$16.5M

EDUCATION

B.S., Mechanical Engineering, Communication Minor, University of California at Davis, 2002

REGISTRATION(S)

Professional Mechanical Engineer, M33197, California, 2005

Professional Civil Engineer, C72161, California, 2007

CERTIFICATION(S)/ TRAINING
Project Management Professional (PMP), Project Management Institute

EXPERIENCE

22 years

JOINED FIRM
2001

FIRM
Brown and Caldwell

ADAM ROSS // CONTINUED

Primary Digester No. 7 Design, Union Sanitary District, CA

Project Manager. Adam designed a new mesophilic anaerobic digester at the Alvarado Wastewater Treatment Plant to create redundancy and capacity. The new digester is a state-of-the-art waffle-bottom, submerged-fixed-cover design with a gas-lance, draft-tube mixing system designed for efficient, high-rate mixing that is impervious to struvite accumulation. The project also includes a new hot water boiler and improvements to the control of the existing digester heating system. **Cost: \$2.7M**

Digester Efficiency Study, Union Sanitary District, CA

Project Manager. Adam is leading a team to evaluate digester efficiency at the District's Alvarado Wastewater Treatment Plant. The evaluation will determine the feasibility of implementing gas lance sludge mixing at Primary Digesters No. 4-6—currently using a mechanical pump mixing system. The District operates a closed hot water loop to provide heat to the digesters from two cogeneration engines. The system's secondary heat source is a hot water boiler that operates when either one or both of the cogeneration engines are not running. As part of the study, BC will also identify improvements to enhance the performance, fine tune controls, and provide more efficient heating to the plant's primary digestion process. **Cost: \$353K**

Cogeneration System Replacement, Delta Diablo Sanitation District, CA

Project Manager. The project involves an alternatives analysis, pre-design, and detailed design. Adam is designing a new digester gas conditioning system, cogen engine(s) and hot water boiler. The new cogeneration system, coupled with high-strength waste receiving, will position the District to approach net zero. The project was motivated by recent Inflation Reduction Act funding. **Cost: \$1.3M**

Waste Gas Burner Replacement, City of Santa Rosa, CA

QA/Q Reviewer. The City's Laguna Wastewater Treatment Plant operates a cogeneration system consisting of four internal combustion engines BC confirmed that the plant's existing waste gas burner is nearing the end of its useful life and requires replacement. The project included completing design of a new waste gas burner which will require use of the existing waste gas burner through construction and helping to obtain a modified air permit through the Bay Area Air Quality Management District. Adam performed quality control reviews and helped integrate the project into the existing cogeneration system's operating strategy. **Cost: \$462K**

Energy Recovery Project, City of Roseville, CA

Project Manager. Adam evaluated cogeneration and fats, oil, and grease/food waste receiving alternatives to develop an economically favorable project that would beneficially use gas from the digester expansion project. He evaluated multiple biogas utilization technologies, including microturbines, engine-generators, and biogas upgrading for vehicle fuel then recommended the most economically favorable project that also met the City's environmental goals. He helped the City evaluate the benefits of microturbines, engines, and gas separation to generate a renewable compressed natural gas vehicle fuel. Adam and his team designed the project to include four microturbines, a high strength waste receiving facility, digester gas conditioning and upgrading systems, and a compressed natural gas fueling station for the City's garbage collection fleet. Adam also identified and delivered three grants to help fund the project: a \$3M award from the California Energy Commission, \$4M in loan forgiveness from the Clean Water State Revolving Fund (Green Project Reserve), and a \$180,000 Clean Air Grant from the local air district. **Cost: \$9M**

Biosolids Digester Facilities Project and Biogas Project, San Francisco Public Utilities Commission, CA

Biogas Task Lead. This \$2.2B investment replaces all biosolids processes with reliable, efficient, and modern technologies and facilities, including anaerobic digesters, solids dewatering, solids thickening, odor control, and energy recovery facilities. Adam is the technical lead for this public-private-partnership biogas project which will upgrade raw biogas to natural gas pipeline quality and inject it into the utility pipeline. **Cost: \$87M**

Laguna Treatment Plant Cogeneration Design, City of Santa Rosa, CA

Project Manager. Adam managed design of a new cogeneration plant based on mixed gas-fired internal combustion reciprocating engines. Heat from the cogeneration engines is recovered and interconnected to the existing plant heating water system. The existing gas booster equipment and natural gas mixing system (air dilution) were replaced, and a digester gas conditioning and treatment system will be added. **Cost: \$1M**



Samuel Ross, EIT

Staff Engineer

Sam specializes in the retrofit and design of boilers, chillers, pumps, variable frequency drives, and heat exchangers. Sam has performed cradle to grave services on numerous WWTP projects, and understands the intricacies associated with designing and constructing in cold weather environments, having performed work for such agencies as the City of Reno.



Bioenergy Generation Project, Fairfield-Suisun Sewer District, CA

Staff Engineer. This project includes installing a new 1.1 MW lean-burn engine to utilize digester gas. The new engine will consume all the plant's digester gas to generate electricity to offset purchase from the utility and produce enough heat for the existing digesters. The project also includes a gas conditioning system, HVAC improvements, and exhaust emissions control. Samuel's duties include providing engineering services as a part of construction, including submittal review, design review, and requests for information review.

Cost: \$1.5M

Fluidized Bed Reactors and Nitrification Pump Station Evaluation and Improvements and Denitrification Expansion, City of Reno, NV

Staff Engineer. Pre-design services involve expanding the capacity of the nitrification pump station and denitrification process to encumber future flows in the vicinity of the Truckee Meadows Water Reclamation Facility of the Reno/Sparks area in Washoe County, Nevada. The expanded nitrification pump station and denitrification process will serve as a functional facility designed to current seismic and structural codes and be sized large enough for current and future sewer flows. Samuel is responsible for providing engineer design and analysis for project alternatives. In addition, he is providing field sampling and designing experiments. **Cost: \$1.7M**

Trucked Waste Program Evaluation, City of Santa Rosa, CA

Staff Engineer. BC is evaluating the Trucked Waste Program to baseline the current operation. We will construct a baseline that includes current operating costs and revenues to run the Program and a solids-water-energy balance of the anaerobic digestion system, cogeneration system, and post-digestion solids handling. The baseline operation will be used to compare against the optimization options and process enhancements. Samuel's duties include providing in depth engineering design of biosolids alternatives using BC proprietary calculation software. In addition, he is providing technical cost estimating and drafting for vendors and client. **Cost: \$500K**

Secondary Treatment Upgrades, City of Palo Alto, CA

Staff Engineer. BC is planning and designing biological nutrient removal upgrades at the City's 25 mgd advanced wastewater treatment facility. The upgraded facilities will include an innovative membrane aerated biofilm reactor process coupled with a step-feed activated sludge process to comply with stringent limits on nitrogen discharges into San Francisco Bay. In addition, the project will rehabilitate aging infrastructure and include energy efficiency upgrades, including new aeration blowers and diffusers, return and waste active sludge pumping stations, and overhauled aeration tanks. A key aspect of the project entails intensification of the existing process to preclude the need to construct additional

EDUCATION
B.S., Chemical Engineering, Florida State University, 2018

REGISTRATION(S)
Engineer-in-Training (EIT), 19-308-43, California

EXPERIENCE
5 years

JOINED FIRM
2023

FIRM
Brown and Caldwell

SAMUEL ROSS // CONTINUED

treatment process tankage. Samuel's duties include providing engineering services as a part of construction, including submittal review, design review, and requests for information review. **Cost: \$5.6M**

Owner's Advisor Services for Groundwater Treatment Plant, City of Anaheim, CA

Staff Engineer. The City recently procured design-build teams to construct per- and polyfluoroalkyl substances (PFAS) treatment facilities at several of their well facilities, which have been taken offline due to the presence of PFAS in levels above the notification levels. BC is reviewing the design-builder's design and construction submittals and responding to requests for information. BC also advises the City on permitting compliance and coordinates and supports client operation and maintenance and information technology participation. Samuel is providing engineering services as a part of construction, including submittal review, design review, and request for information review. In addition, he is answering Owner questions and requests as it pertains to technical project requirements. **Cost: \$5M**

Digester 4 Cover Replacement Design, Truckee Meadows Wastewater Reclamation Facility, City of Reno, NV

Staff Engineer. Digester 4 was constructed as part of the 1978 treatment plant expansion and has a floating cover. Scope includes replacing the existing digester cover with a new dual membrane cover. The team is preparing a Basis of Design Report for the dual membrane option, including construction sequence and schedule, 30 percent drawings, cost estimate, and recommendation on further interior condition assessment prior to producing bid documents. Samuel is responsible for providing engineer design and analysis for project alternatives as well as cost estimating and Inflation Reduction Act funding pursuit. **Cost: \$497K**

Wastewater Treatment Master Plan, City of Woodland, CA

Staff Engineer. The City treats an average flow of around 4 mgd and treats water to recycled water standards. This facility treats does not have solids treatment processes and handles solids by storing and drying in large ponds before hauling offsite. BC has completed flow and loading analyses and condition assessment activities and is currently evaluating capacity of each unit process and will evaluate solids treatment alternatives if the ponds can no longer be used. At the end of the project, BC will provide a 20-year planning Capital Improvement Program with projects phased based on various trigger points to provide guidance

to the City on how to prioritize their projects to meet their goals in the short and long terms. Samuel's duties include providing engineering services as a part of construction, including submittal review, design review, and requests for information review. **Cost: \$782K**

Interstage Pumps and Blowers Upgrades, City of Santa Cruz, CA

Staff Engineer. The City is standardizing their plant-wide electrical system and has contracted ArcSine to convert 2,400V aeration blowers to 480V equipment, and convert 2,400V interstage pumps to 480V equipment. The bio-trickling filter and solids contact system is a part of this electrical standardization work. BC will study the trickling filter and solids contact process capacity requirements and coordinate the recommended controls with ArcSine. The result of this project is a Preliminary Design Report to serve as a design basis. Samuel's duties include providing engineer design and analysis for project alternatives as well as cost estimating. **Cost: \$162K**

WRF 5091: Developing a Framework for Quantifying Energy Optimization Reporting, Water Research Foundation, Denver, CO

Staff Engineer. Energy projects in the water sector can often be discretionary and are initiated based on projected annual energy savings metrics. The water sector lacks standard energy savings estimation procedures, as well as measurement and verification approaches and procedures that adhere to the Efficiency Valuation Organization's 2012 International Performance Measurement and Verification Protocol. This project seeks to fill this gap by assessing economic feasibility and energy reduction impact analyses currently used by drinking water and wastewater utilities. This investigation will inform the development of an improved and standardized framework for future economic feasibility evaluations and post-construction measurement and verification of energy performance. Samuel is responsible for providing in depth energy analysis of capital improvement projects as well as developing an energy analysis tool for energy and greenhouse gas analysis of future projects. **Cost: \$130K**



Shaun Smith, PE, LEED AP

Geotechnical

Shaun's background includes civil engineering design, project management and engineer of record. He brings a wealth of design knowledge in working with both public and private sector clients.

Site Improvements, Tahoe-Truckee Sanitation Agency, CA

Engineer of Record. Shaun oversaw the geotechnical investigation to evaluate existing subgrade and foundation materials and to provide associated recommendations to aid in the performance of pavements and foundations. The project was for a parking lot addition and construction of four 6,700-gallon storage tanks. Site exploration included three test pits, soils testing, review for geological hazards and culminated into the geotechnical report with appropriate recommendations.

Cost: \$4K

Polymer Storage Tanks, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Principal-in-Charge. Shaun worked as a subconsultant to Brown and Caldwell. He oversaw the geotechnical investigation to evaluate existing foundation materials and to provide geotechnical conclusions and recommendations for the design and construction of a 723-sq ft building to host (2) 5,000-gallon polymer storage tanks. **Cost: \$9K**

Fluidized Bed Reactor Evaluation, Truckee Meadows Water Reclamation Facility, City of Reno, NV

Principal-in-Charge. Shaun oversaw development of the geotechnical report and worked as a subconsultant to Brown and Caldwell. The geotechnical investigation

consisted of research, field exploration, laboratory testing, and engineering analysis to allow formulation of geotechnical conclusions and recommendations for planning and preliminary design of this below grade fluidized bed reactor building expansion. **Cost: \$9K**

Casa Diablo IV Geothermal Power Plant, Ormat, CA

Principal-in-Charge. Shaun oversaw the preliminary and final geotechnical investigations engineering analysis, construction, inspection testing and NDE for multiple projects within the Mammoth complex. The main geotechnical investigation involved advancing 5 test borings, 12 test pits, 2 fault trenches, and 2 shear wave velocity surveys to characterize the site geologic hazards and engineering properties of the subgrade materials. Black Eagle Consulting, LLC advanced site-specific recommendations regarding earthquake fault setback, mitigation of clay and fine-grained soils, excavation of site bedrock, deep cuts and fills, support of geothermal pipelines, and dynamic foundation analysis of the turbine-generator mat foundations, among others. **Cost: \$16K**

Martis Camp Golf Property Development, City of Truckee, CA

Principal-in-Charge. Shaun oversaw the overall geotechnical/geological investigation, and materials testing and inspection services for this large luxury golf course development. The project included investigation for the utility

EDUCATION

B.S., Engineering Science, Montana Tech of the University of Montana, 1996

REGISTRATION(S)

Professional Civil Engineer, C71219, California, 2007

CERTIFICATION(S)/ TRAINING

Leadership in Energy and Environmental Design Accredited Professional (LEED® AP), U.S. Green Building Council

EXPERIENCE

27 years

JOINED FIRM

2015

FIRM

Black Eagle Consulting

SHAUN SMITH // CONTINUED

infrastructure, numerous streets, structures, and retaining walls as well as materials testing (soils, concrete, and asphalt concrete), and inspection of multiple simple-span bridge structures across Martis Creek; an approximately \$25,000,000 multi-level reinforced PCC and steel clubhouse; miles of private asphalt concrete roadways; and associated infrastructure utilities including water, sanitary sewer and natural gas lines. **Cost: \$2M**

Tyner Way Tank Access Drive Improvements, Incline Village General Improvement District, NV

Engineer of Record. Shaun oversaw the geotechnical investigation to evaluate existing subgrade and foundation materials and to provide associated recommendations to aid in the performance of pavements and foundations. The project was for a parking lot addition and construction of four 6,700-gallon storage tanks. Site exploration included three test pits, soils testing, review for geological hazards and culminated into the geotechnical report with appropriate recommendations. **Cost: \$6K**

Water Treatment Plant, Tahoe City Public Utility District, CA

Engineer of Record. The original geotechnical report was developed in 2015 with an update to the report in 2020. Shaun oversaw completion of the geotechnical investigation which consisted of research, field exploration, laboratory testing, and engineering analysis to allow formulation of geotechnical conclusions and recommendations for a new water treatment plant and associated improvements. **Cost: \$34K**

Advanced Water Treatment Project, Tahoe-Reno Industrial Center, NV

Principal-in-Charge. As a subconsultant to Brown and Caldwell, Shaun oversaw the overall project, including the design and construction of various water storage and treatment facilities to provide water for industrial use. Black Eagle Consulting completed the geotechnical investigation which consisted of research, field exploration, laboratory testing, and engineering analysis to allow formulation of geotechnical conclusions and recommendations for a new water treatment plant and associated improvements. **Cost: \$52K**



Dan Stewart, PE, LEED AP

Technical Advisor (Cold Weather Environment Building Mechanical)

Dan is well-versed in NFPA requirements, and strengthens our team with his cold weather design skills with many of his mechanical engineering designs being developed for WWTP infrastructure in areas that experience extreme cold.



Biosolids Digester Facilities Project, San Francisco Public Utilities Commission, CA

Lead Mechanical Engineer/Mechanical Engineer of Record. Dan is leading mechanical design for a new wastewater solids pretreatment handling facility, part of a multi-building wastewater treatment complex. Duties included coordination with other disciplines, coordination with multiple engineering firms, mechanical equipment selection, design calculations, BIM modeling and quality assurance. The cooling systems for the building utilized variable volume air handling units with air cooled condensing units. The cooled areas of the building included the office/administration area and the central electrical room for the process equipment. **Cost: \$87M**

Big Creek Water Reclamation Facility, Fulton County, GA

Lead Plumbing Engineer/Plumbing Engineer of Record. This progressive design-build project expands the water reclamation facility from a capacity of 24 to 38 mgd. The project will result in a new facility that upgrades the facility to membrane treatment. Scope includes coarse screens, vortex-type grit removal systems, fine screens, biological nutrient removal, membrane bioreactors, and ultraviolet disinfection. Solids handling includes aerated holding and dewatering using screw presses. The facility will be able to meet strict treatment goals, including low total phosphorus and total nitrogen limits. Dan's duties include coordinating with other disciplines, and leading plumbing systems design, design calculations,

BIM modeling and quality assurance. Design for a multi-building site focuses primarily on a chemical building, dewatering building, and membrane building. **Cost: \$36M**

Tunnel HVAC, Central Valley Water Reclamation Facility, UT

Lead Mechanical Engineer. Dan led mechanical design to replace three, 30,000 cfm, heating and cooling air handling units to pressurize and ventilate the campus tunnel system. The project also calls for the replacement of units while maintaining ventilation in the tunnel system as part of the NFPA 820 declassification requirements. **Cost: Unavailable**

Hot Water and Chilled Water Plant, Trait Conversion Acceleration, Syngenta, ID

Lead Mechanical Engineer/Drafter. Dan served as lead mechanical engineer and drafter for a 100-ton air cooled chilled water plant and 18,000,000 Btu/h hydronic heating plant. The original design included a 750 ton chilled water system for greenhouse supplemental cooling. Post bidding, the Owner removed the greenhouse cooling plant as a cost reduction measure. **Cost: Unavailable**

Hy-Vee Hall, Polk County, IA

Lead Mechanical Engineer. Dan led mechanical design for a 150,000 square foot exhibition hall portion of a newly constructed entertainment complex. The HVAC systems consisted of constant and variable air volume packaged rooftop units with hydronic supplemental heating. **Cost: Unavailable**

EDUCATION

B.S., Mechanical Engineering, Iowa State University, 1995

REGISTRATION(S)

Professional Mechanical Engineer, M37196, California, 2014

Professional Mechanical Engineer in 27 other states

CERTIFICATION(S)/ TRAINING

Leadership in Energy and Environmental Design Accredited Professional (LEED® AP), U.S. Green Building Council

EXPERIENCE

28 years

JOINED FIRM

2020

FIRM

Brown and Caldwell

DAN STEWART // CONTINUED

Seed Care Institute, Syngenta, MN

Lead Mechanical/Plumbing Engineer. Dan led mechanical and plumbing design for 36,000 square foot research and training facility. The facility included 13,000 square foot of office space and a 5,000 square foot analytical laboratory. The HVAC systems included a heat recovery variable refrigerant flow system capable of simultaneously heating and cooling the building and a decided energy recovery ventilation system. The 18,000 square foot process and training area included refrigerated storage, chemical treatment areas and testing laboratories. **Cost: Unavailable**

River Place Remodel, Polk County, IA

Lead Mechanical Engineer/Drafter. Dan led mechanical design for the renovation of a 140,000 square foot retail store into a multi-division, multi-office centralized county government facility. The building remodel included converting existing constant volume rooftop heating and cooling units into variable air volume unit and all new plumbing systems throughout the building. Existing atmospheric roof drainage systems were revised and updated, including 20,000 square feet of area converted into a new siphonic roof drainage system. **Cost: Unavailable**

High School, Center Point-Urbana Community School District, IA

Lead Mechanical Engineer/Drafter. Dan led mechanical design for a new, 85,000 square foot high school that utilizes centralized, geothermal water to water heat pumps to produce chilled water and hot water. The chilled and hot water is supplied to chilled beams that are connected to a 100 percent ventilation air system that has dual energy recovery wheels to recover both latent and sensible heating and cooling energy. The roof drainage system consisted of primary and overflow drains. **Cost: Unavailable**

Chilled Water Plant Update, Syngenta, FL

Lead Mechanical Engineer/Drafter. Dan served as lead mechanical engineer and drafter for a 550-ton air cooled chiller plant update and its conversion to an energy efficient variable primary flow campus distribution system. The new system decreased campus energy usage by approximately 30 percent, closely matching energy modeling results performed prior to design. **Cost: Unavailable**

Trait Conversion Acceleration, Syngenta, ID

Lead Mechanical Engineer. Dan led mechanical design for a 175,000 square foot greenhouse research, office, and analytical laboratory facility. The HVAC systems consisted of variable air volume air handling units with central chilled water and hot water for the research facilities, and central hot water for the greenhouses. The greenhouse zones were cooled by evaporative cooling with pressurized zones to reduce the introduction of insects and reduce cross pollination. Roof drainage was routed underground to a retention pond located near the buildings. Plumbing systems design included deionized water for the laboratories and compressed air for process equipment and laboratory equipment. **Cost: Unavailable**

Project Schedule

SECTION 6



Section 6 Project Schedule

Request for Proposal Snip:

“Construction soil disturbance activities (grubbing, grading, excavation, filling, etc.) are strictly prohibited during the period from October 15 of any year through May 1 of the following year. Consultant shall consider this in the completion of Contract Documents and estimating a construction schedule.”

Project Schedule

We understand the construction timing constraints of this project. We also know that the fewer winters with your plant’s heating existing system, the better. In a best-case scenario, you have **three more winters** with your existing system:

- Design Verification ('24-'25)
- **Next winter ('24/25)**
- Final Design ('24-'25)
- **The following winter ('25)**
- Begin construction ('26)
- **The following winter ('26/'27)**
- Complete construction, start up new boilers

“Three more winters” is our project schedule goal.

As explained in this section, this goal is not a given. It takes an intentional design schedule. **Three more winters is achievable if substantial construction can begin in 2026.**

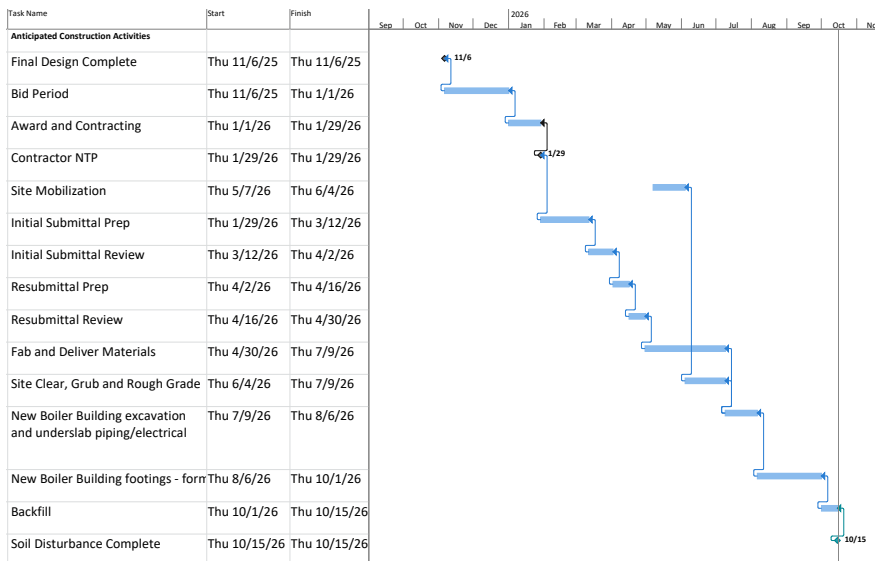


Figure 6-1 // BC has backcasted from TTSA’s allowable soil disturbance dates to determine the ideal timeframe to complete design, bid and award the construction contract. Our design schedule concludes in October 2025 to allow adequate time for the Contractor to perform construction in 2026.

Noting the limitations on soil disturbance activities, this means that we don’t just want construction to start, we want earthwork **completed in the 5.5-month window** available to allow for the remainder of construction to proceed, uninhibited, through completion.

To get this done, we can’t be bidding the project in Spring of 2026. The contractor must have Notice to Proceed, be mobilized onsite, and have approved submittals to be able to make full use of the 5.5-month window and get out of the ground.

BC prepared a detailed schedule estimate back-casting from a “soil disturbance complete” milestone of October 15, 2026, to determine the critical path from design completion. Critical path includes physical construction activities, but the design completion date is driven by the submittal process and the contractor’s procurement of materials.

To take advantage of the 2026 soil disturbance window, design must be complete by November 2025.

As shown in Figure 6-1, BC built our design schedule around the November 2025 deadline to realize the “three more winters” goal. The following detailed schedule shows how BC and T-TSA can partner to achieve this goal.

BC’s proposed project schedule is provided at the end of this section. To meet this schedule goal, BC assumes that a notice to proceed will be issued by T-TSA on March 29, 2024, and that the your review periods of BC’s deliverables will be completed within 15 business days.

BC's experience with managing schedule—and proactively managing schedule risk—will help the T-TSA deliver new boilers in just three winters.



Cogeneration System Replacement // Delta Diablo Sanitation District

BC is adept at identifying construction schedule windows, their implications, and the steps required to meet them. No “beginning construction” deadline has loomed larger than the one imposed by IRA. The IRA of 2022 changed the eligibility and rules of the existing, renewable-energy-focused Investment Tax Credit. The changes and extension of this tax credit make wastewater treatment agencies and their biogas projects eligible for significant credits, but only if construction begins before 2025.

BC led the industry in the identification, understanding, and strategy necessary for our clients to seize this opportunity.

And with a relatively short time for completing designs and beginning construction, we have helped agencies find creative solutions to meet the deadline.

For Delta Diablo, BC identified the funding opportunity and deadline, then set a design schedule that allows a contractor enough time to meet the requirements. We are submitting the air permit application at 30% design to avoid delays in receiving Authority to Construct from the local air quality management district, and we are pre-purchasing long-lead equipment.

Insurance

SECTION 7



Section 7 Insurance

BC maintains, at a minimum, the following insurance coverages:

1. **Commercial General Liability.**

Coverage is provided by Hartford Fire Insurance Company (Best's Rating A+ XV) on a standard occurrence liability form and includes premises/operations, personal injury, advertising injury liability, contractual liability, broad form property damage, products/completed operations. There is no exclusion for explosion, underground or collapse.

Limits are \$2,000,000 per occurrence, \$4,000,000 general aggregate.

2. **Business Automobile Policy.**

Hartford Fire Insurance Company (Best's Rating A+ XV) writes the policy on a standard form and coverage applies to all owned, non-owned and hired vehicles. Policy limit is \$2,000,000 each accident.

3. **Workers' Compensation.**

Property and Casualty Insurance Company of Hartford and Twin City Fire Insurance Company (Best's Rating A+ XV) underwrite this policy. Statutory benefits are provided, as required by state law. Employer's Liability is provided with limits of \$2,000,000.

4. **Professional Liability, Including Contractor's Pollution Liability.**

This policy is underwritten by Lloyd's of London (Best's Rating A XV). It is written on a "claims-made" basis and provides professional liability coverage for negligent acts, errors or omissions arising out of the performance of BC's professional services, including pollution claims. The current policy has a retroactive date of April 1, 1947. Limits are \$2,000,000 per claim and in the aggregate.

Fee Estimate

(separate PDF)

SECTION 8





February 16, 2024

Scott Fleming, PE, Senior Engineer
Tahoe-Truckee Sanitation Agency
13720 Butterfield Drive
Truckee, CA 96161

Subject: **Fee Estimate for the Digestion Improvements Project**

Dear Mr. Fleming:


Brown and Caldwell (BC) is pleased to submit this fee estimate for engineering services for the Tahoe-Truckee Sanitation Agency (T-TSA) Digestion Improvements Project. Our proposed fee is based on the scope of work included in Section 3, Appendix B, and the attachments included in this fee estimate. Our scope of work is based on the items proposed in Section 2: Project Approach of our proposal.

Costs were determined using the criteria listed in T-TSA's Requests for Proposal. Hourly rates are identified for all staff in the fee proposal. An associated project cost of \$10.00 per labor hour is added to cover costs for person and computer aided design computers, reprographics, local and long-distance telephone, postage, and express mail services. A proposed markup of 5 percent is included on subconsultant fees. Because this is a multi-year project, an annual escalation factor of 3.0 percent has been applied to work completed after December 31, 2024. The fee proposal incorporates travel expenses as other direct costs without markup. Other direct costs will be charged at the IRS approved standard mileage rate which will be 67 cents per mile for business miles driven. T-TSA will be invoiced monthly for BC services as described in the project scope of work.

If you have any questions regarding the cost proposal, please contact **Adam Ross** at 916.300.3290 / ARoss@brwncald.com.

Truly yours,

Brown and Caldwell


Adam Ross, PE, PMP
Project Manager
Sacramento


Colin Casey, PE
Design Manager
Sacramento

Attachments:

Fee Estimate Table

Anticipated Drawing List

T-TSA Digestion Improvements Project
Fee Estimate Table

Phase/ Task	Phase/Task Description	Adam Ross	Jacob Bates	Kenny Klitch	Colin Casey	Samuel Ross	Jesus Barrera	Hunter Adrian	Davina Carboni	Tali Lambert	Jim Dehart	Christian O'Neil	Dane Forsberg	Fred Burke	Dan Gagne	Dan Goodburn	Jennifer Borner	Alison Najima	Dawn Schock	Total Labor Hours	Total Labor Effort	Other Direct Costs (ODC)	Associated Project Costs (APC)	ASCENT ENVIRONMENTAL INC.	BIG ARCHITECTURE & ENGINEERING	BLACK EAGLE CONSULTING INC.	CONVERSE CONSULTANTS	CFA INC.	Total Subconsultant Cost	Total Expense Cost	Total Expense Effort	Total Effort	
		Project Manager	Project Analyst	QA/QC Reviewer	Design Manager	Proc Mech Engineer	Mechanical Designer	Building Mechanical	Civil Engineer	Civil Designer	Electrical Engineer	Electrical Support	I & C Engineer	BIM/Revit Lead	Structural Support	Cost Estimator	Air Permitting	Grant Funding	Word Processing					Environmental Permitting /CEQA	Architecture and Structural	Geotechnical	Hazardous Material Testing	Survey					
Billing Rates		\$391	\$150	\$289	\$253	\$174	\$125	\$186	\$309	\$201	\$299	\$143	\$203	\$246	\$291	\$285	\$229	\$288	\$155														
100	Project Management	300	280	24	20	24	0	12	12	0	12	0	0	0	0	0	0	0	0	684	185,904	150	6,840	0	0	0	0	0	0	150	6,990	192,894	
101	General Project Mgt	280	280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	560	152,368	0	5,600	0	0	0	0	0	0	0	5,600	157,968	
102	Kick Off Meeting	12	0	0	12	16	0	12	12	0	12	0	0	0	0	0	0	0	0	76	20,061	150	760	0	0	0	0	0	0	150	910	20,971	
103	Project Management Plans	8	0	24	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	48	13,474	0	480	0	0	0	0	0	0	480	13,954		
200	Basis of Design Verification	76	0	44	124	224	0	128	92	40	128	168	92	0	0	64	0	0	76	1,256	284,184	300	12,560	0	0	0	0	0	0	300	12,860	297,044	
201	Review of Associated Project Docs	12	0	0	12	12	0	12	12	0	12	12	12	0	0	0	0	0	0	96	23,511	0	960	0	0	0	0	0	0	0	960	24,471	
202	Design Verifications	16	0	4	24	40	0	60	24	0	16	40	40	0	0	0	0	0	12	276	59,534	0	2,760	0	0	0	0	0	0	2,760	62,294		
203	Bldg 32 Code, Standard & Regulation Corr	12	0	12	16	40	0	16	0	0	12	16	0	0	0	0	0	0	12	136	29,897	0	1,360	0	0	0	0	0	0	1,360	31,257		
204	Bldg 27, Calculation of Remaining Electric	8	0	12	16	24	0	0	8	0	60	80	40	0	0	0	0	0	12	260	56,660	150	2,600	0	0	0	0	150	2,750	59,410			
205	Proposed Boiler Building and Facility Local	8	0	12	24	40	0	0	40	40	0	0	0	0	0	0	0	0	12	176	41,899	0	1,760	0	0	0	0	0	1,760	43,659			
206	10% Construction Cost Estimate	4	0	0	8	16	0	4	4	0	4	4	0	0	0	60	0	0	12	116	29,099	0	1,160	0	0	0	0	0	1,160	30,259			
207	Basis of Design Verification Workshop	8	0	0	8	12	0	12	0	0	8	0	0	0	0	0	0	0	8	56	13,113	150	560	0	0	0	0	150	710	13,823			
208	Final Basis of Design Verification TM	8	0	4	16	40	0	24	4	0	16	16	0	0	0	4	0	0	8	140	30,471	0	1,400	0	0	0	0	0	1,400	31,871			
300	Final Design	244	0	264	496	660	340	314	306	320	352	376	238	386	44	284	0	0	32	4,656	1,088,492	1,350	33,360	0	291,450	0	0	291,450	292,800	340,733	1,429,224		
301	30% Design	60	0	0	120	180	80	80	96	96	80	80	60	94	0	0	0	0	0	1,026	229,701	0	10,260	0	119,190	0	0	119,190	119,190	135,410	365,110		
301-A	30% Design Meetings	16	0	0	16	16	0	8	8	0	16	16	8	0	0	0	0	0	104	25,760	300	1,040	0	0	0	0	300	1,340	27,100				
301-B	30% Design QA/QC	8	0	80	16	0	0	0	0	0	8	0	0	8	8	0	0	0	128	36,950	0	1,280	0	0	0	0	0	0	1,280	38,230			
301-C	30% Design Workshop	8	0	0	8	16	0	0	0	0	0	0	0	0	0	0	0	0	8	40	9,180	300	400	0	0	0	300	700	9,880				
301-D	30% Design Cost Estimate	2	0	0	8	8	0	4	0	0	4	4	0	0	0	72	0	0	102	27,250	0	1,020	0	0	0	0	0	1,020	28,270				
302	60% Design	40	0	0	120	180	140	100	120	120	140	140	80	140	0	0	0	0	0	1,320	289,875	0	0	0	74,820	0	0	74,820	74,820	78,561	368,436		
302-A	60% Design Meetings	16	0	0	16	16	0	8	8	0	16	16	8	0	0	0	0	0	104	25,760	150	1,040	0	0	0	0	150	1,190	26,950				
302-B	60% Design QA/QC	8	0	80	16	0	0	0	0	0	8	0	0	12	12	0	0	0	136	40,268	0	1,360	0	0	0	0	0	1,360	41,628				
302-C	60% Design Workshop	8	0	0	8	16	0	0	0	0	0	0	0	0	0	0	0	0	8	40	9,456	150	400	0	0	0	150	550	10,006				
302-D	60% Design Cost Estimate	2	0	0	8	8	0	4	0	0	4	4	0	0	0	100	0	0	130	36,293	0	1,300	0	0	0	0	0	1,300	37,593				
303	90% Design	24	0	0	80	120	80	80	60	80	40	80	60	80	0	0	0	0	0	784	170,230	0	7,840	0	0	0	0	0	7,840	178,070			
303-A	90% Design Meetings	8	0	0	8	8	0	4	4	0	8	8	4	0	0	0	0	0	52	13,266	150	520	0	0	0	0	150	670	13,936				
303-B	90% Design QA/QC	4	0	64	8	0	0	0	0	0	0	0	0	12	12	0	0	0	100	29,349	0	1,000	0	0	0	0	0	1,000	30,349				
303-C	90% Design Workshop	8	0	0	8	16	0	0	0	0	0	0	0	0	0	0	0	0	8	40	9,456	150	400	0	0	0	150	550	10,006				
303-D	90% Design Cost Estimate	2	0	0	8	8	0	4	0	0	4	4	0	0	0	72	0	0	102	28,067	0	1,020	0	0	0	0	0	1,020	29,087				
304	100% Design	8	0	0	24	40	40	16	8	24	16	16	16	40	0	0	0	0	0	248	53,129	0	2,480	0	97,440	0	0	97,440	97,440	104,792	157,921		
304-A	100% Design Meetings	4	0	0	4	4	0	2	2	0	4	4	2	0	0	0	0	0	26	6,633	0	260	0	0	0	0	0	260	6,893				
304-B	100% Design QA/QC	8	0	40	4	0	0	0	0	0	0	0	0	0	0	0	0	0	52	16,156	0	520	0	0	0	0	0	520	16,676				
304-C	100% Design Workshop	8	0	0	8	16	0	0	0	0	0	0	0	0	12	0	0	0	8	52	13,047	150	520	0	0	0	150	670	13,717				
304-D	100% Design Cost Estimate	2	0	0	8	8	0	4	0	0	4	4	0	0	0	40	0	0	70	18,667	0	700	0	0	0	0	0	700	19,367				
400	Bid Phase Services	36	0	0	48	84	0	4	0	32	4	0	4	40	0	0	0	0	4	256	63,631	150	2,560	0	0	0	0	150	2,710	66,341			
401	Bid Document Distribution	16	0	0	16	40	0	0	0	16	0	0	0	0	0	0	0	0	4	92	21,888	150	920	0	0	0	0	150	1,070	22,958			
402	Bid Evaluation	16	0	0	24	40	0	0	0	0	0	0	0	0	0	0	0	0	80	20,463	0	800	0	0	0	0	0	800	21,263				
403	Conformed Documents	4	0	0	8	4	0	4	0	16	4	0	4	40	0	0	0	0	0	84	21,279	0	840	0	0	0	0	840	22,119				
500	Support Services	12	0	0	56	72	0	0	8	8	0	0	0	2	0	0	144	40	4	346	81,335	0	3,460	110,120	0	14,800	12,500	37,750	175,170	175,170	187,389	268,723	
501	Geotechnical Investigation	0	0	0	8	4	0	0	0	0	0	0	0	0	0	0	0	0	12	2,754	0	120	0	14,800	0	0	14,800	14,800	15,660	18,414			
502	Environmental Permitting/CEQA	4	0	0	8	16	0	0	0	0	0	0	0	0	0	0	24	0	52	11,874	0	520	110,120	0	0	0	110,120	110,120	116,146	128,020			
503	Topographic Survey	0	0	0	4	4	0	0	8	8	0	0	0	2	0																		

T-TSA Digestion Improvements Project

Based on the Project's Scope of Work

Anticipated Drawing List

Sheet Number	Drawing Number	Discipline	Sheet Title	Basis of Design	30%	60%	90%	100%
1		GENERAL	Cover Sheet, Vicinity, and Location Map		YES	YES	YES	YES
2		GENERAL	Drawing Index and Design Criteria		YES	YES	YES	YES
3		GENERAL	Abbreviations		YES	YES	YES	YES
4		GENERAL	General Legends and Symbols		YES	YES	YES	YES
5		GENERAL	Overall Site Plan	YES	YES	YES	YES	YES
6		GENERAL	Landscaping Plan			YES	YES	YES
7		GENERAL	Typical Details 1			YES	YES	YES
8		GENERAL	Typical Details 2			YES	YES	YES
9		GENERAL	Typical Details 3			YES	YES	YES
10		GENERAL	Typical Details 4				YES	YES
11		GENERAL	Typical Details 5				YES	YES
12		GENERAL	Process Flow Diagram - Primary & Secondary Heat Loop		YES	YES	YES	YES
13		GENERAL	Process Flow Diagram - Biogas System		YES	YES	YES	YES
14		DEMOLITION	Site Plan and Yard Piping - East			YES	YES	YES
15		DEMOLITION	Site Plan and Yard Piping - West			YES	YES	YES
16		DEMOLITION	Digester Building 32 - Basement			YES	YES	YES
17		DEMOLITION	Digester Building 32 - Ground Floor			YES	YES	YES
18		DEMOLITION	Digester Building 32 - Roof Plan			YES	YES	YES
19		DEMOLITION	MCC Demolition Single Line Diagram			YES	YES	YES
20		DEMOLITION	MCC Demolition Elevation			YES	YES	YES
21		DEMOLITION	Demolition Photos 1			YES	YES	YES
22		DEMOLITION	Demolition Photos 2			YES	YES	YES
23		DEMOLITION	Demolition Photos 3			YES	YES	YES
24		DEMOLITION	Demolition Photos 4			YES	YES	YES
25		DEMOLITION	Demolition Photos 5			YES	YES	YES
26		CIVIL	Civil Symbols and Legend		YES	YES	YES	YES
27		CIVIL	Civil Typical Details 1		YES	YES	YES	YES
28		CIVIL	Civil Site Plan - East		YES	YES	YES	YES
29		CIVIL	Civil Site Plan - West		YES	YES	YES	YES
30		CIVIL	Grading and Paving Plan - East		YES	YES	YES	YES
31		CIVIL	Grading and Paving Plan - West		YES	YES	YES	YES
32		CIVIL	Yard Piping Plan - East		YES	YES	YES	YES
33		CIVIL	Yard Piping Plan - West		YES	YES	YES	YES
34		CIVIL	Erosion and Sediment Control Plan			YES	YES	YES
35		ARCHITECTURAL	Architectural General Notes		YES	YES	YES	YES
36		ARCHITECTURAL	Architectural Details		YES	YES	YES	YES
37		ARCHITECTURAL	Architectural Details			YES	YES	YES
38		ARCHITECTURAL	Architectural Details				YES	YES
39		ARCHITECTURAL	Architectural Details				YES	YES
40		ARCHITECTURAL	New Boiler Building - Foundation Floor Plan		YES	YES	YES	YES
41		ARCHITECTURAL	New Boiler Building - Roof Plan			YES	YES	YES
42		ARCHITECTURAL	New Boiler Building Wall Sections			YES	YES	YES
43		STRUCTURAL	Structural General Notes		YES	YES	YES	YES
44		STRUCTURAL	Special Inspection Notes			YES	YES	YES
45		STRUCTURAL	Structural Details		YES	YES	YES	YES
46		STRUCTURAL	Structural Details			YES	YES	YES
47		STRUCTURAL	Structural Details				YES	YES
48		STRUCTURAL	Structural Details				YES	YES
49		STRUCTURAL	Digester Building 32 - Improvements				YES	YES
50		STRUCTURAL	New Boiler Building - Foundation Floor Plan		YES	YES	YES	YES
51		STRUCTURAL	New Boiler Building - Roof Plan			YES	YES	YES
52		STRUCTURAL	New Boiler Building Wall Sections			YES	YES	YES
53		STRUCTURAL	Piping Profiles 1			YES	YES	YES
54		STRUCTURAL	Piping Profiles 2			YES	YES	YES
55		PROC MECH	Mechanical General Notes		YES	YES	YES	YES
56		PROC MECH	Equipment List and Details		YES	YES	YES	YES
57		PROC MECH	Pipe Hangers and Attachments				YES	YES
58		PROC MECH	Seismic Supports				YES	YES
59		PROC MECH	Pipe Penetrations			YES	YES	YES
60		PROC MECH	WGB Plan and Section			YES	YES	YES
61		PROC MECH	New Boiler Building Plan 1		YES	YES	YES	YES
62		PROC MECH	New Boiler Building Plan 2				YES	YES

T-TSA Digestion Improvements Project

Based on the Project's Scope of Work

Anticipated Drawing List

Sheet Number	Drawing Number	Discipline	Sheet Title	Basis of Design	30%	60%	90%	100%
63		PROC MECH	New Boiler Building Roof				YES	YES
64		PROC MECH	New Boiler Building Sections 1				YES	YES
65		PROC MECH	New Boiler Building Sections 2				YES	YES
66		PROC MECH	New Boiler Building Sections 3				YES	YES
67		PROC MECH	Digester Building 32 Basement			YES	YES	YES
68		PROC MECH	Digester Building 32 Ground Floor			YES	YES	YES
69		PROC MECH	Digester Building 32 Roof				YES	YES
70		PROC MECH	Digester Building Photos 1				YES	YES
71		PROC MECH	Digester Building Photos 2				YES	YES
72		HVAC	General Legends and Symbols			YES	YES	YES
73		HVAC	New Boiler Building HVAC Plan 1		YES	YES	YES	YES
74		HVAC	New Boiler Building HVAC Plan 2			YES	YES	YES
75		HVAC	Building 32 HVAC Plan			YES	YES	YES
76		HVAC	Hydronic System Site Plan		YES	YES	YES	YES
77		HVAC	Hydronic System Partial Plan 1			YES	YES	YES
78		HVAC	Hydronic System Partial Plan 2			YES	YES	YES
79		HVAC	Hydronic System Partial Plan 3			YES	YES	YES
80		HVAC	Hydronic System Partial Plan 4			YES	YES	YES
81		HVAC	Details				YES	YES
82		HVAC	Schedules			YES	YES	YES
83		HVAC	Control Diagrams			YES	YES	YES
84		HVAC	Air Flow Diagram			YES	YES	YES
85		HVAC	Hydronic Diagram		YES	YES	YES	YES
86		PLUMBING	General Legends and Symbols				YES	YES
87		PLUMBING	Plumbing Plan Below Grade			YES	YES	YES
88		PLUMBING	Plumbing Plan Above Grade			YES	YES	YES
89		PLUMBING	Details				YES	YES
90		PLUMBING	Schedules			YES	YES	YES
91		PLUMBING	Riser Diagrams				YES	YES
92		ELECTRICAL	Electrical Legend and Symbols 1		YES	YES	YES	YES
93		ELECTRICAL	Electrical Legend and Symbols 2		YES	YES	YES	YES
94		ELECTRICAL	Electrical Legend and Symbols 3				YES	YES
95		ELECTRICAL	Electrical Details 1			YES	YES	YES
96		ELECTRICAL	Electrical Details 2				YES	YES
97		ELECTRICAL	Electrical Details 3				YES	YES
98		ELECTRICAL	Electrical Details 4				YES	YES
99		ELECTRICAL	Overall Single Line Diagram		YES	YES	YES	YES
100		ELECTRICAL	MCC Single Line Diagram		YES	YES	YES	YES
101		ELECTRICAL	MCC Elevation				YES	YES
102		ELECTRICAL	Electrical Site Plan 1		YES	YES	YES	YES
103		ELECTRICAL	Electrical Site Plan 2		YES	YES	YES	YES
104		ELECTRICAL	Duct Bank Sections			YES	YES	YES
105		ELECTRICAL	Building 27 Power and Control Plan	YES	YES	YES	YES	YES
106		ELECTRICAL	WGB Power and Control Plan		YES	YES	YES	YES
107		ELECTRICAL	New Boiler Building Power and Control Plan 1		YES	YES	YES	YES
108		ELECTRICAL	New Boiler Building Power and Control Plan 2		YES	YES	YES	YES
109		ELECTRICAL	New Boiler Building Grounding Plan		YES	YES	YES	YES
110		ELECTRICAL	New Boiler Building Lighting Plan		YES	YES	YES	YES
111		ELECTRICAL	Control Schematic 1				YES	YES
112		ELECTRICAL	Control Schematic 2				YES	YES
113		ELECTRICAL	Control Schematic 3				YES	YES
114		ELECTRICAL	Control Schematic 4				YES	YES
115		ELECTRICAL	Panelboard Schedules 1			YES	YES	YES
116		ELECTRICAL	Panelboard Schedules 2				YES	YES
117		ELECTRICAL	Riser Diagram 1				YES	YES
118		ELECTRICAL	Riser Diagram 2				YES	YES
119		ELECTRICAL	Cable and Conduit Schedule 1				YES	YES
120		ELECTRICAL	Cable and Conduit Schedule 2				YES	YES
121		ELECTRICAL	Cable and Conduit Schedule 3				YES	YES
122		INSTRUMENTATION	Instrumentation Symbols and Abbreviations 1		YES	YES	YES	YES
123		INSTRUMENTATION	Instrumentation Symbols and Abbreviations 2		YES	YES	YES	YES
124		INSTRUMENTATION	Instrumentation Symbols and Abbreviations 3			YES	YES	YES

T-TSA Digestion Improvements Project

Based on the Project's Scope of Work

Anticipated Drawing List

Sheet Number	Drawing Number	Discipline	Sheet Title	Basis of Design	30%	60%	90%	100%
125		INSTRUMENTATION	Instrumentation Symbols and Abbreviations 4			YES	YES	YES
126		INSTRUMENTATION	Instrumentation Details 1		YES	YES	YES	YES
127		INSTRUMENTATION	Instrumentation Details 2			YES	YES	YES
128		INSTRUMENTATION	Communications Block Diagram		YES	YES	YES	YES
129		INSTRUMENTATION	P&ID - Primary Heat Loops		YES	YES	YES	YES
130		INSTRUMENTATION	P&ID - Secondary Heat Loops		YES	YES	YES	YES
131		INSTRUMENTATION	P&ID - Miscellaneous Systems			YES	YES	YES
132		INSTRUMENTATION	P&ID - Waste Gas Burner		YES	YES	YES	YES
133		INSTRUMENTATION	P&ID - Boilers		YES	YES	YES	YES
134		INSTRUMENTATION	P&ID - Waste Gas Burner		YES	YES	YES	YES

Contract Exceptions

APPENDIX A



Appendix A Contract Exceptions

BC respectfully requests changes to the following articles in T-TSA's standard Services Agreement. We believe our desired exceptions will still retain and protect the Agency's interests under the contract.

BC reviewed the sample Services Agreement provided in the Request for Proposal. If awarded this project, we wish to discuss the following exceptions. We are confident that we can successfully come to mutually acceptable terms.

3. Term

1. **Insert as a new last sentence in this paragraph:**

"Contractor shall not be responsible for delays caused by circumstances beyond its reasonable control, including, but not limited to (1) strikes, lockouts, work slowdowns or stoppages, or accidents, (2) acts of God, (3) failure of District to furnish timely information or to approve or disapprove Contractor's instruments of service promptly, and (4) faulty performance or nonperformance by Agency, Agency's independent consultants or contractors, or governmental agencies. Contractor shall not be liable for damages arising out of any such delay, nor shall the Contractor be deemed to be in breach of this Agreement as a result thereof."

7. Ownership of Documents

Revise first sentence to: "All works of authorship and every report, ...CAD data file, computer software developed specifically for the Agency, and any other document or thing prepared, developed or created by Contractor under this Agreement (except for preexisting intellectual property) and provided to Agency ("Work Product")..." **And line 5, after** "property of the Agency" **insert** "after payment to Contractor." **And revise second sentence to** "...provided, however, that Contractor shall not provide any Work Product to any third party except for Contractor's approved subconsultants needed to perform services without Agency's prior written approval." **And line 16 after** "hold Contractor harmless" **insert** "and indemnify."

9. Indemnification

1. **In line 3, insert** "reasonable" before "attorney fees" and **revise line 4 to** "...that to the extent arise out of, pertain to, or relate to the negligence..."
2. **Revise second sentence to** "If a court or arbitrator, or other mutually agreeable dispute resolution or settlement process, determines..." **And in line 5, revise to** "...fault as determined by a final judgment of a court or final decision of arbitrator, or other mutually agreeable dispute resolution or settlement process."

10. Insurance

1. **Insurance table change limits of Commercial general liability from "\$5,000,000" to "\$4,000,000"**
2. **Revise second sentence, line 3, to** "Contractor's commercial general and automobile liability coverage shall be primary". **And line 8, after** "admitted insurers" **insert** "(or with respect to professional Liability, authorized insurer authorized to do business in California) ..." **And line 10, revise to** "Except with respect to professional liability insurance, Contractor agrees to waive subrogation..."

Insert as a new article in the agreement

19. Opinion of Probable Cost

Agency acknowledges that construction cost estimates, financial analyses and feasibility projections are subject to many influences including, but not limited to, price of labor and materials, unknown or latent conditions of existing equipment or structures, and time or quality of performance by third parties. Agency acknowledges that such influences may not be precisely forecasted and are beyond the control of Contractor and that actual costs incurred may vary substantially from the estimates prepared by Contractor. Contractor does not warrant or guarantee the accuracy of construction or development cost estimates."

Detailed Scope of Work

APPENDIX B



T-TSA Digestion Improvements

Scope of Work

The Digestion Improvements Project (Project) aims to improve the Tahoe-Truckee Sanitation Agency (Agency) digester facilities by providing reliable long-term process and comfort heating solutions/improvements to the Agency's Water Reclamation Plant (WRP), located in Truckee, California. It is assumed this Project will be executed by BC using a traditional design / bid / construction delivery approach and will consist of the following major Project components:

- A new facility to contain new boiler equipment, auxiliary systems, a carbon dioxide (CO₂) stack gas capture and scrubbing system, and electrical equipment.
- Yard piping and interconnections between new and existing facilities at the WRP including natural gas, digester gas, hot water supply and return, CO₂, potable (1Water), non-potable (2Water), electricity, and drains.
- Site grading and surface improvements to accommodate the Digester Facility's equipment and piping.
- Relocation and upgrade of digester gas moisture separation equipment, H₂S scrubbing equipment, and piping.
- A new HVAC heater and Waste Gas Burner (Flare) at appropriate setbacks and locations relative to the new and existing facilities.
- Upgrade of Building 32 equipment to meet explosive atmosphere codes, standards, as well as all local, state, and federal requirements.
- Upgrade of process hot water loop piping and heat exchangers in Building 32 for Digesters 29 and 30 to meet thermophilic operation requirements and provide a heat exchanger sized to cool digested sludge in Digester 31.
- Upgrade of piping and unit heaters for the existing plant comfort heating system to connect with new hot water supply and return. BC will coordinate the new system to intertie with the existing Camus boiler system and allow selected buildings to be heated by either boiler system, if feasible.
- Upgrade of Building 27 to accommodate electric capacity of proposed upgrades. BC will provide all necessary electrical improvements for existing and new facilities.
- Evaluate Digester 31 Floating Cover to improve design by providing a modification or replacement that does not require snow removal.
- Coordination of the relocation of site utilities in conflict with improvements (e.g., Diesel storage tanks, overhead utilities, buried utilities, etc.).

The document summarizes BC's scope of work for the Project and includes the following:

- Phase 1. Project Management
- Phase 2. Basis of Design Verification
- Phase 3. Final Design
- Phase 4. Bid Phase Services
- Phase 5. Support Services

Phase 1 – Project Management

BC's project management goals include the management and coordination of BC project staff and its subconsultants activities, planning, coordinating, tracking project activities tasks for time of completion and budget management, and performing quality assurance (QA) and quality control (QC) management activities. The Agency in turn will assign a project manager (PM) who will serve as BC's principal point of contact. The Agency's PM will provide contract administration, timely decisions, input on project requirements, provide input and review of deliverables, and provide project specific information as requested by BC.

BC's project management effort includes the following.

Task 1.1 – General Project Management

BC will manage the project in terms of staffing, budget, schedule, and scope; promote communication within the Project team; document key decisions and risks; and other associated tasks, including:

1. Project Management Services:
 - Maintaining the project scope, budget, and schedule with monthly updates.
 - Maintaining project logs, decisions, and action items with monthly updates.
 - Developing and maintaining a field work safety plan (FWSP) for project site visits and activities (available upon Agency request).
 - Management and coordination of BC's staff and subconsultants.
 - Monthly invoicing, earned value analyses, and progress reports.
 - BC assumes a project schedule of twenty (20) months.
2. Monthly Progress Reports:
 - BC will issue monthly progress reports with the monthly invoice.
 - Monthly progress reports will include a narrative summarizing the progress of the accomplished tasks for the month, anticipated tasks for the following month, and will identify pending issues and recommended actions by the Agency to mitigate risks or modify the project approach and scope.
 - BC assumes up to twenty (20) monthly progress reports (electronic submittal).
3. Bi-Weekly Progress Meetings:
 - Weekly progress meetings will be held by the Agency's PM and BC's PM.
 - Each meeting will be held virtually or by phone for a duration of 30-minutes.
 - The Agency will confirm the date and time of each meeting.
 - No meeting agendas or minutes are included.
 - BC assumes up to forty (40) weekly progress meetings.

Task 1.2 – Project Kick-Off Meeting

BC will conduct a project kick-off meeting with the Agency. BC will attend the Project Kick-Off Meeting in-person at Agency's Administration Building, prepare the project kickoff meeting agenda, and produce meeting minutes summarizing the meeting, including a list of action items. After the meeting, BC will perform an Initial Site Walk to familiarize BC with existing facilities,

digester building, and project related systems. This will include a general overview of the facility layout, operational conditions, issues, and expected project improvements.

Task 1.2 Deliverables:

- Project Kickoff Meeting Agenda (draft and final; electronic submittal).
- Project Kickoff Minutes and Action Items (draft and final; electronic submittal).
- Project personnel contact list and organizational chart (final; electronic submittal).

Task 1.2 Assumptions:

- The Kickoff Meeting and Site Walk will be held for a duration of three (3) hours with six (6) BC staff attending in-person.
- The Initial Site Walk will be led by the Agency.
- The Initial Site Walk will not include confined space entry or inspection services.

Task 1.3 – Quality Management Plan

BC's project manager and quality management team will prepare a Quality Management Plan (QMP) for all QA/QC activities prior to project activities. The plan will include key subject matter expert participation, regular technical and readability reviews of project deliverables, on-going checks of technical assumptions and directives, and monitoring for adherence to the project's quality standards.

BC will maintain documentation of QA/QC activities for each Project deliverable and provide a summary of QA/QC activities in the Monthly Progress Reports. BC will be responsible for refining and updating the QMP throughout the duration of the Project, responding to changes in Project scope, timeline, or other circumstances as they arise.

Task 1.3 Deliverables:

1. Quality Management Plan, upon request (final; electronic submittal).

Phase 2 – Basis of Design Verification

BC will review the provided existing documents associated with the Project, review design parameters, assess existing facilities and systems, and identify improvements for the project's basis of design. This phase includes the following.

Task 2.1 – Review of Associated Project Documents

BC will request data and reports related to the Project provided by the Agency. This may include past site plans, geotechnical investigations, surveys, WRP operational data, and other related data. BC will provide the Agency with up to three (3) written requests of identified needed data.

BC will review the provided associated project documents to become familiar with process at the WRP and prior work performed on the Project. BC will determine what elements in the documents shall be used as part of Phase 2 for this Project.

- Record Drawings of all digesters, Building 32 and Building 27
- Reports, utility drawings, and geotechnical reports
- Equipment sheet for the existing boilers

- 12-months of electricity bills
- 12-months of natural gas bills
- 12-months of digester gas production

Task 2.1 Assumptions:

- BC's familiarization with the WRP and its processes will be based solely on the provided information from the Agency. BC will not research additional information or data outside of that provided by the Agency based on the required schedule.
- All data and information provided by the Agency to BC, including, but not limited to site plans, existing infrastructure data, future projections, and other related information are accurate and complete. BC will not review or verify the information for quality or accuracy.
- Discrepancies in the data may affect the project's scope of work and could lead to adjustments in the project cost and schedule.
- The Agency will respond to written data requests and provide the requested data within 15 business days from the day of request.

Task 2.2 – Design Verifications

BC will review the sizing and type of boilers based on performing the following analyses:

1. Evaluate and determine the projected yearly solids loading and heat demand for process needs (provided by the Agency) under three modes of digester operation (parallel thermophilic, parallel mesophilic, and 2-stage temperature-phased anaerobic digestion (TPAD). Design criteria shall consider average annual, minimum, and maximum week conditions at varying thickened waste activated sludge (TWAS) concentrations, as well as yearly average low and high ambient air temperatures for digesters at the completion of construction, and selected dates in the future. BC assumes that design criteria will match the Agency's existing heating requirements.
2. Determine the projected yearly heat demand from boilers for the various Process Heating Demand Scenarios and Seasonal Plant Comfort Heating Demand (Total Heating Demand Variations).
3. Based on the calculated Total Heating Demand Variations, determine the type(s), sizes, and number of boilers needed to meet the various Total Heating Demand Variations.
4. Establish the minimum and maximum heating output of the existing Camus boiler and select buildings that combined have a total seasonal Plant Comfort Heating Demand that is approximately equal to the heating output range of the Camus boiler.
5. Evaluate and determine heating load requirements for the Agency's digesters and the proposed improvements to plant comfort heating and determine type(s), sizes, and number of new boilers. The Agency will approve the heating load requirements prior to boiler selection.

Task 2.3 – Building 32 Code, Standard, & Regulation Compliance Review and Determination

BC will assess Building 32 and its current and future operating processes to determine necessary updates, alterations, or replacements needed to achieve compliance with codes, regulations, and standards related to explosive atmospheres. The scope of work for this task is as follows:

1. **Compliance Review:** Conduct an initial review of Building 32 current compliance status with codes, regulations, and standards relevant to explosive atmospheres. This will include an analysis of existing documentation, site inspection, and inventorying and cataloging existing equipment slated to remain in Building 32 after completion of the Construction Work.
2. **Site Assessment:** Perform a site assessment to evaluate the physical condition of the facility. This involves observing areas prone to explosive atmospheres, including equipment, electrical installations, ventilation systems, and safety devices, to identify non-compliant aspects. BC's site assessment includes visual observation of the equipment within Building 32 and the outside of the Building 32 structure, only. BC's site assessment does not include areas that are inaccessible, areas that require confined space entry, or areas that require moving of objects or equipment to complete observations. Gas monitoring will be provided by the Agency during the site assessment.
3. **Standard, Regulation, and Code Analysis:** After obtaining an understanding of the current state of Building 32, conduct an analysis to identify discrepancies between current practices, standards, regulations, and code requirements. This will include a list of changes that are needed, based on the observation, to achieve compliance.
4. **Development of Compliance Strategy:** Based on the findings of the analysis, develop a compliance strategy. This strategy will outline actions to mitigate hazards and achieve applicable code, standards, and regulatory compliance, including to the following: changes in equipment and other appurtenances, upgrades in ventilation, modification of operating conditions, and other required modification(s) to Building 32.

Task 2.4 - Building 27, Calculation of Remaining Electrical Capacity

BC will assess the existing electrical infrastructure serviced by Building 27 to determine the existing load and the remaining load capacity. This analysis will be the basis for identifying modifications, expansions, or additional installations to the Building 27 electrical system needed to support the project.

The scope of work for this task is outlined as follows:

1. **Assessment of Current Electrical Infrastructure:** Conduct an analysis of the existing electrical system infrastructure supplied by Building 27. This includes a review of design documents, equipment specifications, how the WRP operates, and operational data to understand the current configuration, capacity, and usage of the electrical system.
2. **Meet on site with Agency staff and perform a site walk of Building 27 and facilities that are powered from Building 27.**

3. **Measurement of Actual Load:** The Agency will measure the electrical load being utilized in the system during peak and off-peak hours and based on the time of year using the Agency's existing monitoring equipment. This involves a systematic data collection process using appropriate tools and techniques to determine existing conditions, including: the power drawn by connected loads, measurements of voltage, current, power factor, harmonics, and other parameters that affect the performance and reliability of the system. BC will evaluate and document the findings of the Agency's actual load measurements in the Task 2.4 Tech Memo.
4. **Calculation of Remaining Load Capacity:** Using the data provided, calculate the remaining load capacity. This involves subtracting the measured load from the total load capacity of the electrical system and factoring in safety margins to be in compliance with applicable electrical codes, regulations, and standards.
5. **Development of Load Management Plan:** Based on the analysis of the existing system, actual load, remaining capacity, and future load requirements, develop a Load Management Plan. This plan will outline strategies to optimize the use of remaining load capacity in Building 27, recommendations for system upgrade, if necessary, safety requirements of the proposed solutions, and plans for accommodating future load increases that will allow system reliability, safety, and ease of maintenance. This Plan will be documented in Task 2.4 Tech Memo and does not include a separate deliverable.
6. **Identification of Future Load Requirements:** Based on the scope of this Project, produce a list of new equipment to be installed, sorted by location. For each location, determine the electrical draw for the equipment before and after Construction Work is complete. Update the electrical drawings for new equipment as the specifics of the Project become more defined. If the remaining electric load in Building 27 is exceeded, determine the cost-effective solution to remedy the deficit and present this solution to the Agency for review.
7. **Conduct an analysis of the current and projected electrical loads, identifying potential risks and vulnerabilities, and proposing cost-effective solutions that meet the standards and regulations of the relevant authorities.**

Task 2.5 – Proposed Boiler Building and Facility Location

BC will conduct a site analysis, to plan for the proposed boiler building, specified digester gas handling equipment, and digester gas flare (Relocated Items). This task aims to establish the site for the Relocated Items. Site selection and routing shall consider current site conditions and future design plans (provided by the Agency).

The work associated with this task consists of the following:

1. **Initial Consultation:** Meet with the Agency in person to understand specific concerns, preferences, and requirements for the Relocated Items. This discussion will shape the approach and focus on the subsequent tasks.
2. **Site Survey and Utility Mapping:** Perform a survey of the Project Area at Building 32 and the proposed New Boiler Building location (as provided by the Agency) to identify

existing underground utilities, structures, easements, and other features that might influence the location of the relocated Items. This includes reviewing existing utility records and a site topographic survey to create a site map of the underground infrastructure.

3. Relocation Assessment of Existing Utilities and Other Features: Based on the utility mapping and site investigation, determine which existing utilities and other features will need to be relocated or demolished to accommodate the Relocated Items and Utility Routing Plan. Develop a plan outlining the processes, potential impacts, and costs of the relocation(s).
4. Geotechnical Investigations: BC will perform geotechnical investigations to confirm the suitability of the ground conditions for the Relocated Items and Utility Routing Plan. This will involve the collection and analysis of soil and rock samples to assess the physical properties of the ground, including its bearing capacity, compressibility, and potential for settlement.
5. Since this Project is located within the Agency's WRP fence line, it is assumed that there will be no impact to existing easements, and therefore, the identification, review, and assessment of all relevant public and private property easements is not included in the Project's scope of work.
6. Site Selection Analysis: Taking into consideration the results of the site survey, utility mapping, relocation assessment, geotechnical, and easement investigations, perform a site selection analysis. This will involve evaluating various potential locations for the new facilities based on factors including accessibility, proximity to existing infrastructure, ease of utility routing, cost impacts, and potential for future expansion.
7. Utility Routing Plan: For the chosen site, develop a utility routing plan. This plan will outline how utilities will be routed to and from the Relocated Items, taking into account efficiency, cost-effectiveness, and potential future expansion or modifications.
8. Future Expansion Analysis: Analyze how future installations of facilities and underground utilities may impact the chosen location for the Relocated Items and Utility Routing Plan. The location and plan for future installations will be provided by the Agency.
9. Pre-construction Requirements Determination: Establish the work that needs to be performed (by others) before construction can commence. This may include necessary site clearance, utility relocations, ground improvements, demolition of existing facilities or features, or permits or approvals that need to be obtained.
10. Presentation of Site Plan: Once analyses and planning are complete, present the final site plan, including the location of the Relocated Items and Utility Routing Plan, to the Agency for review and approval.

Task 2.6 – Construction Cost Estimate

BC will provide a construction cost estimate as part of the Basis of Design Verification and compare this estimate to the project's Baseline Cost Estimate (by others) during the Preliminary Design Report (provided by the Agency). If the current estimate exceeds the baseline estimate, BC will identify the specific reasons for variations and identify potential corrective actions to align the planned project with the Baseline Cost Estimate. BC will note the change in contingency percentages at various stages of design. Unless there is an Agency-approved change in Project scope establishing a new baseline, the Baseline Cost Estimate will not be changed.

BC's cost estimate will be prepared to the level of accuracy based on the information available within normal industry standards as specified in each deliverable task. Cost estimates will be formatted in accordance with the project design CSI specification format and segregated by Agency facility. Where sufficient detailed information is lacking to obtain reasonably accurate prices of materials, a contingency allowance may be applied. Escalation allowances will be used to provide an opinion of the estimated construction costs at the midpoint of construction.

Task 2.7 – Basis of Design Verification Workshop

BC will conduct a one (1) day workshop in-person to review and solicit comments from the Agency and present the findings from the data and reports listed in Tasks 2.1 through 2.6. The workshop will include an explanation of key decisions made for the project to date and be based on the list of key review comments and critical issues compiled by BC and the Agency's PM. BC will prepare and deliver the meeting agenda and meeting minutes summarizing the workshop discussion, decisions, and action items within four (4) working days of the workshop. A technical review comment form, including responses to all comments, will be provided by BC within ten (10) working days of the workshop.

Phase 2 Meetings:

1. Task 2.3 Building 32 Site Assessment Visit attended in-person by the Agency and three (3) BC staff for a duration of four (4) hours.
2. Task 2.4 Building 27 Site Walk attended in-person by the Agency and three (3) BC staff for a duration of four (4) hours.
3. Task 2.5 Proposed Boiler Building Initial Consultation attended in-person by the Agency and three (3) BC staff for a duration of four (4) hours.
4. Task 2.7 Basis of Design Verification Workshop attended in-person by BC's PM and four (4) BC staff representing the various design disciplines for a duration of two (2) hours.

Phase 2 Deliverables:

1. **Task 2.1 Technical Memo 1:** Summary of the selected elements from existing documents and data that will be used in the following tasks and sub-tasks (one draft and one final, electronic submittal).

2. **Task 2.2 Technical Memo 2:** Summary of the findings of the review and calculations listed in the relevant task (one draft and one final, electronic submittal).
3. **Task 2.3 Technical Memo 3:** Description of the implementation plan for the proposed compliance strategy. This includes key tasks, estimated timelines, key milestones resources required, identified gaps and how they will be resolved, and prioritization of tasks based on risk level (one draft and one final, electronic submittal).
4. **Task 2.4 Technical Memo 4:** Documents key findings, calculations, and recommendations that detail the remaining electrical load capacity, equipment list and electric draw organized by location, and the Load Management Plan. The technical memo will include diagrams, calculations, operation of the electrical system in Building 27, and key references supporting the findings and recommendations. The Memo will outline the expected benefits and challenges of the proposed solutions, as well as alternatives that were considered and rejected (one draft and one final; electronic submittal).
5. **Task 2.5 Technical Memo 5:** Presents proposed Site Plan showing location of new and Relocated Items, utility routing, and vehicle access. Summarizes the key considerations used in developing the Site Plan. (draft and final; electronic submittal).
6. **Task 2.6 Construction Cost Estimate:** Opinion of probable construction costs (OPCC) consistent with an American Association of Cost Engineering (AACE) Class 5 (-50 to +100 percent) estimate and conceptual construction schedule (one draft and one final; electronic submittal).
7. **Task 2.7 Basis of Design Verification Workshop:** Workshop Agenda, Minutes, and technical review comment form with responses (one draft and final; electronic submittal).

Phase 3 – Final Design

BC will develop Construction Bid Documents for construction of the proposed Improvements. This will be accomplished by completing the following tasks: 30 Percent Design, 60 Percent Design, 90 Percent Design, and 100 Percent Design. The design requirements for each task are as follows.

Task 3.1 – 30 Percent Design

The purpose of this task is to further establish the preliminary design elements from the Basis of Design Verification to provide a clear understanding of the Project. BC will prepare a draft package of 30% level drawings and documents for review and input by the Agency before refining and further developing the design components. Task deliverables, meetings, and assumptions are documented at the conclusion of this task's scope of work. This task will be completed by performing the several subtasks.

Subtask 3.1.1 – General

Work associated with this subtask includes the following:

1. Updated Preliminary Drawing sheet List.

2. LiDAR Survey
 - a. This technology may be used to physically map the existing spaces for the preparation of project base drawings involving existing buildings and facilities to accurately show existing equipment, features, and elements in the existing buildings and facilities. Conversely, it could also be used to develop the record drawings associated with the final construction of the project.
 - b. LiDAR services will be provided by BC's subconsultant and budgeted under BC's project support task in Phase 500.

Subtask 3.1.2 – Civil

Work associated with this subtask includes the following:

1. Preliminary Site Layout with Proposed Improvements, indicating new and existing structures, roads, parking areas, stormwater and drainage facilities, utility corridors, and landscaping. Consideration of topography, soil conditions, and site constraints is essential. Set preliminary finished floor elevations and establish grades for major surfaces, road profiles, etc. Adjust grades to optimize earthwork if needed.
2. Preliminary Grading and Drainage Plans outlining proposed terrain changes, including slopes, elevations, and drainages.
3. Preliminary Utility Plan displaying proposed water, sewer, gas, electricity, telecommunications, and other utilities.
4. Preliminary Roadway/Pavement Design for road or parking lot construction, detailing pavement thickness, materials, and subsurface preparation.
5. Geotechnical Report with details on soil conditions, groundwater levels, and bearing capacities. Include record boring locations on the Preliminary Site Layout.

Subtask 3.1.3 – Architectural

Architectural services are budgeted under BC's project support task in Phase 500. Work associated with this subtask includes the following:

1. Assess proposed building and facility needs, including electrical and control system equipment rooms, work areas, storage, and restroom locations. Determine these needs through a single virtual meeting with Agency staff.
2. Provide Preliminary Building Plans with architectural themes, proposed layout, room arrangements, door and window locations, major equipment placements, and functional usage indications.
3. Create Preliminary Building Elevations to showcase the exterior design, number of stories, and building height.
4. Develop Preliminary Building Sections offering a view through the building, illustrating relationships between different levels and major structural elements.

5. Specify Preliminary Material and Finish Selections for major construction materials and finishes.
6. Describe the Preliminary Structural System, outlining the primary structural system with material types (concrete, steel, etc.) and general configuration.
7. Conduct a Preliminary Building Code, Standard, and Regulator Analysis, reviewing applicable codes, standards, and regulations. Assign code classifications to each building and meet with the Town of Truckee Planning Department for classification review.
8. Compile a list of chemicals and quantities for storage in proposed and existing buildings and facilities.
9. Coordinate with other disciplines (e.g., mechanical, electrical) to resolve code, standards, and regulatory compliance issues specific to the Project, including National Electrical Code, National Fire Protection Association 820 issues, Americans with Disabilities Act, etc.
10. Address Preliminary Energy Efficiency Considerations, identifying basic strategies for energy efficiency in building design such as orientation, insulation, natural lighting, and HVAC considerations.
11. Evaluate existing Building 32 and proposed improvements to determine additional requirements for meeting current codes and safety regulations.

Subtask 3.1.5 – Geotechnical

Geotechnical services are budgeted under BC's project support task in Phase 5. Work associated with this subtask includes the following:

1. BC will furnish a Geotechnical Investigation Report, encompassing findings from field investigations like soil borings, profile descriptions, and laboratory test results. The report will detail soil type, density, compaction, permeability, shear strength, and other relevant properties.
2. Conduct a Site Condition Analysis, identifying geotechnical risks such as soil instability, potential for liquefaction, settlement, or expansion. This analysis will also encompass an assessment of groundwater conditions.
3. Provide Preliminary Foundation Recommendations based on site conditions and soil properties, including foundation type and depth, soil bearing capacity, and lateral earth pressure parameters for retaining wall design.
4. Verify facilities' constructability, addressing issues like shoring, bracing requirements, and dewatering.
5. Offer Preliminary Pavement Design Recommendations considering soil conditions and anticipated traffic loads.

6. Provide Preliminary Earthwork Recommendations covering site grading, soil compaction, excavation, backfill requirements, and slope stability for embankments.
7. Perform a Preliminary Seismic Analysis of potential geotechnical hazards during an earthquake, including liquefaction, lateral spreading, fault rupture, seismic settlement, etc.
8. Furnish Recommendations for Further Investigation as needed, including suggestions for additional geotechnical investigations such as more extensive soil testing, in-situ testing, or site monitoring to refine the design.

Subtask 3.1.6 – Mechanical

Work associated with this subtask includes the following:

1. Preliminary List of Equipment for major mechanical equipment, including estimated sizes, capacities, and quantities. The list shall be accompanied by preliminary specifications and/or datasheets if available.
2. Recommend Procurement Process for new process equipment.
3. Establish The Level of Redundancy required for process equipment.
4. Preliminary Drawings for equipment arrangements.
5. Preliminary Material and Energy Balances.
6. Review Capacities of Existing Processes and Equipment that are to be modified, expanded, or upgraded. Assign capacities to new and existing equipment and processes.
7. Mechanical Report that covers the selection process, discussion of the basis of design, outline of key design parameters and criteria, and description of the main components of the mechanical systems.
8. Preliminary Layouts showing the physical locations of the mechanical equipment within the Site Layout or building(s). The locations should account for accessibility, maintenance, safety, and efficiency of operation. This shall be accomplished by conducting one virtual meeting with Agency staff to determine requirements for placement of mechanical equipment.
9. Preliminary Process Flow Diagrams (PFDs) that illustrates the main components of the mechanical systems and how they will interact. Include major process equipment and show how different stages of the process are linked. Provide an outline showing how the process control strategy will work.

10. Preliminary Process and Instrumentation Diagrams (P&IDs) that shows the interconnection of process equipment and the instrumentation that will be used to control the process(s).
11. Preliminary Cost Estimate for the mechanical systems that are based on the preliminary equipment list and layout.
12. Preliminary design calculations that justify the selected equipment sizes, capacities, and layouts.
13. Economic Cost-Effectiveness evaluating the capital cost of installing the new process equipment and the operational costs once it is running.

Subtask 3.1.7 – HVAC/Plumbing

Work associated with this subtask includes the following:

1. System Description(s) that provide a description of the preliminary design intent, the design criteria, and the energy efficiency measures being considered.
2. Preliminary Layout(s) that show the proposed placement of major elements of the HVAC and plumbing equipment. The Preliminary Layout(s) shall also show the routing of main ductwork, pipework, drains, and how the new systems will integrate with existing systems.
3. Preliminary Single Line Diagrams for HVAC and plumbing. HVAC Single Line Diagrams shall show the main heating/cooling systems and sizes, major equipment, piping, and key control points. For Plumbing Single Line Diagrams shall show the main pipework routing, equipment, and key features like pumps, water conditioning, and valves.
4. Preliminary Equipment Schedules for major HVAC and plumbing equipment. Each schedule shall include basic details such as equipment types, capacities, and quantities.
5. Design R-values for exterior walls by coordinating with the architectural discipline.
6. Requirements for Sprinklers and Firewater by coordinating with local fire marshal and building officials.
7. Preliminary Calculations that demonstrating the selected systems and equipment will meet the project's requirements. For HVAC provide preliminary heating and cooling load calculations. For plumbing, preliminary flow and pressure calculations.
8. Preliminary cost estimates that give a high-level cost estimate for the selected HVAC and plumbing systems and equipment.

Subtask 3.1.8 – Instrumentation and Control

Work associated with this subtask includes the following:

1. Conceptual Control Philosophy detailing the basic operation of the system from a controls standpoint, the parameters will be measured or monitored, the high-level logic for control decisions, local control, level of automation, supervisory control, and automatic responses to specific conditions. Input from the Agency with respect to desires for Conceptual Control Philosophy shall be accomplished by conducting one virtual meeting with Agency staff.
2. Process Flow Diagrams (PFD) that include the process configuration, flow streams, valve and gate locations (manual and powered), chemical additions points/types, process equipment location/type including packaged control panels and adjustable-speed drives, flow meters and other process control devices. Coordinate with the process engineer(s) for the development of the PFDs.
3. Preliminary Instrumentation & Control (I&C) Layout Drawings showing the proposed location of major field instruments, control panels, and equipment that will have significant I&C components.
4. Instrument List indicating key field instruments in the process control, their function, location, and type (transmitter, controller, sensor, etc.).
5. Equipment/Instrument Tag Numbering, Naming, and Abbreviation Conventions based on the Agencies SCADA Master Plan and Agency input received from one virtual meeting with Agency staff.
6. Control System Configuration for local control panels, PLC-based controls, DCS-based controls, etc. Input from the Agency with respect to desires for Control System Configuration shall be accomplished by conducting one virtual meeting with Agency staff.
7. Preliminary Control Panel Design that shows the layout of control panels, the proposed arrangement of components such as programmable logic controllers (PLCs), human-machine interface (HMI) screens, switches, indicators, etc.
8. Network Architecture Diagram that shall consist of an outline of the proposed network architecture for the control system. The outline shall also show how the PLCs, control servers, operator workstations, and remote Input/Output (I/O) will be networked together. Input from the Agency with respect to desires for Network Architecture shall be accomplished by conducting one virtual meeting with Agency staff.
9. Control Logic Diagrams that outline the fundamental control strategies in function block diagram format. Input from the Agency with respect to desires for Control Logic shall be accomplished by conducting one virtual meeting with Agency staff.
10. Preliminary I/O list that details the expected inputs and outputs to and from the PLC(s). I&C Design Criteria standards that will be adhered to, levels of redundancy, fail-safe positions for valves and other final elements, etc.

Subtask 3.1.8.1 – SCADA Analysis & Integration Plan

Work associated with this subtask includes the following:

1. Provide an Instrumentation and Control Engineer and SCADA integration specialist that will confirm existing site conditions and requirements for SCADA support and integration during construction.
2. System Analysis and Understanding of the Existing SCADA System by performing an onsite assessment of the existing SCADA system in Building 32 and related buildings and facilities, examining its structure, operational capabilities, data handling, communication protocols, cybersecurity safeguards, and identified limitations or system issues. The Agency shall be present during assessment to assist with inspection of the existing SCADA system in Building 32. The assessment shall be means to gain a complete/understanding of the system's architecture, functionality, and operational protocols. No report or deliverable is included with this task.
3. Requirement Gathering for New SCADA System to Define the Specifications and Requirements of the new SCADA system that are consist with the Agency's SCADA Master Plan. Meet with the Agency to determine the expected functionalities, control capabilities, data acquisition and processing needs, resilience, and cybersecurity safeguards of the new system. This meeting shall be conducted virtually.
4. Perform an assessment between the existing and new SCADA systems. Address aspects, including hardware and software compatibility, network infrastructure, communication protocols, and data exchange formats. The information collected shall be used to develop a SCADA integration strategy and the constrained sequence of work plan for integrating the new SCADA system.

Subtask 3.1.9 – Electrical

Work associated with this subtask includes the following:

1. Preliminary Single Line Diagrams (SLDs) showing the electrical distribution system's main components for affected systems. This shall include switchgear, transformers, panelboards, major loads, etc.
2. Electrical Load List consisting of significant electrical loads, including load type, power requirement, voltage level, and special considerations such as the need for uninterrupted power supply.
3. Determine number of motor control centers (MCCs) to be provided, location of MCCs, and equipment to be powered out of each MCC. Prepare preliminary one-line diagrams for proposed facilities. Coordinate with lead process engineers to size equipment motors.
4. Electrical System Design Criteria for the electrical system, including codes, regulations, and standards to be followed, system voltage levels, fault current capacity, power factor correction, system grounding, lightning protection, etc.

5. Coordinate with local power utility to determine/confirm location of power feeds, voltage, billing details (e.g., peak usage rates), requirements for reduced voltage starters, and substation requirements.
6. Lighting Layout showing the location of major lighting fixtures and emergency lighting systems.
7. Electrical Room Layout showing the proposed location of major equipment like switchgear, transformers, and motor control centers. Input from the Agency about the Electrical Room Layout will be provided during a virtual meeting.
8. Grounding System Design stating the design approach for the grounding system.
9. Emergency Power System Design for the emergency power system, including generators, automatic transfer switches, uninterruptible power supply (UPS), etc. Input from the Agency about the Emergency Power System Design will be provided during a virtual meeting.
10. Preferred Voltages for power distribution and utilization equipment. Input from the Agency about the Preferred Voltages will be provided during a virtual meeting.
11. Redundancy Requirements for Power Supplies and Power Distribution. Input from the Agency about the Redundancy Requirements for Power Supplies and Power Distribution will be provided during a virtual meeting.
12. Conductor Routing Plan for routing conductors, including preliminary locations of cable trays, conduits, etc.
13. Code, Standards, and Regulation compliance issues and resolutions with respect to the specific disciplines.
14. Develop preliminary schedule of hazardous and corrosive locations and integrate this into the electrical design to meet applicable codes, standards, and regulations.
15. Define/document requirements and concepts for special systems: Telephone (including incoming service location and scope of supply), data highway (control system), data highway (LAN, office automation), fire alarm system, paging system, security system, closed-circuit television system, cable TV system and others as required by the Agency. Size electrical rooms and prepare a preliminary layout of the major electrical equipment located in each electrical room. Determine equipment requiring uninterruptable power supplies (UPS) and locations of UPS equipment. Coordinate with the I&C discipline to determine space requirements and locations for control equipment. Locate major I/O termination locations, terminal junction boxes, and control panels.

Subtask 3.1.10 – Constrained Sequence of Work

Work associated with this subtask includes the following:

1. Existing Processes Analysis. This consists of a review and analysis of the existing mechanical process, electrical system, and SCADA system. Three (3) BC staff will attend a two (2) day site visit comprised of meetings and site observations with the Agency staff to gain an understanding of the current operations and infrastructure.
2. Pre-Integration Analysis. Identify the work required to prepare the existing mechanical process, electrical system, and SCADA system for the integration with the Proposed Improvements. This will involve assessing current process efficiency, the ability to accommodate new project components, and modifications or upgrades that need to be addressed prior to integration.
3. Agency Requirements. Conduct meetings with the Agency to define their expectations and requirements. These meetings will establish the Constrained Sequence of Work objectives for integration of the Proposed Improvements into the existing mechanical process, electrical system, and SCADA system. BC assumes three (3) meetings will be attended virtually by three (3) BC staff for a duration of one (1) hour each.
4. Development of Constrained Sequence of Work Plan. This plan will outline each step required for the efficient and effective integration of the Proposed Improvements into the existing mechanical process, electrical system, and SCADA system while considering operational constraints and dependencies. The Constrained Sequence of Work Plan (Plan) will dictate an approach for minimizing operational disruptions and sequencing the integration tasks efficiently. The Plan will outline the step-by-step procedure for the integration process, taking into consideration operational constraints, process dependencies, and risk factors. BC will present the integration strategy and constrained sequence of work to the Agency, and the Agency will review and provide feedback.
5. Risk Assessment and Mitigation Strategy. Conduct a risk assessment to identify potential challenges and issues that may arise during the integration and startup process. Develop a detailed mitigation strategy to manage these potential risks and provide a contingency plan for integration and startup process. Presentation of Constrained Sequence of Work Plan to the Agency for review. This in-person presentation will cover aspects of the integration and startup process. The presentation shall demonstrate how the integration will occur while assuring that ongoing operations and process experience minimal interruption. Comments from the Agency will be incorporated into the Plan to develop the final Constrained Sequence of Work Plan.

Subtask 3.1.11 – 30% Design Cost Estimate

Work associated with this subtask includes the following:

1. BC will prepare a construction cost estimate with the 30% design submittal detailing the breakdown of the proposed improvements based on the level of design detail available, including a contingency for uncertainties. The estimate will be in accordance with AACE Class 4 OPCC with an accuracy range of -30% to +50%.

2. A Basis of Estimate (BOE) will be provided with the estimate for the 30% Design Submittal. The BOE shall explain the methodologies, sources of cost data, assumptions, constraints, and exclusions used in preparing the estimate. It will also explain the level of uncertainty associated with the estimate at this stage of design.
3. BC will compare the 30% Design Submittal estimate to the Baseline Cost Estimate establish in Phase 2. If the current estimate exceeds Baseline Cost Estimate, identify the specific reasons for variations and identify corrective actions to align the newest estimate with the baseline estimate in the 30% Design Submittal.
4. BC will note changes in the contingency percentages at various stages of design. Unless there is an Agency approved change in the Proposed Improvements scope establishing a new baseline, the baseline estimate will not be changed.
5. BC's cost estimate will be prepared to the level of accuracy based on the information available within normal industry standards as specified in each deliverable task. Cost estimates will be formatted in accordance with the project design CSI specification format and segregated by Agency facility. Where sufficient detailed information is lacking to obtain reasonably accurate prices of materials, a contingency allowance may be applied. Escalation allowances will be used to provide an opinion of the estimated construction costs at the midpoint of construction.

Subtask 3.1.12 – 30% Design Workshop

BC and the Agency will conduct a two (2) day in-person workshop to review and solicit comments on the 30% Design Submittal. The meeting will be attended in-person by BC's PM and design leads. Other project team members may attend remotely, as necessary. Agency comments will be collated and provided by the Agency and incorporated into the project's 60 percent design submittal.

Subtask 3.1.13 – 30% Quality Assurance / Quality Control

BC will perform reviews to check the quality and accuracy of the 30% design deliverables and assumptions.

Task 3.1 Meetings:

1. Preliminary Site Layout Meeting attended virtually by the Agency and three (3) BC staff for a duration of one (1) hour.
2. Architectural Meeting attended virtually by the Agency and three (3) BC staff for a duration of one (1) hour.
3. Instrumentation and Control Meeting attended virtually by the Agency and three (3) BC staff for a duration of one (1) hour.
4. SCADA and Analysis & Integration Plan Meeting attended virtually by the Agency and three (3) BC staff for a duration of one (1) hour.

5. Electrical Meeting attended virtually by the Agency and three (3) BC staff for a duration of one (1) hour.
6. Constrained Sequence of Operations Meeting(s) attended in-person by the Agency and three (3) BC staff for a duration of two (2) days.
7. 30% Design Workshop attended in-person by the Agency and three (3) BC staff for a duration of two (2) business days.

Task 3.1 Deliverables:

Final PDF copy of the 30 percent design submittal will include the following:

1. Site Plan and Preliminary Design Drawings (11-inch by 17-inch). This includes conceptual drawings of the general site layout and civil plans. Other discipline plans, including structural, architectural, mechanical, electrical, and instrumentation/control plans are listed below.
2. Preliminary Mechanical drawings consisting of conceptual process flow diagrams, hydraulic profile, and preliminary equipment selection by way of manufacturer cutsheets, quotes, and/or catalogues.
3. Preliminary Electrical and Instrumentation/Control Systems submittal consisting of an outline of the electrical load calculations, single-line diagrams, preliminary control system architecture, and major equipment selections.
4. Constrained Sequence of Work Plan listing strategies for integrating new SCADA, electrical, and process systems into existing systems.
5. 30% construction cost estimate.
6. Technical Specification table of contents.
7. Meeting agenda, minutes, and action items for all task meetings (draft and final; electronic submittal).

Task 3.1 Assumptions:

1. The Agency will collate and return reviewer's comments on deliverables within 15 business days of receipt. One consolidated set of comments will be provided to BC in electronic format.
2. A list of drawings included in this task's deliverable is provided in BC's Anticipated Drawing List.

Task 3.2 – 60 Percent Design

The 60% design tasks will build upon the 30% design deliverables and serve as supplements for code, standards, and approvals. Structures, equipment, plant piping, processes, and site plans will be finalized, allowing for detailed work in the 90% design phase. Task deliverables,

meetings, and assumptions are documented at the conclusion of this task's scope of work. Specific activities and work products from this phase are described in the following subtasks.

Subtask 3.2.1 – General

Work associated with this subtask includes the following:

1. BC will prepare the technical specifications that will be required for the Project. The technical specifications will comply with the Construction Specifications Institute (CSI) master format 50 division standard.

Subtask 3.2.2 – Civil

Work associated with this subtask includes the following:

1. Detailed Site Plans that show locations, dimensions, and orientations of the existing features and Proposed Improvements, including buildings, roads, parking areas, utilities, stormwater systems, etc. Submit Detailed Site Plans to the Town of Truckee Planning Department, if required. Timing and content of this submittal may vary and will be coordinated with AHJs throughout the design process.
2. Updated Grading and Drainage Plans that show elevations, slopes, and contours. Drainage plans will illustrate how stormwater will be managed on-site, showing the location and design of structures like catch basins, drainage pipes, swales, and detention/retention ponds.
3. Utility Plan that shows detailed layouts for utilities (stormwater, sanitary, water, gas, electricity, telecom) will be updated and finalized. This includes locations, sizes, and materials for pipes, manholes, inlets, outlets, etc.
4. Erosion and Sediment Control Plans detailing how erosion and sediment will be controlled during Construction Work with the use of silt fences, sediment basins, filter socks, temporary seeding, etc. BC assume this will be completed by the construction contractor through a stormwater pollution prevention plan.
5. Detailed Profiles and Sections of roads, utilities, and other significant features, and cross-sections where needed to better understand the design.
6. Establish demolition requirements and limits. Identify contractor staging, storage, access, and offsite access corridors.
7. Review and approval from quality control reviewer.

Subtask 3.2.3 – Architectural

Work associated with this subtask includes the following:

1. Building Plans that provide information on the architectural themes, arrangement of spaces, circulation paths, room sizes, HVAC equipment and routing for ducting, and

intended uses. Rooms shall be labeled. Structural elements such as columns or load-bearing walls shall be clearly marked.

2. Building Elevations that show detailed exterior views from sides of the building. Materials, windows, doors, and other architectural features shall also be shown.
3. Building Sections showing cross-sections of the building and how they relate to different parts of the building. This may include wall sections depicting the proposed construction methodology, etc.
4. Material and Finish Selections for interior and exterior finishes, color schemes, flooring, ceiling, wall finishes, etc.
5. Detailed Door and Window Schedules listing each door and window, their locations, sizes, materials, type (single door, double door, sliding window, etc.), and special hardware or features.
6. Preliminary Lighting and Acoustical Design showing placement of lights and acoustic elements such as soundproofing or sound-absorbing materials.
7. 3D Models or Renderings.
8. Codes, Standards, and Regulatory Compliance Review demonstrating how the design complies with the relevant building and fire codes, safety regulations, and accessibility requirements and standards. This may require meeting with local code officials and fire authority to review floor plans and other relevant items as they relate to applicable codes, regulations, requirements, and standards.
9. Preliminary Energy Modeling to demonstrating compliance with energy codes, or to compare different design options for energy efficiency.
10. Review and approval from quality control reviewer.

Subtask 3.2.3 – Structural

Work associated with this subtask includes the following:

1. Foundation Plan that displays the type, size, and location of the foundation system, including footings, piles, retaining walls, and other foundation elements.
2. Structural Framing Plans that show the structural system layout for the building or infrastructure. The Structural Framing Plans will detail the type, size, and location of columns, beams, slabs, walls, trusses, and other structural elements.
3. Structural Sections and Details that show the structural systems and their integration with other building elements.

4. Structural Materials showing the main structural materials (such as concrete, block, steel, timber, etc.) and the grades of these materials based on the anticipated loads and environmental conditions. The specifications should also cover necessary testing and inspection procedures for these materials.
5. Structural Design Calculations: Detailed calculations supporting the chosen structural systems and components. These calculations should account for relevant loads, including dead loads, live loads, wind loads, seismic loads, and specialty loads specific to the building's use.
6. Structural Connection Details showing how different structural elements connect with each other. These details shall include information on required fasteners, welding, or other connection methods.
7. Structural Load Paths that indicate the primary structural load paths from the roof and floors down to the foundation.
8. Geotechnical Coordination of the structural design with the geotechnical report including review of soil conditions, groundwater levels, seismic conditions, and other site-specific factors in the design of the foundation and other structural components.
9. Review for Compliance with Building Codes, Standards, and Regulations. Demonstrate compliance with relevant local and national building codes. This may involve showing the design meets specific performance criteria under various load conditions. Coordination of Structural Drawings and Specifications with Other Disciplines to confirm that elements of the design work together.
10. Review and approval from quality control reviewer.

Subtask 3.2.4 – Geotechnical

Geotechnical services are budgeted under BC's project support task in Phase 500. Work associated with this subtask includes the following:

1. Update Geotechnical Report addressing additional data or changes that may have occurred since the initial report. The update shall include a final analysis of soil and rock properties, groundwater conditions, seismic activity, slope stability, and other geotechnical factors relevant to the site.
2. Foundation Design Parameters for the proposed foundation system based on the geotechnical evaluation, including bearing capacities, settlement estimates, lateral load resistance, and special considerations such as uplift or seismic effects.
3. Earthwork Specifications detailing specifications for proposed earthwork, including grading, excavation, and fill activities. The specifications shall include soil compaction requirements, soil testing protocols, and special procedures for handling unsuitable soils or groundwater.

4. Pavement Design Recommendations for pavement subgrade preparation, materials, and thicknesses based on the anticipated traffic loads, existing soil conditions, and weather conditions.
5. Slope Stability Analysis for slopes or embankments and design recommendations for slope stabilization if necessary.
6. Retaining Wall Design Parameters such as lateral earth pressures, bearing capacities, and sliding resistance.
7. Seismic Design Criteria providing site-specific seismic design criteria, such as the site class and spectral response accelerations.
8. Construction Considerations such as dewatering, temporary excavation support, protection of adjacent structures, or potential geotechnical hazards that could impact construction safety or sequencing.
9. Coordination with Structural Design to coordinate geotechnical recommendations with the proposed structural design.

Subtask 3.2.5 – Mechanical

Work associated with this subtask includes the following:

1. Equipment Sizing and Selection of major process equipment based on the process requirements. This includes pumps, vessels, mixers, heat exchangers, and other process equipment. Also provide preliminary vendor data sheets for key process equipment.
2. Final equipment sizing and line sizing calculations.
3. Equipment Layout drawings showing the location of major equipment, piping runs, access for maintenance and operation, and other spatial considerations.
4. Material and Energy Balances for the entire system or sub-systems reflecting design changes.
5. Process Control Philosophy outlining how the process will be controlled, including control loops, set points, fail-safe positions, and alarm points.
6. Detailed Process Flow Diagrams (PFDs) with detailed annotations, key process control strategies, interconnections between equipment, and the type, size, and quantities of equipment identified.
7. Process and Instrumentation Diagrams (P&IDs) including instrumentation locations, control valves, and other I&C features. Coordinate with I&C engineer with development of the P&IDs.

8. Calculate the hydraulic profile for major gravity process pipelines and hydraulic structures.
9. Perform hydraulic analyses for potential flow paths through both proposed and existing facilities affected by the work with input from the Agency. Refine the design based on results.
10. Utility Requirements for process equipment including electricity, water, natural gas, digester gas, cooling & heating water, compressed air, etc.
11. Hazards and Safety Measures: Outline potential process hazards and planned safety measures.
12. Review and approval from quality control reviewer.

Subtask 3.2.6 – HVAC/Plumbing

Work associated with this subtask includes the following:

1. Detailed HVAC/Plumbing Layouts showing the HVAC and plumbing systems, equipment, ductwork, and piping layout. The layout shall include dimensions, elevations, identify routing or right-of-way for major duct runs, and identification of major components.
2. Single Line Diagrams for HVAC and plumbing show main heating/cooling systems and sizes, major equipment, piping, and key control points. For Plumbing Single Line Diagrams shall show the pipework routing, equipment, and key features like pumps, water conditioning, and valves.
3. Equipment Schedules for major HVAC and plumbing equipment such as air handling units, chillers, boilers, pumps, water heaters, etc. The schedule shall have details such as make, model, capacity, power requirements, and other relevant specifications.
4. System Control Strategy for the HVAC system including system block diagrams shall be provided. This shall also include details of control zones, setpoints, control devices, sequences of operation, etc.
5. Updated Riser Diagrams showing the vertical layout of the HVAC and plumbing systems.
6. Sizing Calculations for major HVAC and plumbing components based on energy code, standard, regulatory requirements, and selected building materials of construction. For HVAC this shall include calculations for heating and cooling loads, ventilation rates, ductwork, and pipe sizing. For plumbing this shall include calculations for water supply and drainage pipe sizing, fixture units, etc.
7. Coordination of HVAC and Plumbing design with other Disciplines. This shall include civil engineer for potable water and firewater supply and distribution, as well as plant drain

system. BC assumes the design for fire protection will be completed through a performance specification.

8. Review and approval from QC reviewer(s).

Subtask 3.2.7 – Instrumentation and Control

Work associated with this subtask includes the following:

1. Instrumentation Schedules and Lists consisting of detailed lists of instruments, including types, ranges, specifications, materials, installation details, and manufacturer information.
2. Control Narratives that provide descriptions of the operation of each control loop and interlock, explaining the sequences of operation under different conditions (normal operation, startup, shutdown, and emergency situations).
3. Instrument Loop Diagrams showing the full loop of control for each instrument, from sensor to controller to final control element, including signal types and paths.
4. Control System Architecture consisting of diagrams of the entire control system architecture, showing control devices, networks, and interfaces between equipment and systems.
5. Logic Diagrams for the PLCs or DCS that show the logic for each control function.
6. Detailed Wiring and Interconnection Diagrams showing show how each instrument and control device is electrically interconnected.
7. Panel Layouts and Wiring Diagrams that detail the designs of control panels, including the layout of devices in the panel and the wiring between them.
8. Software Design Specifications for software that will be used in the control systems, including configuration, programming, and interfaces.
9. Updated Cost Estimates: Updated cost estimates to reflect changes since the 60% submittal stage.
10. Testing and Calibration Procedures for the instrumentation and control systems.

Subtask 3.2.8 – Electrical

Work associated with this subtask includes the following:

1. Single Line Diagrams: Updated and more detailed single-line diagrams indicating power distribution throughout the facility, highlighting different voltage levels, main and distribution panels, and key equipment.

2. Update Electrical Load Calculations that considers new and modified equipment and systems. Submit load calculations and one-line diagrams to electric utility for review. Identify right-of-way and routing methods for electrical conduit and tray. Lay out duct bank system (major runs/manholes). Coordinate with civil yard piping.
3. Updated Electrical Plans showing electrical equipment locations (panels, transformers, generators, etc.), conduit routing, and more precise locations of outlets, switches, lighting fixtures, etc.
4. Define hazardous locations (NFPA 820), document findings, and show on drawings.
5. Lighting Layout showing fixture types and locations, and details of emergency lighting and exit signage.
6. Electrical Equipment Layouts for electrical rooms and other areas housing significant electrical equipment, including considerations for access and maintenance space.
7. Grounding System showing the grounding and bonding scheme for electrical equipment and systems, showing ground grid design and equipment grounding conductors.
8. Fault Level & Protection Coordination Testing.
9. Emergency Power System Design
10. Conductor Routing Plan showing sizes and types of cables and conduits.
11. Electrical Panel Schedules showing the proposed layout of breakers in each electrical panel and the intended loads on each circuit.
12. Electrical Equipment Specifications List for major pieces of electrical equipment such as generators, transformers, UPS systems, or large motors.
13. Electrical Details and Schedules showing types and ratings of devices (e.g., switches, receptacles) and more detailed electrical construction details.
14. Review and approval from quality control reviewer.

Subtask 3.2.9 Hazardous Material Testing

Hazardous material testing services will be completed by BC's subconsultant and budgeted under project support services in Phase 5. Hazardous materials sampling and testing for the Project is recommended to be completed prior to 60% design. Work associated with this subtask includes:

1. Hazardous Material Survey Report detailing the findings of a survey conducted by a certified professional to identify hazardous materials present in the locations of the Proposed Improvements. This could include asbestos-containing materials (ACM), lead-

based paint, polychlorinated biphenyls (PCBs), mercury, or other hazardous substances. The report should identify the type, location, and quantity of the hazardous materials.

2. Lab Test Results for samples taken during the hazardous material survey. These shall include the specific types and concentrations of hazardous materials identified.
3. Risk Assessment of the potential health and safety risks associated with the identified hazardous materials, based on their type, location, condition, and potential for disturbance during the project.
4. Abatement Recommendations for the management, removal, or abatement of identified hazardous materials. This shall include recommended procedures for safe removal and disposal, encapsulation, or management in place.
5. Estimate of Abatement Costs for implementing the recommended abatement measures.
6. Impacts on Project Schedule and Scope detailing how the presence of hazardous materials and the need for abatement could impact the project's schedule, scope, and cost.

Subtask 3.2.11 – 60% Design Cost Estimate

Work associated with this subtask includes the following:

1. BC will include a construction cost estimate as part of the 60% design submittal. The estimate will be in accordance with AACE Class 3 OPCC with an accuracy range of -20% to +30%. The estimate will be broken down into major categories like labor, materials, equipment, indirect costs, etc.
2. A Basis of Estimate (BOE) will be provided with the estimate for the 60% Design Submittal. The BOE shall explain the methodologies, sources of cost data, assumptions, constraints, and exclusions used in preparing the estimate. It will also explain the level of uncertainty associated with the estimate at this stage of design.
3. BC will compare the estimate to the estimate developed for the 30% Design Submittal. If the current estimate exceeds the 30% Design Submittal estimate, identify the specific reasons for variations and identify corrective actions to align the newest estimate with the baseline estimate in the 30% Design Submittal.
4. BC will note changes in the contingency percentages at various stages of design shall be noted. Unless there is an Agency approved change in the Proposed Improvements scope establishing a new baseline, the baseline estimate will not be changed.

5. BC's cost estimate will be prepared to the level of accuracy based on the information available within normal industry standards as specified in each deliverable task. Cost estimates will be formatted in accordance with the project design CSI specification format and segregated by Agency facility. Where sufficient detailed information is lacking to obtain reasonably accurate prices of materials, a contingency allowance may be applied. Escalation allowances will be used to provide an opinion of the estimated construction costs at the midpoint of construction.

Subtask 3.2.12 – Identification and Support of Equipment Requiring Pre-Purchasing

Work associated with this subtask includes the following:

1. Developing a list of equipment that is anticipated to require pre-purchasing by the Agency prior to project bidding and construction.
2. Anticipated lead time of equipment identified and demonstration of impacts to critical path of Construction Schedule.
3. Equipment cost and recommended vendors.
4. Sizing, stamped calculations, and standalone technical specifications for each piece of equipment.
5. Recommended purchasing strategy (single or multiple vendors)
6. Support during advertisement period for questions and addenda.
7. Bid review services.
8. Modifications to Contract language for Contractor to install Agency furnished equipment as part of the project.

Subtask 3.2.13 – Equipment Pre-purchase Contract Documents

This task involves the preparation of contract documents to assist the Agency with the direct purchase of several major process equipment items. It is assumed that three (3) separate equipment pre-purchase contract document packages will be prepared.

1. Prepare contract terms, conditions, and procurement requirements, with review and assistance by the Agency, to allow for direct purchase of process equipment.
2. Coordinate depiction and installation of equipment furnished by the Agency with the Contract Drawings and Specifications in the construction contractor bid documents.
3. Prepare an Agency-furnished equipment specification section to detail out the construction contractor's requirements for receiving, inventorying, storing, installing, connecting, testing, and starting up of each equipment item supplied by the Agency.

Then assemble electronic PDF copies of contract legal documents, equipment technical specifications, and supporting design drawings for each pre-purchased equipment item.

Each document will include sufficient information to solicit pricing, allow for direct procurement, require necessary submittals, provide for scheduled delivery of the equipment, include manufacturers services, warranty, and provide payment to the selected vendor.

Subtask 3.2.14 – Design Related Standards, Code, & Regulatory Approval & Permitting Assistance

Confirm the Proposed Improvements, and the Contract Documents comply with conditions of existing permits, permits required for construction of the proposed improvements and required regulatory approvals. Assist the Agency in obtaining necessary regulatory approvals and permits required for the construction of the Proposed Improvements. This shall include the following:

1. Procuring and completing application or forms.
2. Preparing supporting documentation including Construction drawings, specifications, and supplemental drawings.
3. Furnishing the required number of copies of required applications or forms and supporting documentation and exhibits to the Agency in a timely fashion.
4. Attending meetings with permitting and regulatory Authorities Having Jurisdiction (AHJ) as needed during the application phase and till the Agency obtains required permits.
5. Provide the required documents to the Agency for execution. Agency will provide required fees, sign, and mail documents to the respective AHJ.

The following environmental permit(s) are anticipated being required from the following:

1. Northern Sierra Air Quality Management District (AQMD).
2. Lahontan Regional Water Quality Control Board (LRWQCB).

The following regulatory approval(s) are anticipated being required from the following:

1. California Environmental Quality Act (CEQA) Mitigated Negative Declaration (MND). BC (through its subconsultant) will prepare the MND documentation and submit for approval. An Environmental Impact Report (EIR) is not anticipated to be required at this time. BC (through its subconsultant) will verify Contract Documents meet the mitigation measures described in the MND.

Subtask 3.2.16 – 60% Design Workshop

BC and the Agency will conduct a one (1) day workshop in-person to review and solicit comments on the 60% design package. BC's PM and design leads will attend in-person. Other members of BC's team may attend remotely as necessary. Agency comments will be incorporated into the 90 percent design submittal. BC will produce meeting minutes summarizing the workshop, including a listing of action items.

Subtask 3.2.17 – 60% Quality Assurance / Quality Control

BC's quality management and QA/QC team will perform reviews to check the quality and accuracy of the 60% design deliverables and assumptions.

Task 3.2 Meetings:

1. Up to two (2) Permitting Assistance Meetings attended virtually by (2) BC staff for a duration of one (1) hour each.
2. Up to two (2) Permitting Assistance Meetings attended in-person by (2) BC staff for a duration of four (4) hours each.
3. 60% Design Workshop attended in-person by the Agency and three (3) BC staff for a duration of one (1) business day.

Task 3.2 Deliverables:

Final PDF copies of the 60 percent design submittal will include the following:

1. 60% plans and technical specifications (Division 2 through 50) will be provided in pdf format (approximately 60 drawings).
2. Review and update of the Standards, Code, & Regulatory Approval & Permitting process
3. A detailed construction schedule including sequence and duration of activities, critical path analysis, resource allocation, risk assessment, and contingency planning.
4. Detailed site layout plans, grading plans and drainage plans, stormwater management specifications, utility connection plans, soil erosion and sediment control specifications, and landscaping.
5. Detailed building plans, elevations, and sections. A material schedule with specifications, colors, and finishes. Further detailed architectural features like fenestration, entrances, and architectural treatments.
6. Detailed structural plans, elevations, and sections, showcasing structural elements. Material specifications, load assumptions, structural design calculations, and foundation plans.
7. Updated geotechnical report with data from additional field investigations. Specific foundation recommendations and earthwork specifications.
8. Detailed plans and sections of process equipment, piping layouts, sizing, and specifications. Hydraulic calculations, material specifications, and connection details.
9. Detailed HVAC and plumbing layouts with specifications. Load calculations, air distribution diagrams, plumbing riser diagrams, and equipment schedules.
10. Detailed control system architecture, including I/O list, control panel layouts, network topology, and control descriptions. List of instruments with specifications and locations.

11. Detailed electrical plans with equipment, distribution systems, lighting, and grounding. Load calculations, single line diagrams, and schedules for panelboards and equipment.
12. Hazardous Material Determination and Testing report of hazardous material testing results with mitigation strategy.
13. Updated constrained sequence of work plan, indicating the order of construction activities considering project constraints.
14. 60% construction cost estimate
15. Draft and final minutes from the 60 Percent Workshop.

Task 3.2 Assumptions:

1. The Agency will collate and return reviewer's comments on deliverables within 15 business days of receipt. One set of consolidated set of comments will be provided to BC in electronic format.
2. A list of drawings included in this task's deliverable is provided in BC's Anticipated Drawing List.

Task 3.3 – 90 Percent Design

BC will prepare 90 percent design documents consisting of draft and final design drawings, specifications, and construction details. During this task, BC will:

1. Incorporate Agency review comments from the 60% design submittal.
2. Prepare 90% design drawings, specifications, constrained sequence of work requirements, and standard details.
3. Review and incorporate Division 0 front end documents which include Instructions to Bidders, Bidding Requirements, Contract Forms, Abbreviations and Definitions, and General Conditions prepared by the Agency using their standard documents. BC will provide project descriptions for the advertisement for bids. The proposed Bid Schedule to be used in the Division 0 specifications will be developed and provided to Agency by Consultant.
4. Finalize Division 1 (General Requirement) specifications, coordinated by BC with Agency's Division 0 specifications.
5. Finalize technical specifications prepared in the design development phase.
6. Prepare a construction cost estimate to reflect the 90% design submittal.

Subtask 3.3.2 – 90% Design Cost Estimate

Work associated with this subtask includes the following:

1. BC will prepare a design level construction cost estimate to be included as part of the

90% Design Submittal. The estimate will be in accordance with AACE Class 2 OPCC with an accuracy range of -15% to +20%. The estimate will be broken down into major categories like labor, materials, equipment, indirect costs, etc.

2. A Basis of Estimate (BOE) shall also be provided with the estimate for the 90% Design Submittal. The BOE shall explain the methodologies, sources of cost data, assumptions, constraints, and exclusions used in preparing the estimate. It should also explain the level of uncertainty associated with the estimate at this stage of design.
3. Compare the estimate to the baseline estimate developed for the 60% Design Submittal. If the current estimate exceeds the 60% Design Submittal estimate, identify the specific reasons for variations and identify corrective actions to align the newest estimate with the baseline estimate in the 90% Design Submittal.
4. Note changes in the contingency percentages at various stages of design shall be noted. Unless there is an Agency approved change in the Proposed Improvements scope establishing a new baseline, the baseline estimate will not be changed.
5. BC's cost estimate will be prepared to the level of accuracy based on the information available within normal industry standards as specified in each deliverable task. Cost estimates will be formatted in accordance with the project design CSI specification format and segregated by Agency facility. Where sufficient detailed information is lacking to obtain reasonably accurate prices of materials, a contingency allowance may be applied. Escalation allowances will be used to provide an opinion of the estimated construction costs at the midpoint of construction.

Subtask 3.3.3 – Construction Schedule

Work associated with this subtask includes the following:

1. Construction Schedule consisting of a high level of detail, including the sequence and duration of activities that will be performed during the performance of Construction Work. The schedule shall be based on the updated sequence of work and should include milestones, decision points, and major tasks, as well as their dependencies. The Construction Schedule shall be the basis for the contract durations and milestones.
2. Critical Path Analysis detailing the sequence of Construction Work tasks which add up to the shortest time possible to complete the Project.
3. Resource Allocation detailing an estimate of the resources (labor, materials, equipment) required for each task.
4. Risk Assessment listing potential risks to the schedule shall be identified.
5. Contingency Plan developed that accounts for potential delays or unforeseen issues that could arise during the performance of Construction Work.

Subtask 3.3.4 – 90% Design Workshop

At the conclusion of this task, BC and the Agency will conduct a one (1) day workshop in-person to review and solicit comments on the 90 percent design submittal. BC's lead

engineers will attend in-person. Other members of BC's project team may attend remotely as necessary. Agency comments will be incorporated into the 100 percent design submittal. BC will produce meeting minutes summarizing the workshop, including a listing of action items.

Task 3.3 Meetings

1. 90% Design Workshop attended in-person by the Agency and three (3) BC staff for a duration of one (1) business day.

Task 3.3 Deliverables

1. 90% plans and technical specifications (Division 2 through 50) will be provided in pdf format.
2. Construction schedule in MS project format.
3. Updated design criteria drawing sheet (included with 90% drawings)
4. Draft and final meeting minutes from the 90% design workshop (draft and final; electronic submittal).
5. Electronic PDF copies of the 90% design submittal will include:
 - a. Half-size drawings (11-inch by 17-inch)
 - b. Specifications (complete bid documents)
 - c. Final Geotechnical Report
 - d. 90% construction cost estimate

Task 3.3 Assumptions:

1. The Agency will collate and return reviewer's comments on deliverables within 15 business days of receipt. Comments will be provided to BC in electronic format.
2. A list of drawings included in this task's deliverable is provided in BC's Anticipated Drawing List.

Task 3.4 – 100 Percent Design

BC will prepare 100 percent design documents consisting of final design drawings and specifications. This includes:

Subtask 3.4.1 – General

Work associated with this subtask includes the following:

1. Prepare and submit electronic PDF copies of a complete set of final contract documents suitable for bidding the project for Agency review and approval for competitive bidding purposes. Final checking and coordination items will have been completed.

2. Prepare a 100% construction cost estimate and adjust quantities and unit prices to reflect the 100 percent design submittal as necessary. The estimate will remain in accordance with AACE Class 1 OPCC with an accuracy range of -10% to +15%.

Subtask 3.4.2 – 100% Design Workshop

At the conclusion of this task, BC and the Agency will conduct a one (1) day workshop in-person to review and solicit comments on the 100% design package. BC's PM will attend in-person. Other members of BC project team may attend remotely as necessary. Agency comments will be incorporated into the finalized Bid Documents. BC will produce meeting minutes summarizing the workshop, including a listing of action items.

Subtask 3.4.3 – 100% Design Cost Estimate

Work associated with this subtask includes the following:

1. Prepare a design level construction cost estimate to be included as part of the 100% Design Submittal. The estimate shall be broken down into major categories like labor, materials, equipment, indirect costs, etc.
2. A Basis of Estimate (BOE) shall also be provided with the estimate for the 100% Design Submittal. The BOE shall explain the methodologies, sources of cost data, assumptions, constraints, and exclusions used in preparing the estimate. It should also explain the level of uncertainty associated with the estimate at this stage of design.
3. Compare the estimate to the baseline estimate developed for the 90% Design Submittal. If the current estimate exceeds the 90% Design Submittal estimate, identify the specific reasons for variations and identify corrective actions to align the newest estimate with the baseline estimate in the 100% Design Submittal.
4. Note changes in the contingency percentages at various stages of design shall be noted. Unless there is an Agency approved change in the Proposed Improvements scope establishing a new baseline, the baseline estimate will not be changed.
5. BC's cost estimate will be prepared to the level of accuracy based on the information available within normal industry standards as specified in each deliverable task. Cost estimates will be formatted in accordance with the project design CSI specification format and segregated by Agency facility. Where sufficient detailed information is lacking to obtain reasonably accurate prices of materials, a contingency allowance may be applied. Escalation allowances will be used to provide an opinion of the estimated construction costs at the midpoint of construction.

Subtask 3.4.4 – Construction Schedule

BC will determine and provide the following:

1. Construction Schedule consisting of a high level of detail, including the sequence and duration of activities that will be performed during the performance of Construction Work. The schedule shall be based on the updated sequence of work and should include milestones, decision points, and major tasks, as well as

their dependencies. The Construction Schedule shall be the basis for the contract durations and milestones.

2. Critical Path Analysis detailing the sequence of Construction Work tasks which add up to the shortest time possible to complete the Project.
3. Resource Allocation detailing an estimate of the resources (labor, materials, equipment) required for each task.
4. Risk Assessment listing potential risks to the schedule shall be identified.
5. Contingency Plan developed that accounts for potential delays or unforeseen issues that could arise during the performance of Construction Work.

Task 3.4 Meetings

1. 100% Design Workshop attended in-person by the Agency and three (3) BC staff for a duration of one (1) business day.

Task 3.4 Deliverables

Electronic PDF copies of the 100% design submittal will include:

1. Final full-size drawings (24-inch by 36-inch)
2. Final specifications (complete bid documents)
3. Final Geotechnical report
4. 100% design construction cost estimate
5. Construction schedule
6. Draft and final minutes from the 100% design workshop

Task 3.4 Assumptions

1. The Agency will collate and return reviewer's comments on deliverables within 15 business days of receipt. Comments will be provided to BC in electronic format.
2. A list of drawings included in this task's deliverable is provided in BC's Anticipated Drawing List.
3. The Contract Documents submittal (i.e. 100% design submittal) will consist of the following:

- a. Division 0 (“Front End”) Specifications, prepared by the Agency and reviewed by BC, including: Bidding Requirements, Contract Forms, Abbreviations and Definitions, Instructions to Bidders, and General Conditions.
- b. Division 1 (General Requirements) Specifications, prepared and coordinated by BC to be compatible with Agency’s existing Division 0 specifications, including : special conditions, summary of work, construction constrained sequence of work, coordination and site conditions, contract modification procedures, payment procedures, project coordination, project meetings, construction progress schedules, video recording and photographic documentation, submittal procedures, Quality Requirements, Manufacturer’s Field Services, Special Inspections, Observations and testing, temporary facilities and controls, traffic control, temporary erosion and Sediment Control, Product Requirements, Operations and Maintenance Data, Anchorage and bracing, equipment testing and facility startup, and contract closeout procedures.
- c. The project’s technical specification sections will be based on BC’s master specifications using Construction Specifications Institute (CSI) standards format and customized for the specifics of this Project. Drawings and technical specifications will be stamped in accordance with California law and signed by licensed engineers of the appropriate disciplines.
- d. The project drawings will show the level of detail deemed necessary by BC to obtain reasonable bidder response and to limit change orders. Final drawings will be 22-inch by 34- inch (C size) drawing format. Drawings will be produced using BC’S standard CADD software; however, the completed set of drawings will be delivered to the Agency in AutoCAD 2018 format at the close of the Bid Phase.
- e. BC will combine the above documents into a complete set of biddable Contract Documents.

Task 4 – Bid Phase Services

BC will assist the Agency with selection of a single construction contractor for the construction of the project. BC’s services for this task consist of the following:

Task 4.1 – Bid Document Distribution

BC will assist the Agency in preparing advertisements and notices announcing or soliciting bids for the construction of the Project. BC will consult with the Agency on the number and range of distribution of the advertisements and notices. The Agency will arrange and pay directly for advertisements and notices. Bid documents will be reproduced and distributed by Agency.

Subtask 4.2.1 – Pre-Bid Conference and Site Visit

BC will arrange for and conduct one (1) pre-bid conference and site visit at the WRP that has been scheduled in coordination with the Agency. BC will develop the agenda and content of the pre-bid conference and site visit with input from the Agency. BC will conduct

and take notes or make other provisions as necessary for documenting the results of the pre-bid conference and site visit. BC will record questions and requests for additional information and coordinate with Agency for issuing responses and additional information.

Subtask 4.1.3 – Addenda

Agency will receive questions and requests for additional information (RFIs) from bidders. BC will not answer questions directly received from bidder and will refer questions to the Agency per the Instructions to bidders.

When requested by Agency, BC will furnish the Agency with technical interpretations of the Bid Documents and will prepare responses to questions for inclusion in addenda distributed by the Agency. This task assumes up to five (5) addenda deliverables will be provided by BC.

Subtask 4.1.4 – Technical Material

BC will prepare technical materials for distribution by Agency, as needed. This task assumes up to five (5) technical material deliverables will be provided by BC.

Task 4.2 – Bid Evaluation

Assist Agency with review and evaluation of bids received. BC will review documentation submitted by the lowest and second lowest bidder. BC will verify status of contractor and subcontractor licenses, DIR registrations, proposed bonding companies, and will check references. BC will prepare a letter of review and evaluation and include recommendations for award of the contract for construction, or other action as may be appropriate, and will transmit the same to the Agency. Agency will make the final decision on the award of the contract for construction and the acceptance or rejection of bids.

Task 4.3 – Conformed Documents

BC will incorporate changes made by addenda during the bid period into the Contract Documents and produce conformed documents for use during construction of the project. Technical specifications, standard details, and drawings changed by addenda will be updated. To support this work, Agency will furnish BC with an electronic PDF copy of the fully executed contract and addenda issued by Agency during the bid period.

Phase 4 Assumptions:

1. Agency will advertise the construction bid and serve as the primary point of contact for all bidder inquiries.
2. Agency will lead and prepare meeting material.
3. Agency will administer bid period process by receiving all bidders' questions and distributing responses to bidders' questions and addenda.
4. Agency will receive bids, review, and evaluate bids.
5. BC will provide services up to the limit of the phase budget.
6. Up to two (2) addenda will be provided.

Phase 4 Meetings:

1. Two (2) BC staff will attend the pre-bid meeting and site walk in-person for a duration of two (2) hours.

Phase 4 Deliverables:

1. Agenda and minutes of pre-bid conference and site visit (draft and final; electrical submittal).
2. Letter recommending award of construction contract (final; electrical submittal).
3. One draft and one final set of conformed documents (full size; electrical submittal).

Phase 5 – Support Services

This phase captures and documents the services and support tasks which transcend the Project, including geotechnical investigations, environmental and air permitting services, topographic and other surveying services, and hazardous materials testing.

Task 5.1 – Geotechnical Investigations

BC will provide, through a subconsultant, geotechnical services and develop a geotechnical report to support the design of the Project, particularly for the New Boiler Building. This task includes the research, field exploration, field and laboratory testing, and engineering analyses to allow formulation of geotechnical recommendations for design and construction of the New Boiler Building. Results and findings will be summarized in a geotechnical investigation report suitable in accordance with the delivery and reporting requirements identified in Phase 3.

Prior to geotechnical exploration, it is assumed BC's subconsultant will obtain utility clearance from Underground Service Alert (USA). Geotechnical exploration will be performed by drilling a series of three (3) test borings 10 to 20 feet in depth to adequately reveal subsurface soil and groundwater conditions. All borings will be advanced using solid-flight or hollow-stem auger drilling techniques. Refusal at shallow depth is possible due to the anticipated gravelly soils with cobbles and boulders. An allowance to offset and redrill borings has been included, but no allowance for core drilling or air-rotary/hammer drilling is made.

Soils onsite will be sampled with a 2-inch-outside-diameter, split-spoon sampler driven by a standard 140-pound drive hammer with a 30-inch stroke. The number of blows to drive the sampler 1 foot into undisturbed soil (standard penetration test) is an indication of the density and shear strength of the material. Larger diameter in-place samples will be taken if compressible or expansive soils are present. Material encountered during exploration will be logged in the field by BC's geotechnical staff. The groundwater surface will be measured, if encountered. Representative soil samples will be returned by BC's subconsultant's to their laboratory in Reno, Nevada, for testing. Representative samples of significant soil types will be tested to characterize the index properties of foundation soils, such as moisture content, grain size distribution, and plasticity. These index properties are indicative of the mechanical behavior of the soils. Direct shear tests will be performed on foundation soils. The material's cohesion and angle of internal friction, as

determined from these tests, are utilized in evaluating various soil properties including bearing capacity, coefficient of base friction, and lateral soil pressures. Chemical testing will also be performed to evaluate the site soils' potential to corrode buried steel and Portland cement concrete.

A shear wave velocity survey will be performed to determine the average shear wave velocity within the upper 100 feet of the soils profile (V_s100). V_s100 will be used to determine seismic Site Class in accordance with 2022 California Building Code requirements. Shear wave velocity will be determined using the refraction microtremor (ReMi) technique.

The results of Project research, site exploration, laboratory testing, and engineering analyses will allow formulation of geotechnical recommendations for the design and construction of the Project. These recommendations will be summarized in a geotechnical report as specified in Phase 3 and include the following:

- site description and history
- summary of research performed
- summary of site exploration
- summary of laboratory testing
- site and regional geology and site seismicity
- geologic hazards, including preliminary liquefaction opinion
- seismic design criteria (2022 California Building Code [ASCE 7-16])
- site soil and groundwater information
- excavation characteristics
- site preparation/stabilization and grading plans
- structural backfill requirements
- cut and fill slopes
- foundation preparation
- allowable bearing capacities
- settlement characteristics
- lateral earth pressures, static and dynamic
- coefficient of base friction factors
- modulus of subgrade reaction
- structural sections for asphalt pavements
- aggregate base sections for concrete slabs
- site drainage, erosion control, and corrosion potential
- identification of recognizable construction problems

Task 5.1 Assumptions:

1. Utility location and clearance for private utilities (i.e., sewer laterals, irrigation lines, etc.) will be performed by the Agency.
2. Potholing services are currently not included but can be amended to the Project's scope of work and budget.

Task 5.1 Meetings:

1. One (1) Geotechnical Investigation preparation meeting will be attended virtually with two (2) BC staff and BC's subconsultants for a duration of one (1) hour.

Task 5.1 Deliverables:

1. Final Geotechnical Report (electronic submittal)
2. Deliverables identified in Phase 3.

Task 5.2 – Environmental Permitting/CEQA

BC will provide, through its subconsultant, documentation to assist the Agency in complying with the Project's California Environmental Quality Act (CEQA) permitting requirements. The CEQA compliance effort for this Project will pursue a categorical exemption and will include filing the Notice of Exemption (NOE) with the County Clerk/Recorder's Office. This will be completed by meeting the permitting reporting and filing requirements identified in Phase 3. Based on the information currently known, it is assumed that the appropriate level of CEQA documentation would be an Initial Study/Mitigated Negative Declaration (IS/MND), under which potential environmental impacts would be mitigable to less-than-significant levels. With these assumptions, BC proposes to complete the preparation of the IS/MND, as follows:

1. Draft IS/MD: Prepare a draft IS/MND that is in compliance with CEQA and the State CEQA Guidelines. We anticipate completing the CEQA Environmental Checklist with explanations and analysis for each response, including "No Impact" responses. The level of analysis and degree of impact will vary depending upon the environmental topic but will be sufficient to provide substantial evidence to support the conclusions, consistent with CEQA requirements. The draft IS/MND will be reviewed by the Agency, with comments collated and returned to BC within 15 business days after receipt.
2. IS/MND for Public Review: Upon receipt of comments, BC will incorporate comments and prepare the final version for public review. As described above, we assume that the project would qualify for preparation an MND (based on the IS) because it is likely that project impacts would be adequately mitigated to less-than-significant levels through implementation of standard mitigation measures. As such, we propose to prepare an MND for circulation with the IS, and a Notice of Intent to Adopt the MND (NOI) for publication or posting. Drafts of the MND and NOI will be submitted for review. It is assumed that Agency staff will distribute the documents and notices.
3. Mitigation Monitoring and Reporting Program (MMRP): BC will prepare draft and final versions of the project's MMRP. The MMRP will include the information necessary to determine if and when a mitigation measure is complete or whether ongoing mitigation or monitoring is to be implemented in conformance with the IS/MND. Such information includes implementing party, timing, monitoring agent, and other pertinent measure-specific details.
4. Response to Public Comment on the IS/MND: Upon completion of the public review period for the IS/MND, BC will compile comments received on the Public Draft IS/MND and prepare a memo summarizing the comments and responding to comments that

raise environmental issues. (While written responses to comments are not strictly required by CEQA for an IS/MND, it is recommended as a best practice to provide evidence that comments were public and agency comments were meaningfully considered by the lead agency prior to action on the project.) BC will submit a draft memo for Agency review, incorporate comments, and prepare a final memo for use in a staff report for the Agency's Board. Upon adoption of the MND and approval of the project, BC will prepare the Notice of Determination and file the notice with the State Clearinghouse and County Clerk.

Task 5.1 Assumptions:

1. Permitting for affects to wetlands, waters, or threatened or endangered species will not be needed and is not included in the scope of this Project.
2. The Agency will initiate tribal consultation pursuant to AB 52 (Statutes of 2014) and that tribes will either decline to consult, or consultation will be conducted by the Agency. This service can be amended to the Project's scope and budget.

Task 5.2 Meetings:

1. One (1) Environmental Permitting/CEQA kickoff meeting will be attended virtually with two (2) BC staff and BC's subconsultants for a duration of one (1) hour.
2. Up to six (6) progress and status meetings attended virtually by two BC staff and BC's subconsultants for a duration of one (1) hour.

Task 5.2 Deliverables:

1. Draft IS/MND (draft and final; electronic submittal)
2. Public IS/MND (draft and final; electronic submittal)
3. MMRP (draft and final; electronic submittal)
4. CEQA: Notice of Exemption filing (draft and final; electronic submittal)

Task 5.3 – Site Survey

BC will provide, through a subconsultant, site survey services and develop a site survey and utility map to support the design of the Project. These services will be in accordance with the delivery and reporting requirements identified in Phase 3 and will include the following.

1. Site Survey:
 - a. BC will conduct a site survey and utility mapping to support the basis of design verification and final design tasks. The site survey includes design-level topographic surveying and mapping of approximately 5-acres of the WRF site adjacent to Building 32 and the proposed New Boiler Building location shown in the Agency's preliminary design report (by others). The Project site will be flown with UAV for background orthophotography and non-critical elevation features. The remaining site will be surveyed with a combination of conventional and GPS methods such is required to minimize project cost, yet meet design level accuracy. Surface apparent features will be located horizontally and vertically

including buildings, curbs, light poles, utility boxes, vaults, manholes, drainage inlets, pavement scars from prior trenching, utility locator marks if provided. A horizontal and vertical control network will be established surrounding the site and based upon the Agency's site control, if provided. Easements of record provide to this surveyor or disclosed in a client provide title report will be plotted on the survey. Sufficient boundary work will be performed solely to allow the accurate locating of any site easements referenced to record boundary lines. This task does not include a complete boundary survey.

2. LiDAR Scan of Building 32

- a. At the direction of the Agency, a LiDAR Scan will be conducted inside Building 32 to extend the horizontal and vertical control network throughout Building 32 and place scan targets as necessary. A 3D laser scan will be conducted utilizing a Trimble X7 scanner through the two interior floors of Building 32 (approximately 4,000 square foot). The registered point cloud will be georeferenced to the site control and topographic survey.
- b. A 3D Revit architectural model will then be generated from the 3D point cloud. The model will be based on AIA LOD 200 standards and reflect graphical representations of the mechanical, plumbing and HVAC systems within Building 32.

Task 5.3 Meetings:

1. Two (2) meetings attended virtually with the Agency and two (2) BC staff and subconsultants for a duration of one (1) hour each.

Task 5.3 Deliverables:

1. Site survey with utility mapping (final; electronic submittal including digital AutoCAD file of the base map.
2. A 3D Revit architectural model (final; electronic submittal)

Task 5.4 – Air Permitting Support

BC staff will assist the Agency in preparing a Northern Sierra Air Quality Management District (NSAQMD) permit application package to be submitted by the Agency. BC will participate in a pre-application meeting with the NSAQMD to facilitate discussions and explain the proposed Project, if needed. BC will prepare the permit application package for the necessary NSAQMD actions in accordance with NSAQMD rules and regulations.

The Project's permit application will include:

- An itemization of the necessary actions by the NSAQMD.
- A project description explaining each component and its relationships to other components and the existing plant. This is also the section in which discussion about construction activities would be included.
- Emission estimates for the new and/or modified sources. Estimates will be included for criteria pollutants and Toxic Air Contaminants (TACs), especially H₂S. Emission estimates for the existing plant will be derived from the most recent NSAQMD annual fee

statement. These emission estimates will be subjected to a critical review before being used. Errors found in the NSAQMD emission estimates may result in adjustments in future fee statements as well.

- Participate in a pre-application meeting with NSAQMD, if needed.
- NSAQMD authority to construct (ATC) required application forms completed and incorporated.
- Manufacturer and design information, as appropriate.
- Required drawings.
- CEQA compliance before the NSAQMD can issue permits for the new and modified sources.

BC's air permitting assumptions include:

- Agency to file and pay all air permit application and CEQA filing fees.
- There are no K-12 schools within 1,000 feet of the proposed Project equipment, and hence, assistance with public notice is not required.
- Acquisition of offsets (e.g., emission reduction credits (ERC), carbon credits, or other types of certified criteria pollutant or GHG offsets or allowances), if required for the ATC applications or evaluation of mitigation measures that may be identified in the CEQA document that may have permitting implications, is not included in this scope of services because the level of effort required is not known. This can be proposed separately, if required. One draft and one final permit application package for the project will be prepared, and equipment configuration or material use changes leading to analysis revisions will be estimated separately as needed.
- Payment of the application fees will be provided by the Agency.
- Follow up with the NSAQMD following submittal of the ATC applications is not included beyond one draft and one final response to NSAQMD questions for each of the two ATC application packages. Extensive responses or negotiation would require a budget amendment; and
- The scope of services does not include post-permit issuance support, such as source testing or continuous emissions monitoring system (CEMS) assistance, which might be required. This service can be amended, separately.
- Requested information will be readily available and will be provided within 15 business days.
- No air dispersion modeling, health risk assessment, or monitoring is necessary.
- Neither a Title V permit nor a PSD permit is required.
- BC cannot control NSAQMD review time, schedule, or number of requests for additional information, and thus is not responsible for a delay in the project schedule due to extended review times by the NSAQMD.
- BC will provide services up to limit of the Phase budget.

Task 5.4 Meetings:

1. Two (2) Air Permitting Support meetings will be attended virtually with three (3) BC staff for a duration of one (1) hour.

Task 5.4 Deliverables:

1. Email memo summarizing the permitting options and potential obstacles (final; electronic submittal).
2. Data request for proposed biogas generation capacity and constituent information, proposed changes to operations, and information needed to estimate associated emissions (final; electronic submittal).
3. NSAQMD Permit Application (draft and final; electronic submittal)
4. Responses to NSAQMD comments, questions, and requests (one round of comments assumed; electronic submittal).
5. Comments on the draft ATC / Permit Conditions (one round of comments assumed; electronic submittal).

Task 5.5 – Funding Analysis

BC will analyze project financials and opportunities for additional funding through the Inflation Reduction Act (IRA) and assist the Agency in meeting the requirements for funding and pursuing funding. For this, BC will identify funding opportunities for the Project or its components that may be eligible for tax credits in the form of a direct payment, low interest loan, or grant through the IRA. BC will outline the funding sources, eligibility requirements, timeline, and range of potential credit or grant value up to the limit of the budget. If the Agency chooses to pursue these funding sources, BC will align the selected project with funding requirements.

Task 5.5 Assumptions:

1. Completion of grant and funding applications are not included and if needed, will be prepared and submitted by the Agency.
2. BC does not guarantee grant or funding availability for the Project.

Task 5.5 Meetings:

1. Two (2) Funding Analysis meetings will be attended virtually with three (3) BC staff for a duration of one (1) hour each.

Task 5.5 Deliverables:

1. Funding Analysis Summary PowerPoint presentation summarizing funding sources, eligibility requirements, timeline, and range of potential credit or grant value up to the limit of the budget (final; electronic submittal).

Task 5.6 – Hazardous Materials Testing

BC will provide, through its subconsultant, hazardous materials testing to support the design of the project. This will be completed by meeting the hazardous material sampling and analysis and reporting scope of work identified in Phase 3 of this scope of work. Hazardous materials testing will comply with EPA, Cal/OSHA and Nevada County applicable regulations regarding

asbestos, lead based paint (LBP) polychlorinated biphenyls and universal wastes that may be disturbed during the decommissioning and/or demolition phase of the Project.

The hazardous materials testing effort is limited to the approximate 3,200 square foot digester control building, Building 32, which houses three (3) boilers and their associated equipment as well as digester control pumps and piping. In addition, there is an approximate 1,600 liner foot steam main with various access hatches with multiple secondary branches into heat exchangers and secondary loops (approximately 8 loops) that need to be tested. Testing in Building 32 includes testing within the building's basement room and building roof.

BC's subconsultant will provide the labor, equipment, and materials to perform the following hazardous material testing services.

1. Hazardous Building Materials Survey:

The hazardous building materials survey (HBMS) includes a field study, sample collection, laboratory analysis, and the preparation of an asbestos survey, lead based paint (LBP) inspection, polychlorinated biphenyls (PCB's) sampling, and universal waste sampling report. The purpose of the survey is to identify asbestos-containing materials (ACMs) or asbestos containing construction materials (ACCMs) that might be disturbed during demolition, conduct a LBP inspection on the interior and exterior of the buildings and equipment, conduct PCB sampling at transformer locations if staining/fluids are present, sample suspect building materials for PCB's (e.g. window caulking) and inventory universal wastes (e.g. fluorescent light ballasts, bulbs, mercury switches and smoke detectors). BC's scope of services for this survey includes the following.

- a. Asbestos:

- i. A visual inspection of the interior and exterior of the structures for the presence of suspect ACMs. Friable and non-friable ACM will be noted if encountered.
 - ii. Random samples (up to 80) will be collected of suspected ACMs/ACCMs from representative homogeneous areas determined by the visual inspection. The actual quantity of samples required will depend on the homogeneous areas of suspect ACM/ACCM materials that are represented. If additional samples are necessary, they will be collected and analyzed only upon the approval of the Agency. During the collection of bulk samples, damage to the materials sampled is necessary to obtain representative samples. BC understands that these suspect ACM/ACCM materials are to be subsequently demolished and renovated.
 - iii. An asbestos demolition survey report will be submitted and will include the findings, quantifications, and recommendations in regard to each ACM/ACCM identified.

- b. Lead Based Paint:

- i. Conduct a LBP inspection utilizing non-destructive XRF testing on interior room components and exterior surfaces of the buildings. Rooms, common areas, utility rooms/closets, digester control pumps and piping and steam pipe access hatches will be inspected and tested. The inspection will generally follow US Housing and Urban Development

(HUD) and EPA Guidelines for LBP inspections and comply with CDPH inspection requirements for commercial buildings. Building component with an XRF test result of 1.0 mg/cm² will be considered to contain LBP. Building component with an XRF test result of 0.3 will be considered to be a lead hazard. If necessary, we will conduct paint chip sampling to determine Cal/OSHA threshold action level (600 ppm).

- ii. An LBP inspection report will be included which summarize findings, XRF tables and layout detailing areas of LBP/Lead Hazard identified.

c. Polychlorinated Biphenyls:

- i. An assessment and sampling of suspect PCB containing building materials, electrical equipment, hydraulic equipment, and leaking PCB containing ballasts if present will be conducted. Electrical service provided transformers and fluorescent light ballasts will be researched by provider and/or labeling to determine if potential PCB's are present. Caulking materials will be collected from the buildings and will be composited into a single bulk sample for each caulking material type that are identified. Additional products that may contain PCB's include cable insulation, TSI, Oil Based Paint and Floor Finishes. Up to ten (10) PCB samples are anticipated and will be analyzed using method EPA SW-846 8082. Samples will be preserved as required and delivered to an accredited laboratory under Chain-of-Custody manifest.
- ii. A PCB inspection report will be submitted which will include our findings, PCB sampling location layout and laboratory reports.

d. Universal Wastes:

- i. Universal wastes including fluorescent light bulbs, PCB fluorescent light ballasts, mercury switches and chlorofluorocarbons will be documented, inventoried and included with our HBMS.

2. Hazardous Material Determination and Testing Report:

The hazardous material determination and testing report will including the project's hazardous material test results and mitigation strategies. The report will include the following elements:

- a. Risk assessment of potential health and safety risks associated with the identified hazardous materials, based on their type, location, condition, and potential for disturbance during the project.
- b. Scope of work and specifications detailing the specific steps that an abatement contractor will need to follow to complete the required abatement project and required regulatory notifications for asbestos, lead and PCB identified during our investigation. This scope of work will include abatement recommendations for the management, removal, or abatement of identified hazardous materials, including recommended procedures for safe removal and disposal, encapsulation, or management in place.
- c. Cost estimate of the abatement work for budgeting purposes, based on industry standards utilizing a construction costs reference guide.

- d. Assessment on how the presence of hazardous materials and the need for abatement could impact the projects schedule, scope and cost.

Hazardous materials testing assumptions include:

- Access and right-of-entry to the project site will be provided by the Agency.
- A permit required confined space entry will not be required when entering the steam main access hatches and secondary loop access. BC's subconsultant will enter the access hatches with a two-man team and screen for hazardous gasses and oxygen deficient atmospheres as a precaution. If a permit required confined space entry is necessary, additional fees will be required for the needed permit and additional confined space entry procedures.

Task 5.6 Meetings:

1. One (1) Hazardous Materials Testing meeting will be attended virtually with two (2) BC staff and BC's subconsultants for a duration of one (1) hour.

Task 5.6 Deliverables:

1. Hazardous Materials Sampling and Analysis Report (draft and final; electronic submittal).

This concludes the Project's scope of work.

Sacramento Office

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TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: IV-6
Subject: Discussion and Staff Direction on CSDA Solicitation of Support for Public Comments on California Department of Housing Community Development Surplus Land Act

Background

On March 13, 2024, the Agency was notified of a call for support by the California Special Districts Association (CSDA). The call of support is regarding the proposed draft updated guidelines from the California Department of Housing and Community Development (HCD) related to the Surplus Land Act (SLA). CSDA is seeking support from member districts who are or may be impacted by the proposed draft updated guidelines. The attached CSDA draft template letter outlines four key points of concern.

As an Agency that may be impacted and in consultation with Agency legal representation, staff concluded that discussion with, and staff direction from the T-TSA Board of Directors was appropriate.

Fiscal Impact

None.


Attachments

CSDA HCD Draft Template Letter.

Recommendation

Staff recommends Agency support be given to CSDA.

Review Tracking

Approved By: 
Richard Pallante
General Manager

[Date]

Director Gustavo Velasquez
California Department of Housing and Community Development
2020 West El Camino Avenue, Suite 500
Sacramento, CA 95833

[Submitted via email: SLAguidelines@hcd.ca.gov]

RE: Tahoe-Truckee Sanitation Agency Comment Letter on Proposed Updated Surplus Land Act Guidelines

Dear Director Velasquez:

The Tahoe-Truckee Sanitation Agency respectfully submits this letter as public comment in response to the California Department of Housing and Community Development's (HCD) request for public comment on Draft Updated Surplus Land Act (SLA) Guidelines issued February 23, 2024 (Draft Updated Guidelines).

[SHOULD YOUR SPECIAL DISTRICT HAVE ANY SPECIFIC EXAMPLES RELATED TO THE POTENTIAL NEGATIVE IMPACTS OF THE DRAFT UPDATED GUIDELINES, CONSIDER INCLUDING THOSE AT THE BEGINNING OF THE LETTER OR OTHERWISE BOLDING THEM WHERE INCLUDED ELSEWHERE IN THE LETTER.]

Regrettably, HCD's Draft Updated Guidelines subvert necessary, carefully negotiated legal provisions secured through the legislative process, and conflict with plain statutory language and clear legislative intent. These draft guidelines threaten special districts' and all local government's authority to appropriately and efficiently engage in statutorily authorized transactions involving our lands on behalf of the communities we serve.

Although we anticipate that the California Special Districts Association (CSDA) will provide more detailed public comment, the purpose of this letter is to make public comment on four major areas of concern in which the Draft Updated Guidelines are inconsistent with statute, including:

- 1. The Draft Updated Guidelines Misapply the SLA to Agency's Use Land and Improperly Purport to Apply the SLA to Exempt Surplus Land.**

Agency's use is a category of land which is neither surplus land nor exempt surplus land, for which the SLA preserves certain local agency prerogatives. AB 480 and SB 747 did not make material changes to the SLA's agency's use provisions, and evidence clear legislative intent not to do so. The Draft Updated Guidelines delete an existing definition of agency's use land in Section 102(d), which had been consistent with statute negotiated by local agencies to remove opposition to AB 1486.

This problem is exacerbated in proposed Section 102(cc), which changes the definition of Surplus Land by incorporating a reference to the proposed Section 104 Agency's Use definition, therefore causing an inconsistency between the Surplus Land definition in the Draft Updated Guidelines and statute and consequently undermining local agencies' utilization of land for agency's use purposes.

The Draft Updated Guidelines continue to fail to include any reference whatsoever to the plain language of Government Code Section 54222.3, which conflicts with many of the proposed guidelines' changes related to exempt surplus land, and plainly states that: "This article shall not apply to the disposal of exempt surplus land as defined in Section 54221 by an agency of the state or any local agency." Unless a code section specifically references applicability to exempt surplus land, the presumption is that all the provisions of this article do not apply to "exempt surplus land" (upon determination by an agency that a parcel is "exempt surplus land"). For an example of where a single particular type of "exempt surplus land" is expressly referenced as subject to the SLA (pursuant to a process to comply with HCD approval), see 54221(f)(1)(P)(iv). The Draft Updated Guidelines unjustifiably place HCD in the middle of exempt surplus land determinations notwithstanding those statutory limitations.

2. The Draft Updated Guidelines Misapply SLA Penalty Provisions while Making Changes in Conflict with Statute.

AB 747 and AB 480 amended the SLA penalty provisions found in Government Code Section 54230.5 to provide a fair process for assessing and calculating penalties for specified violations of the SLA, while providing that such penalties shall not apply to violations that do not impact the availability and priority of, or the construction of, housing affordable to lower income households or the ultimate disposition of the land in compliance with the article, such as clerical errors. The Draft Updated Guidelines are inconsistent with and undermine these important statutory changes.

3. The Draft Updated Guidelines Allow Third Parties to Issue Notices of Alleged Violations of the SLA Directly to Public Agencies with No Basis in Statute, Exposing Local Agencies to Unaccountable Interference with Operations.

The Draft Updated Guidelines purport to grant third party entities (i.e., not HCD) the ability to issue notices of alleged violations of the SLA directly to local agencies. For example, Section 102(u) defines a "Notice of Alleged Violation" as a written communication sent to a local agency (with a copy to HCD) by a public (not HCD) or private entity alleging violations of the SLA.

Allowing third parties to directly trigger enforcement deadlines for local agencies without HCD review and determination of a violation is not supported by statute and could wreak havoc on local agency transactions and operations. This provision of the Draft Updated Guidelines is also inconsistent with Government Code Section 54230.5(a)(1) which imposes penalties for disposals of surplus land in violation of the SLA after receiving a notification from HCD.

4. The Draft Updated Guidelines Subject Local Agencies to a Subjective and Open-Ended Definition of “Good Faith Negotiations.”

Government Code Section 54223 requires that “After the disposing agency has received a notice of interest from the entity desiring to purchase or lease the surplus land on terms that comply with this article, the disposing agency and the entity shall enter into good faith negotiations to determine a mutually satisfactory sales price and terms or lease terms. If the price or terms cannot be agreed upon after a good faith negotiation period of not less than 90 days, the local agency may dispose of the surplus land without further regard to this article....” The Draft Updated Guidelines undermine the clear timelines established in statute by requiring in Section 202(a)(1)(C)(iv)(V) that a local agency not “arbitrarily end active negotiations after 90 days of good faith negotiations.”

Section 202(a)(1)(C)(iv)(V) adds a subjective and open-ended requirement for a local agency to continue negotiating after 90 days even though 90 days of negotiations is all that is required by statute. This transforms what is a clear standard in statute into a subjective standard in the Draft Updated Guidelines, thereby interfering with local agencies’ ability to efficiently conclude negotiations and transactions. This also exposes local agencies to litigation risk over whether the specific circumstances of a conclusion of negotiations after the 90 days required by statute was “arbitrary.”

For these reasons, we respectfully request HCD amend the SLA Draft Updated Guidelines to correct the aforementioned issues.

Sincerely,

CC: California Special Districts Association (advocacy@csda.net)



TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: IV-7
Subject: Placer County LAFCO Ballot Selection Voting for Regular and Alternate Special District Representative

Background

Last month, the Placer County LAFCO requested Special Districts to nominate one or two special district board member(s) to serve as the Special District and Alternate Special District Representative on LAFCO.

They received several nominations within the deadline. Some nominees were nominated as the voting and alternate voting members. As a result, they are requesting the Agency to complete the ballots in the following manner:

REGULAR Voting Special District Representative Ballot

- Choose one candidate only.

ALTERNATE Special District Representative Ballot

- *Choose your first-choice* candidate by writing the *number 1* next to their name.
- *Choose your second-choice* candidate by writing the *number 2* next to their name.

LAFCO will count the ballots for the Special District Representative before tallying the votes for the alternate voting member seat. They will only use the second-choice candidate for the Alternate Representative if your first choice was

Nominations are due in writing on or before Friday, February 22, 2024, at 4:00 pm.

Fiscal Impact


None.

Recommendation

None.

Review Tracking

Approved By: _____


Richard Pallante
General Manager

PLACER COUNTY
LOCAL AGENCY FORMATION COMMISSION

Electronic Transmittal

COMMISSIONERS:

Cindy Gustafson
Chair (County)

Susan Rohan
Vice Chair (Public)

Joshua Alpine
(Special District)

Shanti Landon
(County)

Sean Lomen
(City)

Tracy Mendonsa
(City)

Rick Stephens
(Special District)

**ALTERNATE
COMMISSIONERS:**

Jim Holmes
(County)

William Kahrl
(Special District)

Jenny Knisley
(City)

Cherri Spriggs
(Public)

COUNSEL:

Michael Walker
General Counsel

STAFF:

Michelle McIntyre
Executive Officer

Amy Engle
Commission Clerk

Date: February 27, 2024
To: Special District Presiding Officer c/o Clerk of the District
From: Michelle McIntyre
Re: Selection of a Special District Representative and Alternate

On January 17, 2024, LAFCO requested the Special Districts Presiding Officers consider nominating one or two special district board member(s) to serve as the Special District and Alternate Special District Representative on LAFCO.

We received several nominations for both seats within the deadline. Some nominees were nominated as the voting and alternate voting members. As a result, we ask you to complete the ballots in the following manner:

Regular Voting Special District Representative Ballot

- Choose one candidate only.

Alternate Special District Representative Ballot

- Choose your *first-choice* candidate by writing the number 1 next to their name.
- Choose your *second-choice* candidate by writing the number 2 next to their name.

We will count the ballots for the Special District Representative before tallying the votes for the alternate voting member seat. We will only use your second-choice candidate for the Alternate Representative if your first choice was selected as the regular voting member.

To be considered valid, ballots must be signed by the presiding officer of a special district, or another board member designated by the board. Ballots from a quorum of the Special Districts must be received for the election to be valid, and the person receiving the most votes for each seat shall be appointed. This memo contains ballots and any submitted Statement of Qualifications from the candidates.

Please return completed ballots via email to lafco@placer.ca.gov no later than **Friday, April 26, 2024, at 4 pm.**

Ballot: Selection of Regular Voting Special District Representative on LAFCO

Please choose one candidate:

_____ **H. Gordon Ainsleigh, Auburn Area Recreation and Park District Director**

Nominated by:
Auburn Area Recreation and Park District

_____ **Joshua Alpine, Placer County Water Agency Director**

Nominated by:
North Tahoe Public Utility District
Placer County Water Agency
Tahoe City Public Utility District

_____ **Peter Gilbert, Placer Mosquito & Vector Control District Trustee**

Nominated by:
Placer Mosquito & Vector Control District

_____ **Richard Hercules, Foresthill Fire Protection District President**

Nominated by:
Foresthill Fire Protection District

_____ **William Kahrl, Newcastle Fire Protection District President**

Nominated by:
Newcastle Fire Protection District
Penryn Fire Protection District
Placer Hills Fire Protection District

_____ **Luke Ragan, North Tahoe Fire Protection District Vice President**

Nominated by:
North Tahoe Fire Protection District

_____ **Teresa Ryland, South Placer Fire Protection District Director**

Nominated by:
South Placer Fire Protection District

Name of Special District: Tahoe-Truckee Sanitation Agency

_____ Blake Tresan

Presiding Officer Printed Name

_____ Presiding Officer Signature

Must be received by LAFCO via email at LAFCO@placer.ca.gov no later than Friday, April 26, 2024 by 4pm.

Ballot: Selection of Alternate Special District Representative on LAFCO

Please choose two candidates, numbering your first choice 1 and second choice 2.
Your second choice will be counted in the event your first choice is voted in as the LAFCO Special District Regular Voting Member.

_____ **H. Gordon Ainsleigh, Auburn Area Recreation and Park District Director**
Nominated by:
Auburn Area Recreation and Park District

_____ **Joshua Alpine, Placer County Water Agency Director**
Nominated by:
Placer Hills Fire Protection District

_____ **Judy Friedman, Tahoe City Public Utility District Director**
Nominated by:
Alpine Springs Community Water District
North Tahoe Public Utility District
Placer County Water Agency
Tahoe City Public Utility District

_____ **William Kahrl, Newcastle Fire Protection District President**
Nominated by:
Penryn Fire Protection District

_____ **Luke Ragan, North Tahoe Fire Protection District Vice President**
Nominated by:
North Tahoe Fire Protection District

_____ **Teresa Ryland, South Placer Fire Protection District Director**
Nominated by:
Newcastle Fire Protection District
South Placer Fire Protection District

Name of Special District: Tahoe-Truckee Sanitation Agency

Blake Tresan
Presiding Officer Printed Name

Presiding Officer Signature

Must be received by LAFCO via email at LAFCO@placer.ca.gov no later than Friday, April 26, 2024 by 4pm.

I am Gordon Ainsleigh, 20-year Board Member of Auburn Recreation District. It has been my fortune, debatably good or bad, to have been president of two boards of directors at a time of crisis.

One was with Midway Heights County Water District in the late 1980s, when the EPA chose us as the first-in-the-nation community water district to attack, and force into chlorination. So in spite of the fact that the head of the National Cancer Institute had recently bragged about the new science showing that chlorinated water caused bowel and bladder cancer, and in spite of our Board's stance that we wanted to pursue ozonation for clean water, the Court went with the statement of the California State Health Officer that chlorinated water did not cause cancer, and we were forced to comply, trading the present giardia risk for a future bowel and bladder cancer risk. Our two small victories were that the EPA started with a proposed \$500,000 fine, and we maneuvered them down to \$37,500, and that we found a way to get the chlorinated water lines installed for less than half of the government-recommended approach, on a time-payment plan that was easy for our customers. It was a tempestuous time. I had taken the Presidency when the hall was full of angry customers, our past president was being unjustly prosecuted, and no one else was willing to sit behind the microphone. I changed the way meetings were handled, and two months later we had a peaceful nearly-empty hall, and could get on with business.

When I got elected to ARD, our organization was the least-trusted and most criticized special district in the Auburn Area. I was the only one who saw what the problem was. ARD had gone through 4 nightmare District Administrators in 10 years. All were wizards at resumes and interviews, but were either inept or dishonest, or both, at managing our recreation district. I also saw what no one else saw: that Placer High School District and Sierra College had also prospered as long as they hired people from within who had proven they were trustworthy and talented; but when they did a national search to get THE BEST, disaster struck. Sierra College paid out \$600,000 to a female librarian who had been bullied by their new wonder administrator, and Placer High School District had to pass a \$23,000,000 local bond to pay for the new high school in Foresthill, because their wonder administrator had deliberately not applied for 1994 State School Bond money that would have built Foresthill High School. Why? Because Mr Wonderful needed passage of a local bond in his resume to get the top job at wealthy Acalanes HSD, which pays twice as much as Placer HSD, and require superintendents with a proven record of bond passage, who can persuade their wealthy citizens in Orinda and Moraga and Lafayette to pass the many bonds and parcel taxes that support their elite school system. I saw that we had to hire from within, and that we had a bright, hard-working, honest young man with a degree in Recreation Management from Northern Colorado University named Kahl Muscott who could save us from disaster. For two month in a row, the rest of the ARD Board ridiculed me because Kahl didn't have the experience. Finally, I got together with the consultant who was doing the nationwide search, and we came up with a plan: hire the new Wonder Administrator for 6 months to teach Kahl how to do the job. Our new wonder administrator was so good that he left after 3 months to build a park from the ground up at decommissioned El Toro Marine Airbase, but Kahl knew enough by then to carry on. And ARD is now a model of success among special districts.

It seems likely that LAFCO could use a person like me on the Board, to see the problems that others don't see, and to formulate solutions that others don't comprehend. That's what I have done, repeatedly. My priorities are simple: to make sure that every LAFCO decision benefits the quality of life of the people who can be affected by that decision.

Joshua Alpine

District 5 Director, Placer County Water Agency | Special District Member, Placer LAFCo

Joshua Alpine is the District 5 Director for Placer County Water Agency (PCWA), where he oversees the Agency's vital efforts to provide an affordable, reliable, and sustainable water supply to the people, environment, and economy of Placer County and the region.

Joshua currently serves on the Placer Local Agency Formation Commission (Commission); he was elected in 2016 to represent Special Districts. He also served on the Commission from 2011-2012, including a term as Chair representing the City of Colfax.

As current President of the Board of Directors for Project GO, Inc., Joshua is engaged in providing affordable housing and energy efficiency programs for low- and moderate-income working families and senior citizens in our area.

Joshua recently served on the Placer County Economic Development Board and the Association of California Water Agencies (ACWA) Board, serving as Chair of ACWA's Region 3 Board from 2015-2023 (Alpine, Amador, Calaveras, El Dorado, Inyo, Lassen, Mariposa, Modoc, Mono, Nevada, Placer, Plumas, Sierra, and Tuolumne Counties). He also serves from time to time as a member of numerous other committees and task forces.

Prior to serving as a Director for PCWA, Joshua served on the Colfax City Council from 2003-2012, including two terms as Mayor. During that time, he was very involved in wastewater, regional water, and land planning issues.

Joshua works effectively with elected officials and agencies at the local, state, and federal levels, including the Regional Water Quality Control Board and the State Water Resources Control Board, developing solutions to water and land use policies that affect our region. At the federal level, he has worked with the U.S. Environmental Protection Agency, U.S. Corps of Engineers, U.S. Department of Agriculture, and the U.S. Department of Housing & Urban Development.

Joshua has a B.S. in Information Systems Management and holds a California State Hydro Power System Operator certification. He worked as a Hydro System Operator from 2003-2009 for Pacific Gas & Electric (PG&E) operating the Bear, South Yuba, and the American Middle Fork river systems; he is currently a Lead System Operator for PG&E's electric transmission system. Joshua is also a member of the Placer County Historical Society and Colfax Lions Club. Joshua lives in Colfax.

Judy Friedman
Director, Tahoe City Public Utility District
Candidate for Placer County LAFCO Special District Alternate Seat

Judy Friedman has been a full-time resident of Tahoe City, located in the unincorporated area of Placer County, for over 50 years.

Friedman was elected to the Tahoe City Public Utility District (TCPUD) Board of Directors in 2008 and is currently serving her 4th publicly elected term. In addition to serving as a director for TCPUD, Friedman has served a variety of community organizations over the years, both as a volunteer and Board member. She is currently the President of Sierra Senior Services and is a small-business owner. Friedman has experience in both the public and private sectors and appreciates the fiduciary responsibility that comes with the office she seeks.

In her role as a public servant, Friedman makes decisions based on sound financial principles and respect for the needs and concerns of residents and the business community.

There has been tremendous growth in Placer County. LAFCO is charged with helping identify ways to organize, simplify, and streamline government and make sure that services are provided efficiently and economically. That requires thoughtful and creative solutions and well-informed decision makers.

Tahoe City was a small town in the '70s. The issues were modest, and the quality of life was hard to beat. As Placer County continues to grow, Friedman believes we need to work hard to balance quality of life while meeting growing service challenges. Friedman is fully committed to serving the citizens of Placer County in this effort, in a collaborative and transparent manner.

Judy Friedman is asking for your support to serve as Special District Alternate Commissioner and appreciates the trust that comes with your vote.

PETER GILBERT

peter-gilbert@sbcglobal.net

Current Chair, Lincoln Planning Commission

Former Councilman/Mayor. City of Lincoln

Former Councilman/Mayor. City of Foster City

Current Board Member, Placer County Mosquito & Vector Control District

Former President/Treasurer, Lincoln Hills Comm. Assoc.

Current member Lincoln Hills Foundation, Board of Directors

Former member Placer County Grand Jury

Former President – League of California Cities Peninsula Division

33 Cities in San Francisco, San Mateo and Santa Clara Counties

Former Chair, San Mateo County Criminal Justice Council

San Francisco State University – Speech Major -Radio/TV

U S Army Intelligence Corp. Sgt., E-6 Honorable Discharge

San Mateo County Safety Man of the Year for efforts funding a major highway project. (92/101 highway interchange)

Executive management experience. I have managed groups as large as 5,000 employees.

Statement of Qualifications for Election to Placer LAFCO

Richard Hercules, President, Foresthill Fire Protection District

The Opportunity for Placer County

It is certain that the special districts within Placer County will have new challenges in their opportunities and manner in which they provide unique services to the public. These serviced communities need to be bound together to develop organizational solutions for the County. These may be that is different than what exists, but again, to the benefit of the public. New state laws will also affect those districts, governments, and their purposes.

Placer County has been affected by the increased rate of development in most all areas. Special districts will be affected, but are largely managed by elected volunteers and staff that focus on the operations of that district. It is apparent that there are separations between the larger urban districts and the more remote districts, but some effort is expected to better align these groups for the issues of the County. LAFCO, with staff and support from Placer County officials, the special district volunteers and local city officials, can evaluate impacts of growth and development on these districts and urban communities and effect change. Appropriately, citizens of Placer County have expectations of services at many levels, particularly those funded by property taxes and assessment measures.

My Background

Much of my career in private industry was the development, operation of new businesses and organizations to deliver a service or product to a wide range of users. In almost all cases, my skills in these efforts required knowledge in long term planning, policy development, defined organizational structure, and legislative and financial management. Accordingly, conflict resolution and the need to manage negotiations for those opportunities is part of that environment. Further, my experience in mergers and acquisitions has broadened my perspectives in finding solutions beneficial to those parties involved, however disparate.

I have many strengths to work and balance improvements of these services through separation, consolidations or restructuring. While these activities are within the purview of LAFCO, I would apply the reality of the needs of the County and its citizens. In the last 5 years of my work with the Foresthill Fire Protection District board, I can offer that the district is better managed in this period than some of its previous history, and with better engagement and appreciation by the community it serves. This is the type of energy and commitment I would apply to this appointment. I look forward to discuss and understand the particular issues your district is experiencing. I can be reached through the Fire District web site or by telephone.

**STATEMENT OF QUALIFICATIONS
PLACER LOCAL AGENCY FORMATION COMMISSION
WILLIAM KAHRL**

My name is Bill Kahrl. For the last 24 years, my wife Kathleen and I have been working together with local community leaders, business owners, elected officials, friends and neighbors to protect and, where possible, to enhance the quality of life we all enjoy in Placer County.

In that connection, I am just beginning my fourth term as President of the Newcastle Fire Protection District. We've accomplished a lot. In 2023, we opened the new fire station in Newcastle that had been delayed for more than ten years. And we're enjoying considerable success with the Joint Operating Agreement we negotiated with the Penryn and Placer Hills Fire Protection Districts. As a result, we have been able to reduce the administrative costs for all three districts while at the same time improving service, reducing response times, while enhancing overall fire safety throughout central Placer.

It's not just the taxpayers who benefit. These improvements mean more opportunities for training and advancement for our firefighters and a better chance that all the communities we serve will be able to meet the increasing demands of the future.

I believe that closer cooperation, practical coordination, and innovative efficiency are essential to ensure that all our special districts will be able to continue delivering the quality of service the public has come to expect. The Placer LAFCO can be the key to making that happen. But it will require leadership. And it will require better communications among the special districts represented on the commission.

I have a long and detailed familiarity with how the LAFCO process works – and where it can sometimes fall short. In my professional life in government and business, I have worked for Democrats and Republican leaders, held key positions on the staff of the Governor and the Speaker of the Assembly, and advised several of California's major corporations as well as its largest water districts and forestry companies. As a journalist, award-winning editor and author, I've been able to focus on several of the state's major natural resource issues. Some of my proudest accomplishments in this area include the creation of the California Wild and Scenic River System, the acquisition of Point Reyes National Seashore, the preservation of Headwaters National Forest, and initiating the creation of the conservation easement that now protects more than 80,000 acres of pristine coastal lands around Hearst Castle.

The point is, I know how to get things done. And, with respect, I would like to ask for your support so that I can continue working on behalf of all our special districts on Placer LAFCO. If you have any questions or would like to discuss the issues your district is facing, please do not hesitate to call me at 916-663-0785.

William Kahrl, President
Newcastle Fire Protection District
Board of Directors

Luke Thomas Ragan
P.O. Box 1793
Tahoe City, CA 96145
530.308.5098
ragan@ntfire.net

My name is Luke Thomas Ragan. My family is fifth generation Tahoe City. I currently serve on the North Tahoe Fire Protection District Board. I have been the Vice President on that Board for the past four years and have served on the Board since 2016. I also serve on the Boards for North Tahoe Little League and the Tahoe City Recreation Association. I am currently the President of Pacific Built, Inc. and sole owner of Ragan Snow Removal in Tahoe City. I graduated from North Tahoe High School and am currently the head junior varsity football coach and work with the varsity team as well.

I am interested in this position to make a difference and protect the interests in Placer County. I appreciate your consideration to be nominated for a seat on the Placer County LAFCO Board.

Please feel free to contact me if you have any questions.

STATEMENT OF NOMINEE FOR
INDEPENDENT SPECIAL DISTRICT SELECTION COMMITTEE

Name: Teresa R Ryland, CPA, CFE

Special District: South Placer Fire Protection District

I am excited with this opportunity to serve the County on the LAFCO. This committee work would capitalize on my extensive experience in serving government agencies in Placer and allow for future decisions and conversations that benefit all residents of the County.

I have lived in South Placer for 34 years and am proud to have served as a South Placer Fire Protection District Director for over a decade. Through strategic planning, careful budgeting, and efficient operating practices we have been able to maximize our funding, thereby continuing to provide top notch service. I am committed to working with all agencies in the County to assure our strong, continued operation in support of our community and the entire County.

Professionally, I have spent 37 years working with and for California public agencies in planning, finance and facilities arenas, including the last 20 as a local, small business owner in Placer County. My business has involved working with most of the school districts in the County, several cities, the County of Placer, PCWA and of course fire districts.

I served on the fire board as we worked with Loomis Fire on an administrative and support MOU, then through the actual consolidation of the two districts. I am currently working with two other counties' LAFCOs (school district version) – Los Angeles and Sacramento county - as we work through potential school district unification projects.

It would be an honor to represent SPFD on the Placer County LAFCO.



TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: V-1
Subject: Department Reports

Background

Department reports for previous and current month(s).

Fiscal Impact

None.


Attachments

1. Operations Department Report.
2. Maintenance Department Report.
3. Technical Services Department Report.
4. Administrative Department Report.

Recommendation

No action is required.

Review Tracking

Submitted By: 
Richard Pallante
General Manager



TAHOE-TRUCKEE SANITATION AGENCY OPERATIONS DEPARTMENT REPORT

Date: March 20, 2024
To: Board of Directors
From: Michael Peak, Operation Department Manager
Subject: Operations Department Report

◆ **Compliance:**

- All plant waste discharge requirements were met for the month.
- For the month, three well static water levels were missed for the Monitoring and Reporting Program (MRP). Non-compliance with the MRP has been reported to the Lahontan Regional Water Quality Control Board.

◆ **Operations Update:**

- The plant performed well throughout the month.
- Received response requesting more information from the Lahontan water board pertaining to WDR revision.
- Snow removal and clean-up from winter blizzard.

◆ **Work Orders:**

- Completed this month: 1
- Pending: 5

◆ **Plant Data:**

Influent Flow Description	MG
Monthly average daily ⁽¹⁾	3.63
Monthly maximum instantaneous ⁽¹⁾	7.99
Maximum 7-day average	4.40

<i>Effluent Limitation Description</i> ⁽²⁾	<i>WDR Monthly Average</i>		<i>WDR Daily Maximum</i>	
	<i>Recorded</i>	<i>Limit</i>	<i>Recorded</i>	<i>Limit</i>
<i>Suspended Solids (mg/l)</i>	1.3	10.0	2.5	20.0
<i>Turbidity (NTU)</i>	NA	NA	1.6	10.0
<i>Total Phosphorus (mg/l)</i>	0.25	0.80	0.40	1.50
<i>Chemical Oxygen Demand (mg/l)</i>	38	45	45	60

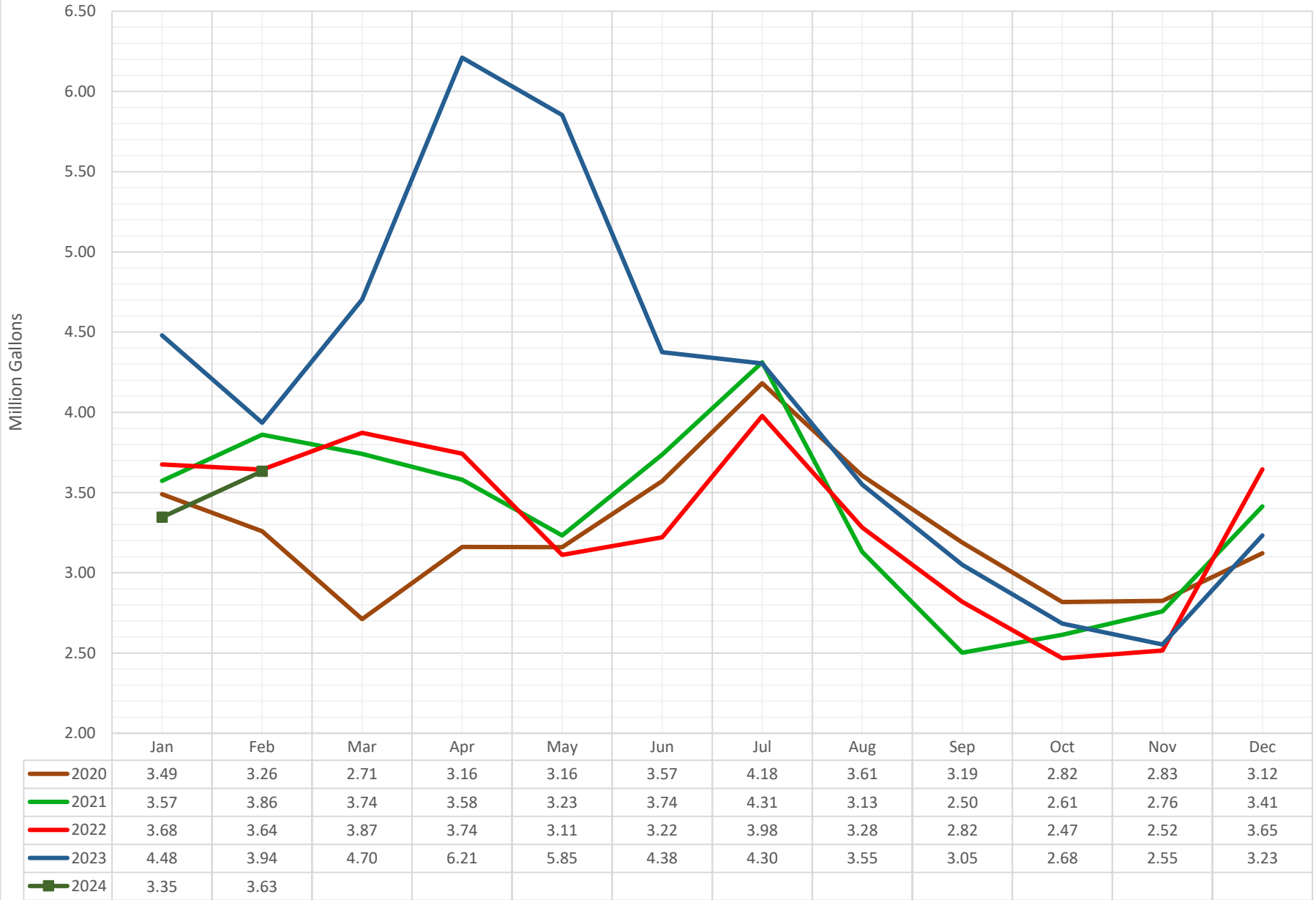
Notes: 1. Flows are depicted in the attached graph.
 2. Effluent table data per WDR reportable frequency.
 The attached graphs depict all recorded data.

Review Tracking:

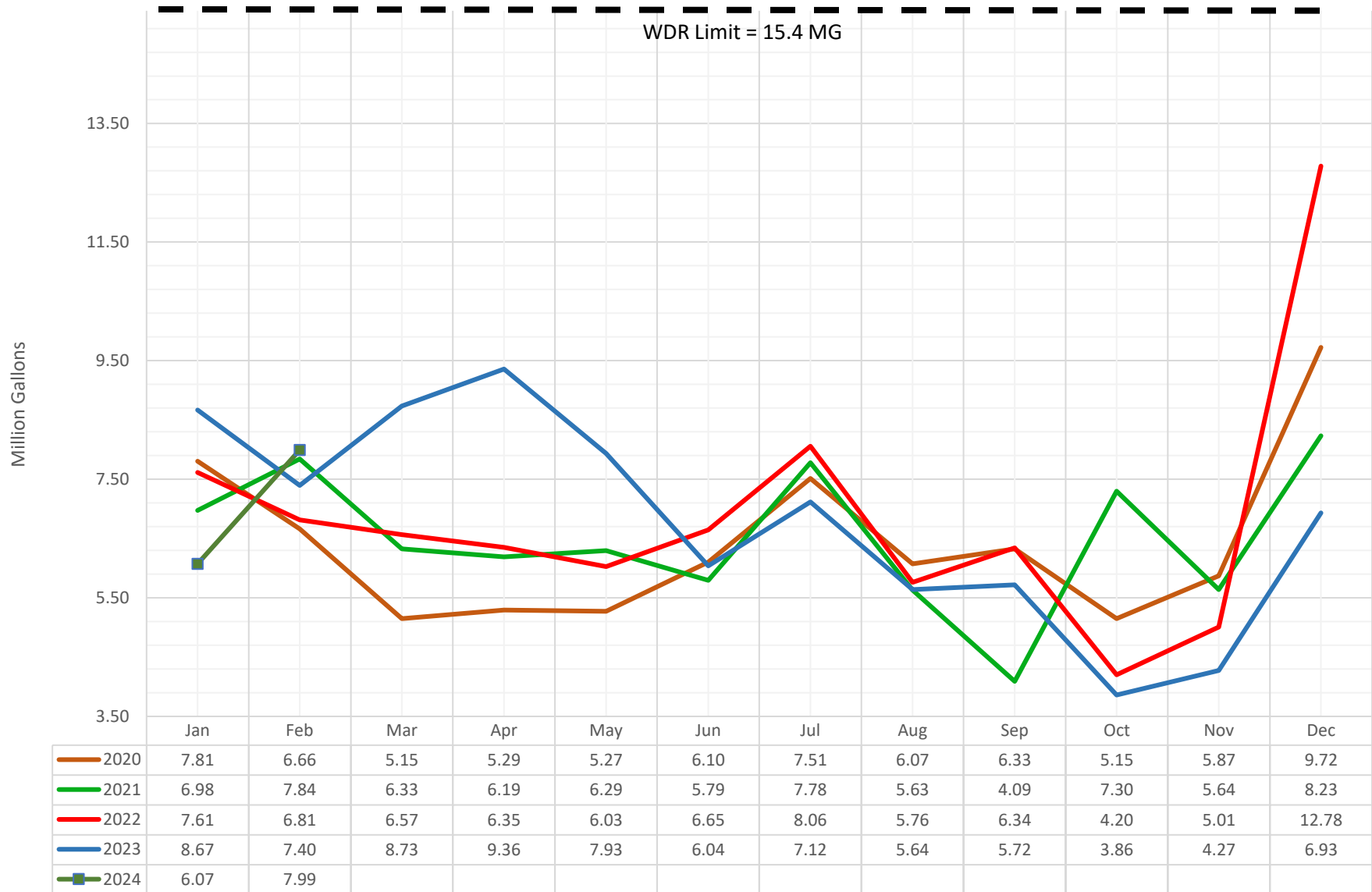
Submitted By: Michael Peak
 Michael Peak
 Operation Manager

Approved By: Richard Pallante
 Richard Pallante
 General Manager

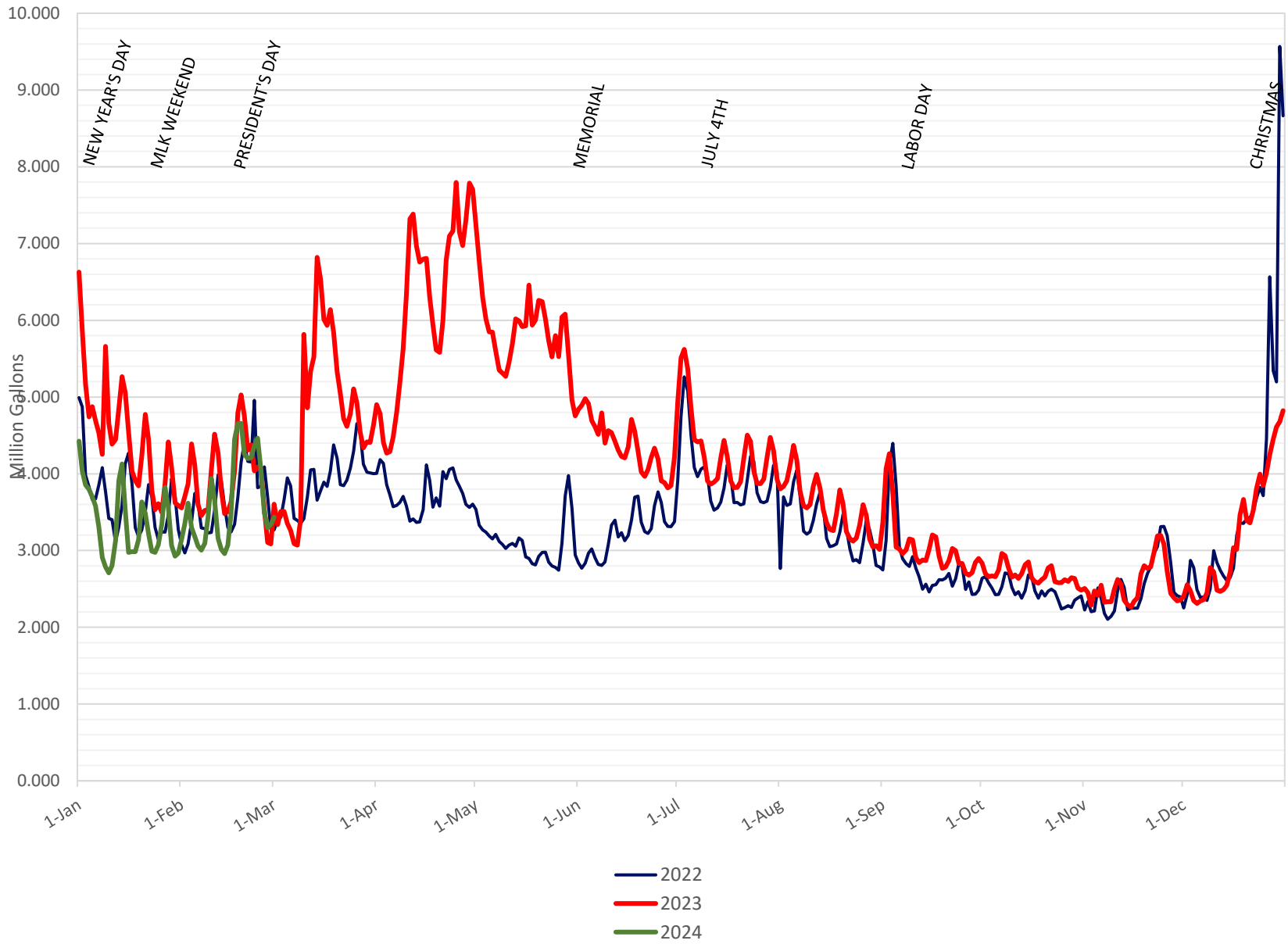
Monthly Average Daily Flow (Influent)



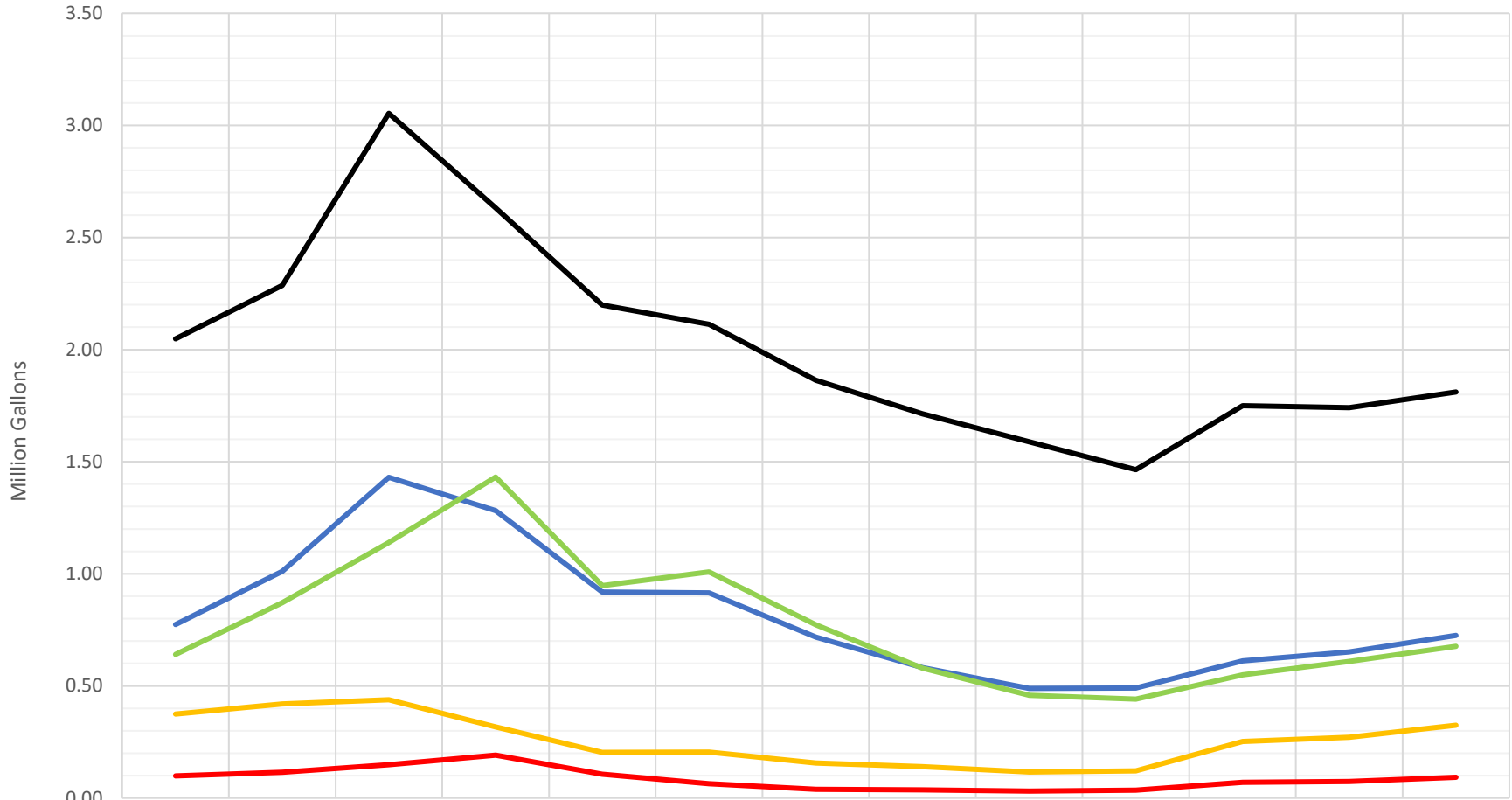
Monthly Maximum Instantaneous Flow (Influent)



T-TSA Daily Influent Flow

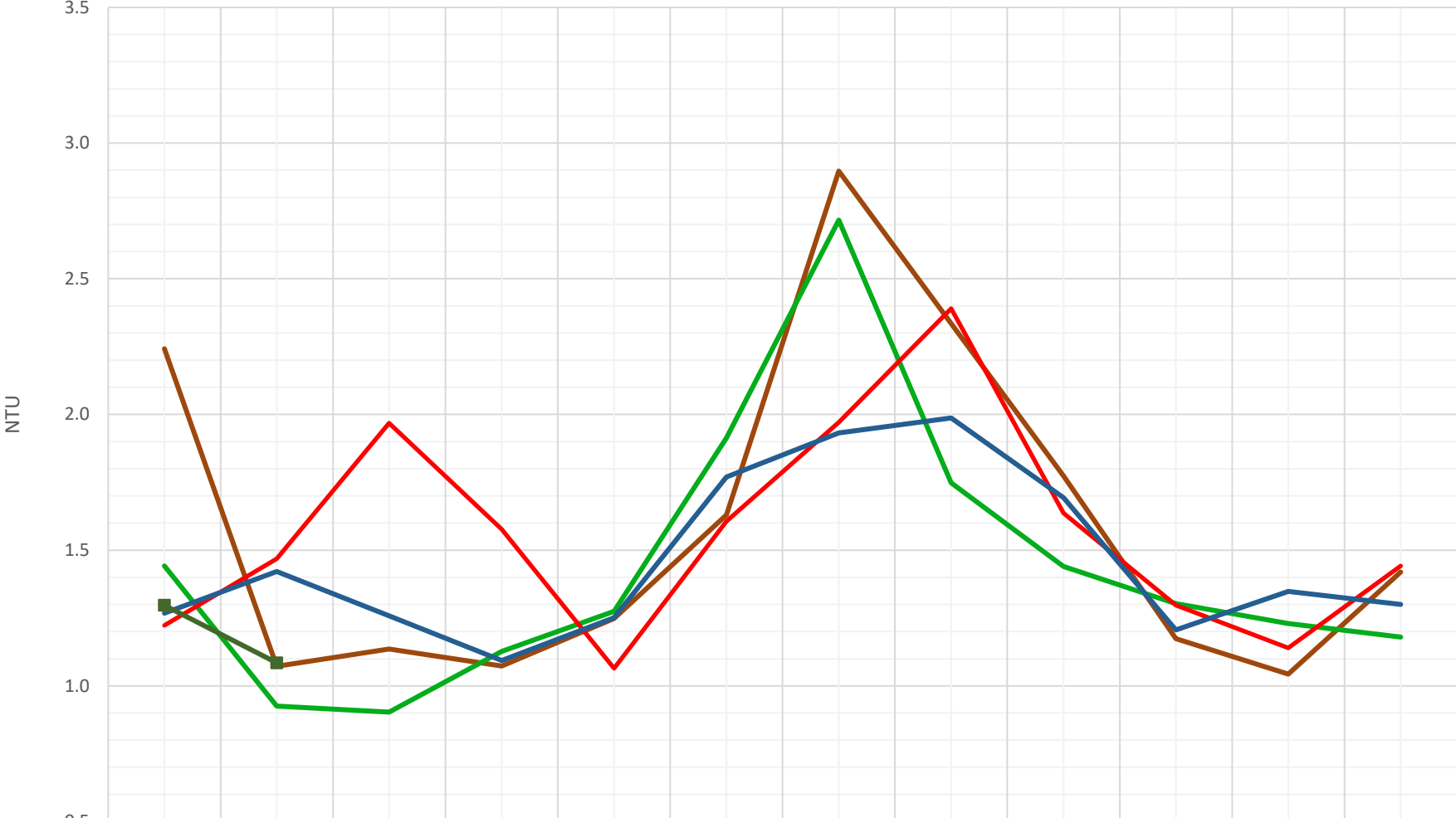


Monthly Average Daily Flow (Districts)



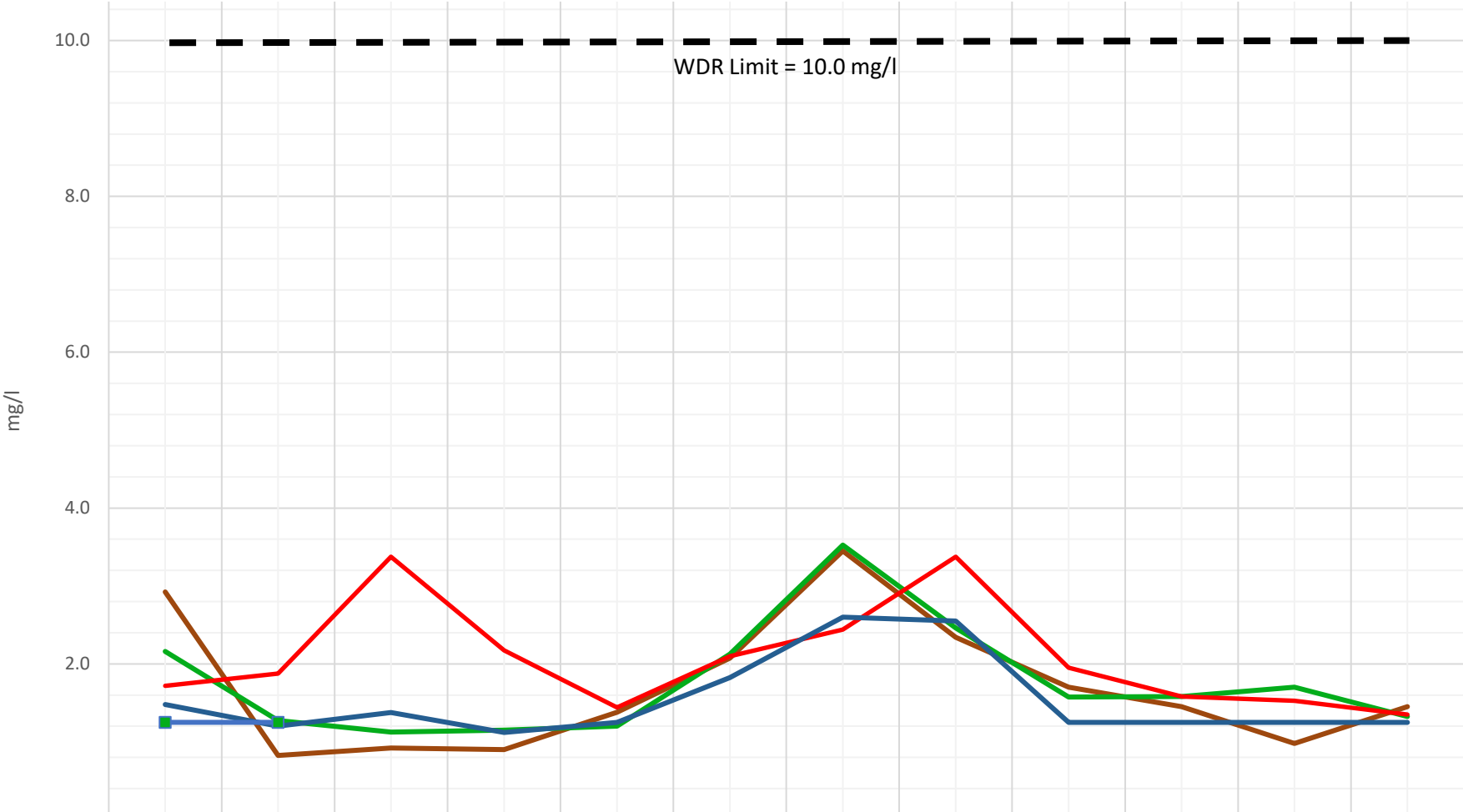
	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24
NTPUD	0.77	1.01	1.43	1.28	0.92	0.91	0.72	0.58	0.49	0.49	0.61	0.65	0.73
TCPUD	0.64	0.87	1.14	1.43	0.95	1.01	0.77	0.58	0.46	0.44	0.55	0.61	0.68
ASCWD	0.10	0.12	0.15	0.19	0.11	0.06	0.04	0.04	0.03	0.04	0.07	0.07	0.09
OVPSD	0.37	0.42	0.44	0.32	0.20	0.21	0.16	0.14	0.12	0.12	0.25	0.27	0.32
TSD	2.05	2.29	3.05	2.63	2.20	2.11	1.86	1.71	1.59	1.46	1.75	1.74	1.81

Monthly Average Daily Turbidity (Effluent)



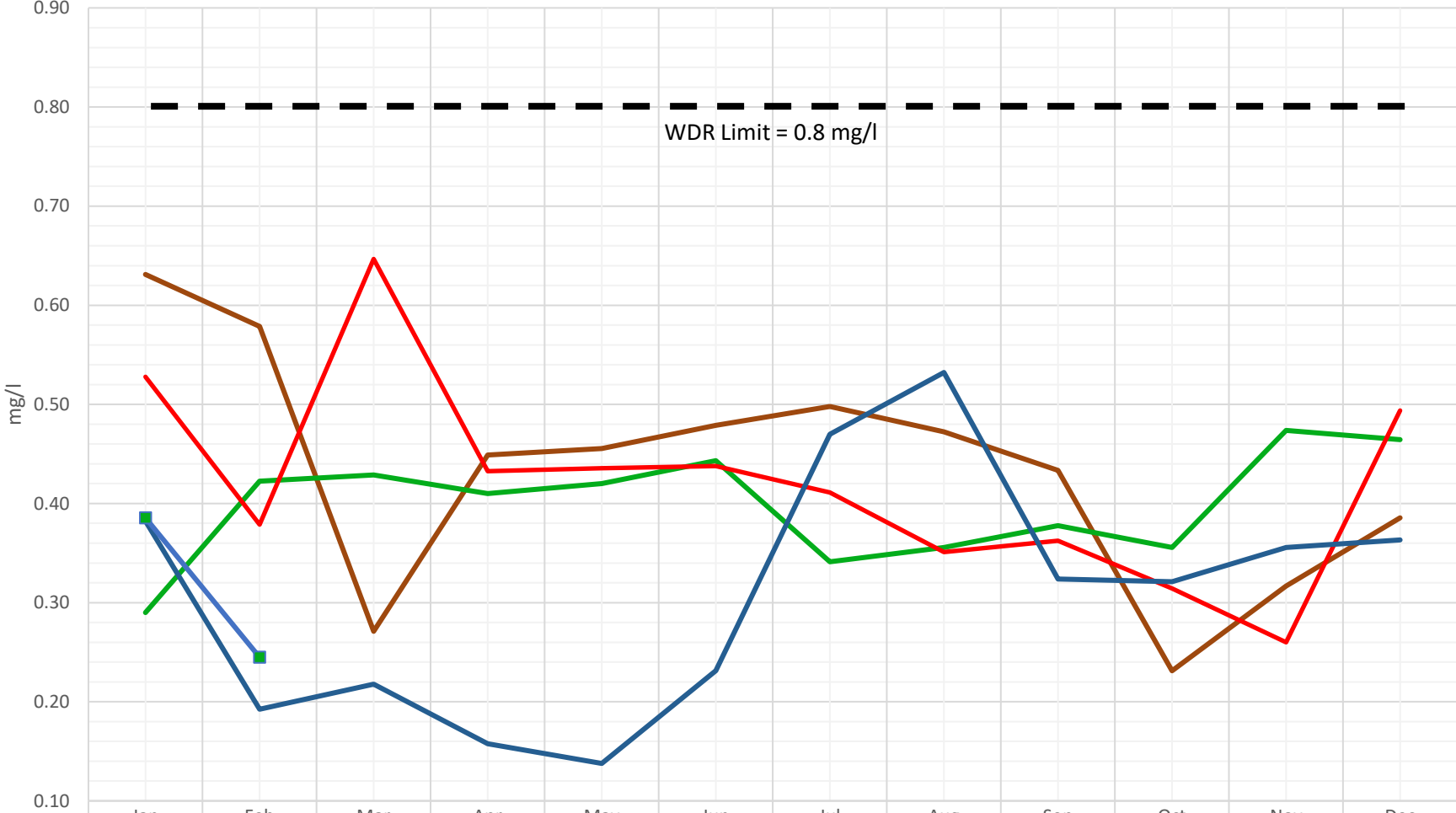
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	2.2	1.1	1.1	1.1	1.2	1.6	2.9	2.3	1.8	1.2	1.0	1.4
2021	1.4	0.9	0.9	1.1	1.3	1.9	2.7	1.7	1.4	1.3	1.2	1.2
2022	1.2	1.5	2.0	1.6	1.1	1.6	2.0	2.4	1.6	1.3	1.1	1.4
2023	1.3	1.4	1.3	1.1	1.3	1.8	1.9	2.0	1.7	1.2	1.3	1.3
2024	1.3	1.1										

Monthly Average Daily Suspended Solids (Effluent)



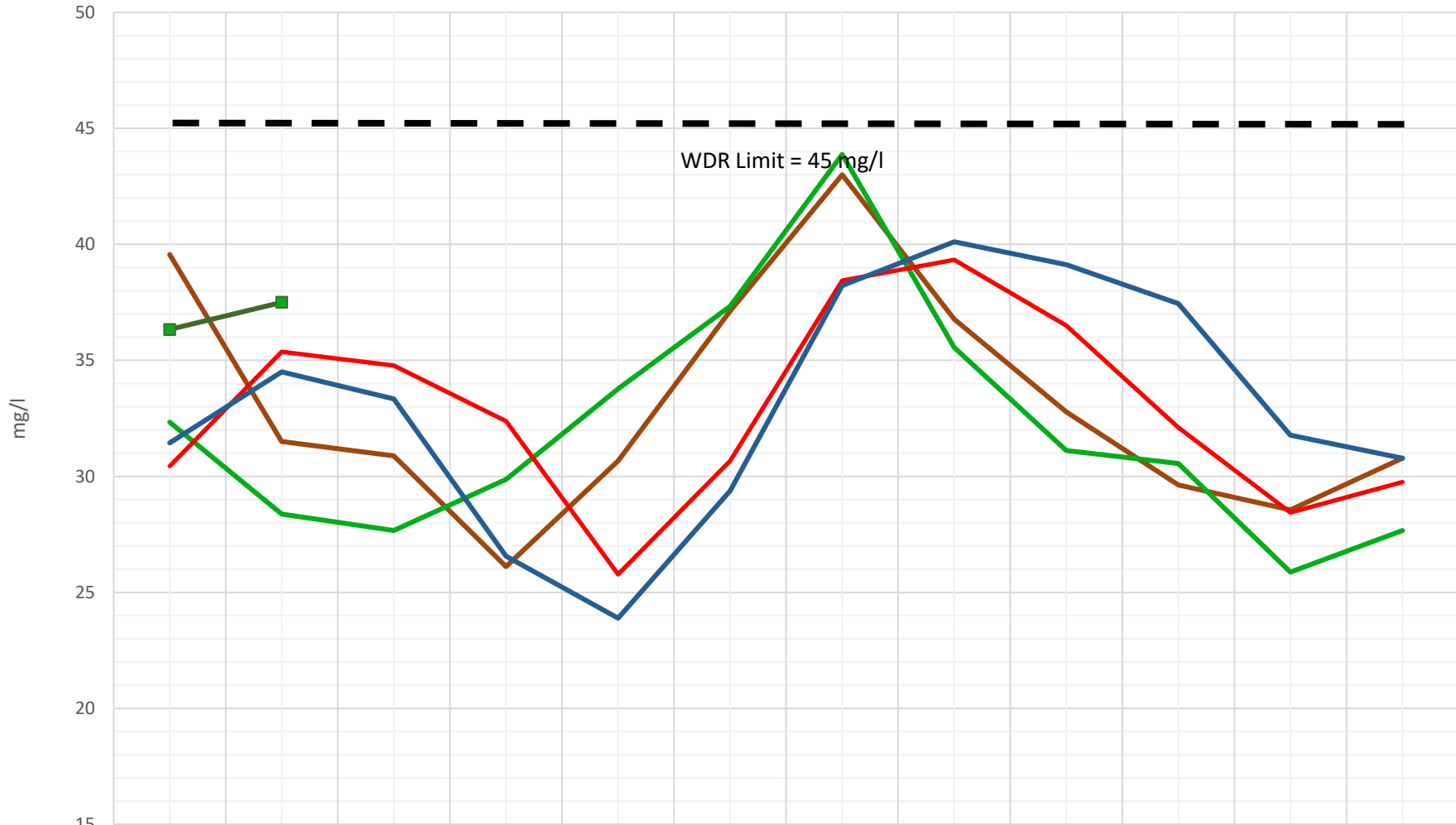
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	2.9	0.8	0.9	0.9	1.4	2.1	3.5	2.3	1.7	1.5	1.0	1.5
2021	2.2	1.3	1.1	1.2	1.2	2.1	3.5	2.5	1.6	1.6	1.7	1.3
2022	1.7	1.9	3.4	2.2	1.4	2.1	2.4	3.4	2.0	1.6	1.5	1.4
2023	1.5	1.2	1.4	1.1	1.3	1.8	2.6	2.6	1.3	1.3	1.3	1.3
2024	1.3	1.3										

Monthly Average Daily Total Phosphorus (Effluent)



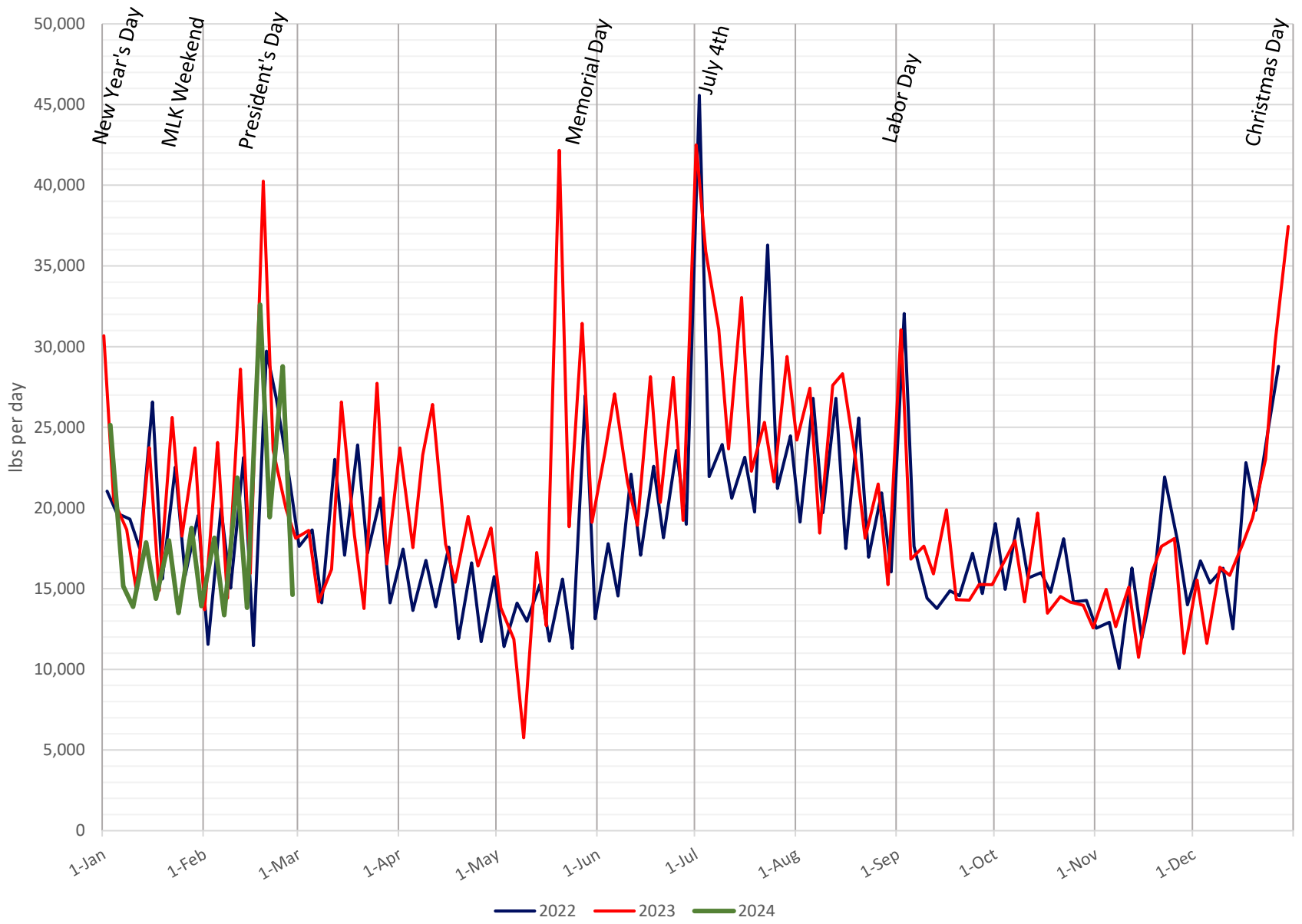
— 2020	0.63	0.58	0.27	0.45	0.46	0.48	0.50	0.47	0.43	0.23	0.32	0.39
— 2021	0.29	0.42	0.43	0.41	0.42	0.44	0.34	0.36	0.38	0.36	0.47	0.46
— 2022	0.53	0.38	0.65	0.43	0.44	0.44	0.41	0.35	0.36	0.31	0.26	0.49
— 2023	0.38	0.19	0.22	0.16	0.14	0.23	0.47	0.53	0.32	0.32	0.36	0.36
—■ 2024	0.39	0.25										

Monthly Average Daily Chemical Oxygen Demand (Effluent)

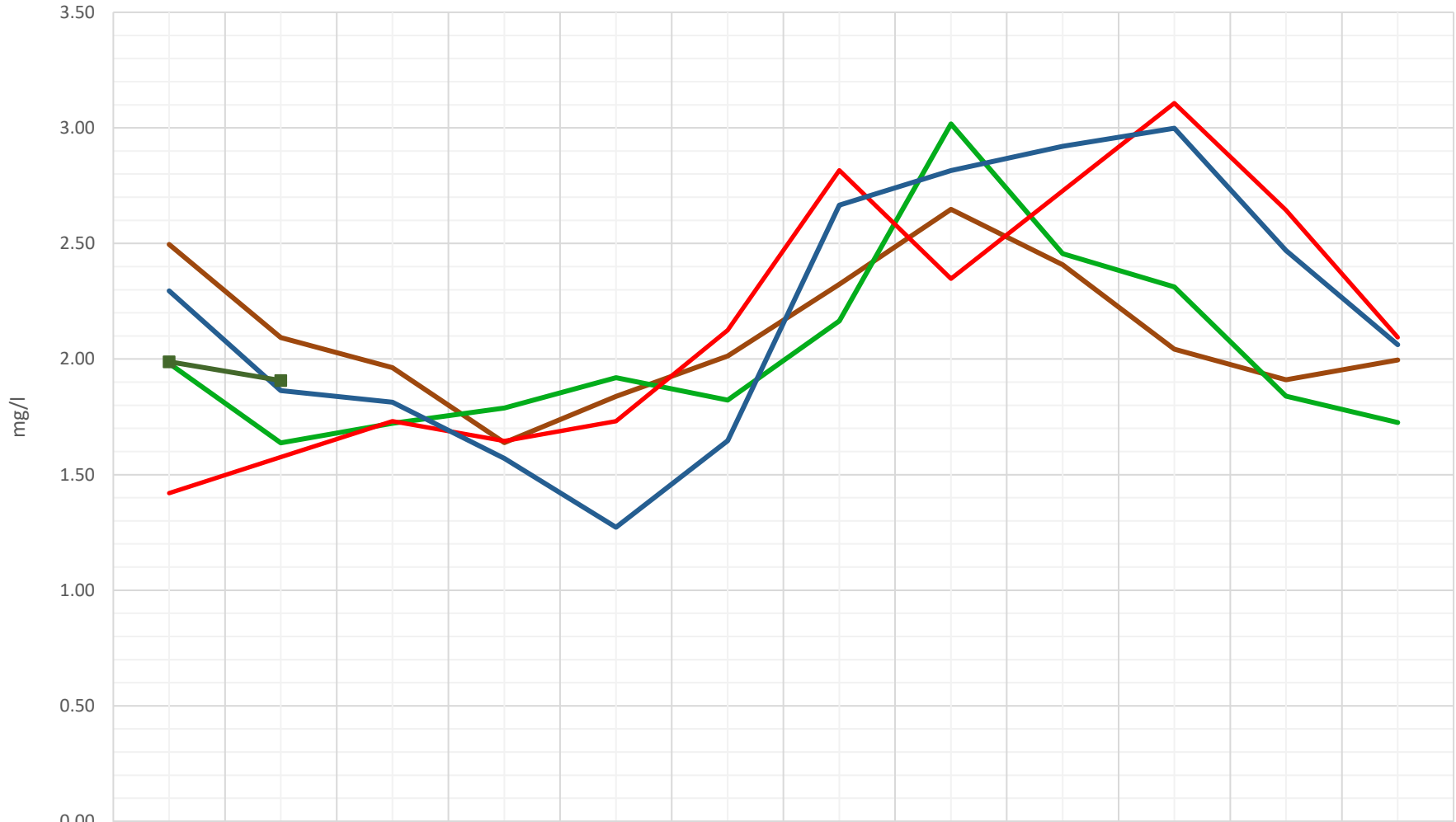


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	40	32	31	26	31	37	43	37	33	30	29	31
2021	32	28	28	30	34	37	44	36	31	31	26	28
2022	30	35	35	32	26	31	38	39	37	32	28	30
2023	31	35	33	27	24	29	38	40	39	37	32	31
2024	36	38										

COD Influent Loading

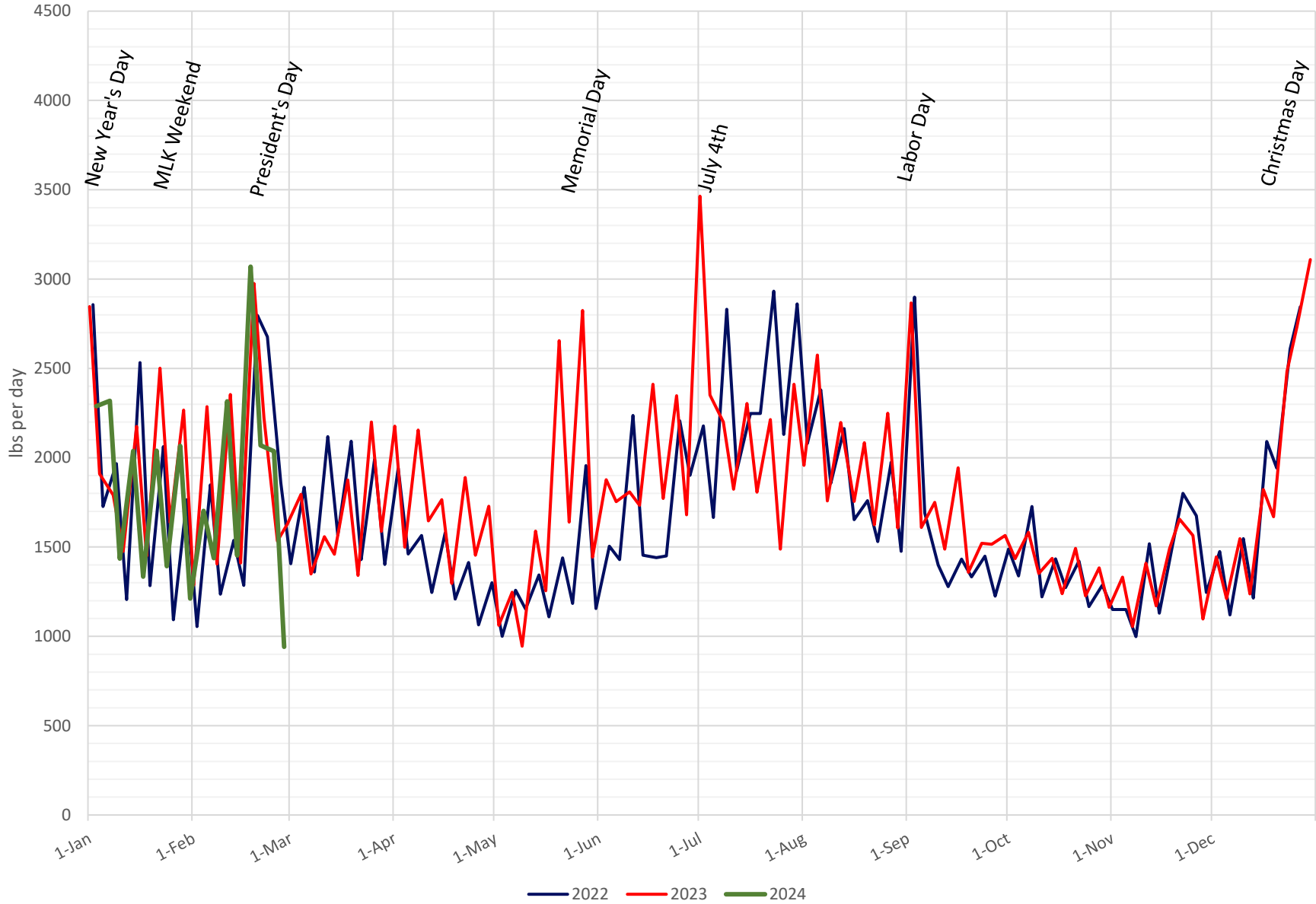


Monthly Average Daily Total Nitrogen (Effluent)

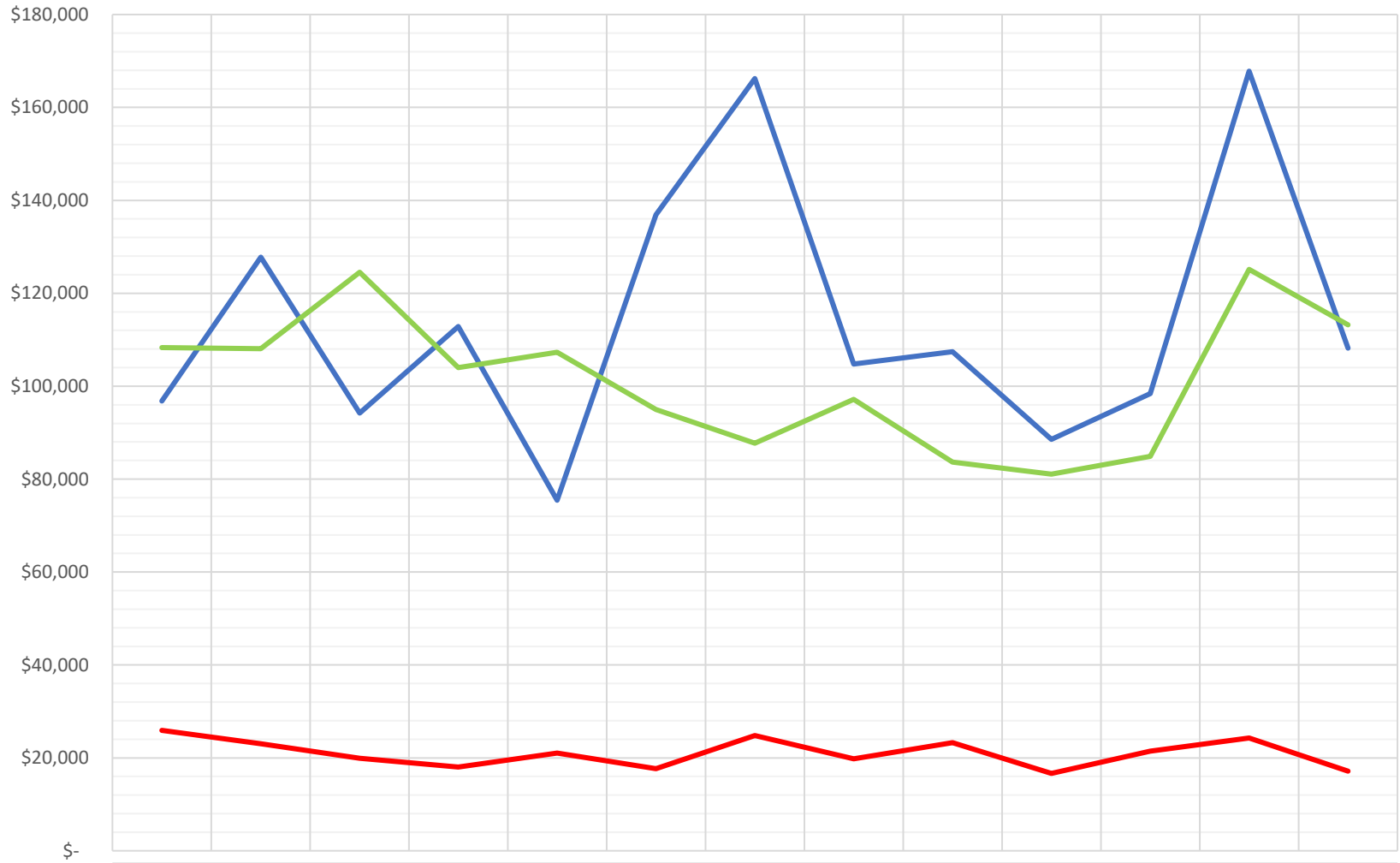


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	2.50	2.09	1.96	1.64	1.84	2.01	2.32	2.65	2.41	2.04	1.91	2.00
2021	1.98	1.64	1.72	1.79	1.92	1.82	2.17	3.02	2.46	2.31	1.84	1.73
2022	1.42	1.58	1.73	1.65	1.73	2.13	2.82	2.35	2.73	3.11	2.64	2.09
2023	2.30	1.86	1.81	1.57	1.27	1.65	2.67	2.82	2.92	3.00	2.47	2.06
2024	1.99	1.91										

TKN Influent Loading



Chemical, Power and Sludge Disposal Costs



	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24
— Chemicals	\$96,819	\$127,789	\$94,188	\$112,871	\$75,453	\$136,937	\$166,243	\$104,787	\$107,401	\$88,547	\$98,377	\$167,809	\$108,216
— Power	\$108,330	\$108,071	\$124,505	\$104,022	\$107,321	\$94,973	\$87,706	\$97,138	\$83,675	\$81,072	\$84,894	\$125,145	\$113,212
— Sludge Disposal	\$25,917	\$23,068	\$19,905	\$18,018	\$21,060	\$17,679	\$24,789	\$19,774	\$23,281	\$16,654	\$21,460	\$24,278	\$17,133



TAHOE-TRUCKEE SANITATION AGENCY MAINTENANCE DEPARTMENT REPORT


Date: March 20, 2024
To: Board of Directors
From: Paul Shouse, Maintenance Manager
Subject: Maintenance Report

- ◆ **Project support:** During the month of February, Maintenance staff provided support for the following projects:
 - Sodium Hypochlorite Project.
 - SCADA/IT Master Plan – Phase 1.
 - Warehouse Inventory Project.
 - Lucity Work Order and PM Implementation.
 - Digestion Improvements Project.

- ◆ **Plant Maintenance activities:** Maintenance staff performed tasks on the following items:
 - Completed TWAS Pump and VFD installation.
 - Replaced O2 Basing Train 6 Probe.
 - Continued plant LED lighting upgrades.
 - Removed and capped old carbon column effluent piping.
 - Repaired rodent damage on two fleet vehicles.
 - Repaired warehouse roof leaks.
 - Began installation of new Primary Scum Pump.
 - Began installation of new Filter Press Feed Pump.
 - Installed replacement 2-Water Pump and rebuilt spare.
 - Programmed HMI to use Final Effluent Mag Meter for all future monitoring.

- ◆ **Work Orders**
 - Completed: Mechanical-76, Fleet-25, Electrical & Instrumentation-30, IT-12.
 - Pending: Mechanical-129, Fleet-63, Electrical & Instrumentation-47, IT-89.

Review Tracking:

Submitted By: 
Paul Shouse
Maintenance Manager

Approved By: 
Richard Pallante
General Manager



In-house Parts Machining



Primary Scum Pump Replacement



Sodium Hypochlorite Project - Electrical and Instrumentation



Filter Press Feed Pump Replacement



Warehouse Inventory Project



Sodium Hypochlorite Electrical Installation



TWAS Pump Replacement



TWAS Pump Installation



TAHOE-TRUCKEE SANITATION AGENCY TECHNICAL SERVICES DEPARTMENT REPORT

Date: March 20, 2024
To: Board of Directors
From: Jason Hays
Subject: Technical Services Department Report

Engineering

◆ **Projects:** In February, Engineering staff continued working on the following projects:

- Sodium Hypochlorite Foundation Project
 - Concrete work completed and accepted
 - Tanks pending delivery in late March
- Digestion Improvements Project
 - Staff recommend awarding RFP to Brown and Caldwell
- TRI Alpine Meadows to Olympic Valley Rehabilitation Project
 - Staff recommend awarding to Brown and Caldwell
- Front Parking & Landscaping Improvements Project
 - In Design
 - Intent to go out for bid on construction in early April 2024

Laboratory

◆ **Laboratory Activities:**

- Lab staff performed research testing related to the methanol reduction study
 - Special thanks to Bill Pindar for setting up and performing the sampling
- Ongoing recruitment for Lab Director
- Missed static water level on three wells
 - Corrective action initiated

◆ **Laboratory Corrective Actions:**

- Completed this month: 0
- Pending: 1

Public Outreach

◆ **Plant Tours:** N/A

◆ **Public Outreach Team**

- Planned participation with TSD and TDPUD for Alder Creek Middle School Presentations
- Developing outreach program for Truckee Donner Recreation and Parks District

Review Tracking:

Submitted By: Jason Hays
Jason Hays
Technical Services Manager

Approved By: Richard Pallante
Richard Pallante
General Manager



TAHOE-TRUCKEE SANITATION AGENCY ADMINISTRATIVE DEPARTMENT REPORT

Date: March 20, 2024
To: Board of Directors
From: Michelle Mackey, Accounting Supervisor
Subject: Administrative Department Report

- ◆ Finance
 - Completed monthly A/P, A/R, payroll, general ledger processes, and bank reconciliation.
 - Attended Finance Committee Meeting on February
 - Prepare for Final Audit
 - Preparing Cash Flow Analysis
- ◆ Billing/Customer Service
 - General assistance with customer accounts, utility demands, adjustments, and plan review.
 - Activated new account permits and prepared letters, reports, and invoices.
 - Continued work on the Connection Fee Study.
 - Two (2) commercial property inspections.
- ◆ Purchasing/Administration
 - General purchasing responsibilities for monthly requisitions, purchase orders, and ordering.
 - General responsibilities to customer service, front gate, and front desk.
- ◆ General Administration
 - Performed various administrative duties to assist the General Manager and Board of Directors.
 - Final audit planning and preparation.

Review Tracking

Submitted By: Michelle Mackey
Michelle Mackey
Accounting Supervisor

Approved By: Richard Pallante
Richard Pallante
General Manager

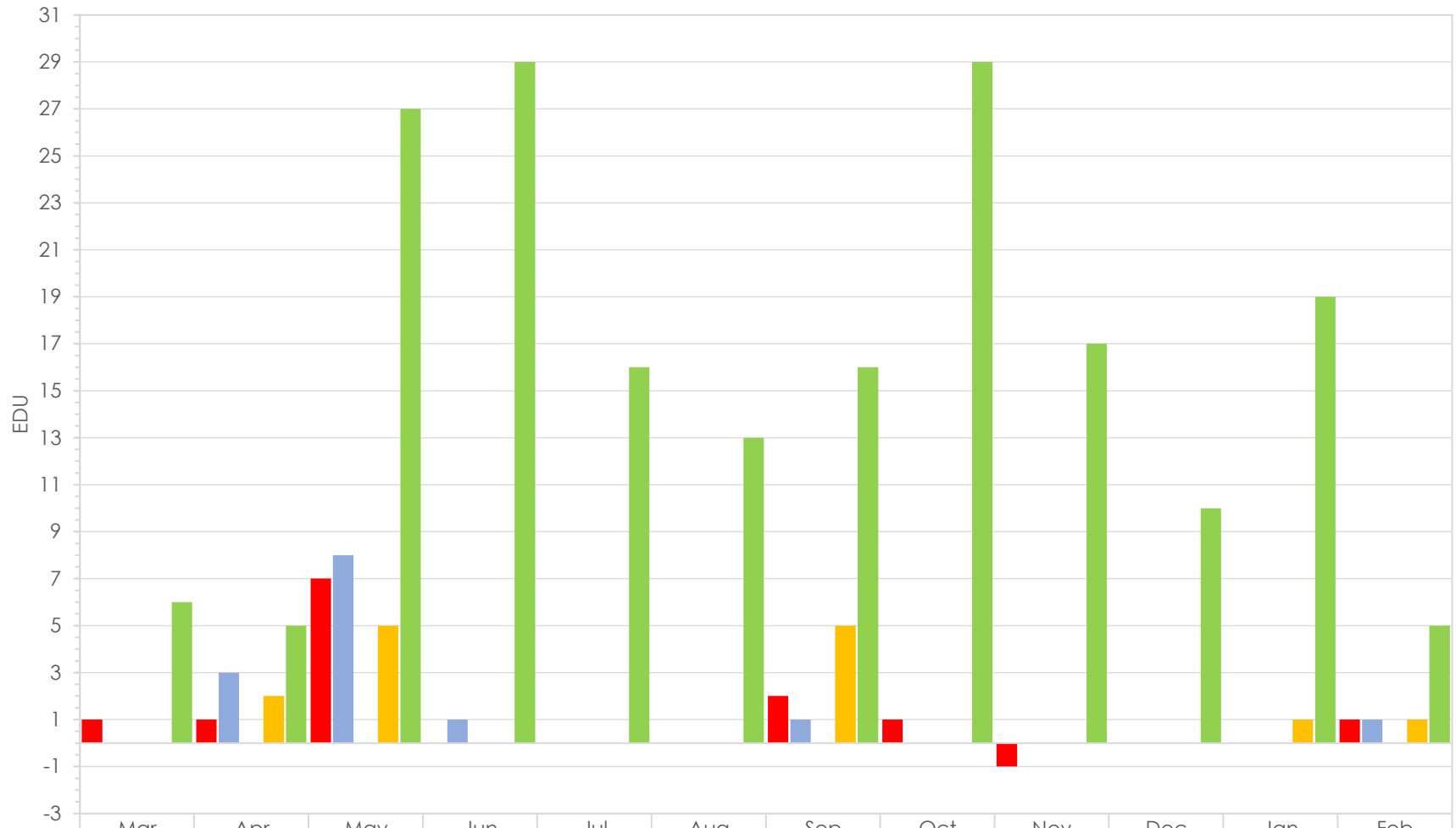
CONNECTION FEES - FEBRUARY 2024

Connection Fee Type	MTD Count (#)	MTD Total Ft ²	MTD Total \$	YTD Count (#)	YTD Total Ft ²	YTD Total \$
Residential	2	6,688	\$ 14,704.00	2	6,688	\$ 14,704.00
Residential Ft ² Additions	3	5,313	\$ 9,297.75	3	5,313	\$ 9,297.75
Residential Ft ² Additions - Exempt	0	0	N/A	0	0	N/A
Accessory Dwelling Unit (ADU)	0	0	\$ -	0	0	\$ -
Accessory Dwelling Unit (ADU) - Exempt	0	0	N/A	0	0	N/A
Commercial	0	N/A	\$ -	0	N/A	\$ -
Industrial	0	N/A	\$ -	0	N/A	\$ -
Grand Total	5	12,001	\$ 24,001.75	5	12,001	\$ 24,001.75

INSPECTIONS - FEBRUARY 2024

Inspection Type	MTD Count #	MTD Total	YTD Count #	YTD Total
Commercial	2	2	4	4
Residential (Drive-by of Suspended Accounts)	0		0	

Residential EDU Summary

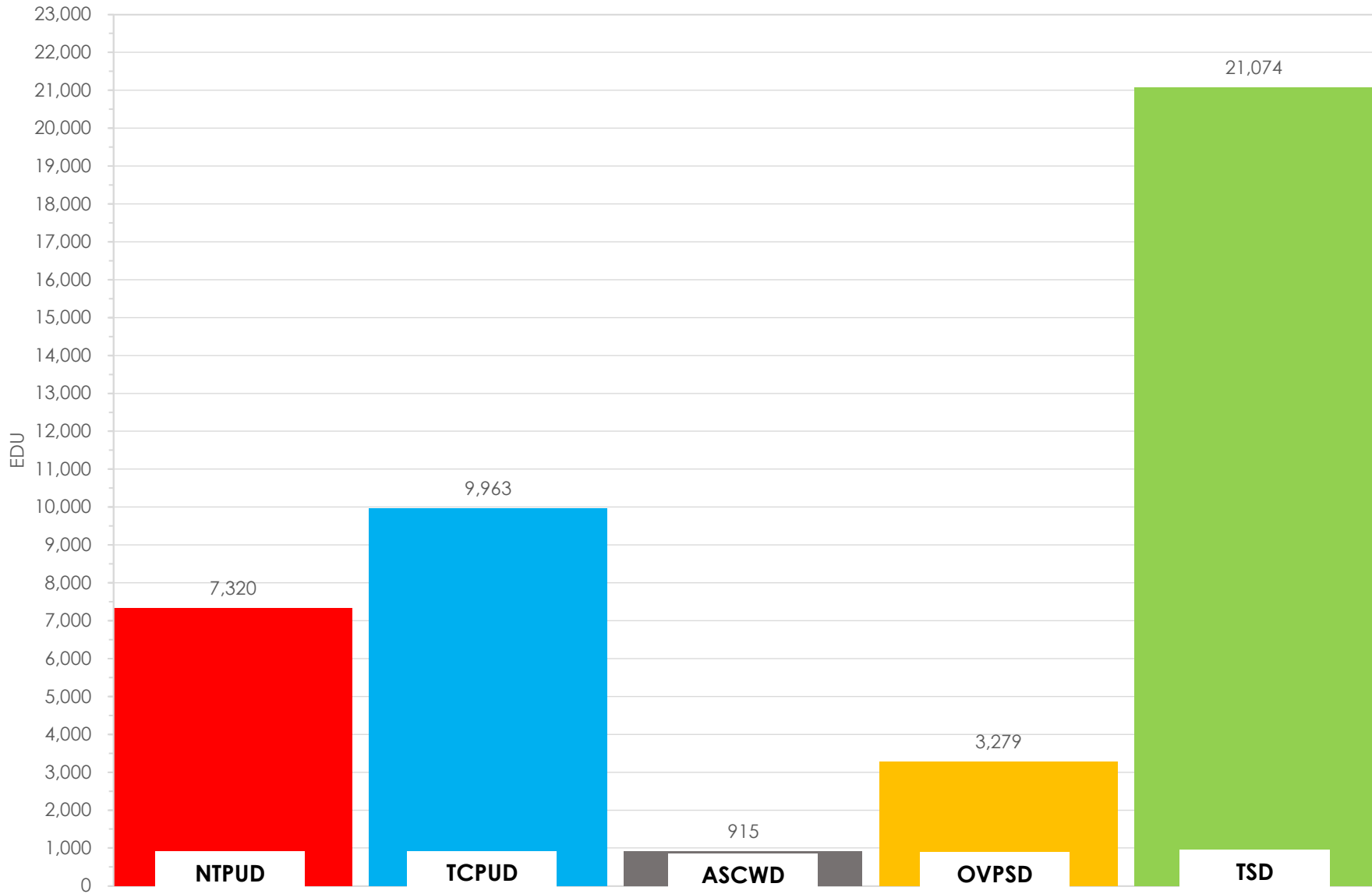


	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
■ NTPUD	1	1	7	0	0	0	2	1	(1)	0	0	1
■ TCPUD	0	3	8	1	0	0	1	0	0	0	0	1
■ ASCWD	0	0	0	0	0	0	0	0	0	0	0	0
■ OVSPD	0	2	5	0	0	0	5	0	0	0	1	1
■ TSD	6	5	27	29	16	13	16	29	17	10	19	5

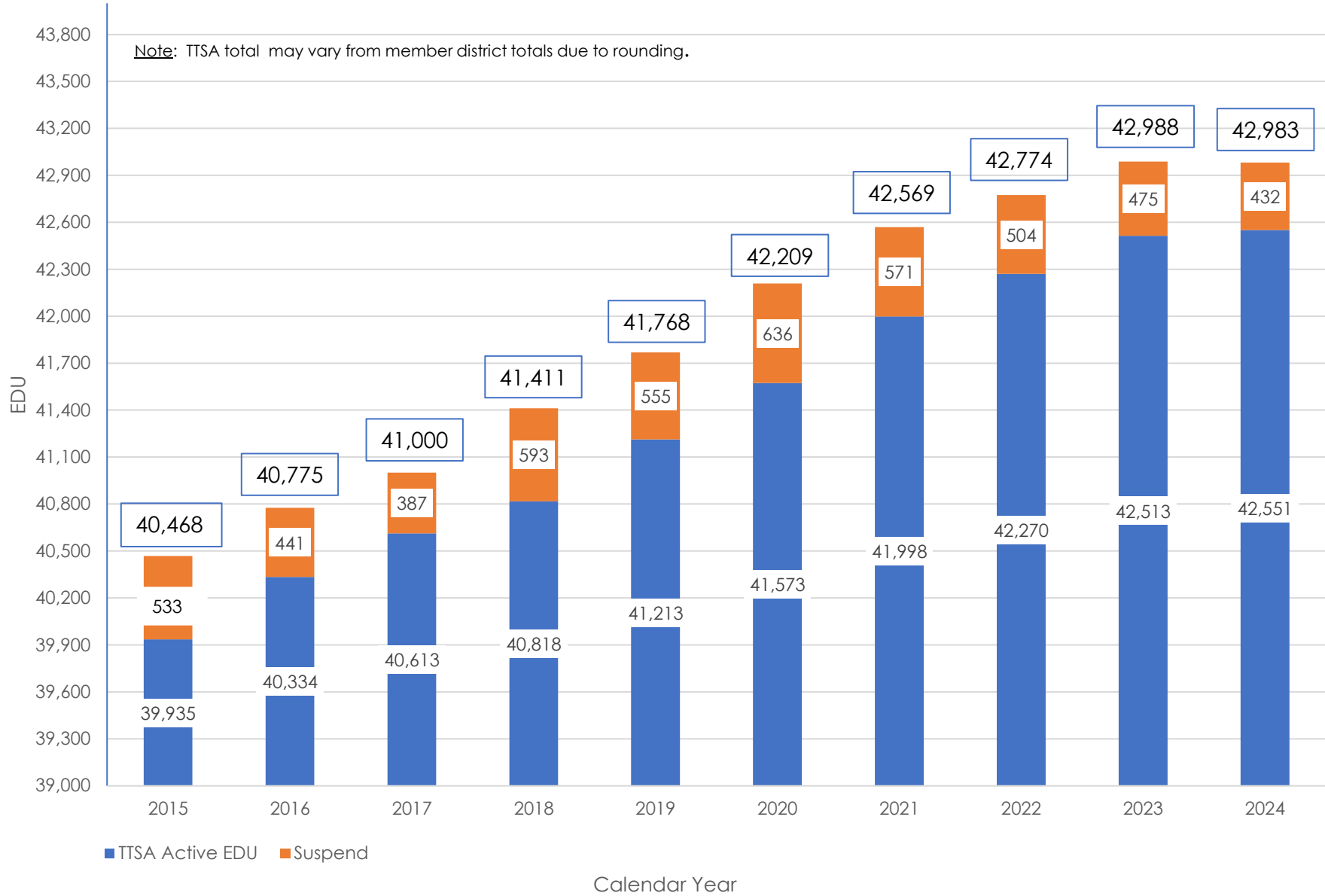
Other EDU Summary



Current EDU Summary By Member District



Historical TTSA EDU Summary





TAHOE-TRUCKEE SANITATION AGENCY

GENERAL MANAGER REPORT

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: V-2
Subject: General Manager Report.

◆ Highlights From Previous Month

- Agency Consultant worked on leadership development with Agency Managers, Supervisors, and Interested Staff.
- Agency Consultant continued recruitment for a Finance and Administration Manager.
- Financial Consultant Lizz Cook continued working with Administrative staff to oversee and assist in a Management Capacity.
- The Financial Consultant worked with staff on cash flow analysis to finalize staff recommendations for the Connection Fee Study.
- S&P to update Bond Rating Renewal, which returned as AA Rating.
- Staff discussing recycle flow pilot project to lower Methanol use and evaluate loading reduction to BNR.
- Management and staff continue in-depth discussions on Master Plan projects and the implementation direction.
- Continued Land exchange discussions with Tahoe Truckee Airport District and identified a path forward to address parcel leases.
- Hosted February TTSA Area Managers Meeting.
- Attended the Truckee River Revitalization Steering Committee Meeting.
- Staff held a Community Involvement Team Planning Meeting.
- HR scheduled and held Interviews for Operators and E&I Technicians.
- Staff celebrated all February birthdays.
- A Staff PPE Safety Training and meeting was held on 2/13 to provide an update on the Class & Comp study.
- There is no update from the Nevada County DA regarding restitution in regards to Butterfield Fire Costs.

◆ Upcoming Items Of Interest

- Budget kickoff.
- March Interviews for Operator & Laboratory Director.
- Board Clerk working on 2023 Form 700s due April 2nd.

Review Tracking

Submitted By: 

Richard Pallante
General Manager



TAHOE-TRUCKEE SANITATION AGENCY

MEMORANDUM

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: VI
Subject: Board of Director Comment

Background

Opportunity for directors to ask questions for clarification, make brief announcements and reports, provide information to staff, request staff to report back on a matter, or direct staff to place a matter on a subsequent agenda.



**TAHOE-TRUCKEE SANITATION AGENCY
MEMORANDUM**

Date: March 20, 2024
To: Board of Directors
From: Richard Pallante, General Manager
Item: VII
Subject: Adjournment
